

# EDC-4 State DOT Regional Summit Presentations

Summit Location	Date	State DOT Presenters
Baltimore	Oct. 18, 2016	<a href="#">Rob Wight</a> (Utah), <a href="#">Jim Foringer</a> (PennDOT)
Minneapolis	Oct. 25, 2016	<a href="#">Quinton Tillman</a> (Florida), <a href="#">Tom Warne</a> (Consultant)
Albany	Nov. 1, 2016	<a href="#">Ben Browning</a> (Arkansas), <a href="#">Sandi Keller</a> (West Virginia)
Portland	Nov. 29, 2016	<a href="#">Joe Squire</a> (Oregon), <a href="#">Rob Wight</a> (Utah)
Sacramento	Dec. 1, 2016	<a href="#">Rachel Falsetti</a> (Caltrans), <a href="#">Janet Treadway</a> (Ohio)
Austin	Dec. 6, 2016	<a href="#">Sarah Kleinschmit</a> (Missouri), <a href="#">Amy Tootle</a> (Florida)
Orlando	Dec. 14, 2016	<a href="#">Greg Mulder</a> (Iowa), <a href="#">Amy Tootle</a> (Florida)
<a href="#">FHWA Presentations</a>		Kat Weisner, Bernie Kuta,, Matt DiGiovanni, John Haynes

Click on names above for individual presentations



Photo Sources: FHWA unless noted

every day counts 

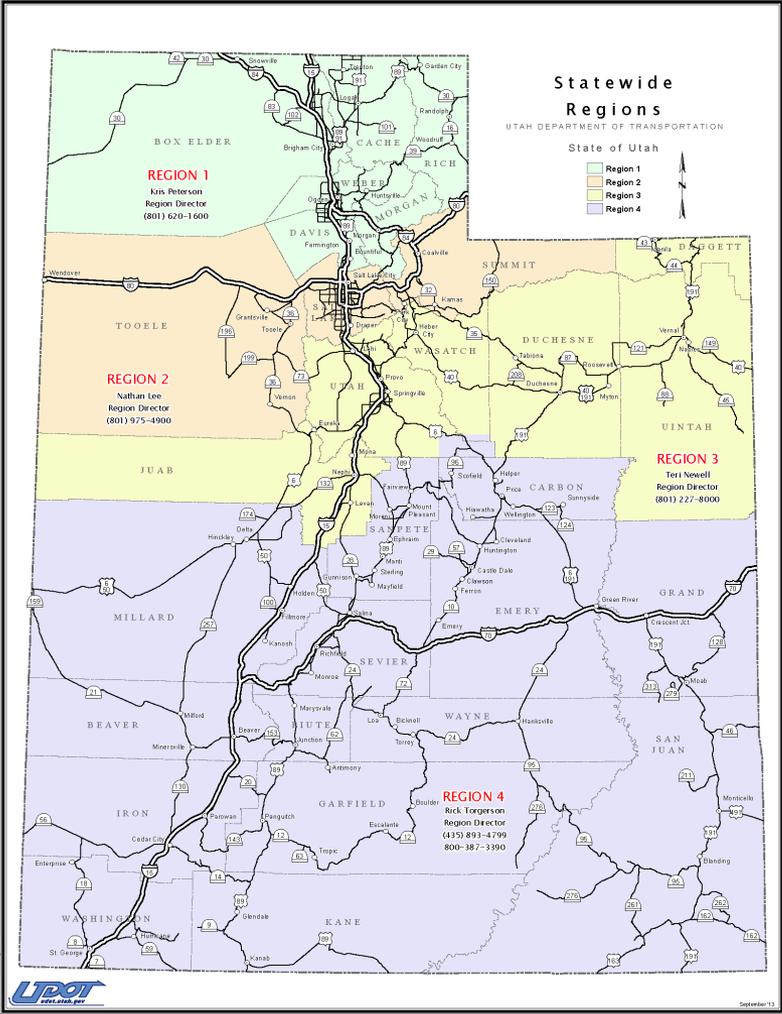


## Rob Wight

Director of Construction and Materials  
Utah DOT

# Overview of UDOT

- 4 Regions
- 17 Construction Crews
- 30 Full Time Inspectors
- 500 Cross Trained Transportation Technician Inspectors
- Approx 170 projects / yr
- \$700M to 800M program per year  
70% state funding



# e-Construction – How did UDOT get here?

5 year process, Created Business Case

Funding Model Determined

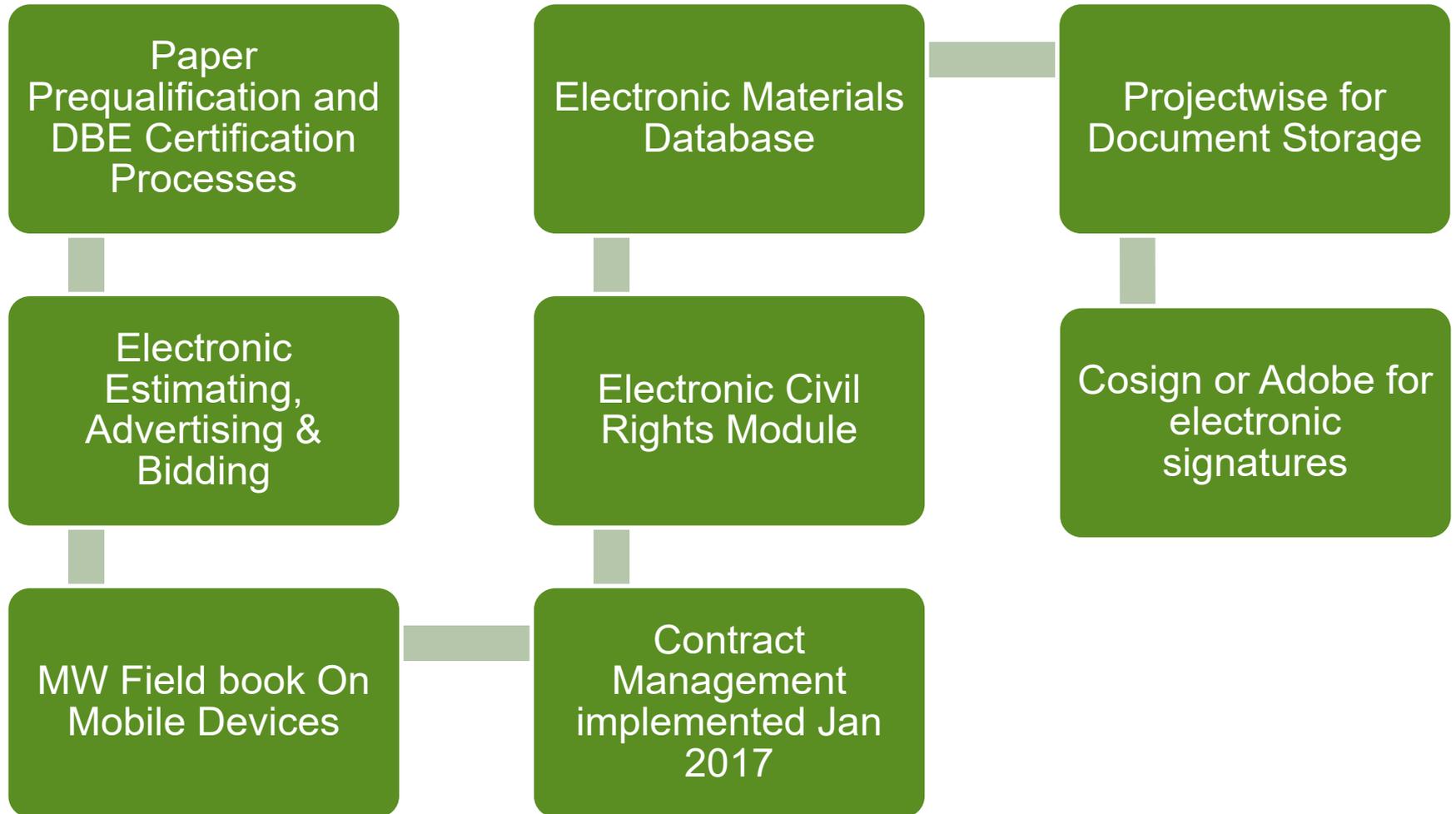
Buy in from Senior management, Legislature

Show Return on Investment – Key to Acquiring Funding

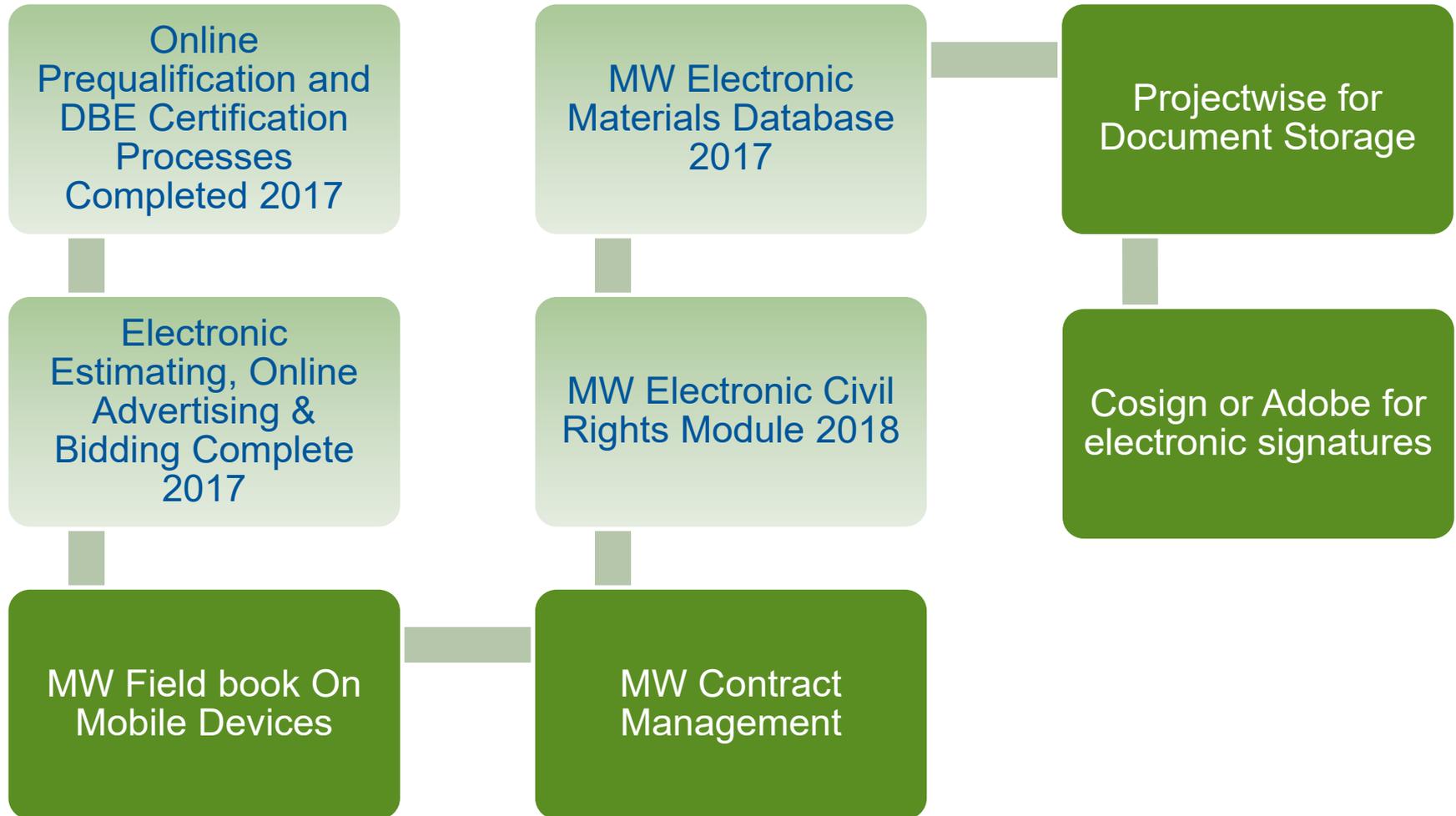
Determine Internal vs External software development

Does the System Make the employee and process more efficient?

# Current State of e-Construction at UDOT



# Future of e-Construction at UDOT



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# e-Construction/IDC Pilots at UDOT

Electronic Plan Viewer – Currently exploring several different applications

Exploring use of UAVs – bridge inspection, quantity calculation

Exploring/implementing remote camera inspection

Delivering the Model as the Contract Document

Continuing funding stream identified by Legislation

# UDOT Partnering Culture

Partnering is  
a culture, not  
a process

- Good Processes lead to culture change
- Championed at all levels of the organization(s)

UDOT partnering—  
Our way of doing  
business

- Fairness
- Cooperative Behaviors & Teamwork
- Open and Honest Communication
- Joint Problem Solving
- Rapid Dispute Resolution at the Lowest Level

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# UDOT Partnering Culture

All projects are partnered in one of the following ways:

- Formal = Hired outside Facilitator
- Informal = Resident and Contractor PM facilitate
- Semi-Formal = Trained internal facilitator
- Costs are shared between contractor and UDOT
- Executive level follow ups monthly on some projects
- Issue escalation process

Risk Based Partnering meetings

- Not a hug fest, but working meetings
- Identify challenges/risks on project and discuss framework to deal with them

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# Program Level Partnering



## Keys to e-Construction success

- Monthly AGC meeting
- Task groups address challenges at a program level
- AGC representative on various Committees

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# e-Construction & Partnering Synergies



Contractor partners in development:

- e-bid system
- UASs
- IDC (3D) and AMG
- Understanding contractor's processes and designing processes/software for efficiencies
- Document submittal and processing/tracking

# e-Construction & Partnering Synergies



e-Construction systems amplify the partnering on projects and lead to more trust



Partnering value: Fair, Open & Honest Communication

- Document Control/Collaboration systems communicate submittal requirements
- Pay estimates can be routed through electronic systems to make sure timely payments are made
- Problem Solving at the field level

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# e-Construction & Partnering Synergies



How can Partnering help e-Construction systems realize maximum efficiencies?

- Contractor Collaboration on development and testing
- Contractor feedback after roll out

every day counts 



## Jim Foringer

Assistant District Executive for Construction  
Pennsylvania DOT

# Overview of PennDOT

11  
Districts

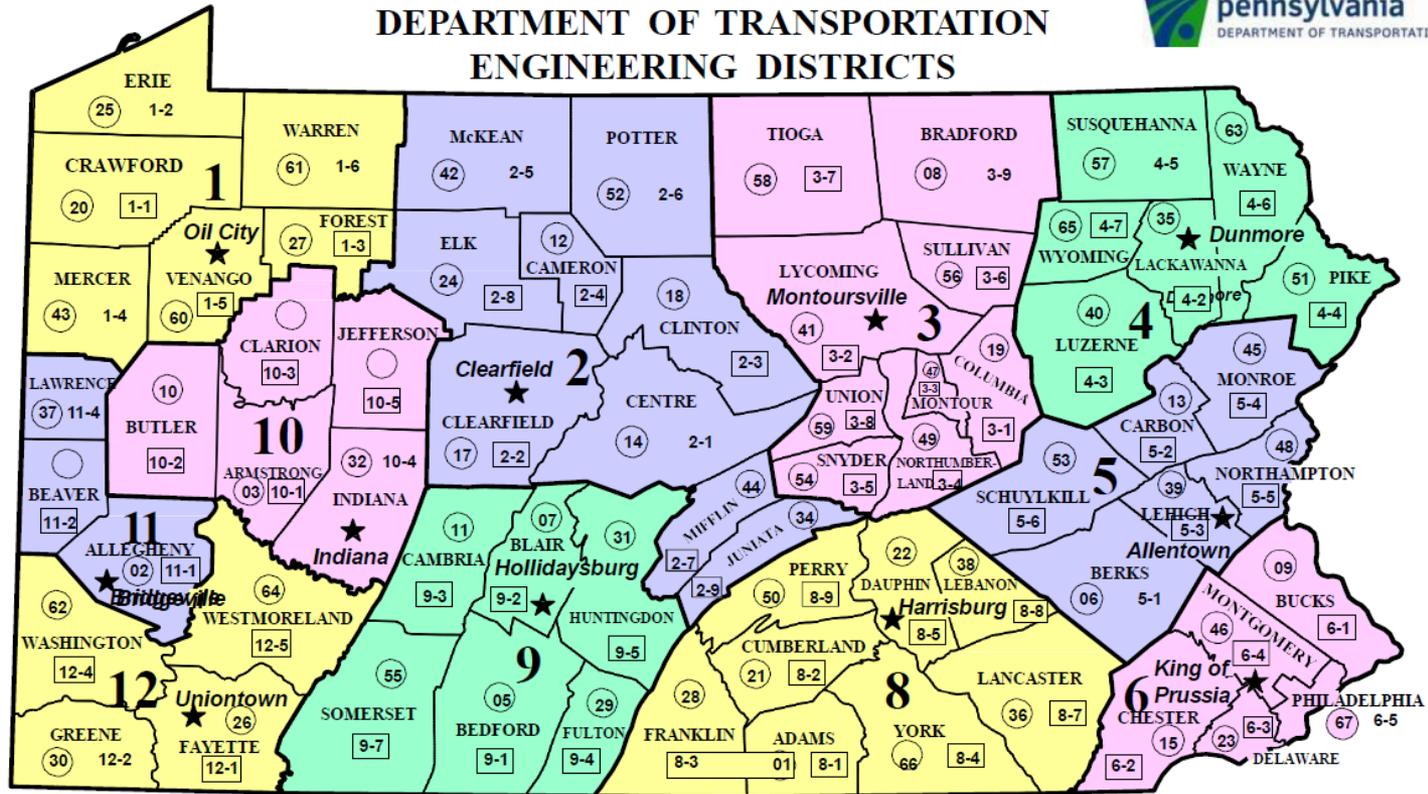
1162  
active  
projects

\$7.3  
Billion  
program

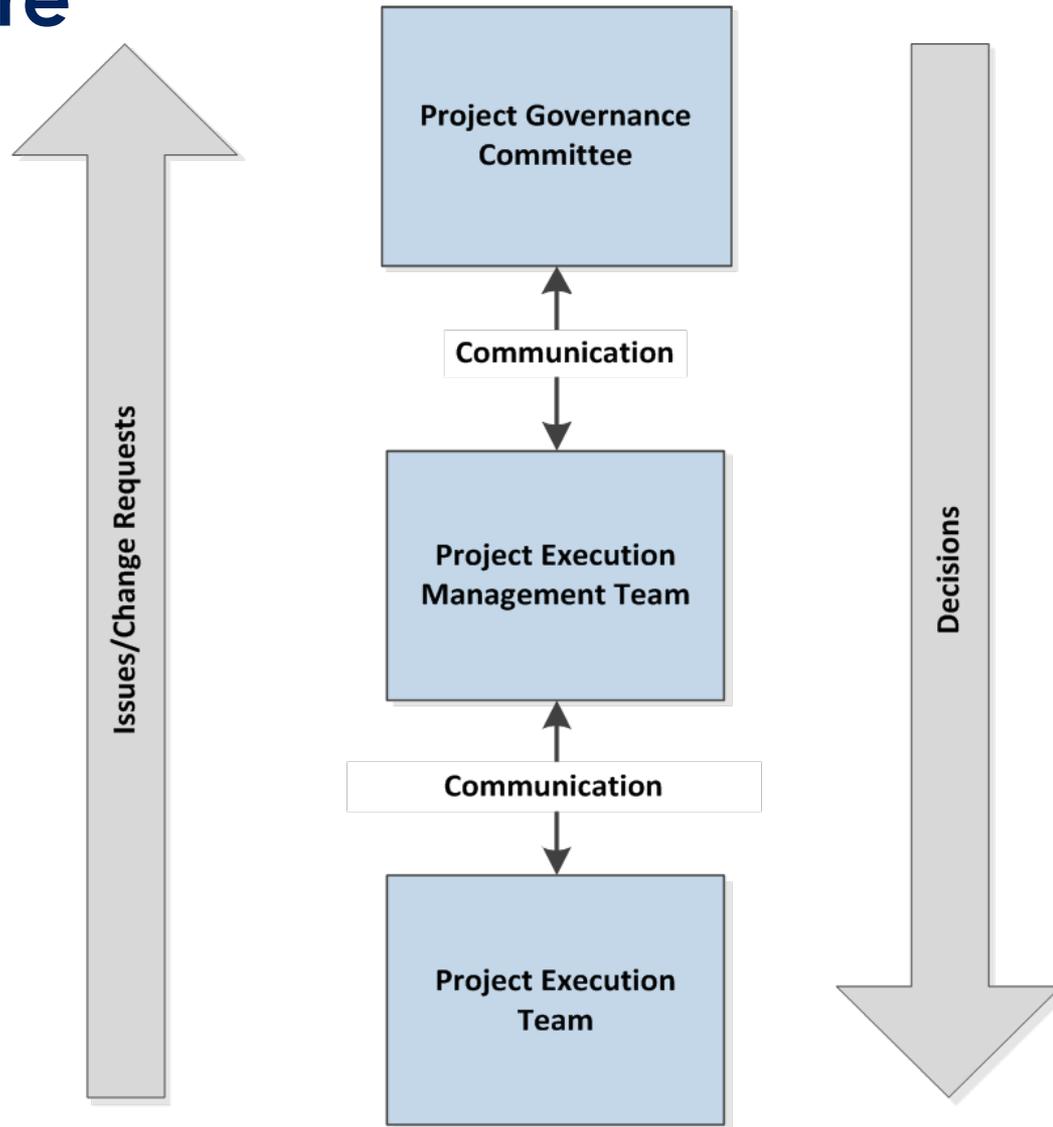
583 Full  
Time  
Inspectors

131 Local  
projects  
\$516M

PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
ENGINEERING DISTRICTS



# PennDOT's Standard IT Project Governance Structure



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# PennDOT's Existing e-Construction

## Engineering and Construction Management System (ECMS)

- e-Bidding
- Signatures
- Estimates
- Work Orders (FHWA part of approval)
- Time Extensions (FHWA part of approval)
- Punch List
- Project Closeout (include Notice of Final Quantities)
- Consultant Agreement
- Consultant Mileage & Hour – Phase 1
- Source of Supply – Phase 1

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# PennDOT's Existing e-Construction

## Mobile applications

- MC Docs Application
- MC PSA Application
- MC Punchlist Application



## PennDOT Project Collaboration Center (PPCC)

- Submittals with automated workflow
- Shared/Project Files/Photos

## eCAMMS

- Electronic Plant Books, mix designs, sampling test results, approved source bulletins, District Letter of Materials Certification (T-4238A)

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# PennDOT's Future e-Construction Initiatives

- Automated Force Account
- Automated PennDOT Mileage and Hour
- Consultant Mileage and Hour – Phase 2
- Source of Supply – Phase 2
- Mobile Applications
  - Concrete Inspection Diary
  - Force Account
  - Environmental and Sediment Checklist
  - Traffic Control Review Automatic
  - Americans with Disability Act Ramp Inspection
- Archiving of Records
- Roll all applications into 1 stop shop
- Explore e-ticketing

# PennDOT's Return On Investment

<b>Project</b>	<b>Initiation Dates</b>	<b>Development Cost</b>	<b>Overall Savings</b>
<b>CDSv3</b>	<b>August 2012</b>	<b>\$ 2.74 million</b>	<b>\$5 million/year</b>
Release 1 implemented 8-18-14			
Release 3.0 implemented 7-18-16			
<b>Mobile Construction</b>	<b>July 2012</b>	<b>\$1.67 million</b>	<b>\$28 million</b>
Sprint 1 implemented 9-6-13			
Sprint 40 implemented 8-23-16			
<b>PPCC</b>	<b>October 2011</b>	<b>\$5.2 million</b>	<b>\$29.1 million</b>
Release 1 implemented 9-13-13			
Release 5.1 implemented 8-15-16			
<b>eCAMMS</b>	<b>January 2012</b>	<b>\$6.9 million</b>	<b>Being assessed</b>
Implemented January 2012			

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# PennDOT's Partnering with e-Construction

PPCC

Automated Force Account

User Acceptance Testing

Local Sponsors – utilizing PennDOT's systems

Consultant Mileage and Hour Application

Estimate tracking

Work Order turn around



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# PennDOT's Current Partnering Process

## Formal Partnering

High profile/critical projects

Outside facilitation

Shared Costs

1-Day Duration

Executive Partnering Follow-Up Sessions



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# PennDOT's Partnering Future Process

## 3-Tiered Approach : Based on Value of Project

- < \$5 million – no formal session
- \$5-\$25 million – ½ day facilitated session
- > \$25 million – full day facilitated session

Complexity of project may change the type of session

# PennDOT's Transportation Quality Initiative (TQI)



# PennDOT's TQI's Framework

- Culture of Quality
- Shared Vision & Values
- Trust & Collaboration
- Partnership



- Leadership
- Training
- Recruitment

- Pre-Construction
- Contractual
- Issue Resolution

- QA/QC
- Materials
- Durability/Quality

every day counts 



**Quinton Tillman**  
Construction Systems Engineer  
Florida DOT

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# Agenda

1. Getting to Know FDOT
2. Timeline for e-Construction
3. Components of e-Construction
4. Collaborative Culture of e-Construction
5. Future of e-Construction

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# Getting to Know FDOT

- Decentralized Agency
  - 7 Districts
  - Turnpike Enterprise
- 6,454 FTE's
  - 465 Construction
- Construction Engineering Inspection
  - 100% Consultant

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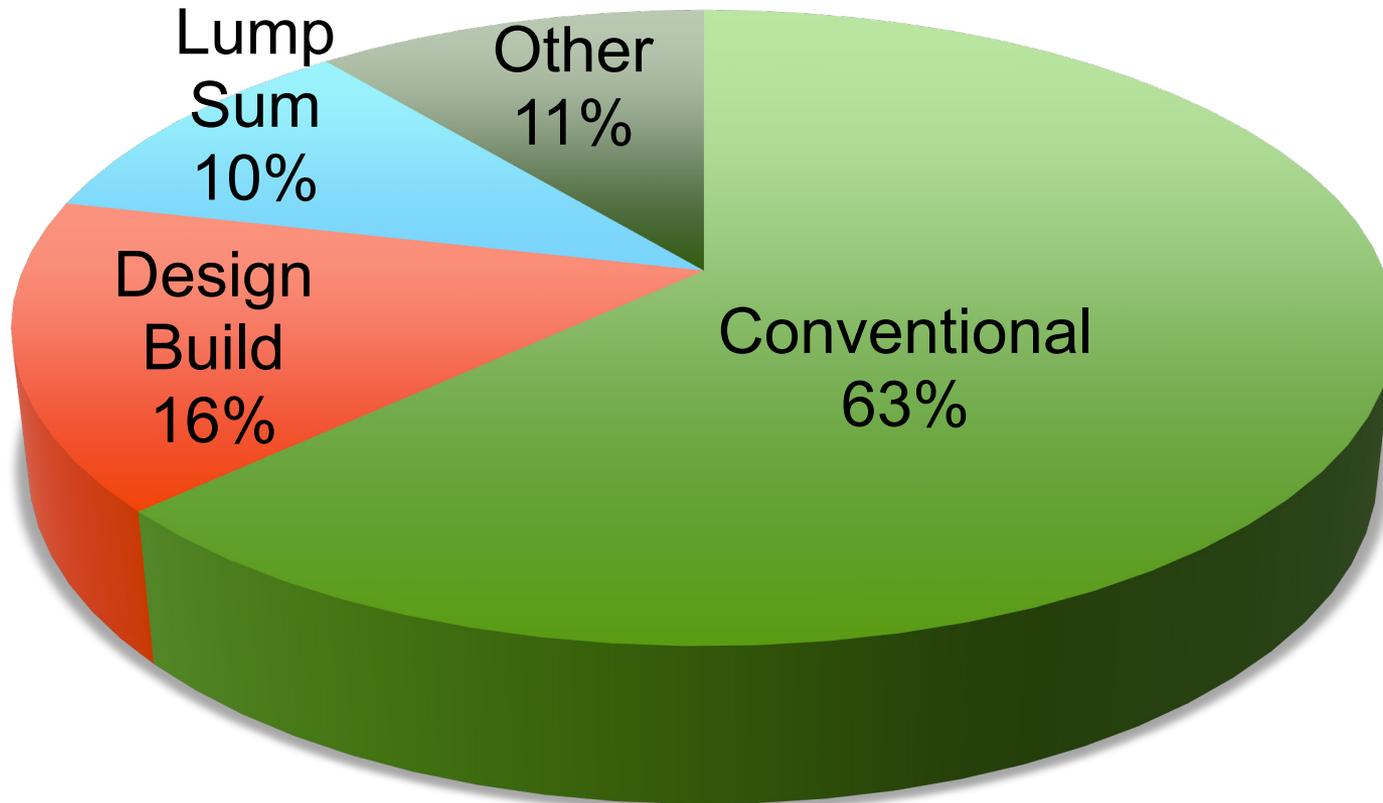
# Getting to Know FDOT

- Florida's Work Program is one of the largest in the country
  - Total Funding & Budget for 2016/2017 – 2020/2021 = \$42.3B
  - 459 Active Construction Contracts
    - \$10.2B
- State Highway System = 43,592 Lane miles
  - 296,263,100 Daily Vehicle Miles Traveled (DVMT)

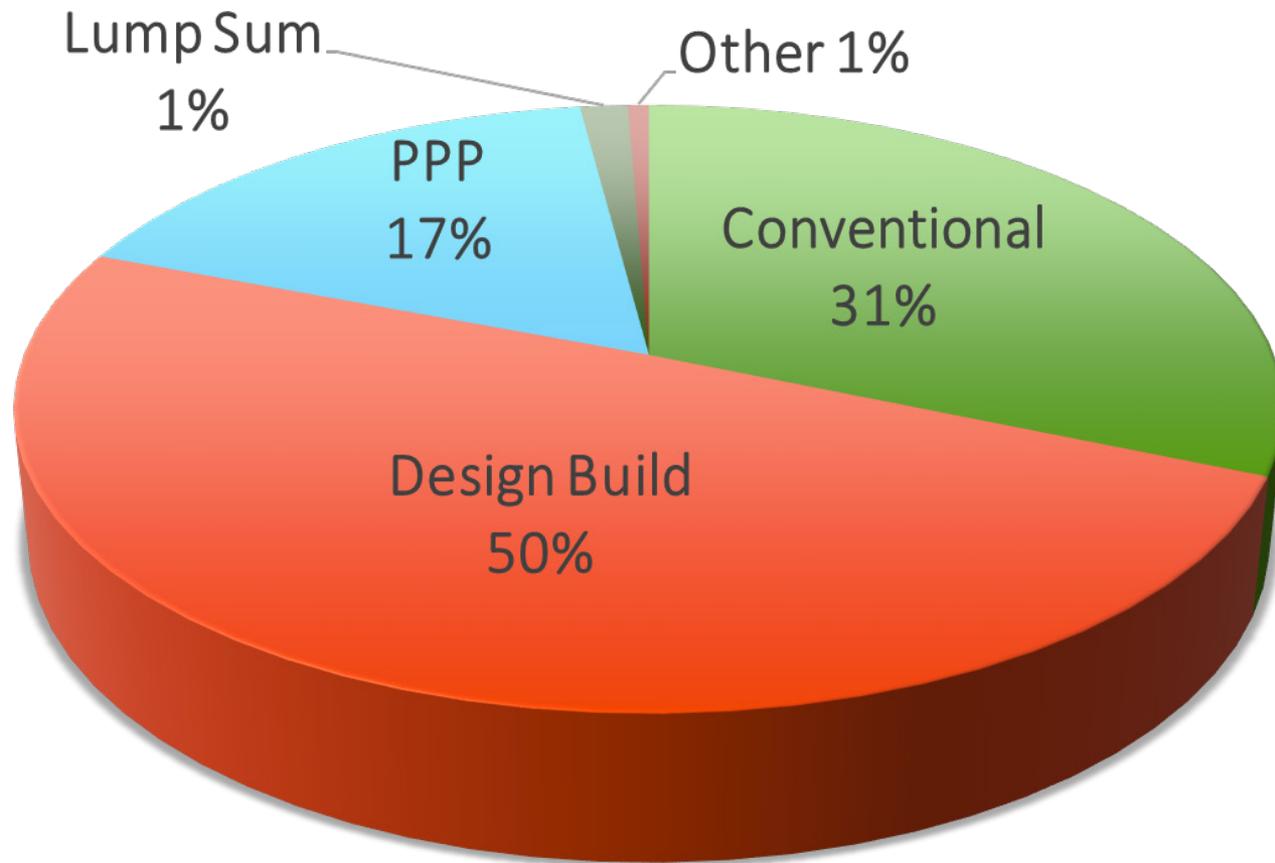


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# Contract Types By Quantity – 10/2016



# Contract Type By Money – 10/2016



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# Timeline for e-Construction

1. Document Management - PSSP
  - 2013
2. Digital Signatures – IdenTrust
  - 2013
3. Mobile Devices - iPads
  - 2014
4. Electronic “As-Built” Plans – Bluebeam
  - 2014

# ProjectSolveSP (PSSP)

<http://www.fdot.gov/construction/eConstruction/ProjectSolve.shtm>

Office of Construction / Programs & Services

## Project Solve SharePoint



Project Solve SharePoint has been chosen by the Department as the collaboration site for the Department and its stakeholders in order to conduct business in a paperless environment. Stakeholders will be required to have a login into the site. Please refer to instructions on how to obtain one.

**[Project Solve SharePoint Launch Page](#)**

**[Project Solve SharePoint New User Account Creation Page](#)**

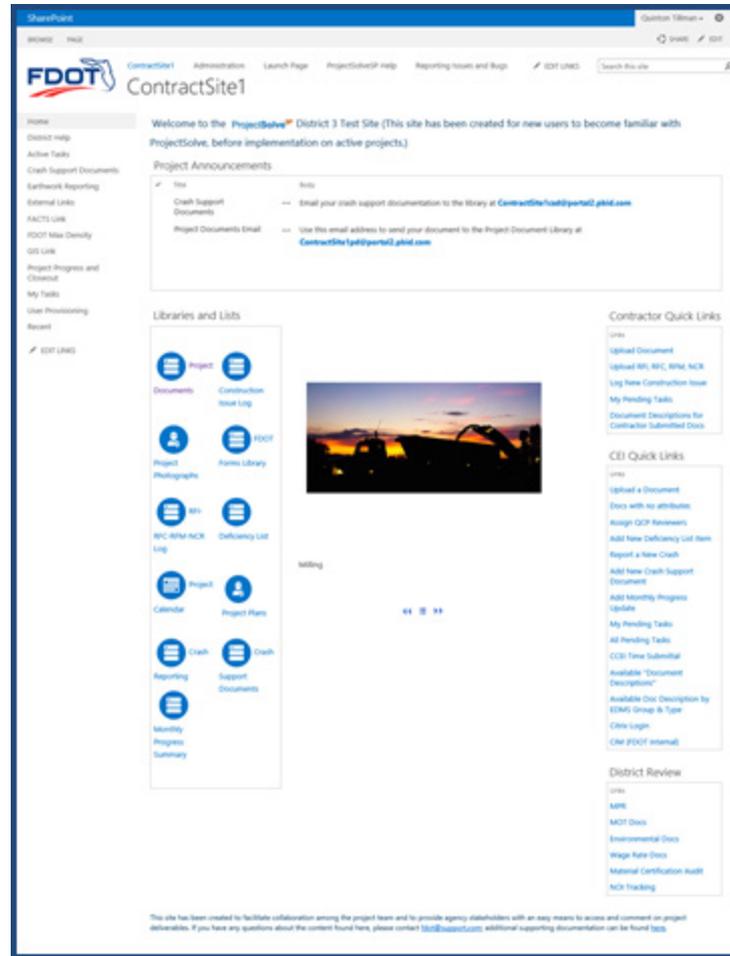
**[Project Solve SharePoint Password Reset Page](#)**

**[Project Solve SharePoint Log In Instructions Page](#)**

# ProjectSolveSP (PSSP)

## Libraries and Lists

-  Project Documents
-  Construction Issue Log
-  Project Photographs
-  FDOT Forms Library
-  RFI-RFC-RFM-NCR Log
-  Deficiency List
-  Project Calendar
-  Project Plans

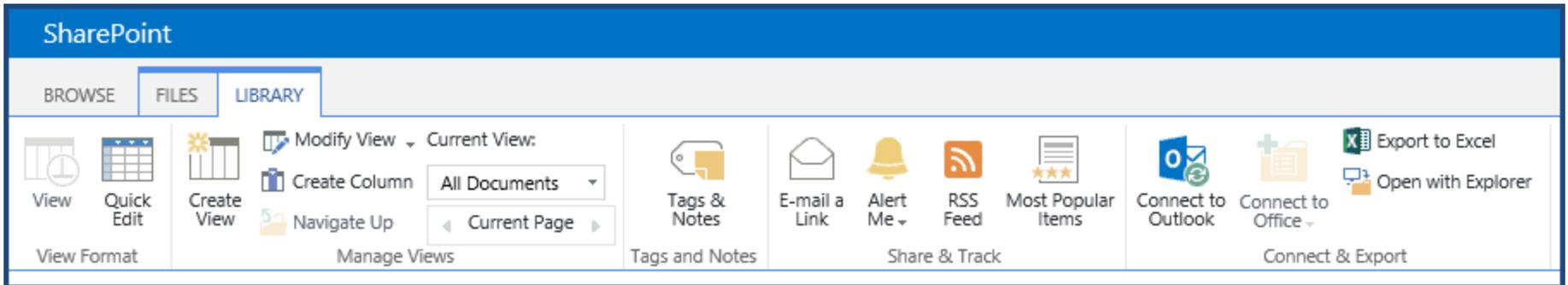


## Contractor Quick Links

### Links

- [Upload Document](#)
- [Upload RFI, RFC, RFM, NCR](#)
- [Log New Construction Issue](#)
- [My Pending Tasks](#)
- [Document Descriptions for Contractor Submitted Docs](#)

# ProjectSolveSP (PSSP)



# Digital Signatures

IdenTrust™  
part of HID Global

Home | My Account | Contact Us

Home Company Solutions Certificates Partner Library Education Support IdenTrustSSL.com

One Identity. Multiple Uses.  
Authentication. Electronic Signatures. Encryption.

SOLUTIONS FOR: BANKS CORPORATES GOVERNMENT HEALTHCARE

**ACES** is a federal government sponsored program that allows online access to personal information and government agency services through the use of digital certificates. As an ACES-accredited Certification Authority, IdenTrust issues digital certificates that authenticate the identity of individuals and representatives of organizations or government agencies.

- Eliminating Paper Based Forms and Processes
- IdenTrust Community Bank PKI [PDF]
- HID Global Products and Solutions

IdenTrust Helps Consumers Securely Communicate with Healthcare Providers via New DirectTrust Partnership for Patients Program - AUSTIN, Texas, June 15, 2016

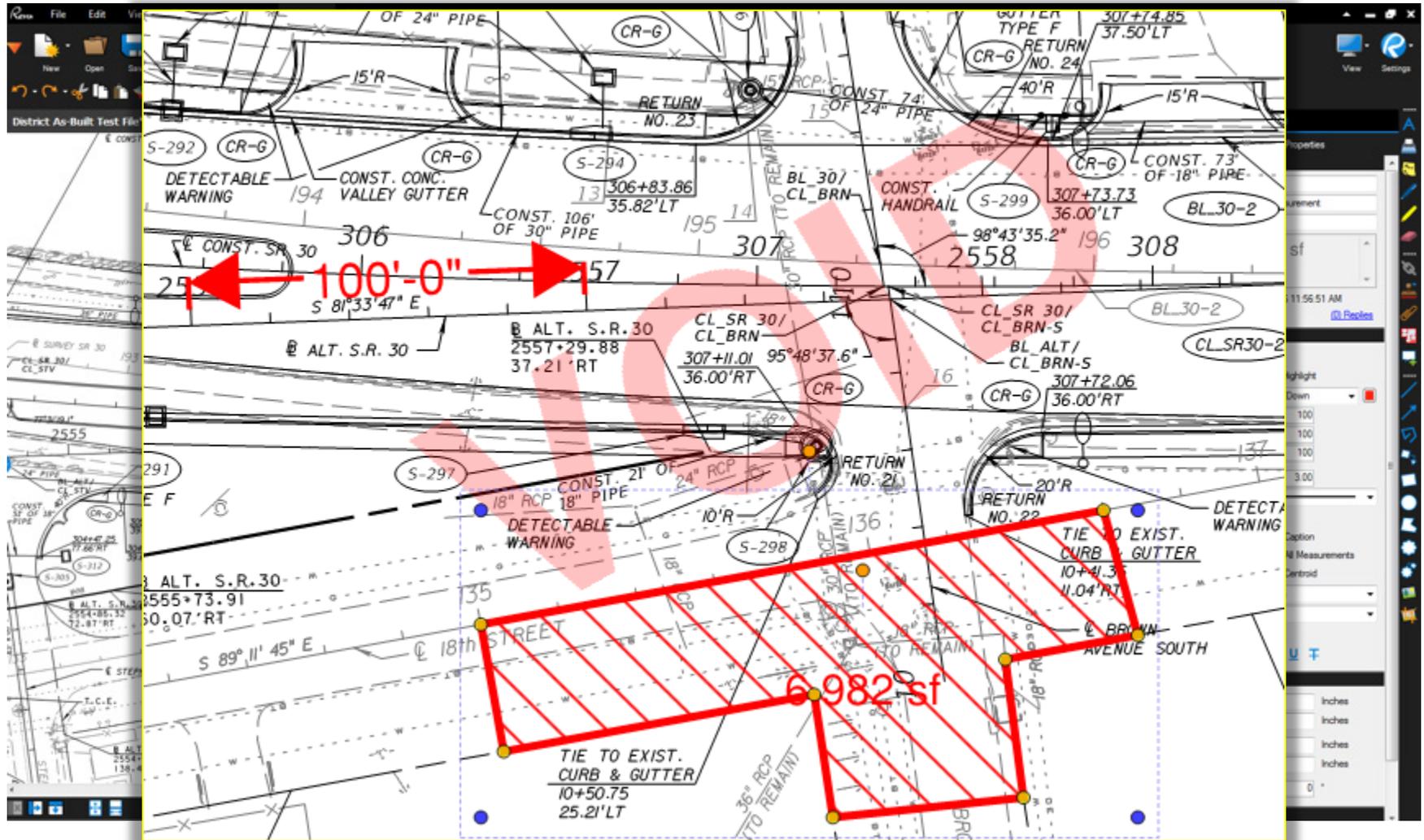
**BUY** NEW SPOT  
CERTIFICATE MANAGEMENT CENTER



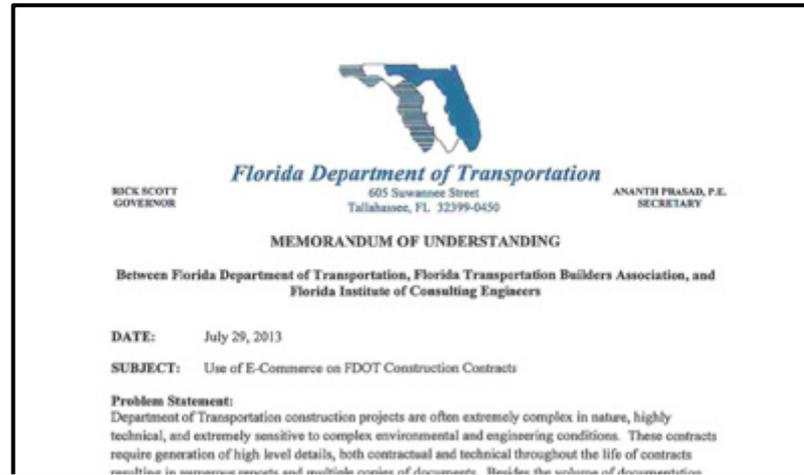
# Mobile Devices - iPads



# Electronic "As-Built" Plans - Bluebeam



# Memo of Understanding



## Commitment:

It is the commitment of FDOT, FTBA, and FICE to whole-heartedly and without delay adopt and promote the E-commerce practice among the Department and sister agencies, transportation builders, contractors and Producer industries, and engineering communities throughout the State of Florida.

(Ananth Prasad; Secretary, FDOT)

(Mark Mechling; President, FICE)

(Bob Burleson; President, FTBA)



# Collaborative Culture of e-Construction

State Materials Office / Programs / Materials Acceptance / Production Facility Listing

## Production Facility Listing



**Note: The "Go Live" date for the full implementation of MAC was October 10, 2016. Please select the following link to learn more (MB09-16/DCE13-16) - Materials Acceptance and Certification System (MAC) Full Implementation**

### Overview

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The Quality Control (QC) Program defines the quality and process control standards for the FDOT's production and construction operations. As part of this program, participating material producers are required to have a quality control plan which must be reviewed and accepted by the Department prior to doing business with the state.

Producers with an accepted QC Program are then added to the **Materials Acceptance and Certification Program (MAC)**, the Department's data management system. Once added, the producer is now qualified to supply materials to statewide construction projects. The information collected in MAC is used to generate various reports, identified as the Production Facility Listing.

### Material Source Listings -- PDF

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- Aggregate Pit Proctor Report
- Conductivity Meters (*Conductivity Meters are not governed by the QC Program*)
- Production Facility Reports (MAC)

### Additional Information

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- SMO/District Materials Contacts
- Guidelines for Adding a Producer to the Production Facility Listing
- Material Source Listings for Contracts Let Prior To July 1, 2002

-16-

FPID(S): 431243-1-52-01, ETC.

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# Future of e-Construction

1. Digital Signatures on iPads
2. Enhancements to PSSP
3. “Smart” e-Tickets
4. 3D Models

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# Questions?

Quinton Tillman, P.E.

[Quinton.Tillman@dot.state.fl.us](mailto:Quinton.Tillman@dot.state.fl.us)

every day counts 



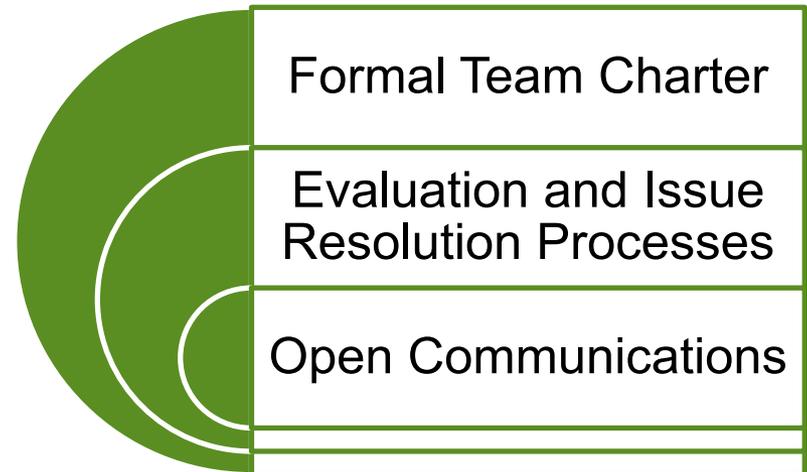
**Tom Warne**  
Tom Warne & Associates

# Historical Partnering Perspective

1990



2016



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# How is Partnering evolving?

- Leveraging technology-mobile devices, etc.
- New unencumbered leadership vision
- Maturation/experience of project managers
- Relationships globally and at the project level are stronger today
- Adjusting to the changing roles
- Scaling the process to suit project needs
- Reflecting the needs of Alternative Project Delivery methods

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# Scaling the Partnering Process

Small projects-project managers facilitate and manage



Medium-sized projects-external or internal facilitation



Large or complex projects-external facilitation

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# Adjusting to the Changing Roles

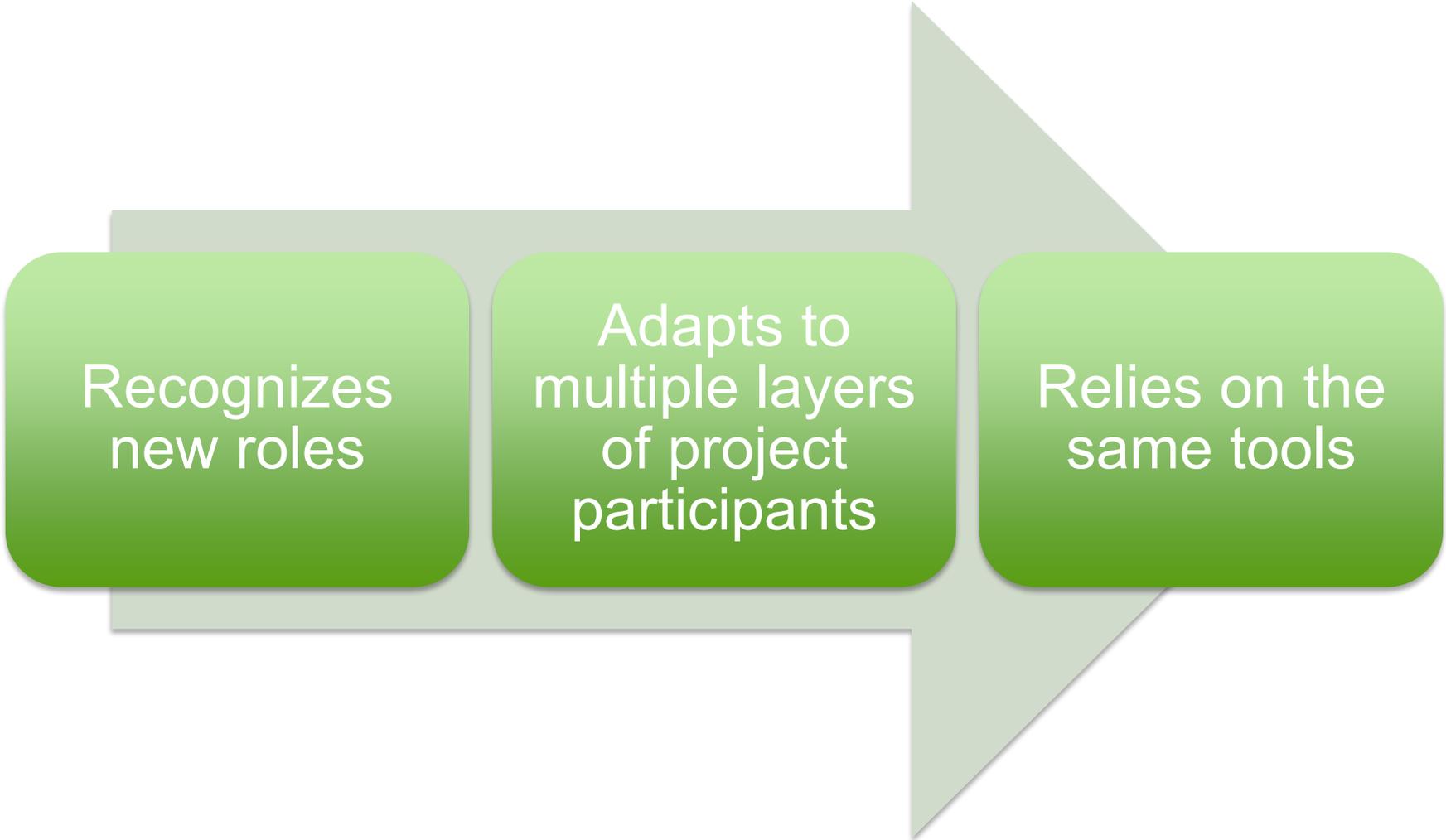
Relationship differences (e.g. DBB and DB)

Project administration (e.g. consultant administered, contractor provided QC/QA, insurance, etc.)

PPP, CMGC, DBFO, others – include financier/concessionaire and others with different sets of motivating factors that need to be addressed

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# Partnering on Alternative Delivery Projects



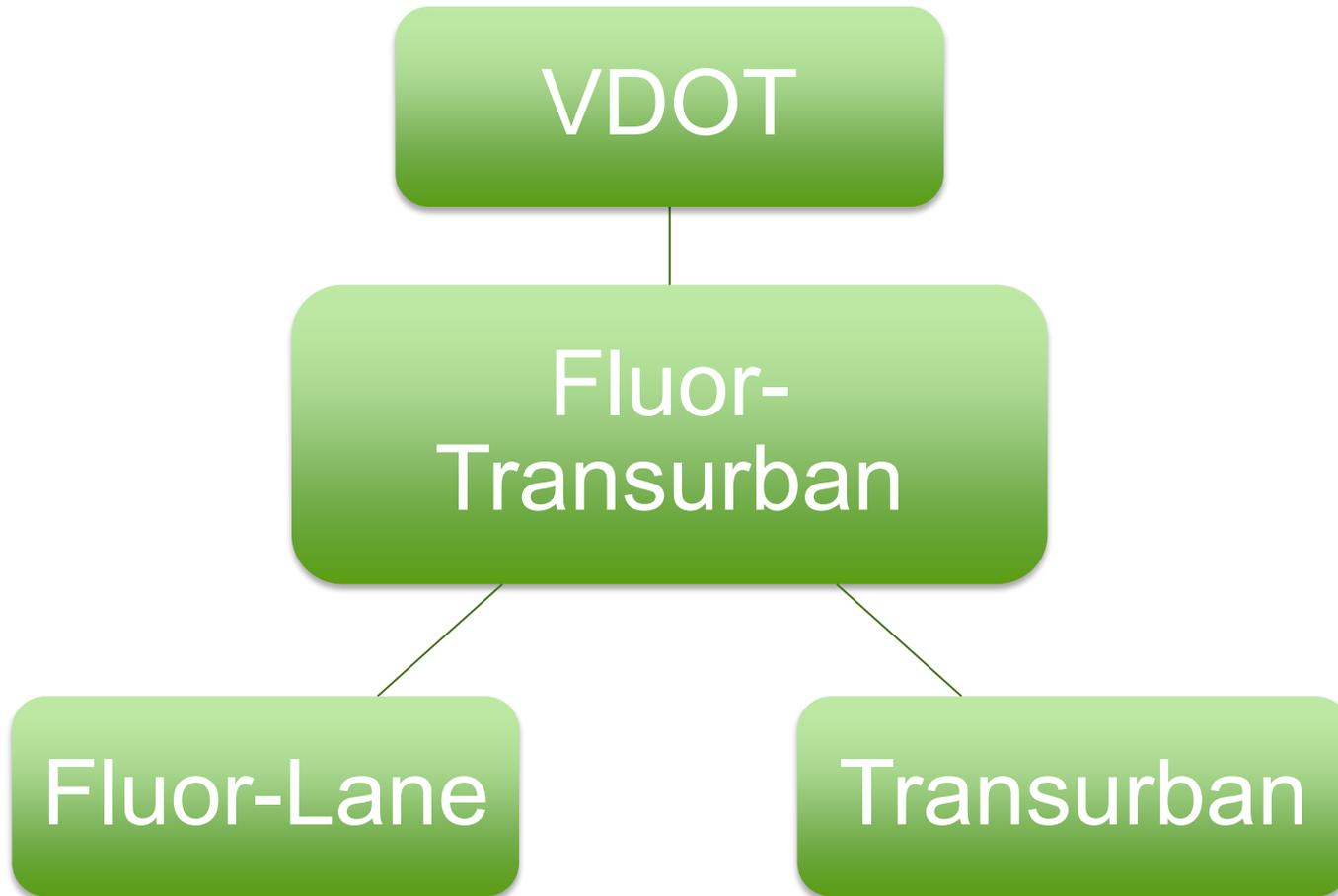
Recognizes  
new roles

Adapts to  
multiple layers  
of project  
participants

Relies on the  
same tools

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# I-405 Capital Beltway Express Lanes Project



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# eC&P Synergies and Benefits

Deeper collaboration results in better use of tools and systems

Leveraging the systems and processes of all partners benefits the overall project

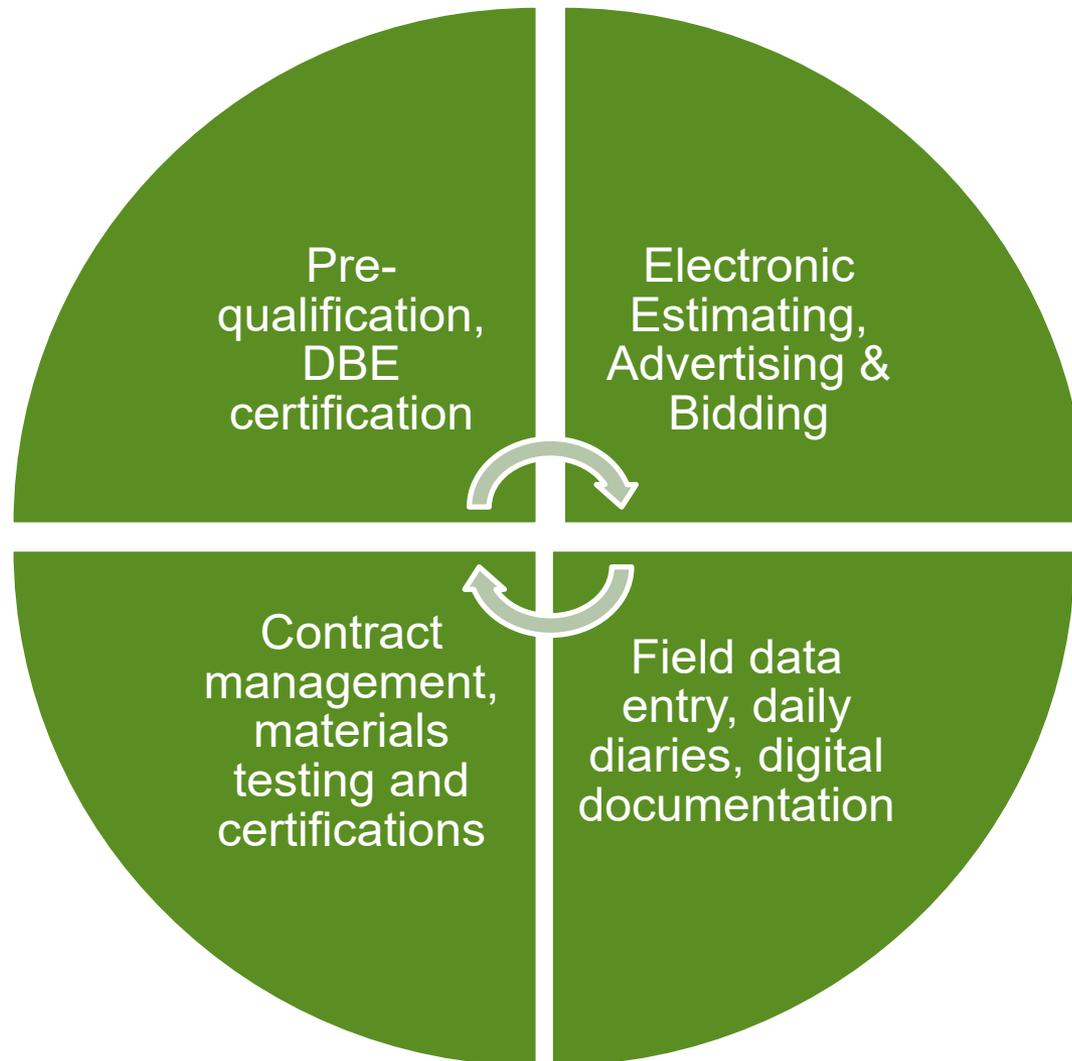
e-Construction will result in better and more effective decision-making

Improved quality, reduced construction time and fewer claims and disputes

More timely project close-out

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# Leveraging Technology



every day counts 



## Ben Browning

Director of Design Build

Arkansas State Highway and Transportation Dept.

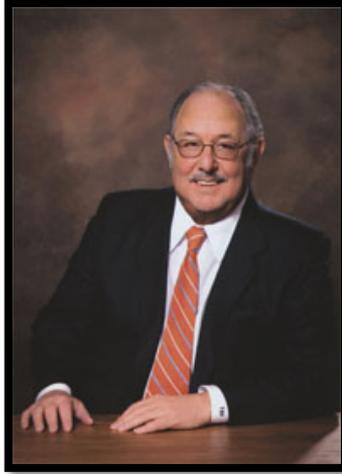
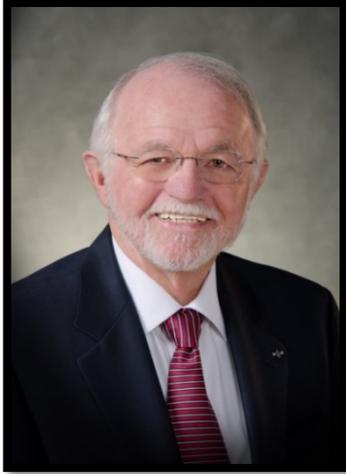
# AHTD Quick Facts

- 3rd Largest State Agency (3,634 employees)
- Maintain 16,416 centerline miles of highway and 7,335 bridges
- Central Offices in Little Rock
  - 10 Districts Offices Statewide
  - 31 Resident Engineer Offices



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# Arkansas Highway Commission



**Dick Trammel - Chairman**

**Tom Schueck - Vice Chairman**

**Robert S. Moore, Jr. - Member**

**Frank D. Scott, Jr. - Member**

**Alec Farmer - Member**

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# AHTD Construction Program

Federal-Aid Program ~ \$500 Million/Year

## Interstate Rehabilitation Program

- 10 Year GARVEE bond program
- 80 Interstate Projects
- \$1.2 Billion



## Connecting Arkansas Program

- 10 Year ½ Cent Sales Tax Program
- 36 Projects on 19 corridors
- \$1.8 Billion
- AHTD's first Design-Build Project



# Why e-Construction?



## Do more with less

- Administer supplemental programs without increased staffing



## Do things faster

- Improved Project delivery requires improved communication and approvals



## Improve Transparency

- Decision making documents and data are readily available and easy to share

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# What we have done: Pre-Construction

2014

- From: Paper Plans and Proposals
- To: Electronic Plans and Proposals

2015

- From: Paper Bids
- To: 100% Electronic Bids

2016

- From: Paper Contracts
- To: Electronic Contracts

2016

- From: Client based Preconstruction Software
- To: Browser based Preconstruction Software

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# What we have done: Construction

2005

- From: Paper Daily Reports
- To: AASHTOWare SiteManager

2008

- From: Paper Materials Tracking
- To: SiteManager Materials

2011

- From: Paper Construction Forms
- To: Electronic Forms

2013

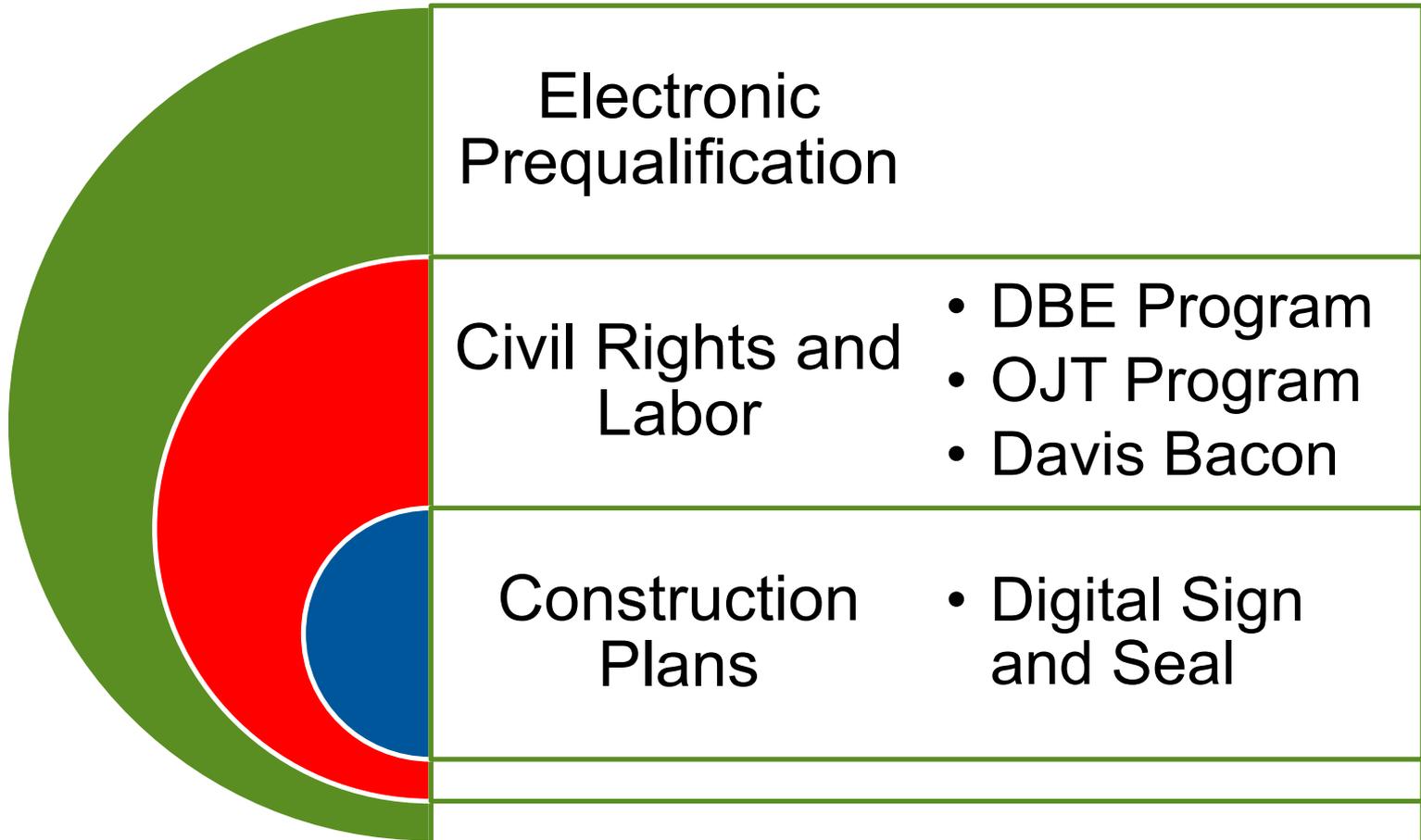
- From: Paper Change Order Process
- To: Electronic Change Order Process

2016

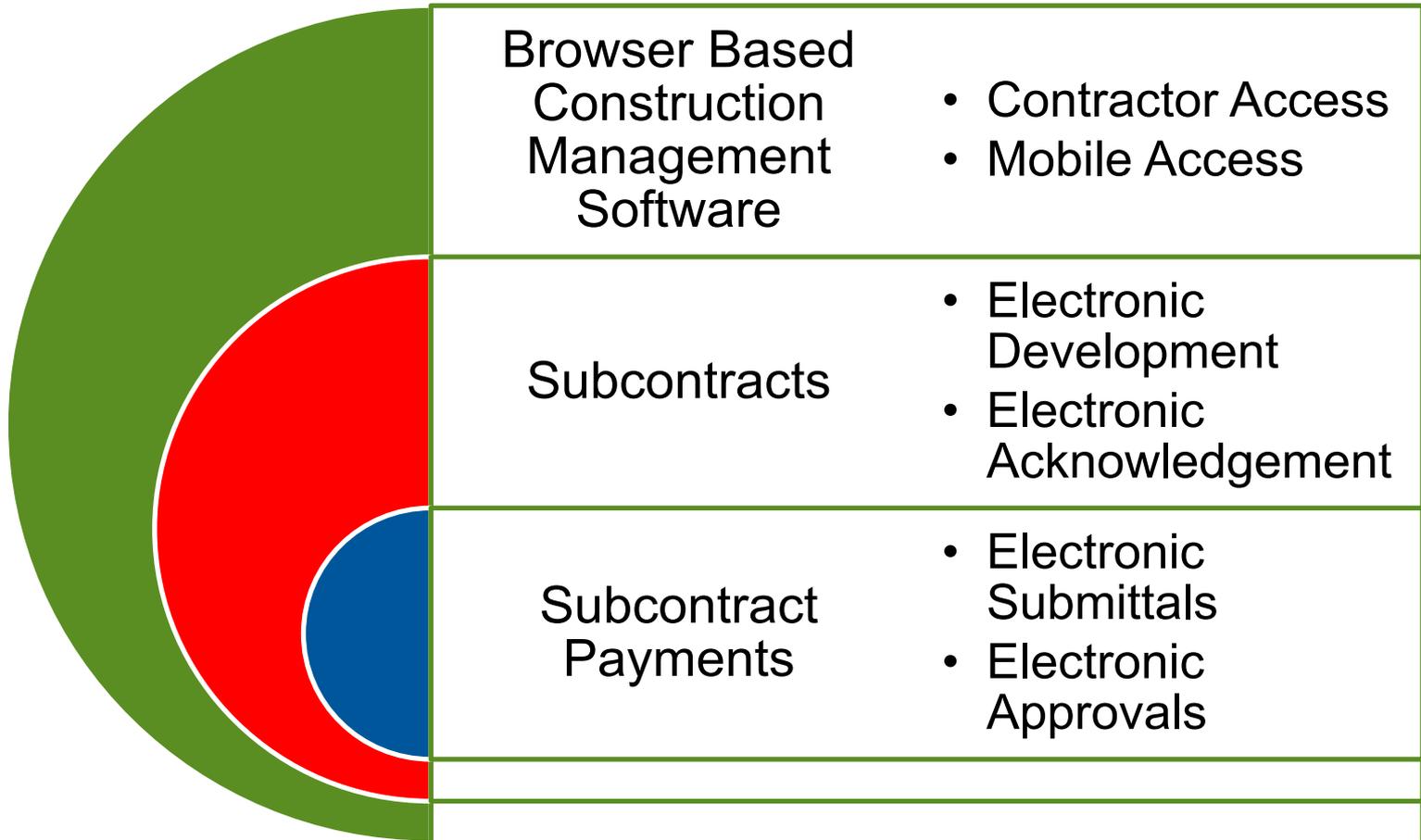
- From: Paper Construction Document Submittals
- To: Electronic Construction Document Submittals

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# What we are working on: Pre-Construction



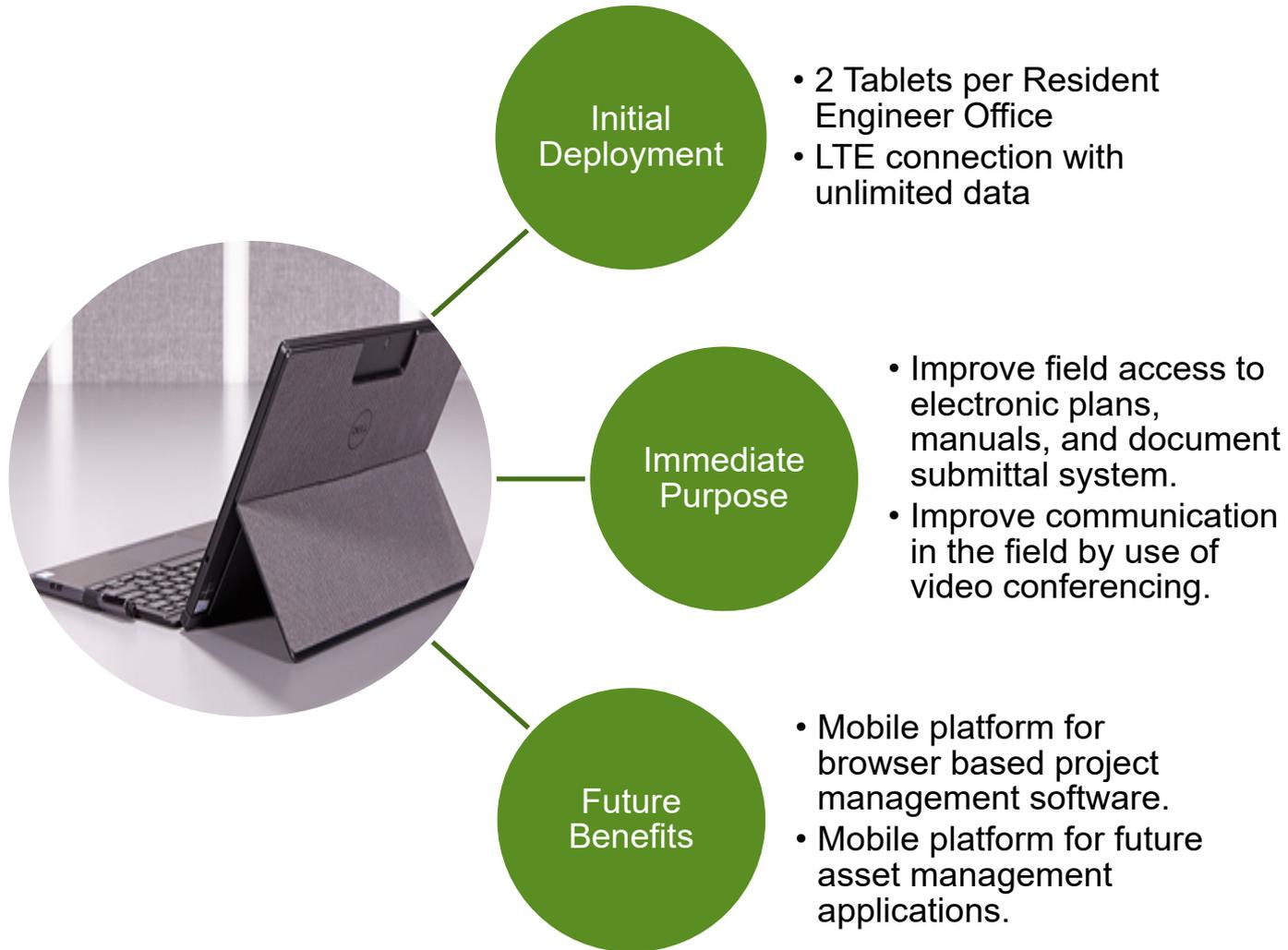
# What we are working on: Construction



# Current Implementations – AASHTOWare Project

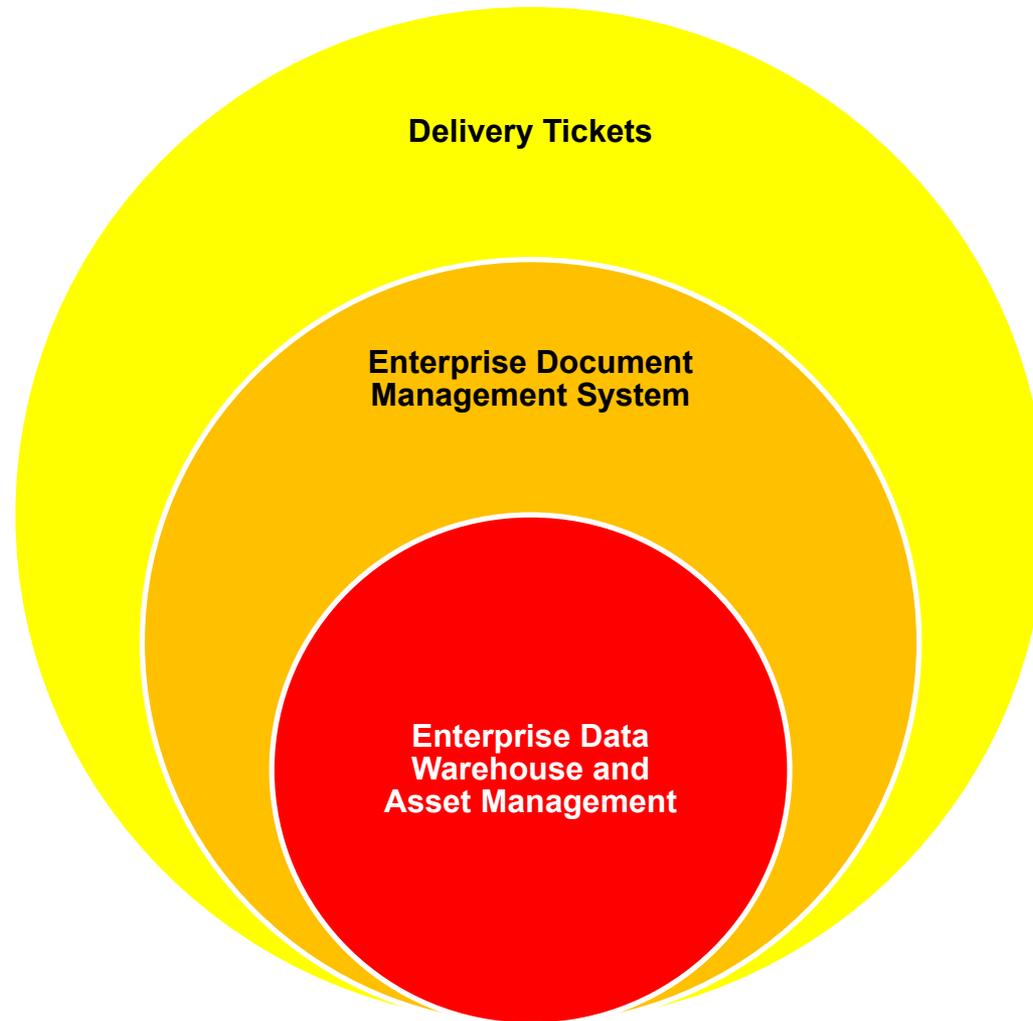


# Current Implementations – Dell Latitude Tablets



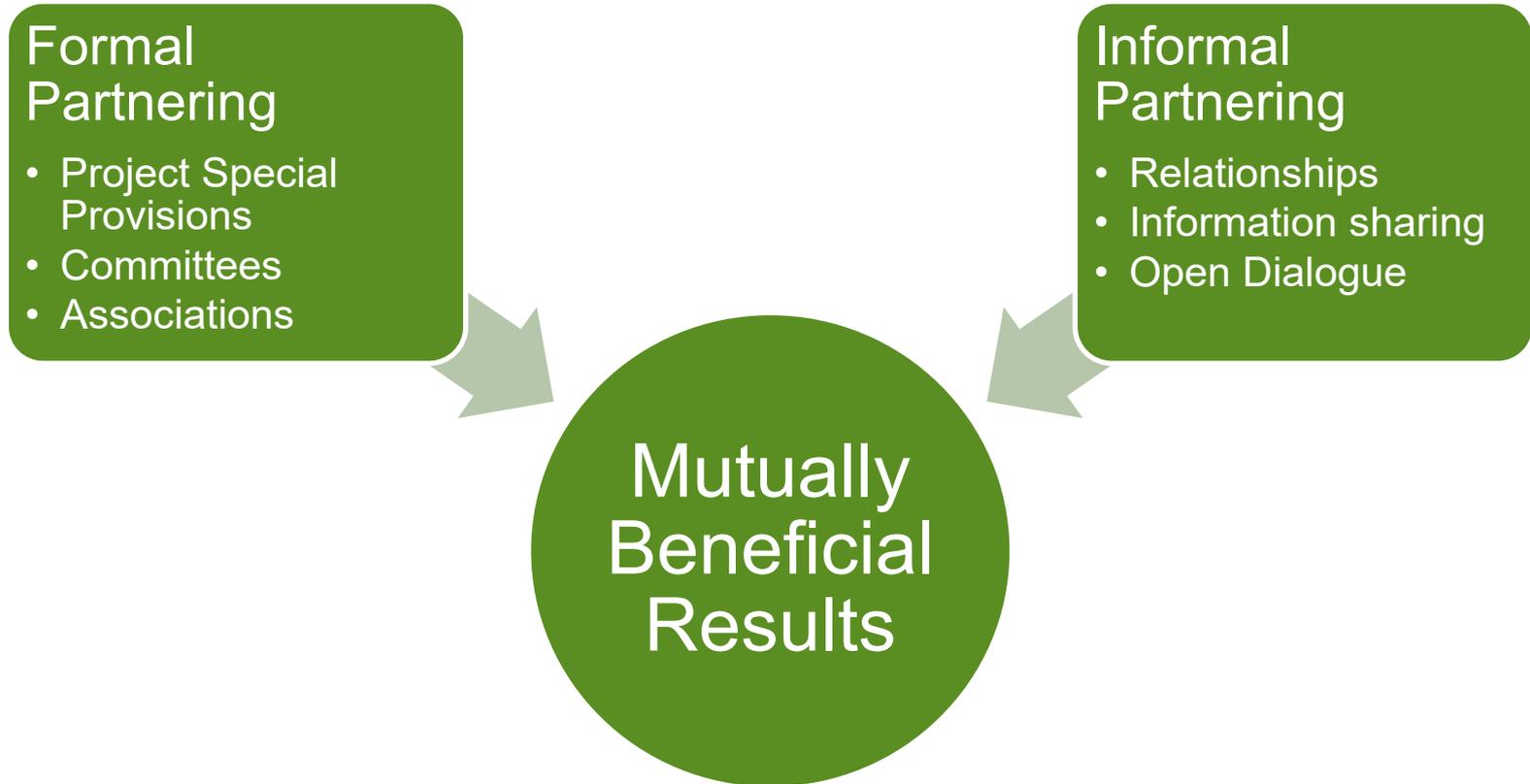
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# What is on the horizon



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# Partnering



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# Formal Partnering on Construction Projects

Voluntary program that seeks to draw on the strengths of all parties involved to achieve mutual goals.

Effective contract performance

Efficient contract performance

Completion of the project within budget

Completion of the project on schedule

Construction of the project in accordance with the contract

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# Formal Partnering with e-Construction

Contractor association members sit on e-Construction steering committee

Department makes regular presentations at Contractor association meetings

Contractors invited to participate in pilot programs and provide feedback

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# Informal Partnering

Open dialogue and developed relationships between the Department and the Contracting industry yield invaluable mutual benefits.



## Change Orders

- Desire for faster approval yielded a vastly improved Change Order development and approval process.



## Material Stockpiles

- Desire for faster processing yielded a process that improved processing time and payment accuracy.

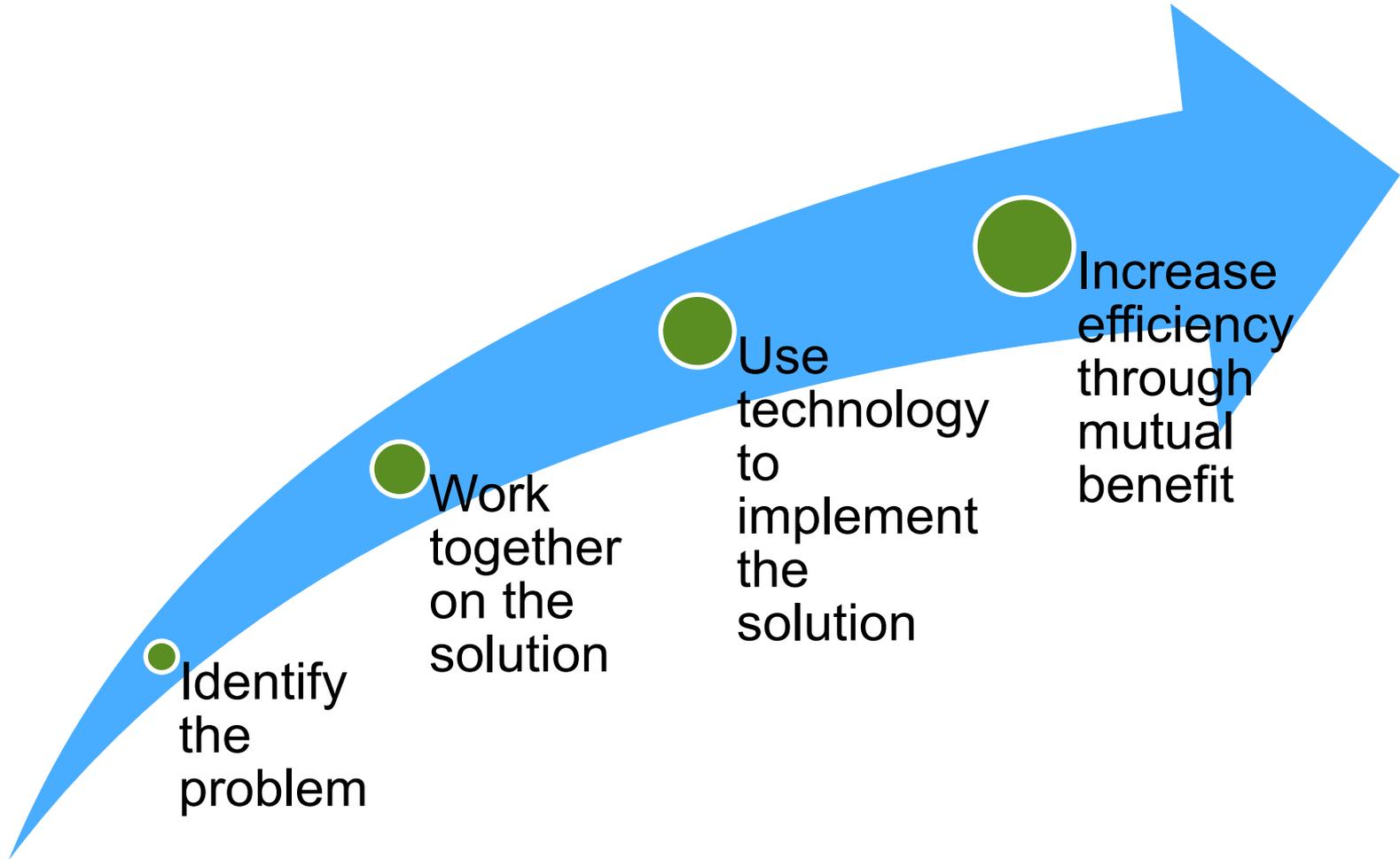


## Correspondence

- Desire for faster responses to inquiries yielded a process that improved accountability as well as response times

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# e-Construction is Partnering



every day counts 



## Sandra Keller

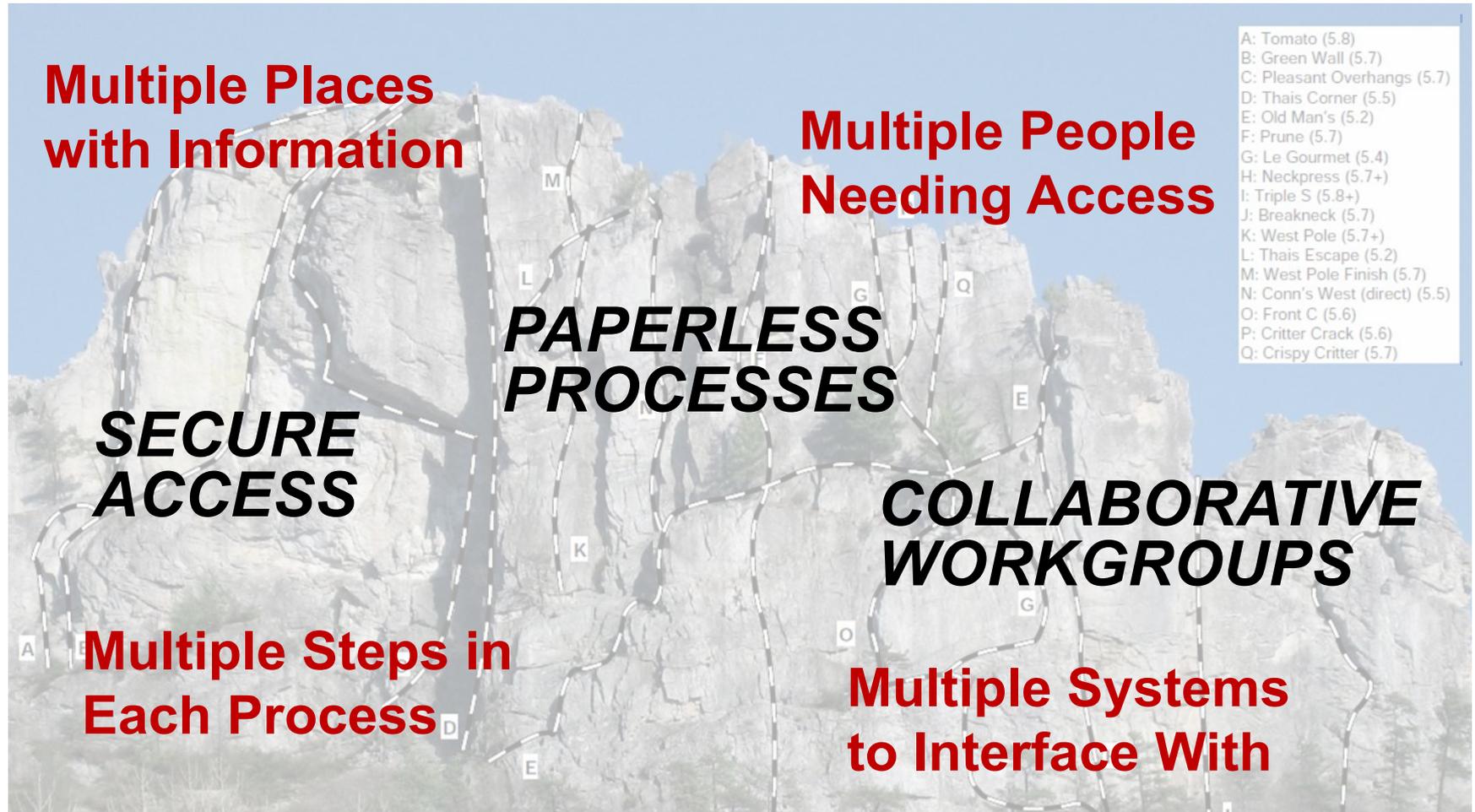
Information Services Division  
West Virginia Division of Highways

# Overview of WVDOH

- 10 Districts / 55 County Offices
- 473 construction employees
- Sixth largest state maintained highway network in the nation
- 38,759 miles of public roads
- 6,958 bridges (33% over 100 ft in length)
- 414 Projects in 2015
- Total original bid amount over \$783,000,000



# Obstacles & Goals to e-Construction



**Multiple Places with Information**

**Multiple People Needing Access**

**PAPERLESS PROCESSES**

**SECURE ACCESS**

**COLLABORATIVE WORKGROUPS**

**Multiple Steps in Each Process**

**Multiple Systems to Interface With**

- A: Tomato (5.8)
- B: Green Wall (5.7)
- C: Pleasant Overhangs (5.7)
- D: Thais Corner (5.5)
- E: Old Man's (5.2)
- F: Prune (5.7)
- G: Le Gourmet (5.4)
- H: Neckpress (5.7+)
- I: Triple S (5.8+)
- J: Breakneck (5.7)
- K: West Pole (5.7+)
- L: Thais Escape (5.2)
- M: West Pole Finish (5.7)
- N: Conn's West (direct) (5.5)
- O: Front C (5.6)
- P: Critter Crack (5.6)
- Q: Crispy Critter (5.7)

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# Evolution to e-Construction

- Paper-based processes
- Manual approvals
- Duplicate data entry
  
- ProjectWise
- Access for FHWA & Contractors
  
- Implemented SiteManager with LIMS module

# e-Construction Architecture

## **Bid Express**

(online advertising  
& bidding)

## **AASHTOWare**

Project  
PreConstruction

## **AASHTOWare**

Project Construction  
(SiteManager)

## **SiteManager Reports**

## **Bentley ProjectWise**

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# AASHTOWare Project Construction

## aka SiteManager

*Digital tracking and reporting of construction data*

- Client/Server system version 3.1.6a
- Desktops / Laptops / Tablets
- Centralized Oracle Database
- Minimum System Customization
- Citrix to allow access for outside contractors, consultants and FHWA and present Windows Desktop for iPads
- Network Account required for access.
- SiteManager Reports - MS Access custom apps

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# Bentley ProjectWise

*Enterprise file storage and project collaboration*

- Client/Server and Web Client.
- Desktop / Laptops / Tablets / Phones
- Centralized SQL database
- Caching Servers in 10 District Offices
- Ability to provide secure access both within and from outside the network
- Ability to link documents with legacy systems
- Ability to capture and present metadata for project and file
- Mobile Application – Bentley WorkSite
- Integration with Microsoft applications

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# SiteManager Reports

*Publishing data formatted for DOH specifications*

- Access Database
- Customized Reporting for the unique needs of each role. To date have over 150 reports.
  - Administration
  - Construction
  - Consultants
  - FHWA
- Search providing extended Project Information
- Assistance provided by Virginia and Alaska



# WEST VIRGINIA DEPARTMENT OF TRANSPORTATION



## SiteManager Reports

Version: 1.7.6

Administration

Construction

Materials

Contractors

FHWA

System

Report  
Index

Project  
Search

Update  
On Exit

Exit

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# BlueBeam Revu Extreme

## *PDF Editor*

- Digital Markup for As Built Design
- Workflow for Review and Approval Process
- Integrated with ProjectWise
- Collaborative Workflow using Cloud Services is available (WV DOT currently not using)
- Ability to use Digital and Electronic Signature

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# Return on Investment

## SAVING TIME

- Ability for management to quickly find out the REAL status of a project
- Auditors can do their research at their desk
- Legal can access files needed for FOIA

## Eliminate Duplicate Information

## Ability to track the progress of a project

- Through formal workflow and ability to access files

# Partnering

## Online Access to SiteManager and ProjectWise

Promotes collaboration by providing all parties access to the same files and data.

## Centralized District Construction email

Assures receipt and review of information to correct staff and eliminates duplicates.

## Live Bid Awarding process

In collaboration with CAWV.



---

# Partnering Benefits Realized

## **Expedite the Change Order process**

- Approvals are now done electronically in SM

## **Project Transparency for Contractors**

- Immediate access to files. Access to the related information

## **Improved Communication**

- Promotes a Collaborative Environment

## **Improved Accountability**

- Ability to track and review when processes are initiated and completed

---

# Future e-Construction Initiatives

- Electronic & Digital Signature
- Implement Civil Rights Module
- Produce Final As Built drawings using Bluebeam
- Expand use of GIS
- Transition to AASHTOWare Project 3.0x



# QUESTIONS

## Contact Information:

Sandi Keller, IS Manager

WVDOT, Information Services Division

1900 Kanawha Blvd East

Charleston, WV 25305

304/558-9524

[Sandra.F.Keller@wv.gov](mailto:Sandra.F.Keller@wv.gov)

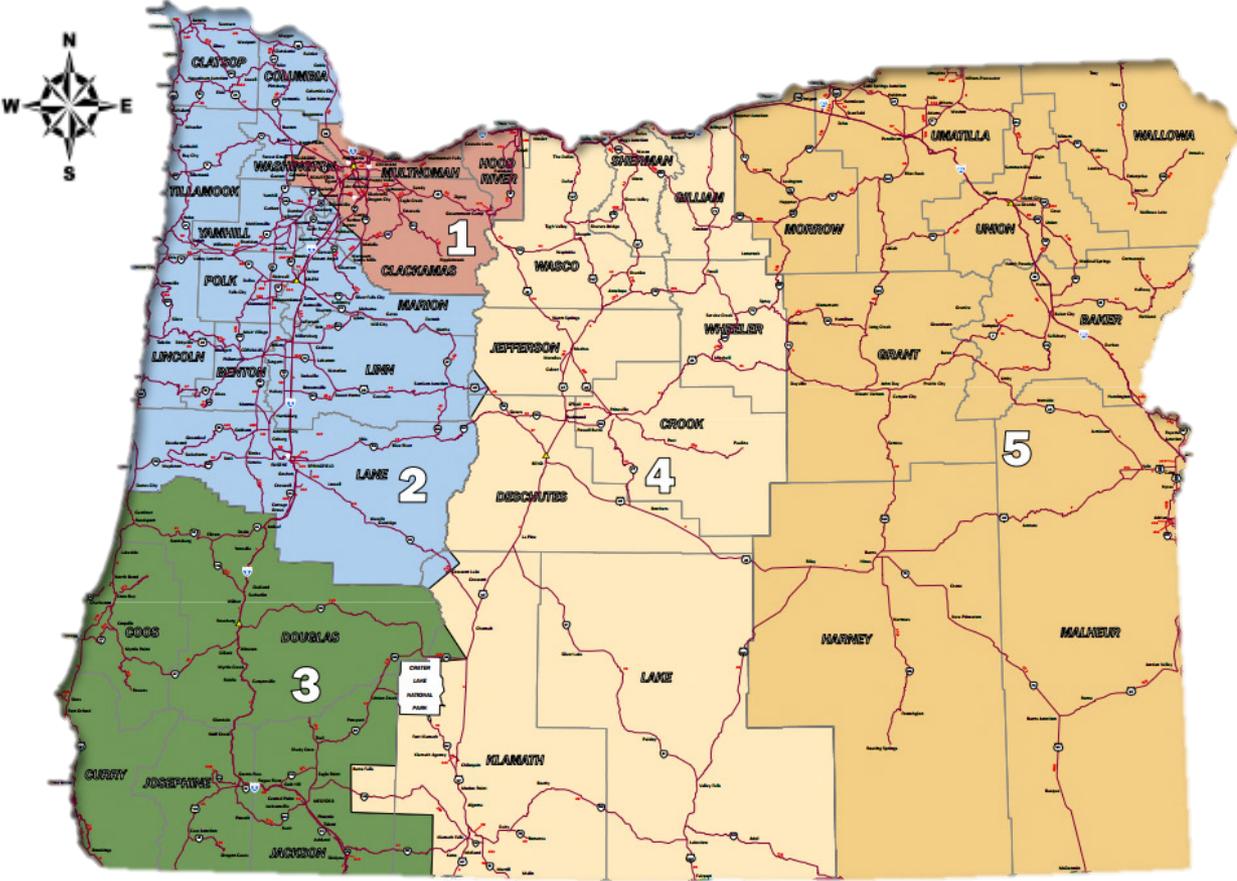
every day counts 



**Joe Squire**

State Construction & Materials Engineer  
Oregon DOT

# Overview of ODOT



**5 Regions**

**15 Construction Crews & 4 Consultant PMs**

**220 Full Time Inspectors**

**95 HQ Construction Staff**

**130 to 180 projects per year**

**\$350M annual program  
20% state funded**

# e-Construction – influencing externalities

**1993**

DMV, \$56M upgrade to bring 1960's tech current

**2005**

State Data Center \$63M to consolidate agencies

**2008**

Health Plan MIS, \$80M launched before ready

**2009**

Wireless Interoperability Network \$600M scope reduced, ODOT took over

**2010**

Employment Dept., \$8.1M failed to work

**2012**

Cover Oregon, \$248M Federal & State funds

**2014**

Legislators create IT governance model, thresholds risk matrix developed & initiated

# e-Construction – ODOT's Adventure



Contractor challenge “reduce paperwork” June 2014



Enthusiastic support - Senior Management & Industry



Voice of Industry & Crews – mapped all processes



If created on computer - keep it on a computer



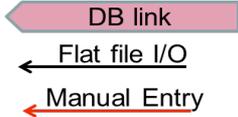
Business Case, explored others vs. Oregon Concepts



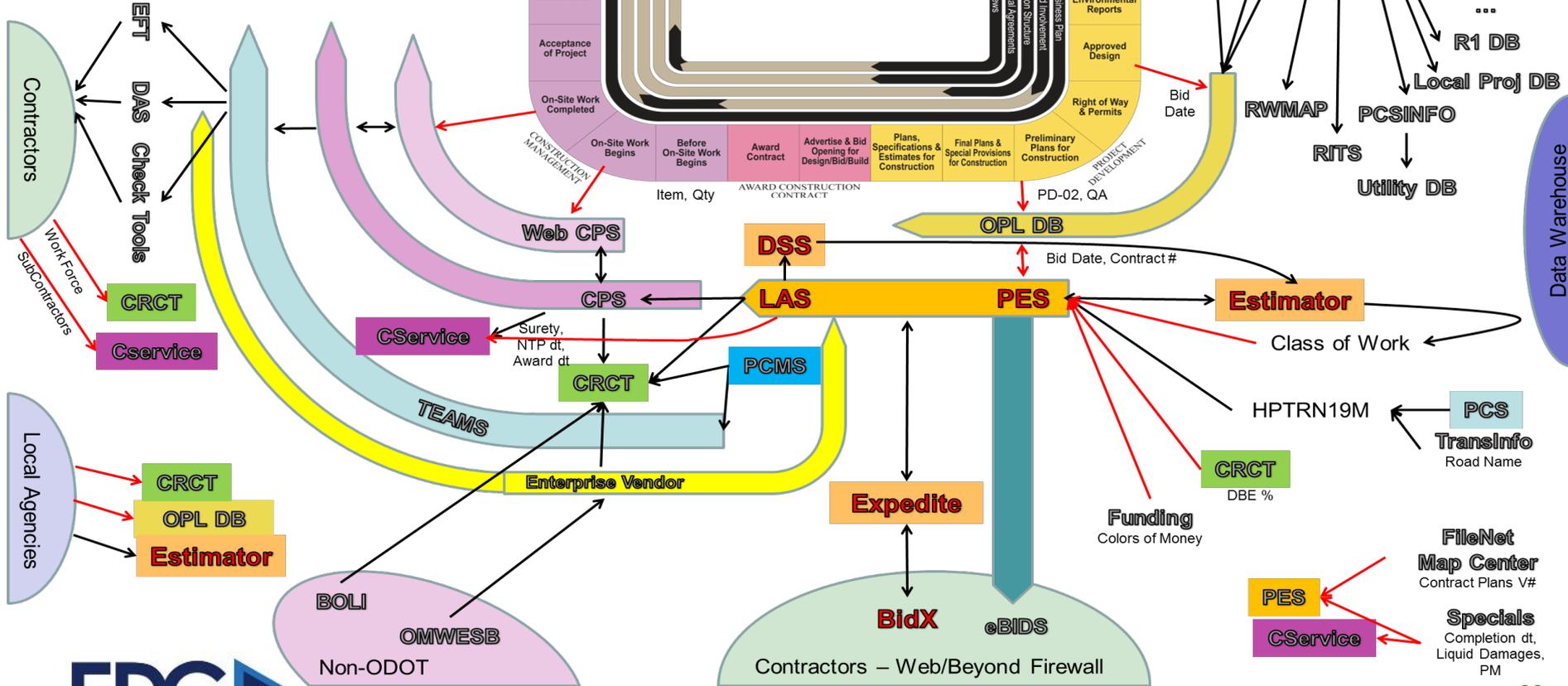
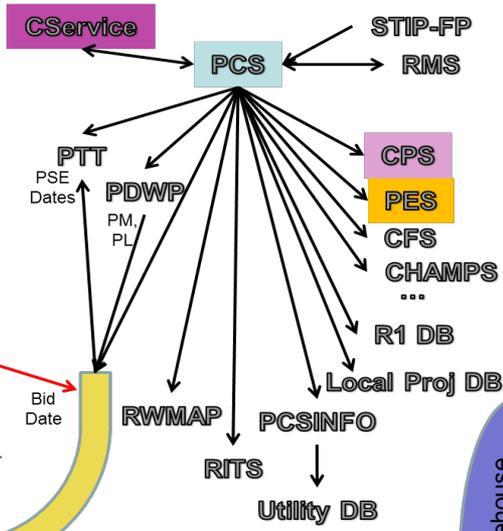
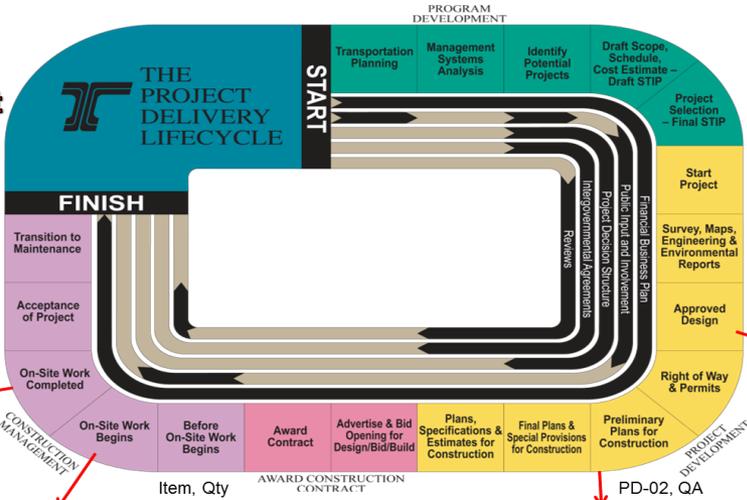
EDC3 October 2014 – Met MDOT, FHWA peer exchange

# ODOT's e-Construction Journey - 2014

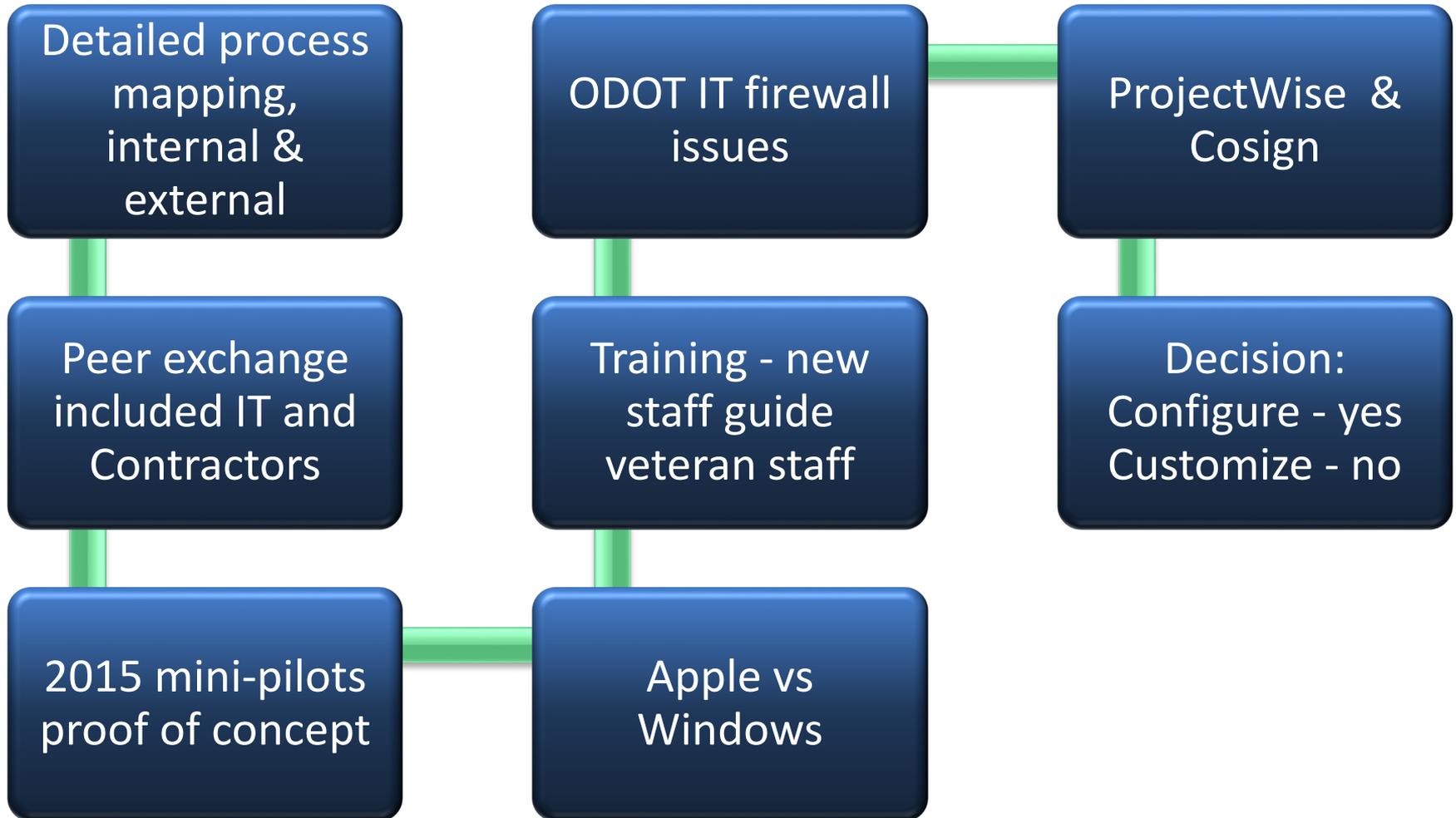
**AASHTOWare**



**Bridge Management**



# ODOT's e-Construction Journey - 2015



# ODOT's e-Construction Journey

February  
2015

e-Construction Roll out 2016?

Expanded Pilot  
Summer 2015

Final Steps to  
Achieve Digital  
Documentation

Digital  
Signatures

Mobile Field  
Devices

Digital Docs  
w/ External  
Access

Policy and  
Training

Contract &  
Specs

3D Digital  
Plans

Bid Express  
Electronic  
Bidding

ProjectWise  
for Design

# e-Construction at ODOT Pilot Outcomes

## 2015 Pilots

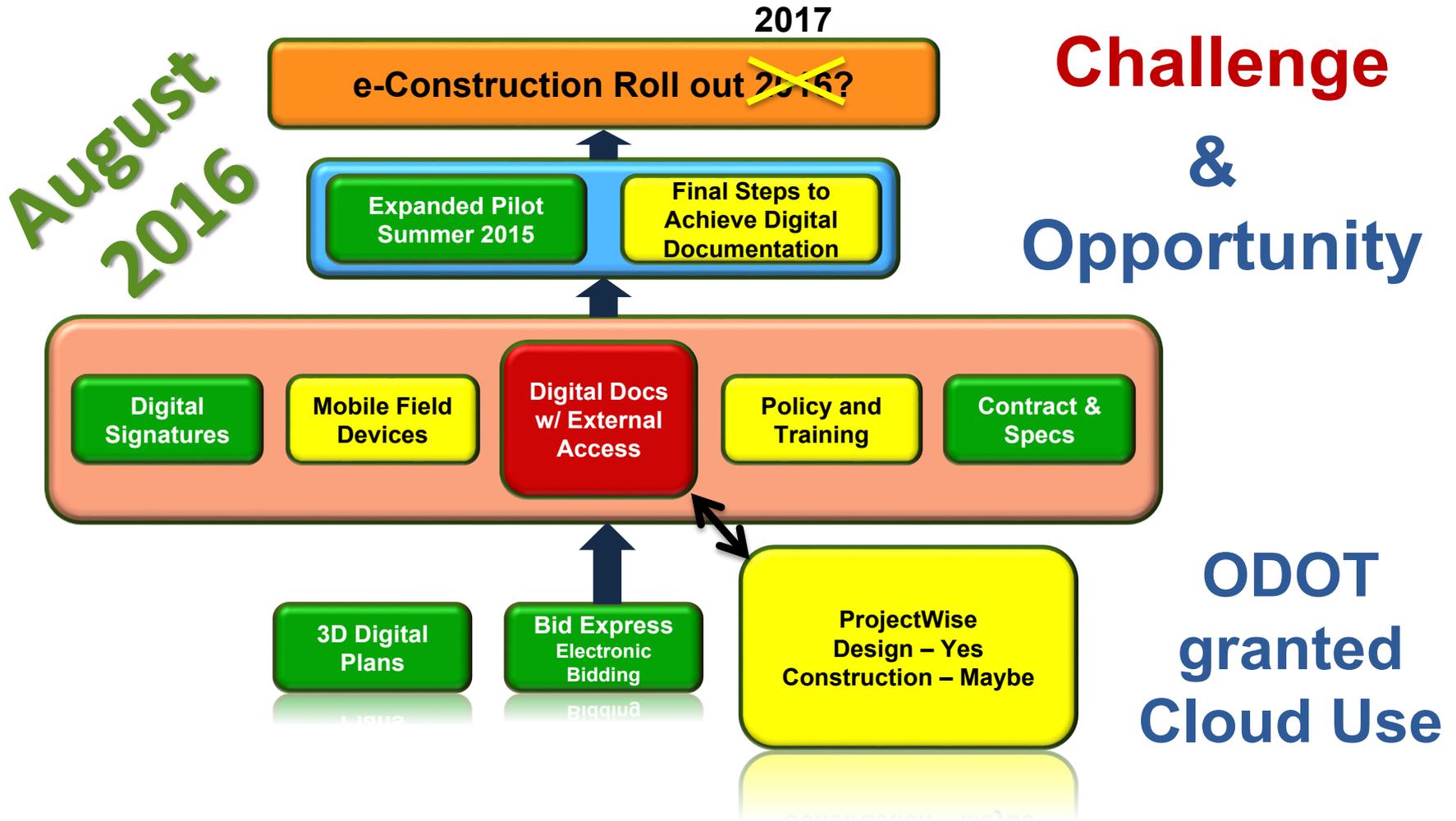
- Safety
- Security
- Training
- Connectivity\*
- Apple iPad Air 2\*
- Digital Signature\*
- Original / Markups
- Folder & File Structures
- Forms & Apps Available
- Roles and Responsibilities

## 2016 Pilots

- Safety
- Security
- Training
- Wi-Fi & Hotspots
- ProjectWise Connectivity\*
- MS Surface Pro 4
- Multiple Digital Signatures\*
- Adobe Markups\*
- Forms Modifications
- Roles and Responsibilities

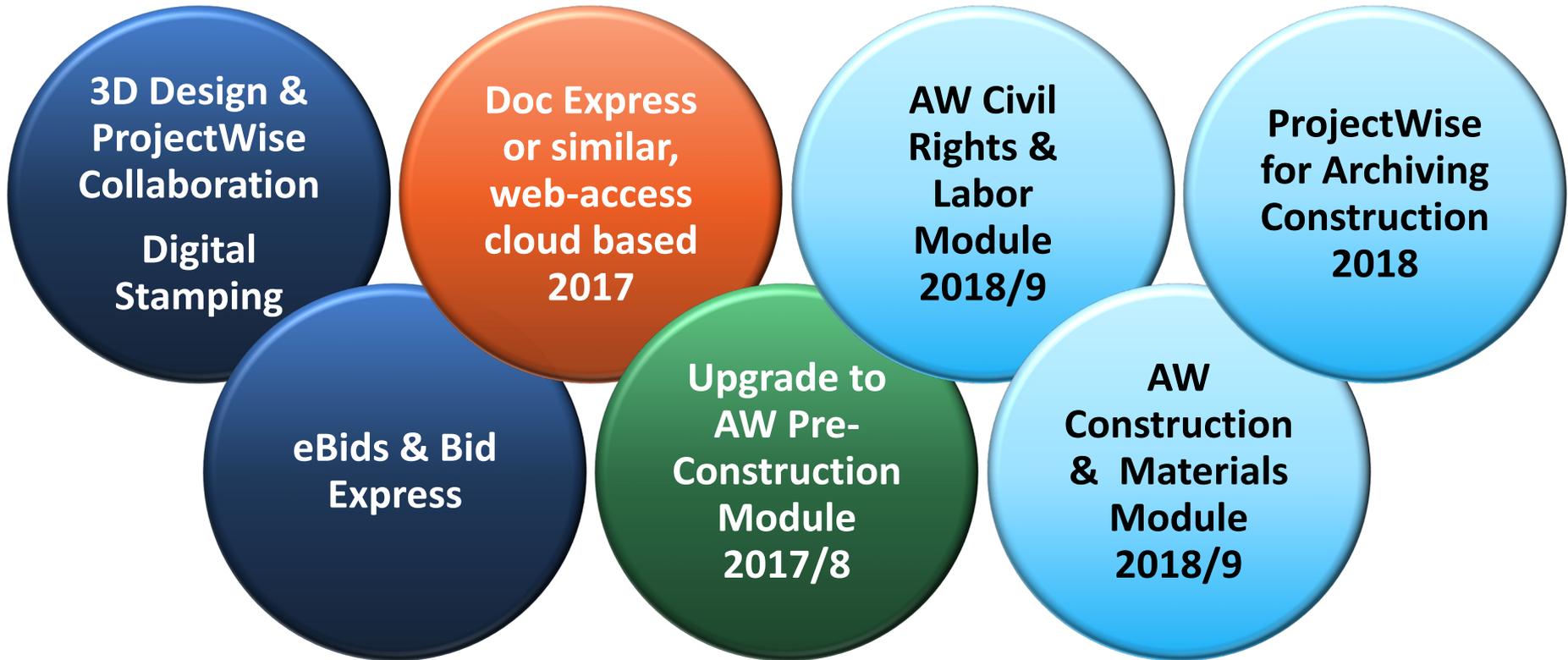
\* Significant issues encountered

# ODOT's e-Construction Journey

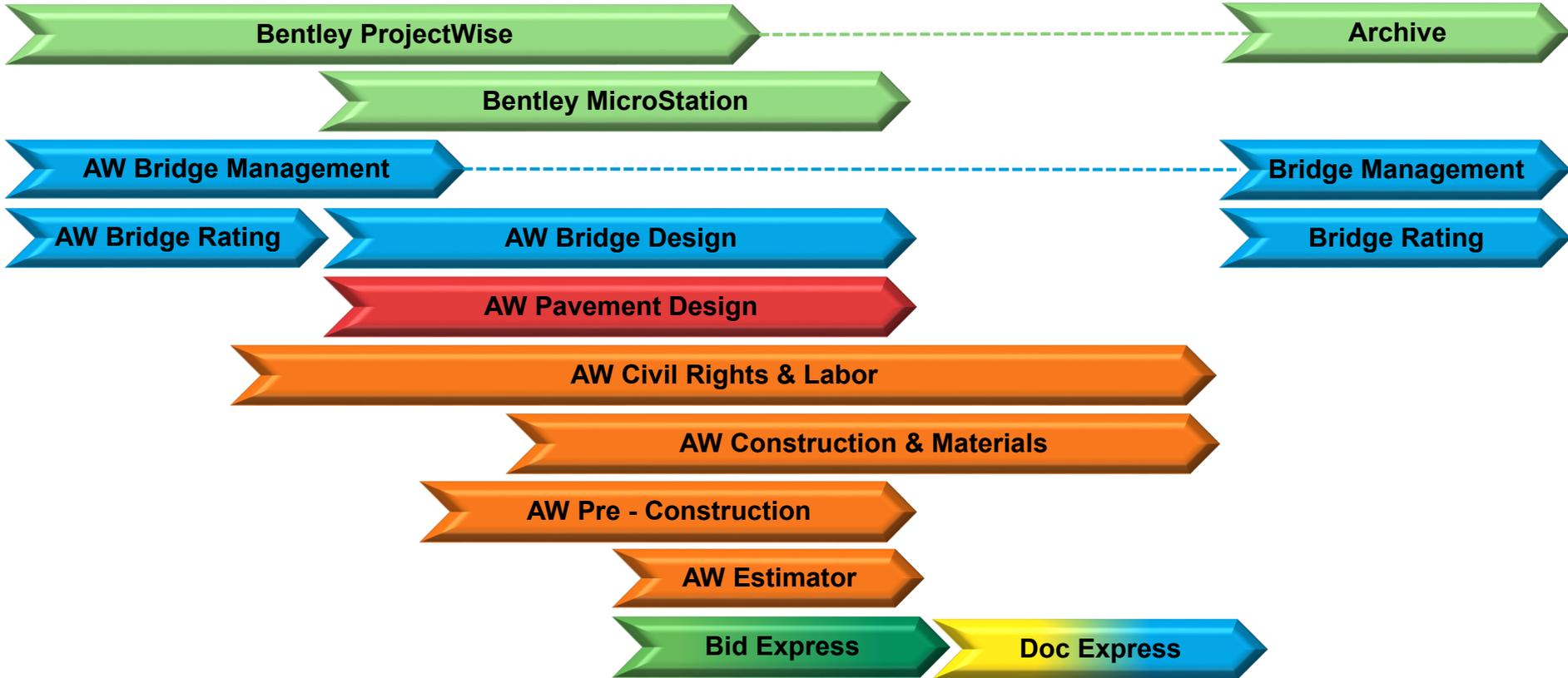


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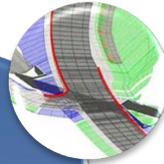
# e-Construction in ODOT's Future



**Proposed e-Construction Timeline Systems**



# ODOT's Integrated Approach



## 3D Design



## Mobile LiDAR Survey

- Design Survey, Assets, Vertical Clearance
- Maintenance, i.e., Landslides



## e-Construction



## Inspector Positioning Tools



## Automated Machine Guidance

- 3D Milling
- Machine generated as-Built - **Future**



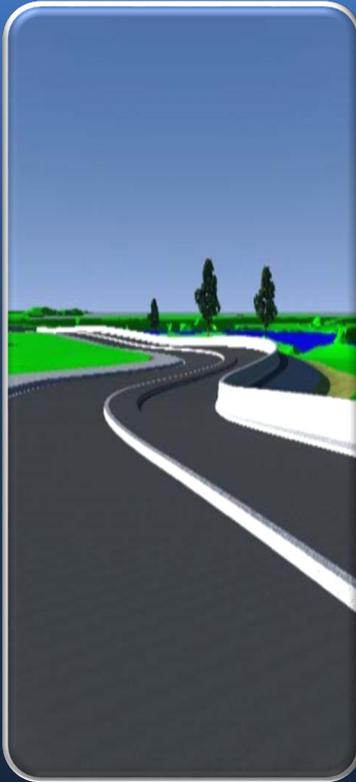
## Intelligent Compaction

Engineering  
Technology  
Advancement

# ODOT e-Construction Partnering

## A great unanticipated consequence

### Pathway to e-Construction success



- Champions
- Senior management support
- Flexibility – challenge status quo
- Take IT staff to a construction site
- Process mapping with stakeholders
- Industry input throughout from all levels
  - Primes, Subs, Consultants, Vendors
- Construction engaged with other ODOT units

# ODOT Partnering Values

- Practice the golden rule
- Maintain high integrity of people and process
- Culture change with worth is welcome

## Partnering Values

## ODOT partnering Informal is best

- Work to understand other points of view
- Weekly site meetings
- Involve key site staff
- Close out items

---

# ODOT Partnering Processes

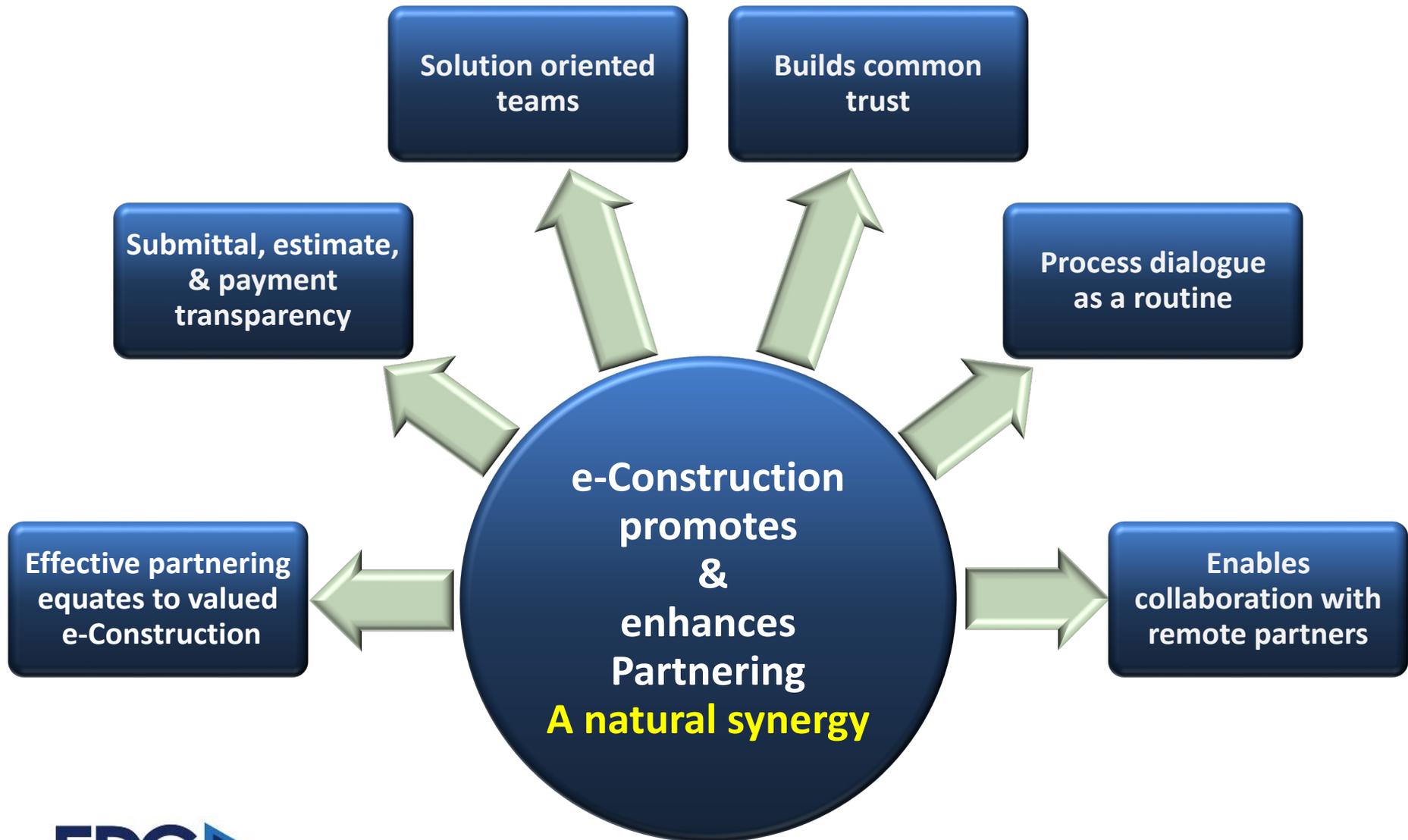
## Projects partnered similar to other DOTs

- Informal = ODOT PM and Contractor PM facilitate
- Semi-Formal = Trained internal facilitator
- Formal = Hired outside facilitator, 3<sup>rd</sup> party neutral
- Costs are shared between contractor and ODOT
- Escalation process, a few include senior management

## Partnering meetings

- Project weekly PM meetings with agenda and guidance
- Monthly Industry meetings: (1) Director's staff & (2) General session
- Identify opportunities, challenges, & risks along with potential solutions or pathways

# ODOT's e-Construction & Partnering



# ODOT's e-Construction Vision



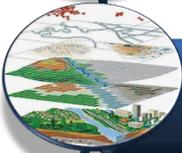
Remain secure



One source of collaborative truth



Accessible to all – Internal & External



Capture & leverage geospatial data



Demonstrated return on investment



Think modularity & beyond the next potential use

every day counts 



**Rachel Falsetti**  
Division Chief of Construction  
Caltrans

# California Highway System Assets



- **50,000+ Lane Miles**
- **12,500 Bridges**
- **26,800 Acres of Landscape**
- **205,000 Culverts**
- **87 Safety Roadside Rests**

# Overview of Caltrans

- 12 Districts
- 9 deputies
- 1700 District Construction Staff
- 400 Structure Construction Staff
- About 750 contracts on going
- Value of \$8.8 billion



# e-Construction & Partnering Synergies



## e-Construction

- Increases Transparency
- Saves Time, Resources, and Money
- Improves communications

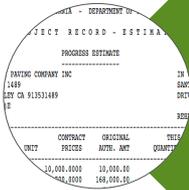


## Partnering

- Increases Transparency
- Saves Time, Resources, and Money
- Improves Communication

# Current State of e-Construction at Caltrans

## Production



Automated Contractor Pay System



Electronic Extra Work Billing System



Intelligent Compaction



Inertial Profile

## Pilots



Mobile Devices - Tablets



Electronic Document and Retention Management System



Electronic Field Daily Reports



Automated Machine Guidance

# Future State of e-Construction at

## Caltrans

### Development



Electronic  
Potential Claim  
Submittal



AASHTOWare  
Civil Rights and  
Labor  
Compliance

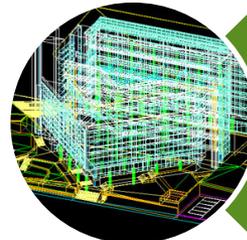


AASHTOWare  
Materials  
Management

### Future



AASHTOWare  
Project  
Construction



Geo-Referenced  
Asset Inventory



3D Models

# Caltrans Partnering Culture

Partnering is  
a culture, not  
a process

- Good Processes lead to culture change

Partnering— Our  
way of doing  
business

- Fairness
- Cooperative Behaviors & Teamwork
- Open and Honest Communication
- Joint Problem Solving
- Rapid Dispute Resolution at the Lowest Level

# Project Level Keys to Partnering Success

## Best Practices:

- Executive Level Engagement
- Required on projects greater than \$10m and 100 WD's
- Professional Facilitator
- Costs are split 50/50 between contractor and CT
- Dispute Resolution Ladder
- Identify challenges/risks - discuss solutions

---

# Program Level Keys to Partnering Success



- Caltrans Construction Partnering Steering Committee meets quarterly to address barriers to partnering at a program level
- Recognize successful teams at annual award ceremony
- Executive Leadership

# e-Construction & Partnering

## A Vision for the Future

### Caltrans

- Embraces both e-Construction & Partnering
- Moving Forward Together



every day counts 



**Janet Treadway**  
Data Systems Manager  
Ohio DOT

# ODOT Overview

12 Districts – 88 County Offices

**2015**

ODOT sold 713 projects  
\$ 1.65 billion

ODOT/Local (LPA) sold 224 projects  
\$ 320.3 million

Administered 5025 Sub contracts

Construction inspections staff  
579 full time  
219 part time  
125 consultant staff



---

# Path to e-Construction

**Construction project  
administration**

**Document Storage  
and Retention**

**Inspection Forms**

**Mobile Device  
Deployment**

---

# Path to e-Construction

**Construction project  
administration**

**Document Storage  
and Retention**

**Inspection Forms**

**Mobile Device  
Deployment**

---

# Path to e-Construction

Construction project  
administration

Document  
Storage and  
Retention

Inspection Forms

Mobile Device  
Deployment

---

# Path to e-Construction

Construction project  
administration

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---

# Path to e-Construction

Construction project  
administration

Document Storage  
and Retention

Inspection Forms

Mobile Device  
Deployment

# Partnering & e-Construction

## Local Programs and SiteManager

- 2 active Pilot Projects
- Access to SiteManager is Free
- Trainings with both Locals and Consultants
- Allows Locals to have...
  - A more formal material tracking system
  - Web based Portal reports (Change Orders, Estimates, DWRs, etc.)
  - Reduced paper
  - Better documentation for audits



# Ohio DOT Partnering Program Overview

## Path to eConstruction - Partnering with the Industry

### Partnering Programmatic

Executive Level support

Steering Committee comprised of ODOT and Contractors

Committee leads Statewide Trainings and Partnering Award Program

### Self-Facilitated Partnering

Contract Requirement (C&MS 108.02)

Initial Partnering Meeting in addition to Precons, Progress Meetings, etc.

Led by ODOT Project Engineer and Prime Contractor Super

### Facilitated Partnering

Projects > \$5M

ODOT Approved list of Facilitators

Designed to work with or without DRAs/DRBs

Meetings every 3 – 6 months

---

# Partnering & e-Construction

## 3D/4D Model – EDC #3 Pilot Project

- **Meetings with Industry to discuss knowledge base and specification development Dec 2014**
- **Completed Model late Feb 2015**
- **Completed Specifications – April 24 2015**
- **Advertisement – May 21 2015**
- **Sale – July 23 2015**

# Partnering & e-Construction

## 3D Model

- **Provided Land XML files (horizontal, vertical, existing and proposed 3D surfaces), GEOPAK coordinate data base and triangle models, and CADD Basemaps**
- **3D Model was contractual for ...**
  - Roadway profile grades and elevations**
  - Pavement grade breaks, slopes and surface elevations**
  - Earthwork elevations including surface and slopes**

## 4D Model

- **Required to provide one or more virtual models that depicted...**
  - MOT Phasing**
  - Earthwork locations with quantities**
  - Pavement phasing with quantities**

---

# Our Future

**Construction project  
administration**

**Document Storage  
and Retention**

**Inspection Forms**

**Mobile Device  
Management**

**3D & 4D models**

---

# Our Future

**Contractors**

**Consultants**

**Local Participating  
Agencies**

**Our Staff**

every day counts 



**Sarah Kleinschmit**  
Field Materials Engineer  
Missouri DOT

# Overview of MoDOT

7 Districts

19 Central Office Divisions

33,884 Miles of Roadways and 10,400 Bridges

253 Fulltime Construction Inspectors

\$700 Million Construction Budget FY17



---

# e-Construction and Partnering

**Examples of e-Construction at MoDOT are:**

- **Electronic Bidding and Online Plans Room**
- **Digital Signatures**
- **Online Specifications, Standard Plans, and Engineering Policy Guide**
- **SharePoint and ProjectWise**
- **SiteManager**
- **iPhones, iPads, tablets, and laptops in the field**

---

# e-Construction and Partnering

Exactly what is PARTNERING?



**Definition of Partner:** one of two or more people, businesses, etc. that work together or do business together.

# e-Construction and Partnering

## Electronic Bidding and Online Plans Room



Call for 161216	Description	Proposal	Plans	EBS File	Cross Sections	Electronic Deliverables	Download Files
A01	(1) Job J1L1703J Route CC GRUNDY, HARRISON County. Resurface from Route 136 to Route 146 near Brimson, the total length of improvement being 11.78 miles.	<a href="#">View</a> <input type="checkbox"/>	<a href="#">View</a> <input type="checkbox"/>	<input type="checkbox"/>			<a href="#">Select All</a> <input type="checkbox"/> <a href="#">Download Selected Files for Call A01</a> <input type="button" value="Submit"/>
B01	(1) Job J2P3105 Route 6 KNOX, LEWIS County. Resurface from Route 15 to Route DD near LaBelle, the total length of improvement being 17.09 miles.	<a href="#">View</a> <input type="checkbox"/>	<a href="#">View</a> <input type="checkbox"/>	<input type="checkbox"/>			<a href="#">Select All</a> <input type="checkbox"/> <a href="#">Download Selected Files for Call B01</a> <input type="button" value="Submit"/>
C01	(1) Job J4I3105 Route 29 PLATTE County. Resurface from Todd Creek to US 69 near Vivion Road, the total length of improvement being 11.922 miles.	<a href="#">View</a> <input type="checkbox"/>	<a href="#">View</a> <input type="checkbox"/>	<input type="checkbox"/>	<a href="#">View</a> <input type="checkbox"/>	<input type="checkbox"/>	<a href="#">Select All</a> <input type="checkbox"/> <a href="#">Download Selected Files for Call C01</a> <input type="button" value="Submit"/>

# e-Construction and Partnering

## Digital Signatures

Used to sign/seal plan sheets

Digitally signed contract documents



THIS SHEET HAS BEEN  
SIGNED, SEALED AND DATED  
ELECTRONICALLY.



Digitally signed by Charles Sullivan Signature  
DN: cn=Charles Sullivan Signature, o=Columbia Projecjt  
Office, ou=7DCA, email=charles.sullivan@modot.mo.gov,  
c=US  
Date: 2014.08.05 12:14:44 -05'00'

Approved - Resident Engineer  
Charles A. Sullivan



Digitally signed by Duane Kliethermes  
DN: cn=Duane Kliethermes,  
o=MoDOT, ou,  
email=Duane.Kliethermes@modot.mo.  
gov, c=US  
Date: 2014.08.07 07:26:11 -05'00'

DocuSign in August 2016

# e-Construction and Partnering

## Online Specifications, Standards, and Engineering Policy Guide

[www.modot.org/business/index.htm](http://www.modot.org/business/index.htm)

### 2016 Missouri Standard Specifications for Highway Construction PDF Files

Official Signed Copy 2016 Missouri Standard Specifications for Highway Construction			
Specification Book	Additons/Revisions	Design Letter	Effective Letting Date
2016 Missouri Standard Specifications for Highway Construction (July 5, 2016)	General Provisions and Supplemental Specifications	S-2017-01	January 1, 2017
	General Provisions and Supplemental Specifications	S-2016-05	October 1, 2016
	General Provisions and Supplemental Specifications	S-2016-04	July 5, 2016
2016 Missouri Standard Specifications for Highway Construction (July 1, 2016)	General Provisions and Supplemental Specifications	S-2016-03	July 1, 2016

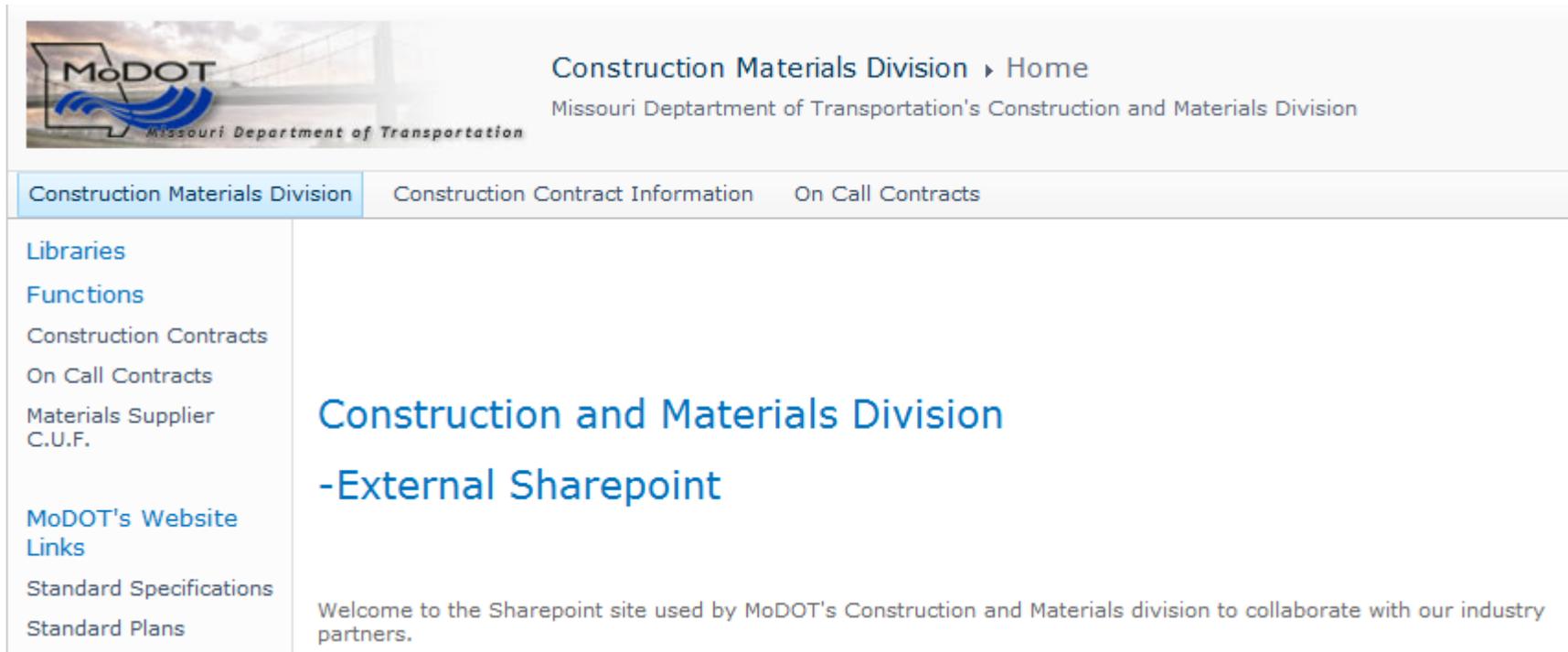
### 2016 Missouri Standard Plans for Highway Construction Files

2016 Missouri Standard Plans for Highway Construction			
Standard Plans Book (PDF file)	Additons/Revisions	Design Letter	Effective Letting Date
Std_Plans_10_01_2016.pdf	Jan 2017 Supplemental Revision	P-2017-01	January 1, 2017
		P-2016-04	October 1, 2016



# e-Construction and Partnering

## SharePoint and ProjectWise



MoDOT  
Missouri Department of Transportation

Construction Materials Division ▶ Home  
Missouri Department of Transportation's Construction and Materials Division

Construction Materials Division   Construction Contract Information   On Call Contracts

Libraries  
Functions  
Construction Contracts  
On Call Contracts  
Materials Supplier  
C.U.F.  
MoDOT's Website  
Links  
Standard Specifications  
Standard Plans

### Construction and Materials Division

#### -External Sharepoint

Welcome to the Sharepoint site used by MoDOT's Construction and Materials division to collaborate with our industry partners.

# e-Construction and Partnering

## SiteManager

SiteManager Logon



AASHTOWare  
**Project**  
SiteManager

**AASHTO**

Release 3.15a MoDOT fix 1/21/2016

User ID:

Password:

Connect to:

Download RTF Templates

Copyright © 2014, the American Association of Highway & Transportation Officials, Inc. ("AASHTO") rights reserved. This software or parts thereof reproduced in any form without written permission of AASHTO. Produced in the United States of America.

Logon to the Application.

MoDOT Contractor Reporting E2O - General Aggregates <span style="float: right;">v 5.62</span>			
<input type="button" value="Main"/>		<input type="button" value="Quantity"/>	<input type="button" value="Send/Sync"/>
<input type="button" value="Reports"/>		<input type="button" value="Help"/>	
<input type="button" value="General"/>	<input type="button" value="Free Form"/>	<input type="button" value="Bases"/>	<input type="button" value="Concrete"/>
<input type="button" value="SEL BACKFILL"/>			

<b>Date of Inspection</b>	Year	<input type="text" value="2016"/>	YYYY
	Month	<input type="text"/>	MM
	Day	<input type="text"/>	DD

Material	<input type="text"/>
Producer/Supplier	<input type="text" value="#N/A"/>
Plant	<input type="text" value="#N/A"/>

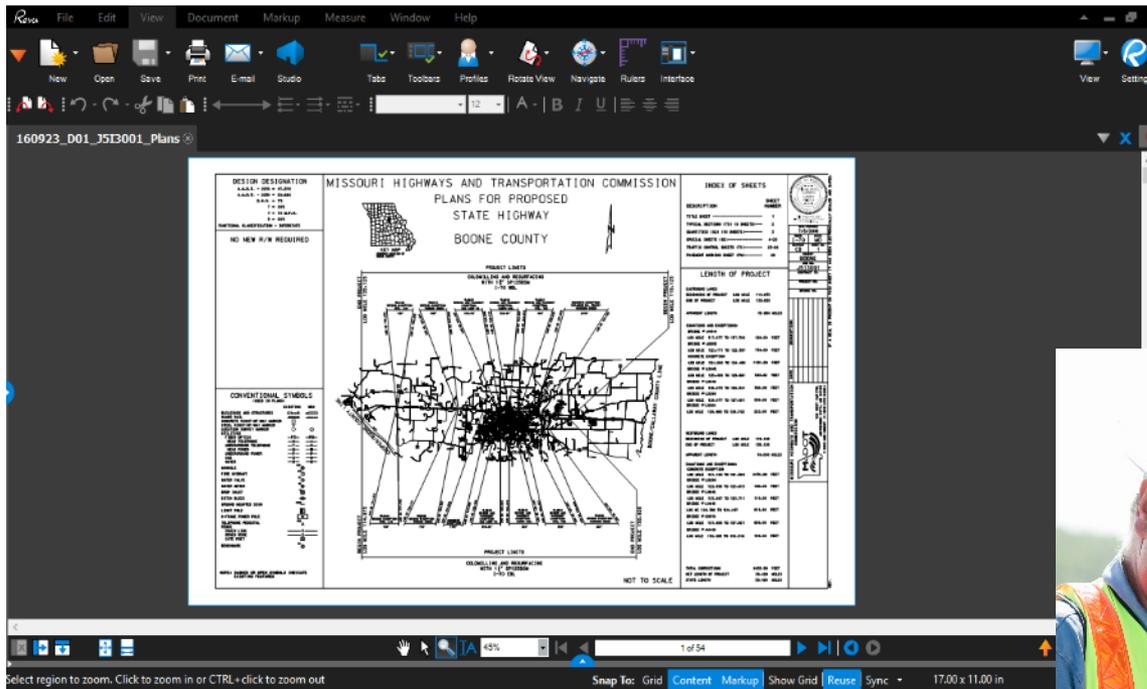
<b>Identification for this Record</b>	
Reporting Contractor	<input type="text"/>
Unique Record Number	<input type="text" value="####"/>
MoDOT Sample Record ID#	<input type="text"/>

Choose a material that represents what you have inspected. Check your concrete mix design for the proper aggregate designation

Choose a Supplier or Producer that represents what you have inspected. If you do not see the correct producer contact your RE office

# e-Construction and Partnering

## iPhones, iPads, Windows Tablets, and Laptops



---

# e-Construction and Partnering

**Formal  
vs.  
Informal**

# e-Construction and Partnering

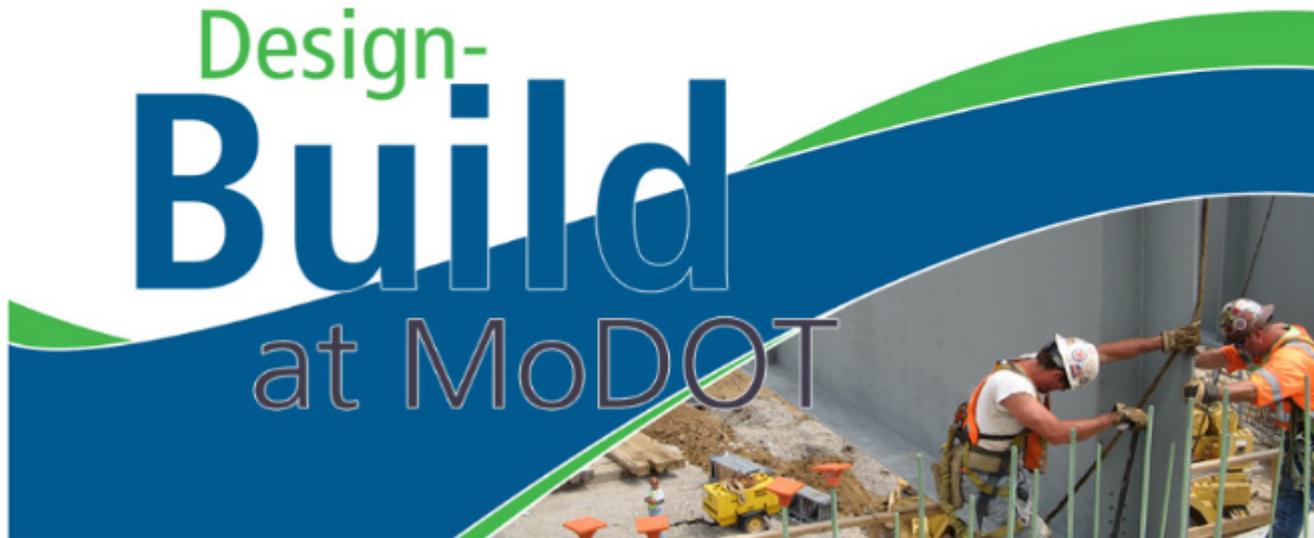
## Category: 139 Design - Build

Design-Build is a project delivery method in which the design and construction services are contracted by a single entity. Design-Build provides a single point of responsibility in the contract in an attempt to reduce project risk, shorten the delivery schedule by overlapping the design phase and construction phase of a project and minimize overall project costs. The selection of the design-build contractor is based on qualifications of the proposed teams and the overall best value of each proposal based on the established end result goals of the project.



HOME >> BUSINESS >> CONSULTANT RESOURCES >> DESIGN BUILD INFORMATION

### Design-Build Information



---

# Future of e-Construction at MoDOT

**e-Tickets**

**IR (infrared scanning) an IC (intelligent compaction)**

**3D Plans**

**Bar coding for materials**

**Mobile apps**

---

# e-Construction & Partnering Synergies



- Increased buy-in from partners
- Increased project quality
- Faster project completion
- Safer projects
- Accurate document tracking and management

every day counts 



## Amy Tootle

State Construction Engineer  
Florida DOT

---

# Agenda

1. Getting to Know FDOT
2. Timeline for e-Construction
3. Components of e-Construction
4. Collaborative Culture of e-Construction
5. Formal Partnering
6. Future of e-Construction

---

# Getting to Know FDOT

- Decentralized Agency
  - 7 Districts
  - Turnpike Enterprise
- 6,454 FTE's
  - 465 Construction
- Construction Engineering Inspection
  - 100% Consultant

---

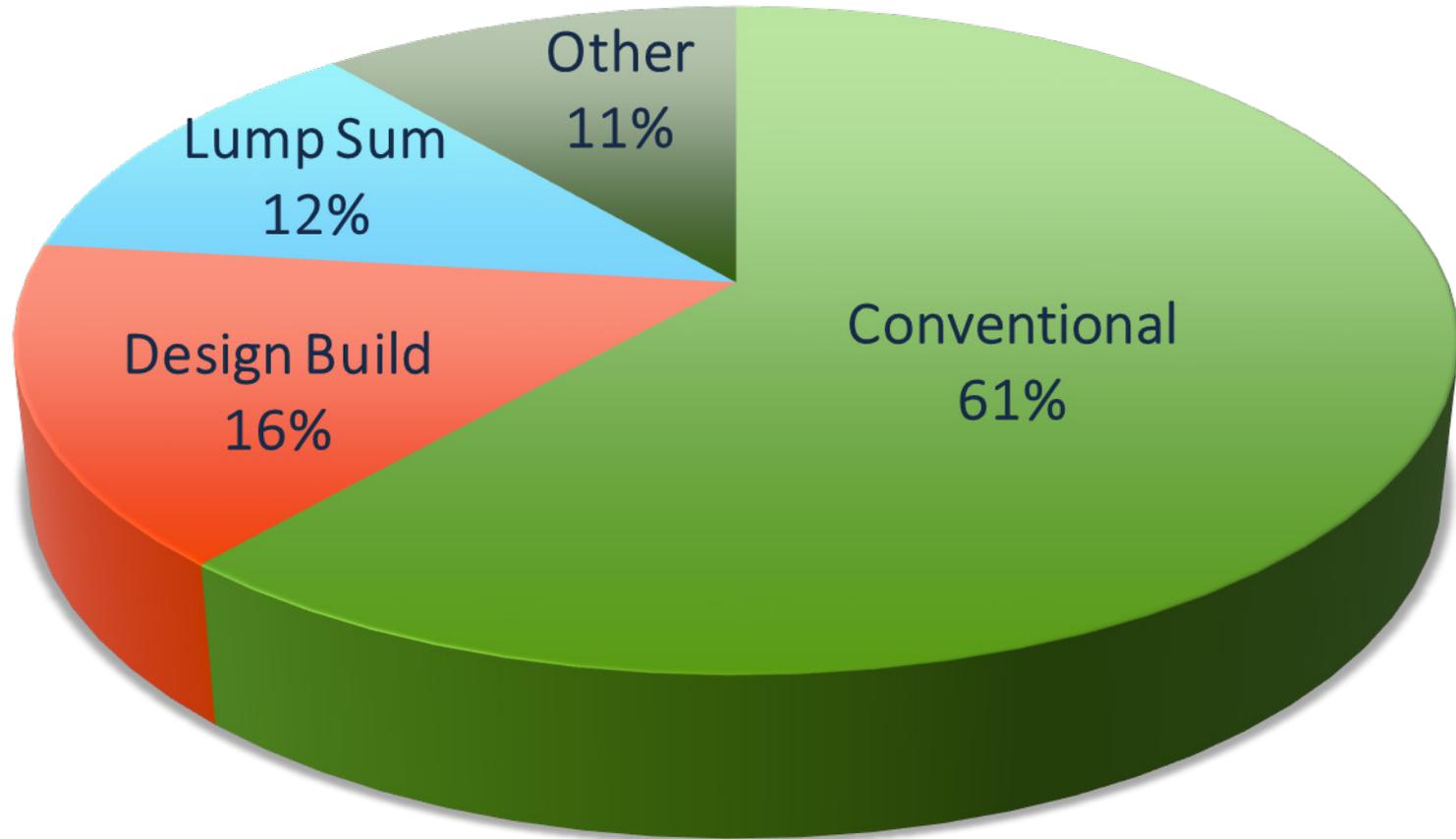
# Getting to Know FDOT

- Florida's Work Program is one of the largest in the country
  - Total Funding & Budget for 2016/2017 – 2020/2021 = \$42.3B
    - ✓ 45% for Construction
  - 451 Active Construction Contracts
    - ✓ \$10.2B
- State Highway System = 43,592 Lane miles
  - 296,263,100 Daily Vehicle Miles Traveled (DVMT)

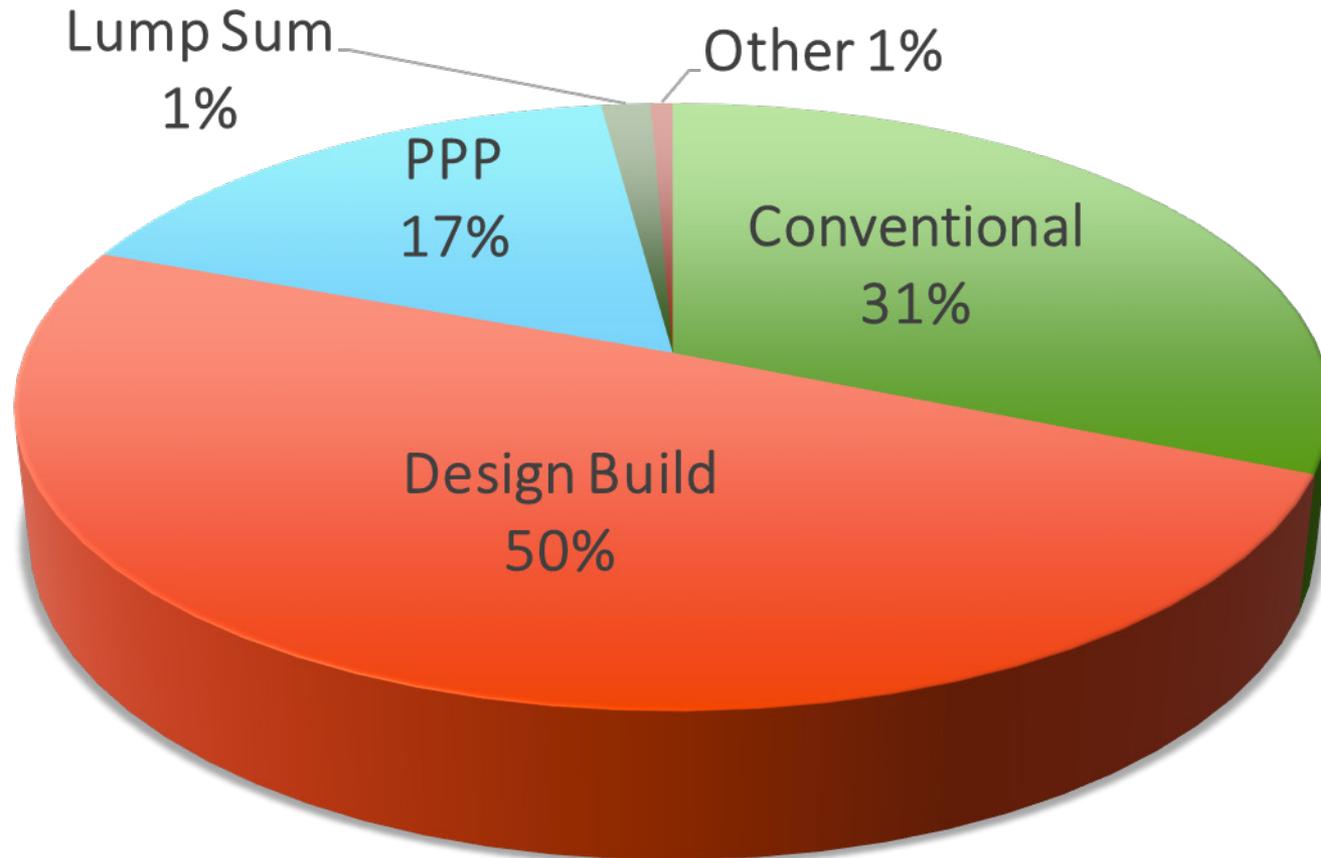


---

# Contract Types By Quantity – 12/2016



# Contract Type By Money – 12/2016



---

# Initial Timeline for e-Construction

## 2013

- Document Mgmt – PSSP
- Digital Signatures – IdenTrust

## 2014

- Mobile Devices – iPads
- Electronic “As-Built” Plans – Bluebeam

# Doc Mgmt - ProjectSolveSP (PSSP)

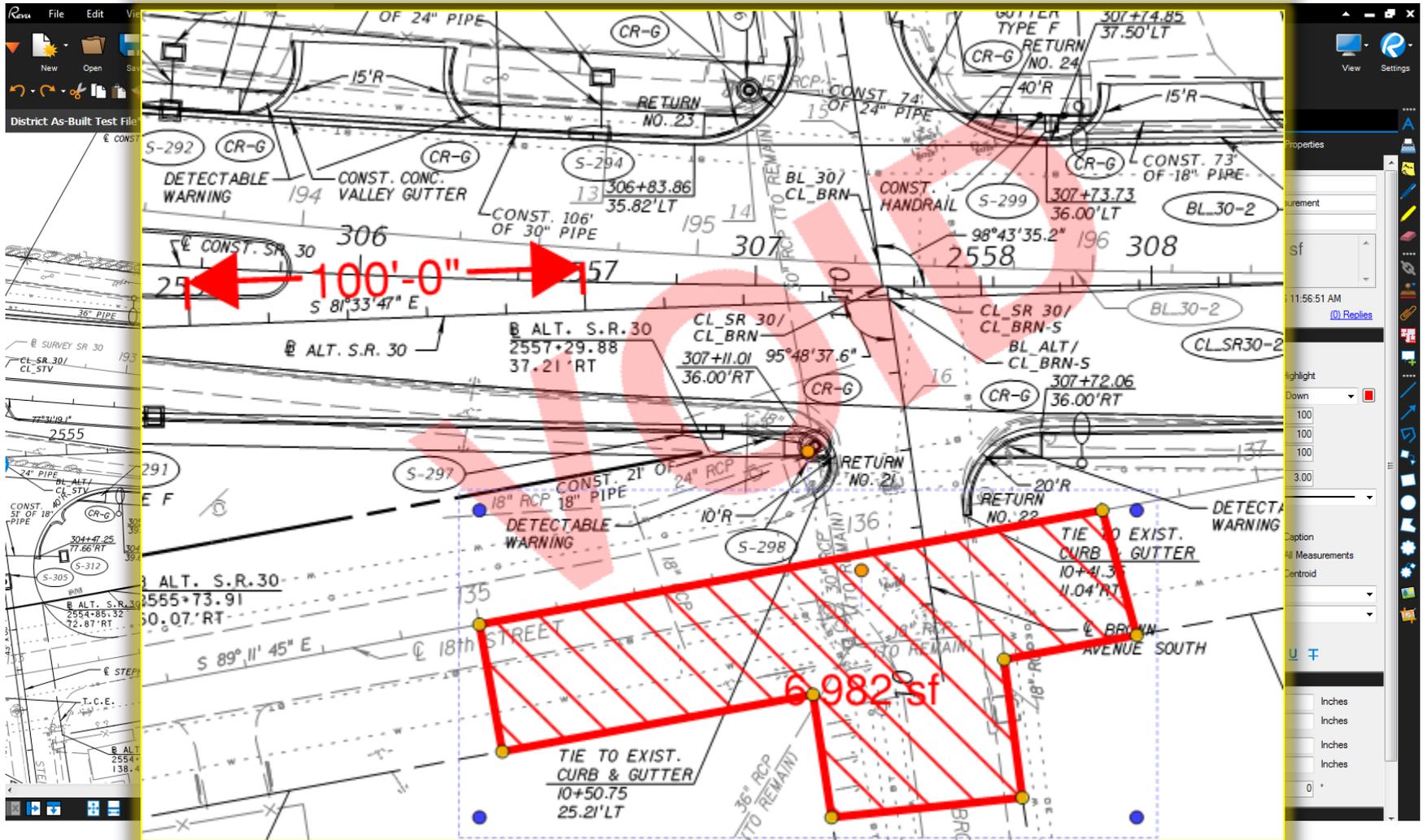
The screenshot displays a SharePoint interface for ProjectSolveSP (PSSP). At the top, the SharePoint logo and user information 'Amy Tootie' are visible. The main navigation bar includes 'T1602', 'Administration', 'District Home', 'ProjectSolveSP Help', and 'Reporting Issues and Bugs'. A search bar is located on the right. The left-hand navigation pane lists various site sections: Home, Project Contact, External Links, GIS Link, FACTS Link, Project Description, My Tasks, Active Tasks, and Recent. The central content area is titled 'Libraries and Lists' and features eight circular icons representing different document libraries: Project Documents, Construction Issue Log, Project Photographs, FDOT Forms Library, RFI-RFC-RFM-NCR Log, Punchlist, Project Calendar, and Project Plans. To the right of this section, there is a 'Contractor Quick Links' widget with a list of links: Upload Document, Upload RFI, RFC, RFM, NCR, Log New Construction Issue, My Pending Tasks, and Document Descriptions for Contractor Submitted Docs. Below this is a 'District Review' widget with links for MPR and MOT Docs. The background of the page shows a map of Lee County and some text about a project location.



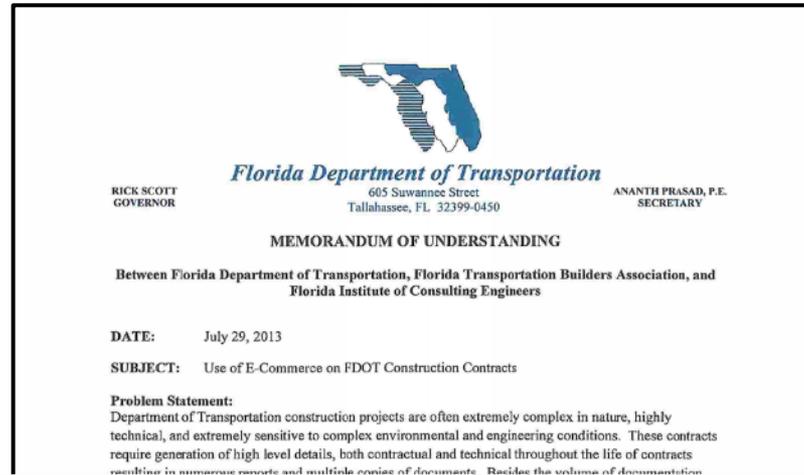
# Mobile Devices - iPads



# Electronic "As-Built" Plans - Bluebeam



# Collaborative Culture of e-Construction



## Commitment:

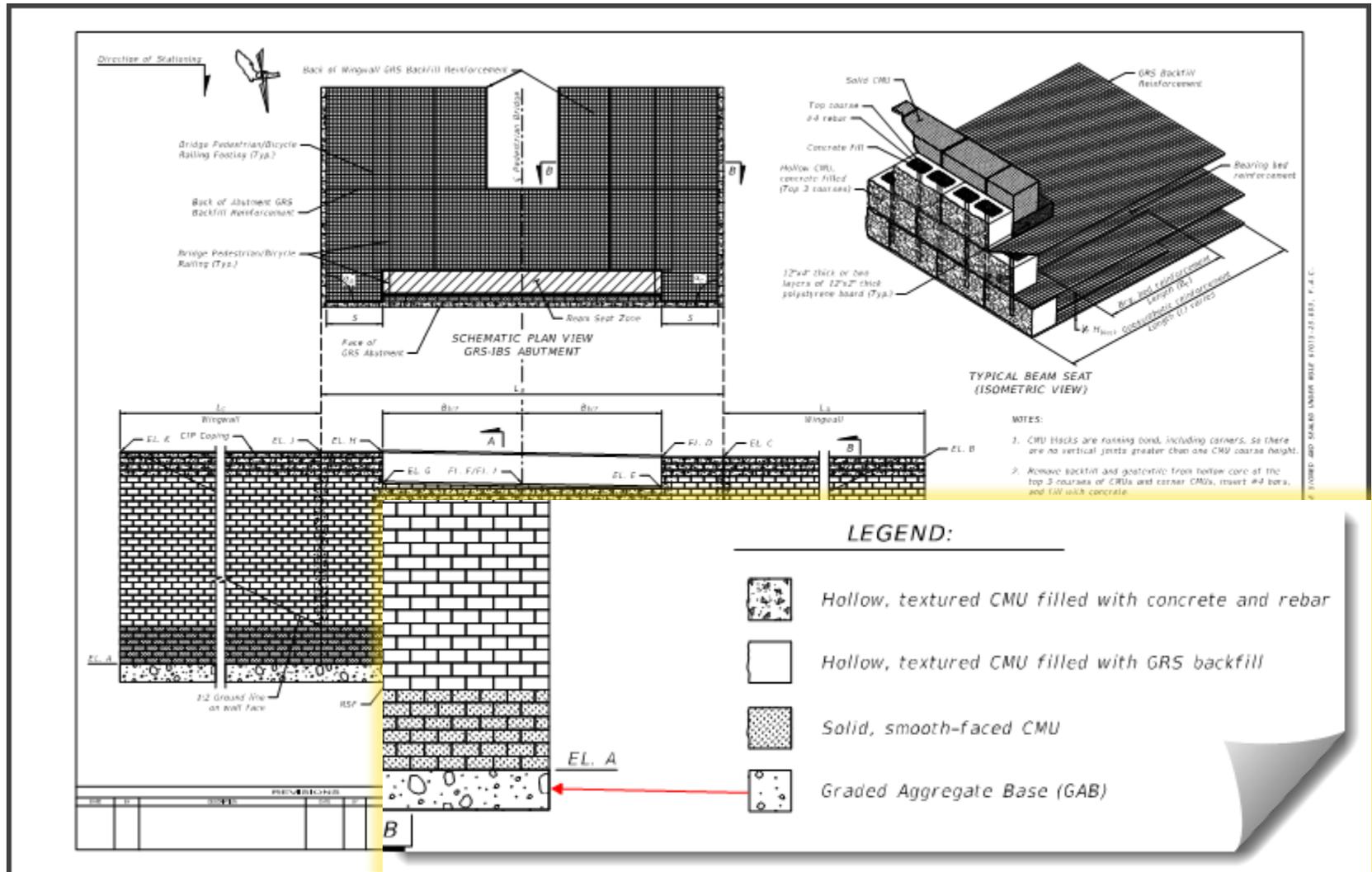
It is the commitment of FDOT, FTBA, and FICE to whole-heartedly and without delay adopt and promote the E-commerce practice among the Department and sister agencies, transportation builders, contractors and Producer industries, and engineering communities throughout the State of Florida.

(Ananth Prasad; Secretary, FDOT)

(Mark Mechling; President, FICE)

(Bob Burleson; President, FTBA)

# Collaborative Culture of e-Construction



# Collaborative Culture of e-Construction

State Materials Office / Programs / Materials Acceptance / Production Facility Listing

## Production Facility Listing



**Note: The "Go Live" date for the full implementation of MAC was October 10, 2016. Please select the following link to learn more (MB09-16/DCE13-16) - Materials Acceptance and Certification System (MAC) Full Implementation**

### Overview

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The Quality Control (QC) Program defines the quality and process control standards for the FDOT's production and construction operations. As part of this program, participating material producers are required to have a quality control plan which must be reviewed and accepted by the Department prior to doing business with the state.

Producers with an accepted QC Program are then added to the **Materials Acceptance and Certification Program (MAC)**, the Department's data management system. Once added, the producer is now qualified to supply materials to statewide construction projects. The information collected in MAC is used to generate various reports, identified as the Production Facility Listing.

### Material Source Listings -- PDF

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- Aggregate Pit Proctor Report
- Conductivity Meters (*Conductivity Meters are not governed by the QC Program*)
- Production Facility Reports (MAC)

### Additional Information

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- SMO/District Materials Contacts
- Guidelines for Adding a Producer to the Production Facility Listing
- Material Source Listings for Contracts Let Prior To July 1, 2002

-16-

FPID(S): 431243-1-52-01, ETC.

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# Partnering - Formal

## 1. Special Provision

- Phase III Plan Review
- SP0080306
- Non – Bid Pay Item

## 2. Greatest Usage

- Contracts \$15M - \$100M

## 3. Less Than 4.3% of Contracts in FY 2016

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# Partnering - Formal

1. Approved 3<sup>rd</sup> Party Facilitator
  - Partnering Facilitators Manual
2. Workshop Before Construction Commences
  - Establish Partnership Charter and Action Plan for Stakeholders
  - DCE, Contractor Superintendent, and Key Personnel Attend

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# Future of e-Construction

1. Digital Signatures on iPads
2. Enhancements to PSSP
3. “Smart” e-Tickets
4. 3D Models

every day counts 



# Greg Mulder

Director of Construction and Materials  
Iowa DOT

# Overview of Iowa DOT

6 Districts

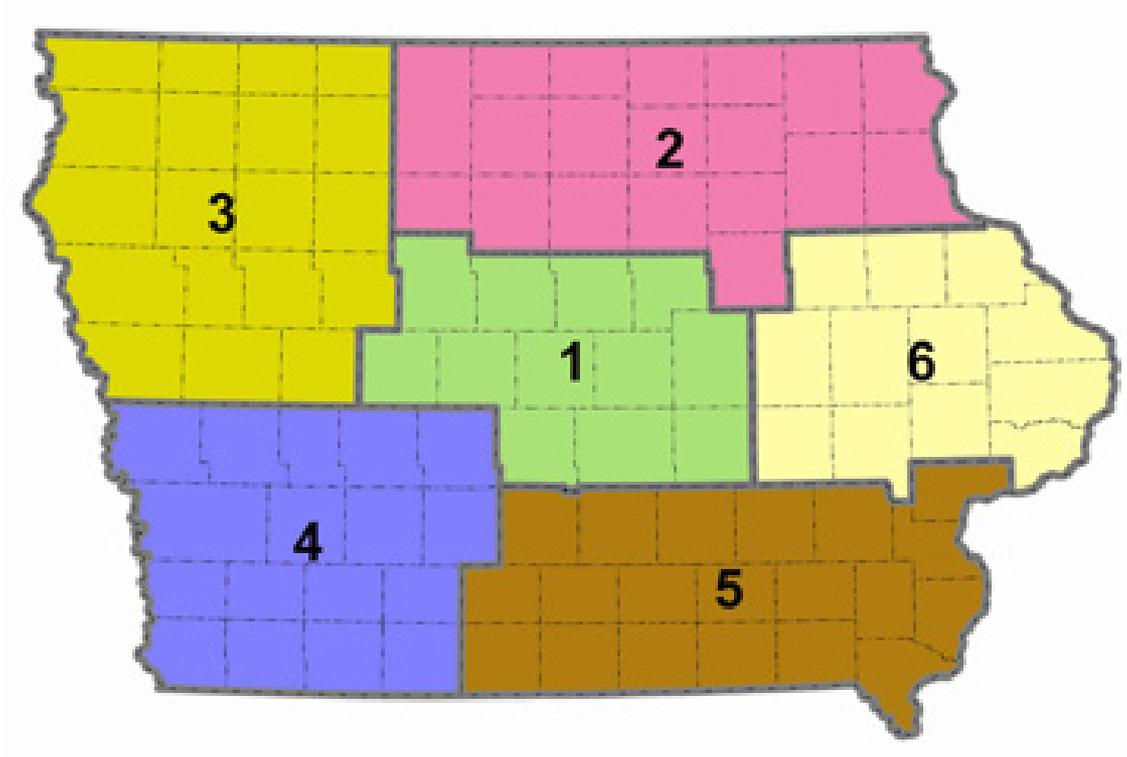
14 Resident Offices

150 Full Time Inspectors

150 Cross Trained Transportation Technician Inspectors

Approx. 600 projects / yr

\$700M to 800M program per year



# e-Construction – How did Iowa DOT get here?

5 year process, Created Business Case

Funding Model Determined

Buy in from Senior management, Legislature

Show Return on Investment – Key to Acquiring Funding

Determine Internal vs External software development

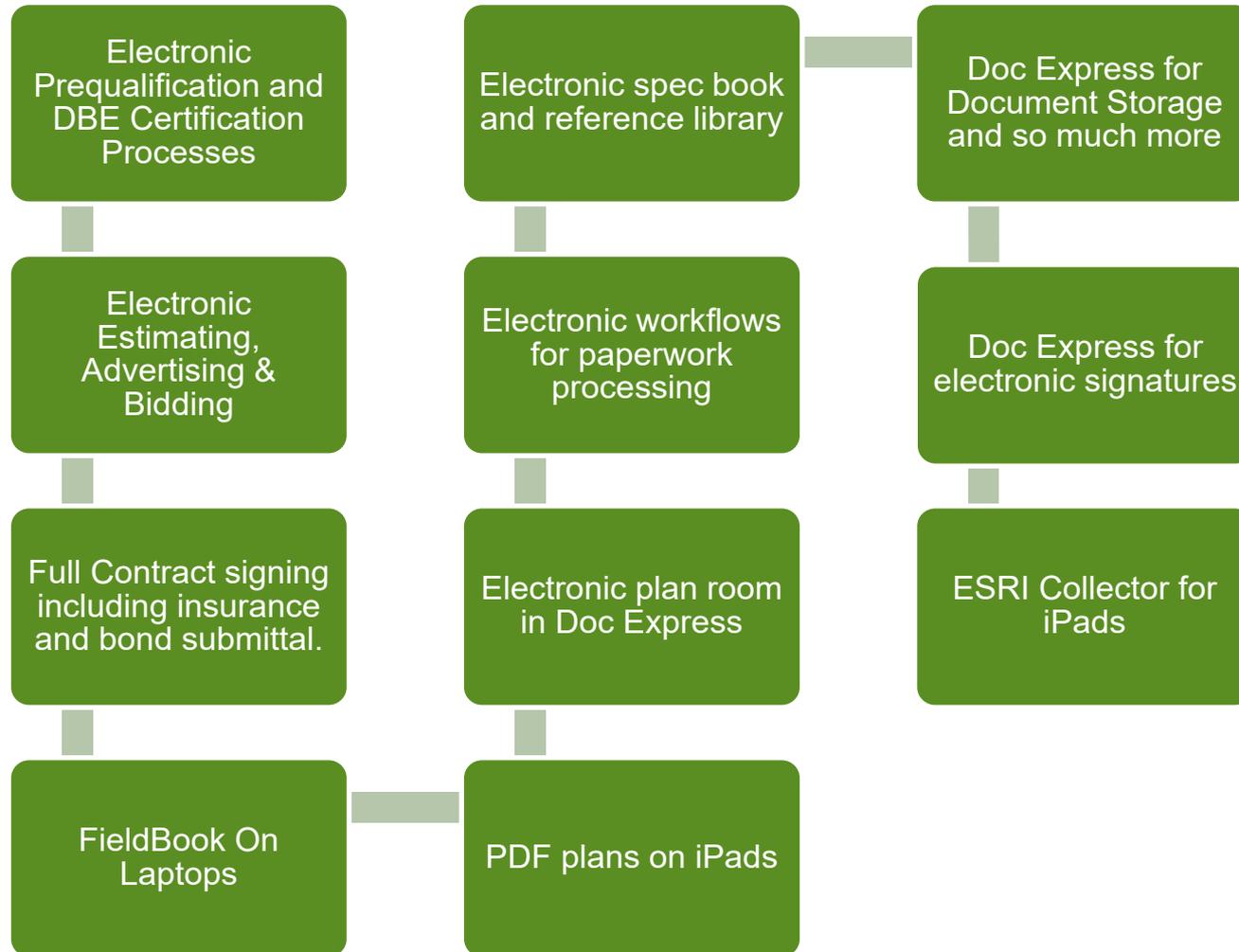
Does the System Make the employee and process more efficient?

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# e-Construction – How Iowa got here

- Continuous improvement culture
- Practicable approach
- Keep it simple
- Partner buy in
- Progressive staff
- Supportive management
- 20 year of improvements

# Current State of e-Construction at Iowa DOT



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# e-Construction Pilots Projects at Iowa DOT

Electronic 3D Plan Viewer – Currently exploring several different applications

Exploring use of UAVs – bridge inspection, quantity calculation

Continued pilot expansion of eTicketing

Delivering the Model as the Contract Document

Expanding Asset Management data collection during construction project

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# Iowa DOT Partnering Culture



Partnering is  
a culture, not  
a process

- Good Processes lead to culture change
- Championed at all levels of the organization(s)



Iowa partnering—  
Our way of doing  
business

- Fairness
- Cooperative Behaviors & Teamwork
- Open and Honest Communication
- Joint Problem Solving
- Rapid Dispute Resolution at the Lowest Level

# Iowa DOT Partnering Culture

All projects are partnered in one of the following ways:

- Formal = Hired outside Facilitator
- Informal = Resident and Contractor PM facilitate
- Semi-Formal = Trained internal facilitator
- Costs are shared between contractor and UDOT
- Executive level follow ups monthly on some projects
- Issue escalation process

Risk Based Partnering meetings

- Not a hug fest, but working meetings
- Identify challenges/risks on project and discuss framework to deal with them

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# Iowa DOT Partnering Culture

- Bi-Monthly meetings w/ AGC Iowa
- Quarterly meetings with Paving Industry
- PreConstruction meetings
- PrePour meetings
- Weekly coordination meetings
- Participation with industry at seminars
- Open opportunities to talk between AGC and DOT
- Innovation meetings with industry as needed

# e-Construction & Partnering



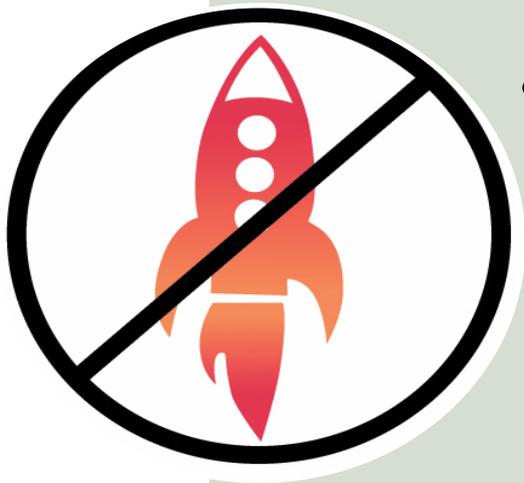
Transparent e-Construction processes lead to more trust and partnering on individual projects



Partnering value: Fair, Open & Honest Communication

- Document Control/Collaboration systems automate and speed up document approvals
- Everyone knows the status of submittals, pay estimates, material submittals and etc... at all times
- Problem Solving at the field level

# e-Construction & Partnering



- How can Partnering help e-Construction systems realize maximum efficiencies?

- Involve your industry
- Communicate effectively
- Listen to their needs and feedback
- Remain open to new ideas
- Repeat



every day counts 



# Introduction to e-Construction and Partnering: A Vision for the Future

## **Kat Weisner**

Construction & Contract  
Administration Engineer  
FHWA Resource Center

## **Bernie Kuta**

Construction and Contract  
Administration Team Leader  
FHWA Resource Center

## **Matt DiGiovanni**

Field Operations Engineer  
FHWA Vermont Division

## **John Haynes**

e-Construction and  
Partnering Technical  
Deployment Team

Kat Weisner

Bernie Kuta

Matt DiGiovanni

John Haynes

# Where We've Been: e-Construction



Source: Florida DOT



# Status Update on EDC-3 Activities



**e-Construction**  
Efficiency through technology and collaboration



**Implementation Plan**  
Every Day Counts 3 | Innovation Initiative  
January 2015







**Peer Exchanges**



**FHWA Tablet Device Pilot (iPad/Surface Pro)**



**Regional Workshops**



**e-Construction Website**

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# Challenges for e-Construction

One size  
doesn't fit all

Integration of  
and use of  
legacy systems

Management  
buy-in

Measuring  
Return on  
Investment

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# Goals for EDC-4

-  Continue EDC-3 successes
-  Gather feedback on how much the States value EDC-3 activities and solicit new ideas for EDC-4
-  Share new State perspectives on e-Construction and Partnering
-  New definition of maturity levels and lead State status



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# e-Construction – What's Next?

Holistic  
approach

Data vs  
Documents

Local &  
Industry  
partnering

Alternate  
Delivery  
Methods

ROI

# e-Construction and Partnering: A Vision for the Future

## e-Construction

- Paperless construction administration
- Digital project management (coordination, collaboration, & transparency)
- Secure & expedited document distribution to project stakeholders
- Single source of truth

*Improve efficiency & project performance through enhanced communication, transparency, coordination & collaboration among stakeholders*

## Partnering

- Build a relationship of mutual trust
- Achieve mutually beneficial goals
- Communicate openly
- Resolve issues and minimize disputes

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# Partnering – Renewed Interest

**Reduce claims**

**Alternate delivery methods**

**Outdated policy and procedures**

**A changing workforce**

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# Partnering & e-Construction

## Transparency

- Open access & sharing of records

## Project Team Identification

- Early alignment & integration
- Mutual trust, respect, & understanding of mutual goals

## Streamlined Process/Procedures

- Efficiency & Accountability

## Early issue resolution & Dispute Detection

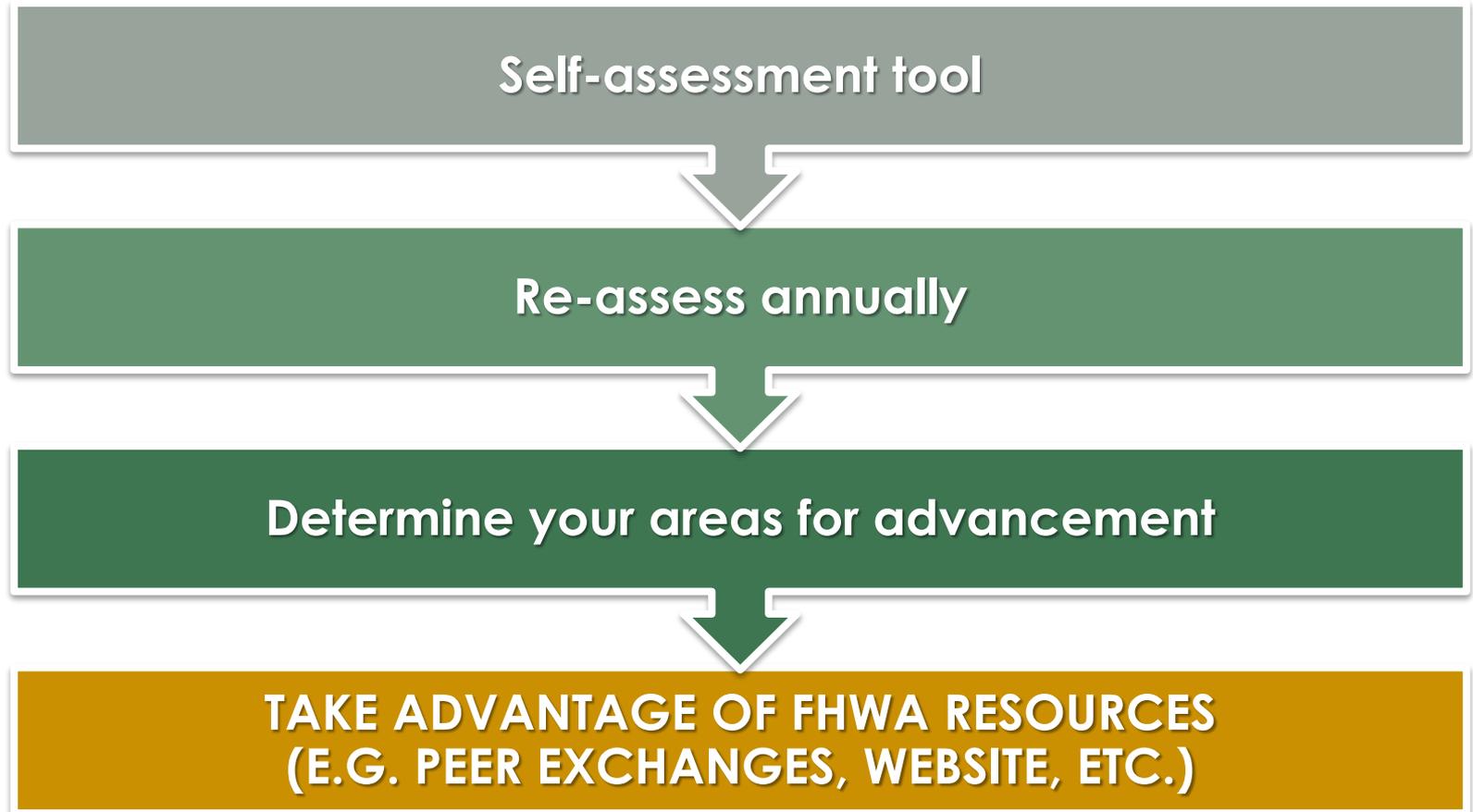
- Proactive instead of reactive
- Open & honest communication

every day counts 



# e-Construction and Partnering Maturity Matrix

# e-Construction and Partnering Maturity Matrix



every day counts 



# Roundtable Discussion

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# Roundtable Discussion: e-Construction

What are your observations/suggestions regarding EDC-3 activities?

What barriers exist to your agency's implementation?

FHWA implementation plan:

What can we do to further advance the deployment of e-Construction?

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# Roundtable Discussion: Partnering

How does your agency use/view Partnering and what benefits have you experienced ?

What are some of the barriers?

FHWA implementation plan:

What can we do to further advance the renewal of Partnering?

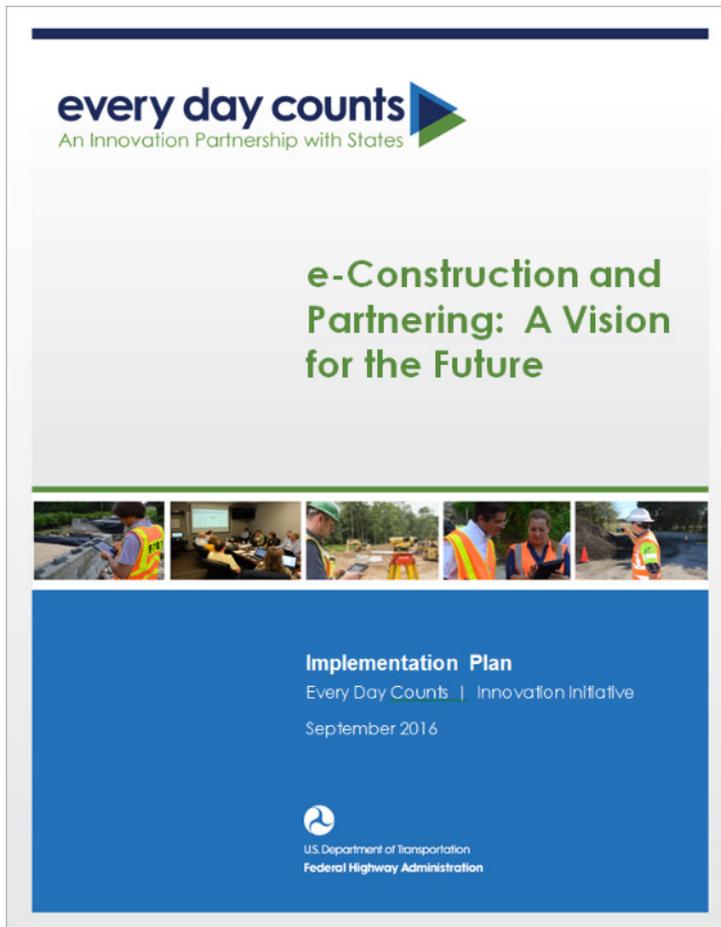
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# Roundtable Discussion: Synergies

What are the synergies that you see in the implementation of the e-construction and partnering principles presented?

How might your current partnering practices accelerate or enhance the implementation and benefits derived from e-construction?

# Implementation Plan



## FHWA VISION

*Advance the state of the construction administration technology and project collaboration.*

## MISSION STATEMENT

*Optimize construction field system processes; minimize questions, claims, and disputes; and reduce overall project costs.*

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# FHWA Contacts

## e-Construction

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