Update on E-projects

2015 Michigan County Engineer's Workshop

February 4, 2015

Little River Resort

Manistee, Michigan

What is on the horizon?

- *LAP Contract Design Pilot*
- *e-Construction*
- *Mobile Inspector*
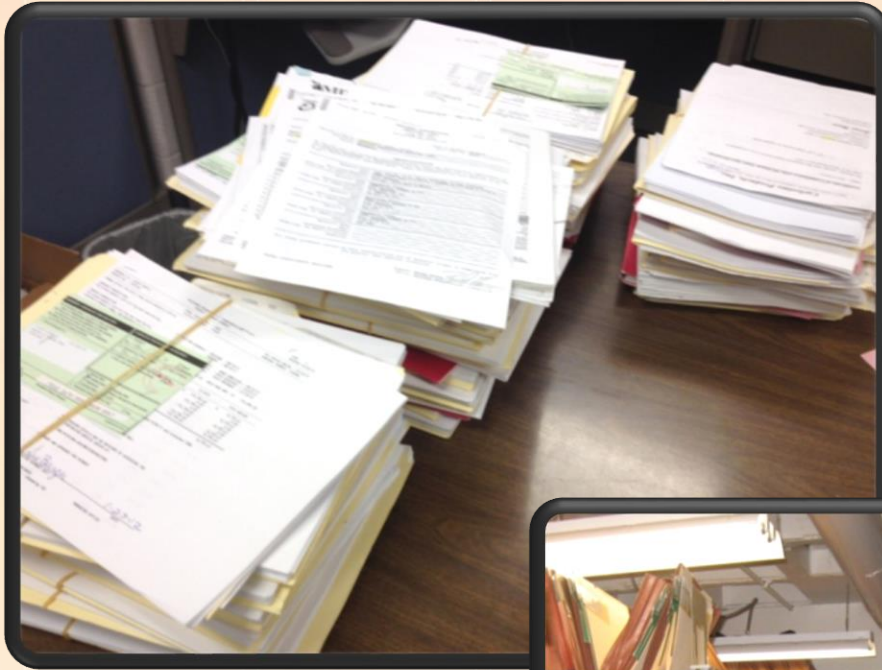- *AASHTO Rebranding*
- *Replacement of AASHTO products at MDOT*

- *Paperless design pilot*
- *Local agency pilot to begin this summer*
- *MDOT's Scott Greene and Larry Doyle are looking for volunteer agencies*

Paperless Project Management
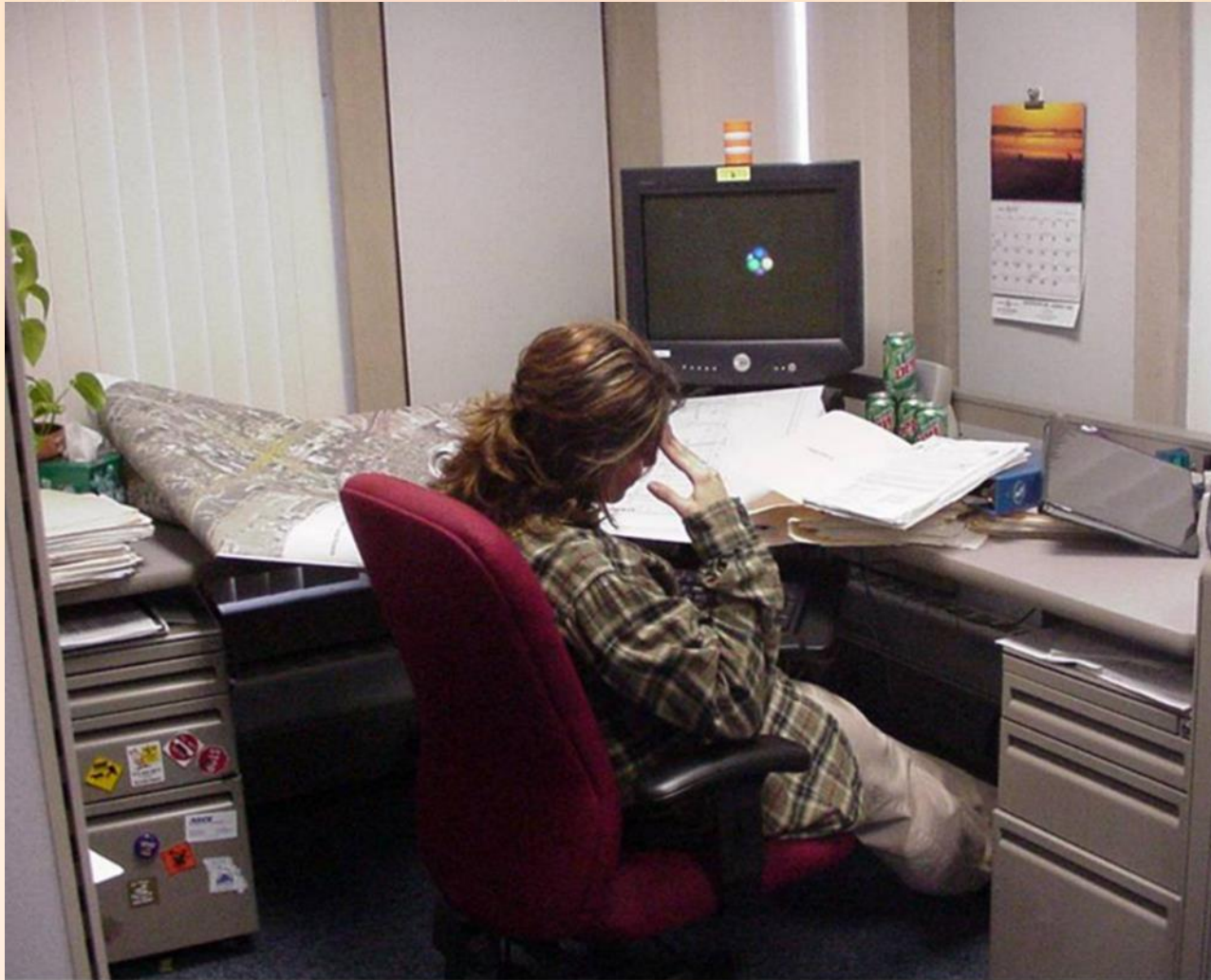## A Construction Game Changer

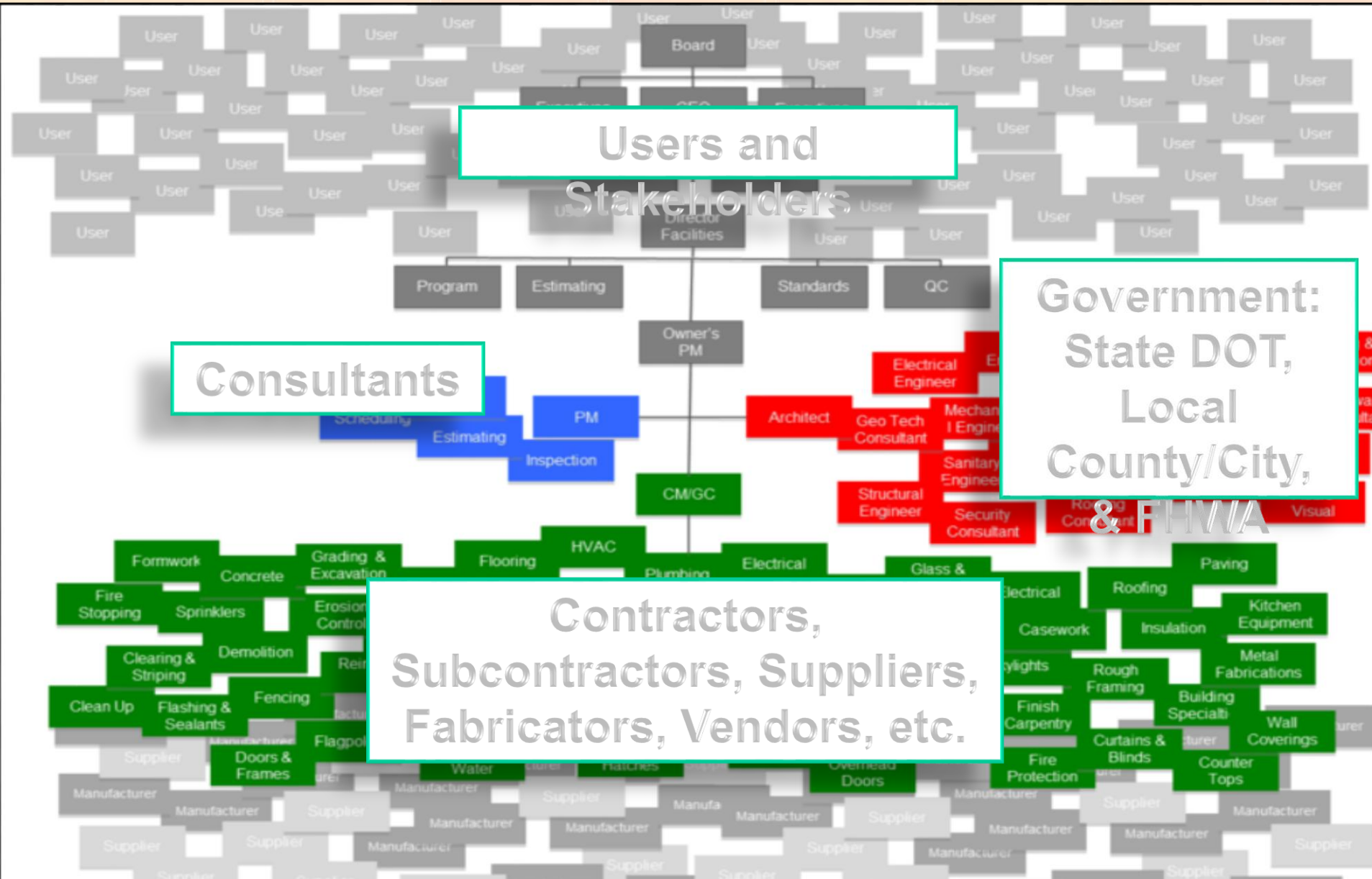# Contract Payment Paperwork

How about paper archives?

Confusion about what paperwork went where?

Construction and Design

Number of People Involved in a Construction Project

Users and Stakeholders

Consultants

Government: State DOT, Local County/City, & FHWA

Contractors, Subcontractors, Suppliers, Fabricators, Vendors, etc.

A Centralized Sharing Model
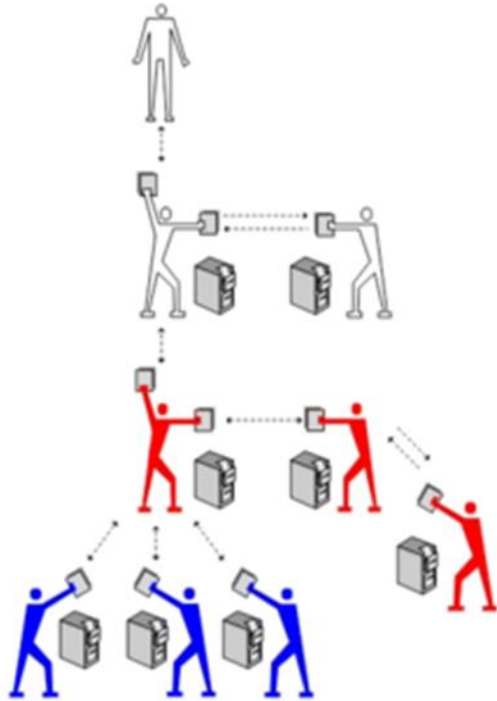
Traditional
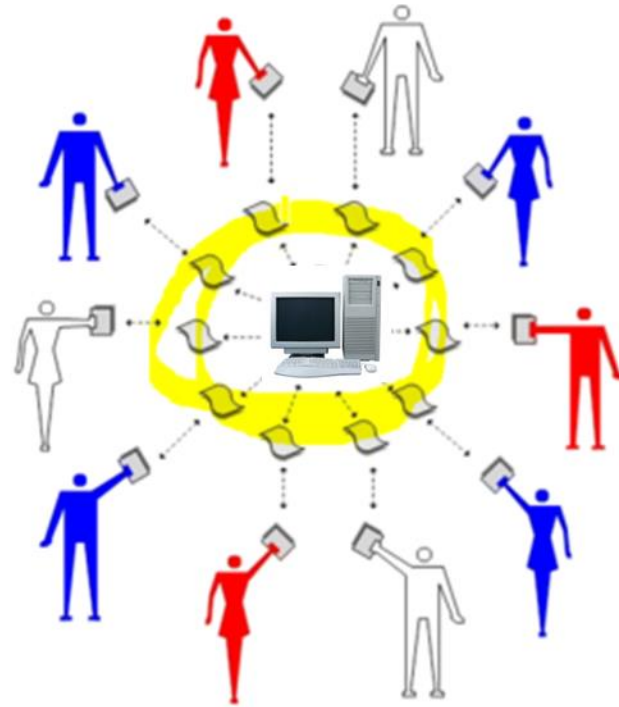
Collaborative

Auditability, Accountability, Transparency
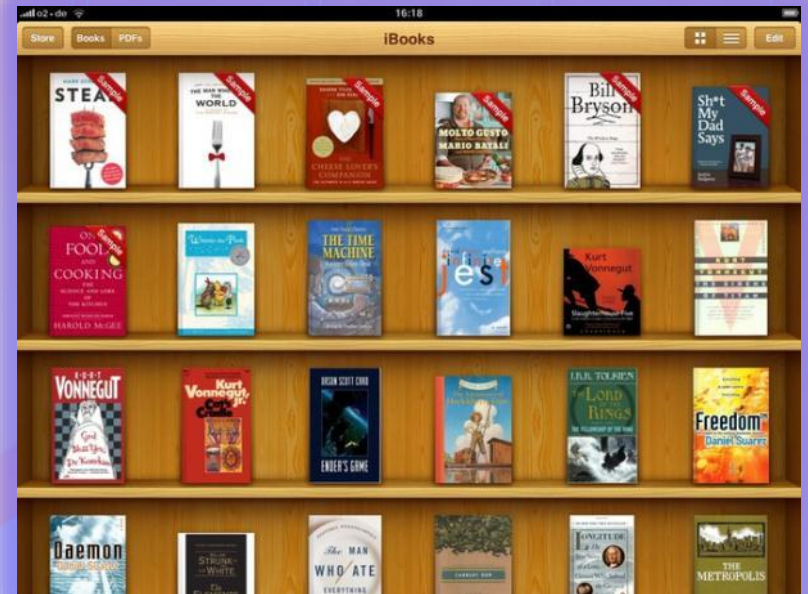
e-Construction?

- *Paperless construction documentation*
  - *Document management software accessible to all stakeholders*
  - *Construction documentation process improvement*
- *Mobile devices in the field and for lead engineers*
  - *Electronically capturing construction data*
- *Mandating use of digitally encrypted electronic signatures*
- *Innovative training/manuals/instructions*

Manuals – Help - Training

- *iBooks*
  - *Manuals*
- *WIKI Site*
  - *Instructions & Training*
- *Hardware*
  - *Tips & Tricks*
  - *YouTube*
- *Software*

What Does e-Construction Look Like?

Contractors

— *Opportunities to cut costs resulting in lower bid prices / more competitive*

— *Precise knowledge when submittals are approved*

— *Transparent access to all project information, reducing claims*

— *Ability to efficiently monitor subcontractor/supplier submittals*

— *Faster payments (stats showed 5x)*
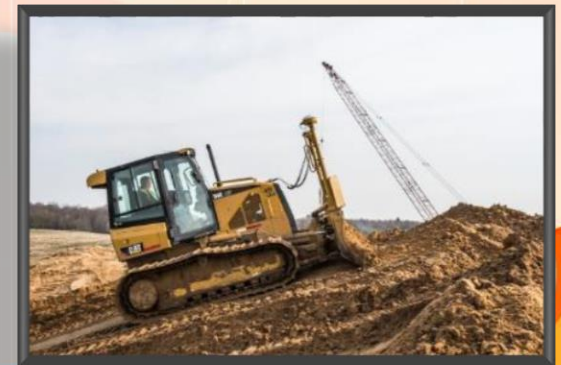
What Does e-Construction Look Like?

Inspectors

— *Ability to use voice data entry*

— *Elimination of copying/faxing/ scanning of field forms*

— *Increased efficiency*

— *Faster problem solving with real-time access to statewide experts & partners (FaceTime)*

— *Electronic access to manuals, plans & project information*

— *Markup plans in the field*

— ***Spending more time on job site***
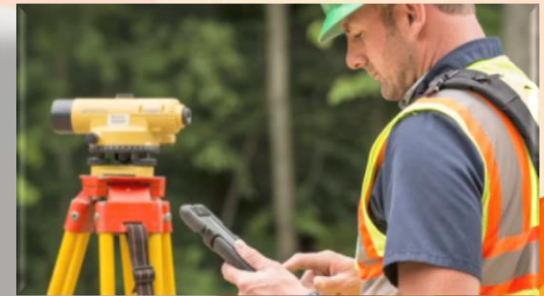
What Does e-Construction Look Like?

Engineers

— *Increased & timely oversight*

— *Access to all project documents remotely from mobile devices*

— *Paperwork starts & stays electronic*

— *Reduces lost paperwork*

— *Ability to electronically sign documents remotely*

— *Increased communication & efficiency*

— *Quicker management approvals*
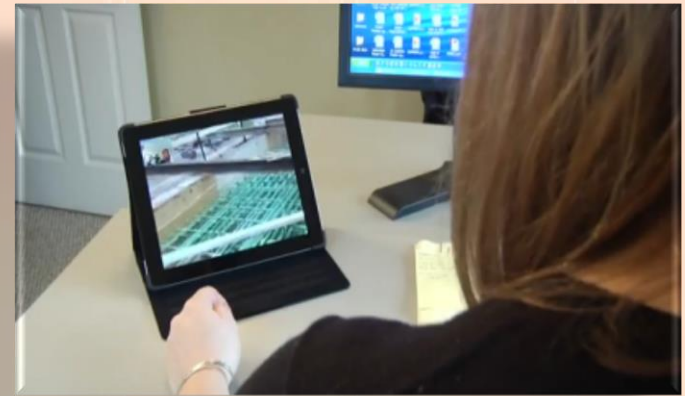
Next Steps

- *Delivery Tickets*
- *Local Agency Program*

For MDOT Let Contracts

—*Spring 2015 – Set up ProjectWise workflows.*

—*Late summer 2015 – Pilots for Local Agencies.*

—*February 2016 – CEW presentation on pilots and over view of process.*

—*Spring 2016 – MDOT conducts training.*

—*Summer 2016 – More Local Agency Projects run through e-Construction.*

—*October 2016 – Full implementation of e-Construction on MDOT let Local Agency Projects*

—*ProjectWise free to locals and consultants.*

- *Trunkline Reviews?*
- *Drain Commissioners and all associated positions*
- *Early access*
  - *—Contact TSC and they will contact us*

Where Is MDOT Today?

The following stakeholders are in production, including:

—*All MDOT construction & materials offices*

—*119 contracting firms*

　o *322 contractor users*

—*31 construction consultant firms*

　o *156 consultant users*

—*22 FHWA users*

—*31 active contracts*

　o *$354 million as-let contracts*
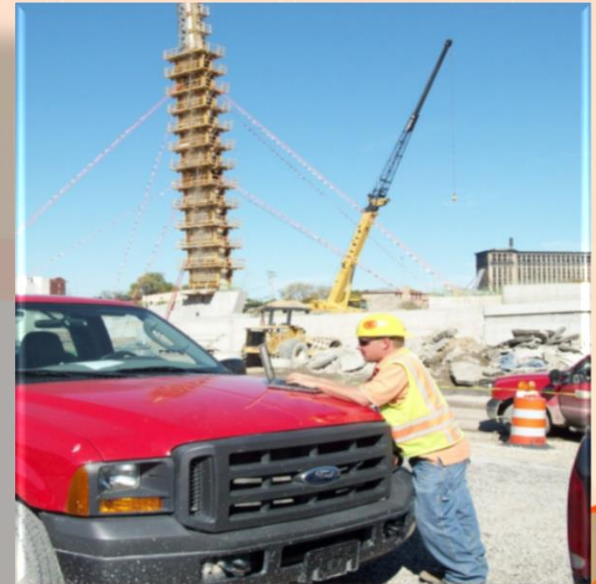
Statewide MDOT Implementation

All new trunkline projects use e-Construction Documentation process by

2015 Construction Season (Started October 3, 2014 Letting)

Summary

- *Reduces costs for all stakeholders*
- *Document distribution is immediate*
   —*No time or money wasted printing & mailing documents*
- *Documents approved faster*
- *Faster, more accurate payments to contractors*
- *Transparency: Documents available for viewing by all project partners*
- *Accountable: Submittal/approval dates readily available to all*
- *Portable: Available from any device, any time, any where*
- *Documents are secure & backed up*
- *Responds to reality of less staff*

Deployment Efforts

- *Michigan is participating with the combined FHWA & AASHTO effort to share e-Construction innovations through:*
  - *Every Day Counts-3 Initiative*
  - *AASHTO Innovation Initiative (formerly Technology Implementation Group - TIG)*

- Nationwide Summits
  - *St. Louis, Washington DC, Louisville KY, Portland ME, Phoenix, Sacramento, Charlotte NC*

Mobile Inspector

- *Our 1st internet application*
  - *—Can replace FieldBook*
  - *—Syncs with FieldManager*
- *Operates on iPads and iPhones*
- *Sync Service Required to be operational*
  - *— Sync fee is 15% on top of current consultant FieldManager license*
  - *—Local Mobile Inspector fee has been reviewed and now being negotiated*
  - *—Unlimited devices*

BACK TO FIELDMANAGER

AASHTO Rebranding Background

- *Trns•port has been renamed AASHTOWare Project as part of AASHTO rebranding initiative*
- *The AASHTOWare Project (AP) systems are critical to MDOT carrying out its mission*
- *MDOT uses the systems to manage and process virtually all aspects of Michigan's road, bridge, airport, and railroad construction project life cycles*
- *Current legacy systems utilize client/server based technology*
  - *Becoming obsolete*
  - *Eventually will no longer run in standard supported environment*
- *AASHTO sponsoring major endeavor to rewrite and update existing client/server based systems for operation in web based environment*

Legacy/Replacement Systems

| Legacy System	AP Replacement System
• Proposal and Estimates System (PES) • Letting and Awards System (LAS)	• Preconstruction
• FieldManager Software Suite • FieldNet System • Construction Administration System (CAS) • Materials Testing System (MTS)	• Construction/Materials
• Expedite	• Bids
• N/A	• Civil Rights & Labor

Projects Needed To Move Forward

Project	Actual/Est. Begin Year	Actual/Est. End Year
Preconstruction Analysis/Preparation	2011	2014
Construction/Materials Development	2011	2014
Preconstruction Implementation	2013	2014
AASHTOWare Project 3.01 Development	2014	2016
Construction/Materials Analysis/Preparation	2015	2015
Civil Rights & Labor Analysis/Preparation	2015	2015
Bids Analysis/Preparation	2015	2016
Construction/Materials Implementation	2016	2016
Civil Rights & Labor Implementation	2016	2016
Bids Implementation	2016	2016
Construction/Materials Analysis/Preparation – Phase II	2017	2017
Civil Rights & Labor Analysis/Preparation – Phase II	2017	2017
Construction/Materials Implementation – Phase II	2018	2018
Civil Rights & Labor Implementation – Phase II	2018	2018

Preconstruction Production Notes

- *Currently Preconstruction software is for MDOT staff only*

- *Local agencies and design consultants are continuing to use the Michigan Engineers' Resource Library (MERL) and the Stand Alone Project Worksheet (SAPW)*

- *MDOT will likely expand Preconstruction use to local agencies and design consultants in a future release*

States Participating In Construction/Materials Project
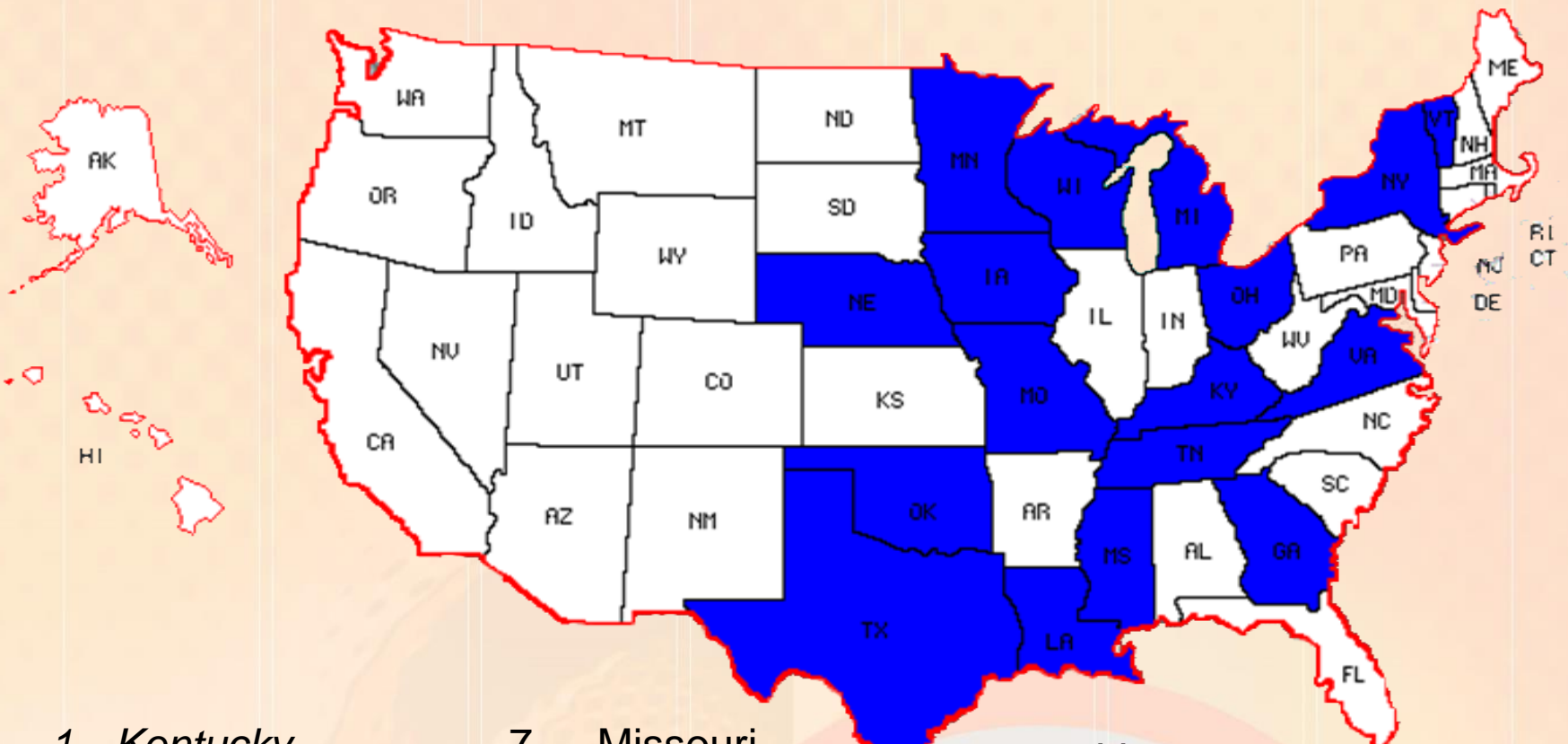
1. *Kentucky*
2. *Louisiana*
3. *Georgia*
4. *Iowa*
5. *Michigan*
6. *Minnesota*
7. Missouri
8. Nebraska
9. New York
10. Ohio
11. Oklahoma
12. Tennessee
13. Texas
14. Vermont
15. Virginia
16. Wisconsin

Construction/Materials Development Project

- *Many enterprise level agency customization options including ability to:*
  - *—Customize field labels*
  - *—Customize screens*
  - *—Insert external links on screens*
  - *—Customize reports*
  - *—Locate user access to reports based on business task at hand*
- *Hundreds of enterprise level agency configuration options which will allow MDOT to configure software based on MDOT business rules*
- *Project is currently in the Production Finishing phase*
- *Event notifications*
- *Materials source & facility oversight*

Thank You Beta Testing Participants!

- *Tim Anderson, Bay City TSC*
- *Mohammad Azam, Lansing Construction Field Services*
- *Mike Eustice, Hubbell, Roth & Clark*
- *Scott Greene, Lansing Construction Field Services*
- *Yvonne Guerra, Jackson TSC*
- *Nathan Heath, Lansing Finance & Administration*
- *Connie Kern, Lansing Finance & Administration*
- *Lisa Martino, Parsons Brinckerhoff*
- *Channing Page, Lansing TSC*
- ***Eric Rodegher, Kent County Road Commission***
- *Bob Smrek, Marshall TSC*
- ***Gary Swanson, Grand Traverse County Road Commission***
- *Brian Therrian, Ishpeming TSC*
- *Matt Thomas, Mt. Pleasant TSC*
- *Tia Thomas, Abonmarche*
- *Dennis Warren, Lansing Construction Field Services*

Construction/Materials Analysis/Preparation Project

- *Conducts the analysis work and tasks required to prepare the Construction/Materials system for implementation*

- *Begun project in Jan, 2015*

- *Work includes:*
    - *Conduct gap analysis between Construction/Materials and predecessor systems*
    - *Preparation work required to migrate FieldManager/CAS data, interfaces, reports, and business processes to Construction/Materials*
    - *Configure software for MDOT's business processes*
    - *Identify and apply customizations needed*
    - *Prepare software for external access*

- *Work includes (cont):*
  - —*Develop and customize reports*
  - —*Test software in DTMB's environment*
  - —*Upgrade interface systems to interface with Construction/Materials instead of FieldManager/CAS*
  - —*Develop implementation plan*
- *Will be seeking significant assistance from user community*
- *Project currently targeted for completion Dec, 2015*

AASHTOWare Project 3.01 Development Project

- *Software design and engineering required to develop AP release 3.01*
- *Project already under way*
- *Provides major functionality improvements to all the web based AP modules including Preconstruction and Construction/Materials*
- *Construction/Materials enhancements include:*
  - *Storm water environmental compliance inspection functionality*
  - *Force account functionality*
  - *Ability to create and maintain meeting records*

- *Construction/Materials enhancements (cont):*
    - —*Materials management additions:*
        - o *Material requirements*
        - o *Laboratory information management*
        - o *Material sampling and testing*
    - —*Ability to go paperless in additional areas including:*
        - o *Material Test Reports*
        - o *Material Test Certifications*
    - —*Various user interface improvements*
- *Currently scheduled for completion Sept, 2016*

Overall Construction/Materials Schedule

Task	Begin Date	End Date
Analysis	Apr. 2010	Oct. 2011
Design	Jan. 2011	Jan. 2014
Development	Apr. 2011	Feb. 2014
Alpha Testing	Feb. 2014	May 2014
Beta Testing	May. 2014	Sept. 2014
Production Release Finishing	Oct. 2014	Dec. 2014
Production Preparation	Jan. 2015	Dec. 2015
Implementation	Jan. 2016	Dec. 2016
Production Preparation – Phase II	Jan. 2017	Dec. 2017
Implementation – Phase II	Jan. 2018	Dec. 2018

Construction/Materials Terminology

- *Will use standardized AASHTO terminology as much as possible*

- *Terminology changes include:*
  - *Inspector's Daily Report -> Daily Work Report*
  - *Contract Modification -> Change Order*
  - *Construction Pay Estimate Report -> Payment Estimate For Contractor*
  - *Contractor's Performance Evaluation -> Contractor Evaluation*
  - *National Pollutant Discharge Elimination System -> Stormwater Environmental Compliance Inspection Report*
  - *Site Times - > Contract Times*

- *MDOT/DTMB plans to host Construction/Materials software for MDOT let contracts only*
  - —*Working with AASHTO to offer locals and consultants solution for non-MDOT let contracts*

- *Options include:*
  - — **Licensing Construction/Materials from AASHTO**
    - o **Local/consultant would be responsible for hosting software**
  - — **Licensing Construction/Materials hosted service from AASHTO**
    - o **Software would likely be hosted by the AASHTO contractor**
  - — **Licensing the AASHTO contractor's Appia software**
    - o **Software would likely be hosted by the AASHTO contractor**
  - — **Using the Michigan Engineers' Resource Library (MERL) software**

- *FieldManager will continue to be available for non-MDOT let contracts for awhile after MDOT has implemented Construction/Materials*

Construction/Materials Mobile App

- *Working through AASHTO on development of app that interfaces with Construction/Materials*
- *Functional purpose of the app will be to allow inspectors to create IDRs using a mobile device (tablets, smart phones)*
- *Good chance Mobile Inspector will be enhanced to interface with Construction/Materials*
- *Goal is to complete production version of the app in 2015*

Questions?

Cliff Farr
Engineer/Manager of Construction
Technology and Training

517-897-3672
farrc@michigan.gov