e-Construction
PEER-TO-PEER EXCHANGE

Summary Report




Rhode Island Department of Transportation
West Virginia Division of Highways and
Florida Department of Transportation

August 31 - September 1, 2016
Warwick, RI

U.S. Department of Transportation
Federal Highway Administration

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1. Background

The Rhode Island Department of Transportation (Rhode Island) hosted a peer exchange with the Florida Department of Transportation (Florida) and West Virginia Department of Highways (West Virginia) in Warwick, Rhode Island from August 31-September 1, 2016. The focus of the peer exchange is e-Construction, a paperless construction administration delivery process that includes electronic submission of all construction documentation by all stakeholders, electronic document routing and approvals (e-signature and/or digital signatures), and digital management of all construction documentation in a secure environment that nonetheless allows for distribution to all authorized project stakeholders through mobile devices. The event was sponsored by the Federal Highway Administration (FHWA).

The afternoon session on the first day served as an introduction to the peer exchange and personal introductions, along with background information on each State's construction program and e-Construction activities. The afternoon also consisted of discussion sessions on implementation of project collaboration sites and workflows. The morning of the second day consisted of FDOT discussion sessions on digital signatures, implementation of project collaboration sites and workflows, and use of mobile devices for construction inspection. The afternoon of the second day included a discussion session on West Virginia's implementation of SiteManager, ProjectWise, and project workflows.

The Peer Exchange was the first time an exploring State hosted an exchange including multiple subject matter expert States.

- **Florida's perspective**: Participating with West Virginia was an added learning experience for us. Florida felt it was the right amount of people – not too large of a group, but still good discussions and content.
- **Rhode Island's perspective**: Having multiple states allowed them to see diverse perspectives on the same issue simultaneously. The discussion between all three states truly enhanced the experience. With RIDOT hosting, it allowed the sharing of the information with more members of the DOT from various sections that may not have been able to travel if it were limited to four people.
- **West Virginia's perspective**: West Virginia received some valuable information from both Rhode Island and Florida. Having the perspective from three states, instead of two provided a much broader view.

Construction and Information Technology (IT) leaders, field personnel, and engineers from Rhode Island, Florida, West Virginia, and FHWA Headquarters and the FHWA Rhode Island Division Office participated in the event. The list of attendees, along with contact information for each, is provided as an appendix to this document.

Participants discussed the important issues and challenges, potential solutions, and e-Construction practices that have proven beneficial to agencies and contractors. Application of e-Construction in the field through portable devices, documentation through project collaboration sites, and the use of digital signatures and workflows were all focus areas of the peer exchange.

This report includes a section that includes a summary of key findings from the event, along with the full notes from the peer exchange discussions during the Rhode Island host State presentation, the West Virginia presentations, and the Florida presentations. To promote further networking and information sharing, a roster of participants along with contact information is included in Appendix A.

For more information, please contact:

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2. e-Construction Implementation – Key Peer Exchange Findings

The peer exchange produced several relevant and practical "takeaways" identified by the group roundtable discussions. The following sections address the items that were highlighted by the group as a next step, implementation idea, document exchange, or focus area – all of which are designed to assist with future implementation within the States' e-Construction programs.

Florida developed a white paper on digital signatures. The white paper outlines the use of third-party authentication and the various software packages that are in use for applying a digital signature to a document. Florida also worked closely with the entity responsible for licensing professional engineers to develop a practice for use of a digital engineer of record seal in addition to the digital signature, along with a reference standard that lists the page numbers in plan sets that the signature applies to.

Link to Florida digital certificates guide:
http://www.dot.state.fl.us/construction/forms/electronicsubmit/digitalcertificatesguide.pdf

Link to Florida guidelines on application of digital signatures:

http://www.dot.state.fl.us/construction/forms/ElectronicSubmit/AcquisitionGuidelines.shtm

Florida purchased software for electronic as-built plans. FDOT shared detailed information on the third-party software in use currently for generating electronic as-builts and commenting on plans.

Florida also noted that there are some preliminary steps to take as foundational for implementation of e-Construction. First, agencies should coordinate with builder and consultant associations to partner and develop agreements to ensure buy-in on all sides. Second, having a multi-disciplinary task team organized will help with ease of implementation (IT, construction, etc.). This also helps with identifying the components of e-Construction and the priorities. Having a team helps with buy-in from management and helps with investment. They understand that implementation is cross functional and not within a silo. Third, sell stakeholders on the implementation based on the cost savings – costs are a small percentage of the overall savings anticipated for Florida ($1.5 million investment for an estimated $22 million in cost savings), which includes time savings through inspectors' time spent physically inspecting the work. Finally, develop the needs first and then design a system based on the formal needs as identified.

The peer exchange confirmed the approaches and provided confidence that the DOTs are headed in the right direction. Rhode Island will share this information with upper level management to help others understand how construction and IT are coordinating to move e-Construction forward.

Rhode Island, Florida, West Virginia have adopted the Uniform Electronic Transactions Act. Below includes reference to digital signature regulations for RI and West Virginia.

West Virginia's legislation:

http://www.legis.state.wv.us/WVcode/code.cfm?chap=39a&art=1

Florida's legislation:

http://www.leg.state.fl.us/STATUTES/index.cfm?App_mode=Display_Statute&Search_String=&URL=0600-0699/0668/0668PARTIContentsIndex.html

Rhode Island's legislation:

http://webserver.rilin.state.ri.us/Statutes/TITLE42/42-127.1/INDEX.HTM

Rhode Island mention of legislation on page 19:

http://www.bdp.ri.gov/documents/engineers/2014ProfessionalEngineeringRulesRegulations.pdf

In addition, the peer exchange participants agreed to the following takeaways:

- ***Keep this conversation going;*** just because the peer exchange has ended, please continue to reach out to Florida, West Virginia, and the FHWA/Consultant Team.
- Upgrading of Rhode Island Construction Management System (CMS) as part of its Project Management Portal (PMP) system – they are now debating whether this is the time to upgrade to new systems and make investment, etc.
- Rhode Island's. RIDOT current system works; however, many users have developed work-arounds to improve efficiency for various items; many of which could be eliminated through some new e-Construction initiatives/technology/tools.
- Rhode Island not necessarily using all the features of programs that they have (i.e. Falcon). Many programs were purchased and are used for one particular purpose and the potential for other uses are ignored.
- Need to be able to show proof of the return on investment (ROI) and quantifying the benefits.
- Florida is realizing a savings of approximately $22 million per year.
- ***West Virginia was willing to change their processes and procedures rather than customize an electronic system.*** Allowed them to evaluate what they are doing well, where change is required, and to have a conversation about what they needed, what the minimum requirements should be, etc.
- ***Executive Buy-In was critical*** to keep things moving for Florida and West Virginia.
- ***Project Management vetting*** – digital signatures – they reviewed their processes and vetted whether each process/document really required a signature at all – digital or otherwise.
- Rhode Island can reach out to Florida ***to schedule a webinar*** for a demo of anything they want to see, including PSSP, workflows, digital signatures, etc.
- ROI - need examples. Use in the Every Day Counts 4 (EDC-4) initiative as well, the following are areas that can be quantified and show real-world examples:
    - iPads
        - Carrying boxes of paper (photo) with comparison to iPad mini – physically consuming less paper
        - Carrying an iPad with search function allows for a field person to always have access to specifications, manuals, design standards, contract documents to trouble shoot in field
        - Web-based SiteManager log-in
        - Example of contractor putting down the wrong type of stone. The inspector took photos in field. Florida/Contractor looked on FDOT State Materials website via iPad and found vendor who had correct stone. Called them and ordered it; it was delivered next day. Avoided additional placement of material and redo.
    - The West Virginia Accounts Payable workflow is an example of a paperless processes expediting the review and approval process by utilizing workflows and reducing payment times from 30 days to 2 days.
    - Doomsday scenario with disbursement from Florida: ROI study - Florida pay - Doomsday scenario: If Florida's current disbursement system was suddenly disabled what would happen? They currently have a 10-day payment turnaround. The DOT is the only state

agency in Florida that has access to paying contractors directly from their trust fund to pay for approximately $260 million per month in construction and maintenance. The ROI estimate showed the cost incurred would be 2.54, or roughly 2.5 times the cost if they were to suddenly lose access to this system, which included an estimate for 10 percent of projects going 40+ days in payment, which would cause them to incur interest.

- Another way to advocate to DOT leadership is to get Contractors on board with devices – to have them help push it up to management.
- It's not a part-time job. You need a dedicated champion!

3. Peer Exchange Discussion Notes

Kathryn Weisner from FHWA welcomed the group and advised this is the 9th Peer Exchange. There is an FHWA website with links, resources, and briefings from other peer exchanges. Don't let the conversation end here. Allow those conversations and relationships to continue to build and use West Virginia, Florida, and FHWA as resources as Rhode Island moves forward with e-Construction.

Rhode Island should have received an invitation for the e-Construction workshop hosted in Norfolk, Virginia, October 26-27, 2016. There is also an EDC-4 Summit in Albany Nov 2-3, 2016.

Tom Zagorski from Michael Baker also provided a welcome message and introduced himself as the peer exchange Facilitator. He advised we have switched things around slightly for this exchange by having RI, who is the exploring State, host the exchange, inviting Florida and West Virginia to come and discuss lessons learned.

He encouraged attendees to visit the FHWA e-Construction website to view documents and briefings from peer exchanges already performed. The peer exchange team will be documenting the exchange and providing it to attendees to review within the next week or so.

Brian Ferguson from Rhode Island also provided opening remarks welcoming participants to the exchange.

3.1 Exploring State Presentation – Background on RIDOT and Current Practices in e-Construction

Brian Ferguson with Rhode Island presented on current practices in e-Construction in Rhode Island. There have been a lot of discussions within Rhode Island about making transitions and moving forward.

Rhode Island DOT quick facts (source is Rhode Works website http://www.dot.ri.gov/news/rhodeworks.php):

- Maintains 1200 bridges.
- 2900 lane miles of road.
- 5 rail stations.
- 104,000 traffic devices.
- 25,000 catch basins.
- 629 total employees (120-130 employees in construction).
- $150 million in the State construction program - very heavily dependent on Federal funds.
- Should increase over the next couple of years - expecting to advertise $60 million worth of projects in the next 6 months.

- Expecting additional funding to $215 million for 2017.
- The State will also float bonds in anticipation for future tolling plans (there are no tolls currently, but the State is working with FHWA to set up tolling of tractor trailers only).
- The State budget mainly goes to maintenance.

Rhode Island is an exploring State, may drastically shift over the next few weeks depending on management commitment, etc.

Their main specification document is the Procedures for Uniform Record Keeping (PURK) Manual.

Rhode Island uses a Construction Management System (CMS) as part of its Project Management Portal (PMP), which is a set of custom database systems created with 2003-2005 technology; they have not been upgraded. Rhode Island is currently upgrading to modern systems to be completed over the next 6-9 months – the agency is upgrading now to ensure the system can continue to operate as needed right now. It satisfies day-to-day needs at present, but it could be improved.

CMS/PMP is used for record management, etc. Rhode Island moved to a disk-based e-bidding system in 2006. At that time it was very modern, but now upgrades are required and the agency is falling behind. Rhode Island is looking at balancing a custom system that meets an agency's specific needs vs. an off-the-shelf system that requires modules, etc.

CMS resides on and is accessed through the PMP. The CMS does meet the need for various items (financial, etc.); however, it requires work-arounds to meet certain needs. CMS is Rhode Island's item and quantity tracking system. CMS meets this current need for standard contracts with bid items. Rhode Island has had difficulty with the system as they migrate to more lump sum items and investigate contractor invoicing. Many documents created in the system still need to be printed to hard copies and signed with a wet signature.

Rhode Island currently uses Oracle for financial reporting.

Agency staff scans report archives and stores them digitally to a server. The server is not accessible from the field; staff must be present in the building to use it.

"Falcon" is the program that provides TIFs of design plans.

Rhode Island personnel currently handwrite notes in the field and then copy them in to Word/Excel files. The notes are printed with any other correspondence. The agency still uses hand-written item slips. Staff will make multiple copies of printed forms (progress payments, ROCs [reports of change - change orders]), and there is duplication of effort.

Something Rhode Island wants to get out of this exchange is better information about the ROI – what is the benefit based on the cost?

The agency is evaluating moving forward with a STIC grant to pilot some aspects of e-Construction on several upcoming projects. Rhode Island would be interested in using software programs similar to PlanGrid, Pavia Systems' Headlight, and ProjectWise. Some staff have previously used free version of these and other programs to get a feel for the benefits.

Between 80 and 90 percent of inspection staff is in-house. All of their RE's are Rhode Island employees.

Q&A

Q: Are you exchanging emails with file attachments with contractors?
A: Sometimes. Change orders are printed and signed hard copies. Shop drawings are still hard copies. Official correspondence such as approvals and rejections of requests, shop drawings, etc. is still hard copied, mailed letters. Day-to-day questions and discussion does happen via email.

Q: What types of electronic tools are you using?
A: Laptops are provided by contractors, and these have Microsoft Office, AutoCAD, Adobe, etc. Most of these stay in the field office. Staff members in the field are still using flip phones. Some staff use their own devices (this is against departmental policy) to function better, or use Google Docs, etc. There is a policy specifically saying you cannot bring your own device. Access to Dropbox, for instance, is blocked. Contractor-provided devices are not on the same domain, so they can get onto some of the blocked sites and perform other functions.

RIDOT still uses paper-based plans. Hard copies are printed and stored, and the agency pays for storage.

Contractors have access to some portions of the PMP based on their security credentials. The Shop Drawing module through CMS is only a log; there is no access to the document itself. There is also no automation. In addition, there is duplication of effort. The agency still tracks through a written log and then enters that info into CMS.

Q: Have you put together a group to determine what Rhode Island actually wants?
A: This peer exchange is the start. They have had starts/stops over the past few years. The financial reporting it generates is very good. There is duplication of effort everywhere. There is a lot of functionality they have seen and they are used to and some that works well. The agency needs to establish what it needs and wants, which is not necessarily what it currently has. Rhode Island needs to make sure whatever is implemented can communicate with Oracle.

Q: How does Rhode Island handle Bidding?
A: Notification is through the internet. But bidders have to go to the DOT to pick up the disk of bid docs. At bid opening, bids are documented electronically and uploaded online. Bids are automatically uploaded to the system. There is a module for that within the PMP.

3.2 West Virginia Division of Highways e-Construction Overview

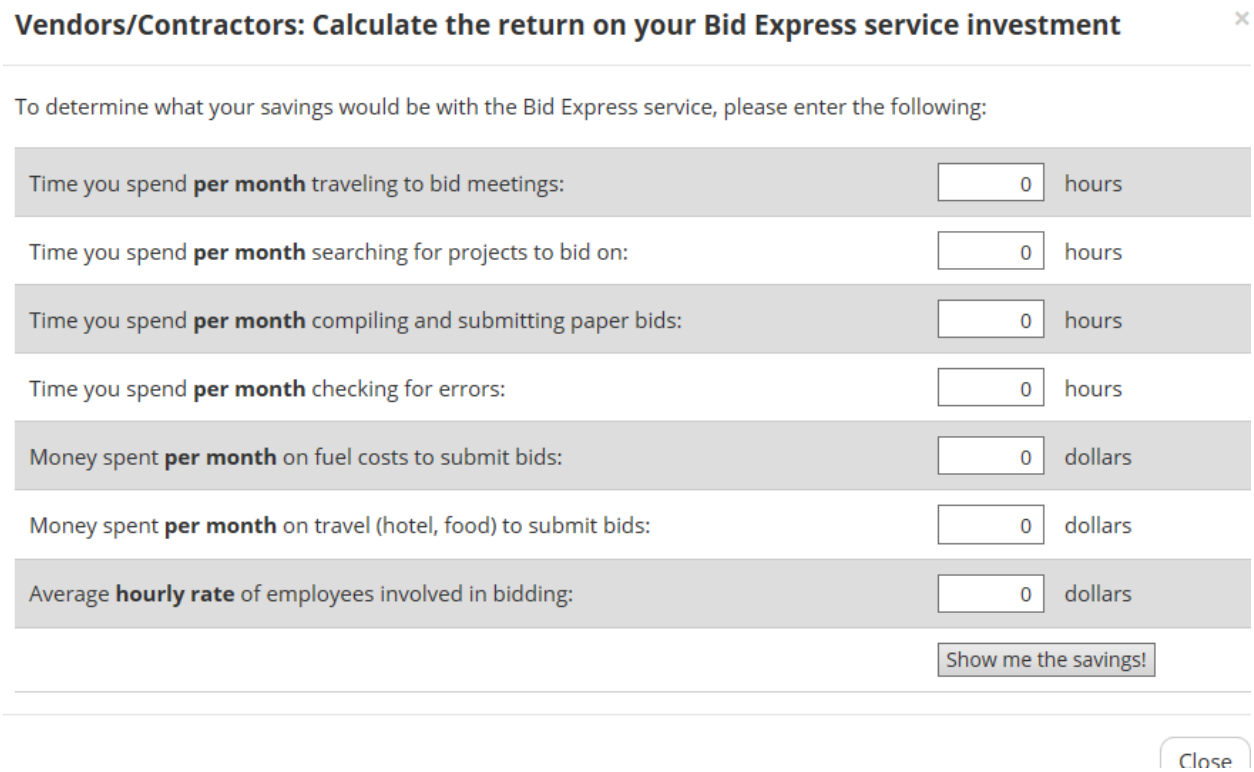
West Virginia advised the agency started its e-Construction journey in about 2009. Their management was on-board with commitment to going paperless. The West Virginia budget is pretty bad right now, so this has become a challenge. But they have been very good to get them everything they needed.

They started off doing one thing at a time:

- Bidding
    - Used to be hard copies/paper and hand delivered -- used to occur approximately twice per month.
    - Moved to BID Express (BIDX) and internet bidding platform. [Info Tech product] Info Tech handles all data, online bid submission and plan sheets, so West Virginia does not have to manage or maintain the bidding process.
        - West Virginia does not pay for BIDX, the contractors pay a fee to be able to bid. They can register and view the proposals for free.

        - Info Tech manages all contacts, organization of data, and online access to plan sheets.
        - Cost to DOH is minimal.
        - BIDX is integrated with the AASHTOWare DSS (decision support system) analysis tool.
    - In 2010, Management came to Contract Administration and said they want to start going paperless
    - Adopted SiteManager in 2010-2011. West Virginia visited KY first, talked through it. Then visited VA.
    - Now they are fully fledged AASHTOWare State
        - Using various modules
    - A lot of older people in the field were dead set against e-construction. Some had never turned on a computer.
    - West Virginia is in the process of implementing an Enterprise Resource Planning (ERP) system, (Kronos? For financial analysis?), so everything must be compatible
    - They attend the AASHTOWare Project User Group (PUG) conference and have found this a valuable resource to meet and exchange information with other states.
    - 40+ States are using some form or another of AASHTOWare products
    - Once they decided on SiteManager they put together a core team, district reps, auditing, spec engineer, managers, field reps, etc.
        - First rule they made was they would not make any changes within SiteManager; they customized their processes to SM. They did not want to have to reconfigure everything any time they upgraded if they were to customize various systems.
        - West Virginia was willing to change their processes and procedures rather than customize an electronic system. Allowed them to evaluate what they are doing well and where change is required and to have a conversation of what they needed and determine minimum requirements.

According to Info Tech, Inc., 44 out of 54 States are currently using BIDX. Some use various models of the system. It's probably the most widely used and universally accepted e-construction tool. They have a tool to determine return on investment to utilize the technology:
https://www.infotechfl.com/bid_express_calc_agencies



In addition, InfoTech advised that BidX is currently implemented in all of the states bordering RI. In addition, many contractors who work in RI are current BidX subscribers. The cost of AWP Bid is $17,500/year. BidX is able to successfully interface with multiple other systems.

West Virginia presented on their evolution to paperless construction:

Architecture:

- SiteManager
    - Digital tracking
    - Reporting of construction data
        - AASHTOWare Project 3.01 is quite a bit revamped – This is the new web-based version they have not upgraded yet
        - West Virginia is using it on various platforms: desktops, laptops, tablets
        - West Virginia is using an HP Elite II (testing it)
        - Citrix is used to present a virtual desktop for both iPad and outside users. It allows for iPad connectivity with SM since the version West Virginia is using does not have a client for the iPad. It also allows outside contractors to access SiteManager, Outlook for email, and ProjectWise as one desktop. Citrix provides access for outside users without requiring VPN (virtual private network) access to the West Virginia State Network.
        - SM Reports – an MS Access custom app (which they got from Alaska, who has been very good about sharing information with West Virginia. Virginia has also

developed a similar application). This has been a key to making the system work for the users as West Virginia can easily customize the reports to the user specifications.

- ProjectWise
  - An Engineering Content Management system that operates thru a centralized SQL database.
  - Provides an environment where state and outside users can collaborate by being able to access and review project documents and information.
  - Currently decentralized for document storage with 10 District servers and one at headquarters. The database is centralized.
    - They are rethinking this and looking at storing all documents centrally and caching documents nightly to the district servers. This will allow for easier disaster recovery planning.
    - ProjectWise uses a technology called Delta File Transfer, which only transmits changes to files. This reduces load on the network and results in faster retrieval times.
  - Can provide access to both internal and external users
  - Can link documents with legacy systems
    - Biggest challenge is training users to use a URN (Universal Resource Name – this provides a link which is not broken if the name or the location of the document changes) and not a URL (Universal Resource Locator – link is broken if the document is moved or renamed)
  - Can capture and present metadata for projects/files from multiple file formats.
  - Mobile Apps – Bentley WorkSite
  - Integrated with MS applications
- Bluebeam Revu Extreme – PDF editor
  - Similar to Adobe
  - In addition, has engineering markups and the ability to do measurements and calculations
  - Digital markups for As-Builts
  - Workflow for review and approval process
  - Integrated with ProjectWise
  - Project Collaboration through Bluebeam Studio which is cloud-based
  - Includes ability to use and integrate various types of Digital/Electronic signatures technology
  - Very good document comparison features
  - Excellent for comparing two versions of the same drawing
  - Handles digital signatures on drawings & documents well
  - It has some short-comings when signing forms
- SiteManager Reports
  - Since they did not customize SM, they were able to customize the reporting to show the data in the format the users were familiar with.
  - There are user groups out there who have already created many custom reports that they will share with others (Alaska and Virginia are two examples) and States can make simple modifications to meet their needs.

Q & A

Q: Since the Arkansas Peer Exchange, what are you using that's new?
A: Giving outside access for contractors, consultants, and QAMs (quality assurance manager, who acts on behalf of West Virginia to certify the materials, etc.)

Q: Where do you think you are in your quest to become paperless?
A: West Virginia is still using wet signatures on a lot of documents. Once it gets a more centralized signature policy, it can get closer. The agency needs to evaluate its processes and requirements for signatures/PM processes to determine what is needed. West Virginia is also in the process of making change orders 100 percent electronic, but isn't quite there yet. West Virginia thinks they are about 80-90 percent there.

3.3 Florida DOT e-Construction Overview

Amy Tootle and Quinton Tillman with Florida presented on how the agency implemented e-Construction. Florida is a decentralized organization where the central office sets policy and procedures and the district offices implement the process. Florida included five components in the original deployment of e-Construction, including a collaborative sharing site, mobile devices, digital signatures, form automation, and electronic as-built plans. The collaborative site is an externally hosted, off-the-shelf, dynamically configurable product with workflows that automate construction management. Redundancy is provided with an internal Florida electronic document management system (EDMS), where project files transition once a project is complete. The EDMS is used to archive final files within the Florida firewall. At any one time there are approximately 520 active construction projects.

Florida Engineering and Operations tested three different types of windows-based mobile devices for application to construction. Florida State Construction Office then decided to test iPads based on input gathered from other States. A phased implementation of iPads for construction field staff started September. Ergonomics plays a key role in use of tablets in the field – something smaller than a laptop is needed to avoid limitations due to cumbersome transport of devices. Devices also need rugged cases or extra cases to protect them and to avoid the need for replacement due to damage. Battery life is also an important component of device selection.

Document Management

   a. ProjectSolve SharePoint
   b. EDMS
2. Digital Signatures
   a. Identrust
3. As-Builts
   a. Bluebeam

ProjectSolve Collaboration

Oct 2013	Management approval
Jul 2016	Implementation
3 YRS	Approximate turnaround

The I4 Ultimate was their first project for ProjectSolve, which at the time was very rudimentary. Consultant Parsons Brinckerhoff (PB) hosts ProjectSolve (PSSP). It is web-based, outside the firewall, houses standard forms, and provides access to project plans. It provides prepopulated forms, including project number, contractor name, etc. Once forms are approved, the documents are pushed back through the Florida firewall into the long-term EDMS (electronic doc management system).

Digital Signatures

Jul 2013	Initial purchase of 390 vouchers
Jan 2015	Approval by Department of Financial Services to use on monthly estimates
1.5 YRS	Approximate turnaround

- Executive Buy-in was critical to keep things moving.
- IdenTrust was the cheapest.
- They do not dictate to the consultants or contractors which digital signature each needs to use, so long as they to meet the Florida requirements.

As-Builts

Fall 2013	Decision to go electronic
Jul 2015	Implement electronic As-builts
2 YRS	Approximate turnaround

- Can make changes efficiently through Bluebeam
- For $10, they can equip their users with an iPad app or on laptop the full Bluebeam Revu eXtreme

Florida is realizing a savings of approximately $22 million per year.

3.4 AASHTOWare Implementation

Florida is currently running AASHTOWare Version 3.1.5b. It is hosted so that clients outside the department can log in through Citrix, then log in through SiteManager. SiteManager is behind the Florida firewall.

Currently, Florida is looking to possibly fund the migration of the client-based system to the web-based system.

There is a cost to migrate to a web-based system. Per Info-Tech, as long as they are in the client-based version, there is no fee to the web-based version. Licensing fees are approx. $364,000 per year for Florida, which has approximately 4,000 users.

- There will be considerable amount of effort to migrate their data to a web-based system. There are roughly 1,500 active contracts, and a total of about 16,000 projects since inception.
- The agency is in the process of planning the migration and strategizing the best way to move forward
- After 2019, Florida's current software will no longer be supported
- To illustrate the scope, in a one month period during July, the agency managed $250 million in construction contracts and $16 million for maintenance activities.
- Florida took the top 8-10 functions the user performs and tested the time of operations for the client-based version and compared with the web-based application. It found a considerable time savings with the new web-based system, because response time is much faster. The response time for the current version is slow.
- Florida has hosted the project resource center, web construction, web construction & materials. The agency is using the web construction & materials but not using the materials portion. It has built its own vertical silo for materials called MACS, which integrates with SM.

Florida is going to manage the migration over a 2-year period. In July 2017, it will begin moving the data over, throughout the first year. Then during the second year, all the reporting, other customization, training, etc., would have to be rewritten. It will cost $2.7 million to migrate everything, including moving the data, reassigning staff roles in system, etc. If Florida is successful, by 2019 they will have integrated the PRP (AASHTOWare pre-construction module) and PRC (construction & materials) web-based module (minus the materials module).

- PRP - all lettings & awards
- PRC - once project goes to NTP, it goes into PRC.
    - Currently with the client-based version, Florida has to migrate pre-construction info to the PRC module. With the web-based version it will migrate automatically.

The web-based system is device and upgrade neutral. The system provides its own upgrades and updates. When the user logs in, all upgrades will have been automatically loaded.

Doomsday scenario: If Florida's current disbursement system was suddenly disabled what would happen? They currently have a 10-day payment turnaround. The DOT is the only State agency that has access to paying contractors directly from their trust fund to cover the approximately $260 million it spends each month in construction and maintenance. The ROI estimate came in at 2.54 -- roughly 2.5 times the cost if they were to suddenly lose access to this system, which included an estimate for 10 percent of projects going 40+ days in payment, which would cause them to incur interest.

Florida staff are involved with the AASHTOWare user group. Members of the group discuss and pilot new roll-outs, software upgrades, etc.

Florida likes AASHTOWare because a lot of States participate, and when upgrades happen, the States split the cost; all participating States share the cost of the upgrades.

Q & A

Q: Does Florida have full-time staff who support the SM/AASHTO system?
A: They have two full-time consultants plus one Florida employee. They also have access to the Office of IT, which provides support as needed.

Q: Will customized reporting have to be rewritten during upgrades for new web-based system?
A: WebFocus is their software they use for custom reporting, which is outside AASHTOWare.

Q: If you pay for InfoTech for customizations, how does paying for upgrades to custom reporting work?
A: All States have the option to customize reports or customize fields within AASHTOWare. In addition, Service Units are available $13,100. All States pay by service units, so the difference in WV and FL costs for AASHTOWare represents the total number of service units they each have.

Q: How is Florida running tests on the web-based version?
A: AASHTOWare has set up a test site for them to use.

West Virginia advised they have approximately 500-600 users of SM. West Virginia has the 2016 catalog that she can share via email. West Virginia is setting up their contractors to give them some access to portions of SM. This would mostly include estimates, daily work reports, etc.

Per West Virginia, the base price for SM is $218,000. They outsourced IT help from InfoTech for system setup and implementation.

West Virginia had been making Sureties sign change orders. They learned that other States do not do that, so they began changing that process.

West Virginia advised that Citrix allows for access to West Virginia systems. Every time West Virginia gives someone access to SM, they spends a couple of hours on the phone walking them through and showing them how log into the Citrix desktop and access information on SM.

Q & A

Q: Why does West Virginia give outside consultants/contractors a DOH email address?
A: West Virginia uses email triggers in SM to notify users when a change order is ready to process. The trigger only works with addresses setup for the state email system (@wv.gov). Citrix provides a virtual desktop where the outside users can access SM, Outlook for email and ProjectWise. The software products do not need to be installed on a non-state-owned machine. West Virginia can ensure that the messages and links between all three systems work.

Q: What does SM have to offer for inspection reports, etc.?
A: Every West Virginia inspector has a laptop. Inspectors can do all their reports from the field. SM does some quantity tracking and item reports, but the agency has created its own reports to fit in with its processes and to match SM's way of doing things. For example, if you overrun a major item by more than 20 percent, SM will give an error message that a change order must be generated. SM will report how much materials were placed that day, etc. They have a guy who is really good at writing reports, so if West Virginia needs something, he will talk to that guy and tell him what he's looking for.

Q: How does SM come up with quantities for the daily estimate?
A: Inspectors will enter into their log what the daily quantity is. Each inspector has their own report for

items inspected for the day, and there are fields for notes. Once a Daily Work Report (DWR) has been written by an inspector, his supervisor will approve it, including all pay quantities. Once the supervisor approves it, the DOH will pay for those quantities. If the supervisor does not want to pay the contractor for a quantity, he will not approve it. DOH put in the spec book the median item for asphalt.

Q: How does SM handle materials sampling & testing?
A: West Virginia isn't quite sure about the materials side. West Virginia has the LIMS (Laboratory Inventory Management system) module for SM which is used by our Materials Division. We can put you in contact with the appropriate users. West Virginia added that she knows Kentucky has an analysis program they use through Excel.

Q: How do you handle the shop drawing review & approval process?
A: All are still approved manually; it's the same with Rhode Island. Project field offices typically scan the shop drawings.

Q: To Rhode Island: How is response time for CMS?
A: Response time can be challenging. It can take several minutes to run reports. Log-ins, etc. aren't too bad. IT is currently upgrading the back-end infrastructure, which should improve response time for reporting. Most data has already been migrated to new servers, and they are looking to add enhancements to the current system. IT's main objective is to have everything running from the new infrastructure. Old infrastructure can only be developed through machines running XP.

Q: How does the AASHTOWare User Group function?
A: West Virginia is a member of AASHTOWare Project User Group. They meet regularly and discuss potential upgrades, modules, etc. New ideas and changes are presented, member States are given a certain amount of votes and they prioritize the adjustments by what they feel would be most beneficial to them and split their 100 votes based on what is the highest priority for adjustments to AASHTOWare. Every State gets 100 votes.

Comment from FHWA: If Rhode Island were to decide to move forward with AASHTOWare, it would be best served to start with the web-based version so they wouldn't have to migrate into the client-based then migrate that into web-based.

A: Rhode Island would have to first migrate all data from CMS into any version of AASHTOWare. West Virginia had its own version of PMP, and they had to migrate data from their system. New projects are started in SM. In-process projects stayed in the existing systems.

Q: Did you have to publicly procure AASHTOWare?
A: Yes, even though there was a justification of sole source for the software as we already were using several other AASHTOWare modules that integrated with SM, West Virginia was required by our State Purchasing to process an RFQ for SiteManager.

Rhode Island has approximately 200 users of CMS. It gives contractors limited access into CMS, including RFIs, shop drawings, only the things they want the contractors to see. There are no licensing costs, only the maintenance staffing costs.

Rhode Island uses a GIS based system that allows consultants access to certain parts of the system from outside the firewall, but limits availability of information. Access is right on home page URL; there is an email log on and authentication through the PMP main page.

Rhode Island has noticed they get complaints when staff gets more emails. "The last thing we need is more emails."

Rhode Island has delegated levels of authority for change orders -- once it gets to final, they give it to contractors to sign last. They have found it is better for them to get through their internal processes before sending it to the contractor.

Some Rhode Island contractors have recently asked to be allowed to use an electronic shop drawing process. Rhode Island is currently evaluating how to handle this request.

Q & A

Q: Are the IT staff Rhode Island employees or State employees?
A: Rhode Island IT support staff are Rhode Island Department of Administration employees, but dedicated and assigned to RIDOT.

Q: Does Rhode Island do many D-B projects?
A: They are starting to do more. The next month they are looking to put out approximately $40-50 million in D-B projects. There is a challenge handling the lump sum vs. unit price elements to manage Quality of project and manage materials quality.

Q: Do PMP modules share the same database?
A: Yes, all PMP modules share the same database.

Q: Does West Virginia PRC include the letting?
A: No. All bids and letting are managed through BIDX, which is an Info Tech product outside of AASHTOWare, but integrates with AASHTOWare products. BIDX manages all letting information.

3.5 Data Collection and Storage Using Collaborative Project Sites (ProjectWise in West Virginia and ProjectSolve SharePoint (PSSP) in Florida)

A task team was assembled to determine what could be done to better collaborate with our stakeholders. They recognized the need to have a collaboration site hosted outside the Florida firewall which could be accessed by all stakeholders. Florida put out an Invitation to Negotiate (ITN) and

Parsons Brinckerhoff, who was already hosting a basic version of Project Solve for the Florida Turnpike Enterprise, was the company selected to provide the document management system statewide for construction. All construction documentation (RFIs, SAs, pictures) not already requiring input into SiteManager, would be housed in this temporary site.

Depending on what type of document it is, they have a metadata source list, which varies depending on document type. Once the document is submitted to PSSP, that metadata attaches credentials, including who has access to it, who needs to sign, etc. Once that metadata is approved, the system moves it behind the firewall to an ftp site hosted by a vendor, and then the document is moved into EDMS.

When projects are finalized, Florida shuts down the individual project site and migrates all data into EDMS.

Rhode Island does have Microsoft 365, and all email has recently been migrated to the web-based system. Those individuals in the main office in Providence do have the full Microsoft suite on their computers and field staff members have licenses on the contractor provided computers. Rhode Island is also investigating a pilot for SharePoint and/or One Drive.

Q & A

Q: Can you set notifications so that you get email notification when all others have signed a doc, etc.?
A: Florida uses add-on Nintex as a workflow development tool. They set parameters for workflow instructions and processes in the set-up of project or system workflows.

West Virginia would like to use the ProjectWise workflow system. West Virginia needs some development time to script and test workflows to get docs through the reviews process, etc. We are also waiting for the Legal division to approve the process for digitally signing docs.

ProjectWise Demo

West Virginia is a MicroStation CADD shop and they require a system for managing complex engineering documents using reference files. For an early implementation in the 1990s the agency issued a public RFP and made an award to Documentum. This was too big of a tool for the job, and it did not live up to the promises for the reference file management. We were able to utilize the software for DMV. In the meantime, the Bentley ProjectWise (PW) system developed into an Engineering Content management system that could store MicroStation files and references as well as office formats such as pdfs, MS files, etc.

They can give secure access to outside firms who use PW specifying access to only the folders they need to see.

West Virginia creates all their project files with templates. The Construction Manual dictated exactly how all the files should be named, stored, etc. Once files are dragged into the directory, the files automatically inherit the metadata of that file, with no need for data to be entered to define the file parameters, etc.

Naming conventions can be very important in determining file attributes, etc.

The biggest problem is managing the groups once you have a project set up.

Agencies can also use PW for storage and sharing of files or groups of files that are not necessarily project-related. You can link shortcuts from one file to another so you do not have to duplicate files.

This system provides a single source of truth: files are stored only once, and whenever you want to reference the file, you create a shortcut to the native file. This is good for claims defense so you are not looking for copies of files in multiple locations.

There are various ways to perform searches: the user can export search results into Excel, etc. Also, there is a saved searches file in every project for quick reference into commonly performed searches.

Q & A

Q: Who maintains your delegation authority & groups?
A: Right now West Virginia does engage with IT as needed, but generally adds credentials/access as requested. West Virginia can quite easily add new employees to user groups for multiple projects. For Construction, this has also been delegated to the Area Engineers.

Q: Is PW the final file or can people edit documents?
A: In Construction, it's mostly final files in pdf format. In Design, people can collaborate and edit files.

Q: What type of access do Contractors have to PW?
A: They can be managed individually per contract: setting various permissions for various types of users, read for some, read/write, etc., depending on necessary permissions per project.

Q: What are the mobile accessibility attributes of PW?
A: It is accessible through various mobile devices. There is also a mobile application WorkSite that is available for Apple and Android systems.

Q: What does the PW system cost?
A: West Virginia pays a yearly license fee. Since we have a large library of Bentley software we have negotiated an Enterprise License Agreement (ELS). This has reduced the cost of ownership for ProjectWise. West Virginia is under the impression that the cost for ProjectWise with the ELS varies by state depending on what software they currently own.

Q: What was learning curve and training like?
A: Very smooth. You do not need a programmer to set up permissions. Training was also very good thru Bentley. You spend a lot less training when you have already established and followed processes and procedures in the Construction Manual.

Q: What is the standard process of populating the folders?
A: You can drag and drop from your file system, export from email, save it directly, Bluebeam can save it directly. From SM, the report is saved in PW and a link is saved in SM.

Q: What about iPads?
A: They had a lot of inspectors who had not even used a laptop before. Now they are at a point where they may need to revisit their devices, may look at piloting tablets. They are looking to windows-based, because they are trying to avoid the cost of getting Citrix licenses for iPads.

Q: Metadata about the project comes from project tracking system - how do you do that?
A: Project tracking system was done in Primavera – this is used for the initial scheduling of projects within the Planning Division. Bentley provided a routine for extracting the metadata from Primavera when a project is created. This routine can be easily changed to target another system should the project tracking system be updated. e-Construction Mobile Devices (iPad and Windows Tablets)

Florida did not feel the Windows devices were as field-friendly. They were a little bigger, less rugged, less secure, and had less cellular connectivity. IPads were selected and suggested to Management for being made standard. Florida management would prefer field users to be device neutral but for the time being construction field users have a waiver with an agreement to work towards that goal. One inspector was tired of lugging around huge boxes of paper so he worked with the Contractor to upload all the docs he needed and set up access on an iPad Mini.

The SCO spent a year doing a pilot with 10 iPads in three districts and central office. They wanted to involve users who were very motivated and would spend the time and effort to understand how to use them and what they needed to operate remotely in the field.

The CIO was on-board, but their security staff was concerned about security and "letting everyone in." OIT security did not want everyone to have their own iTunes account for fear of accessibility to downloading any app. They are now using a mobile device manager called inTunes which restricts downloads and can monitor usage. App updates can now be deployed automatically. They managed apps through iTunes. They went to

the Apple/iTunes Business to Business system, and DOT users get secure access to iTunes. Apple pushes out the apps system wide.

Florida is 100 percent consultant-provided CEI. Consultants can use whatever device that can connect in to PSSP, and whatever digital signatures that meet the Florida requirements. Internally they probably have approximately 400 in-house staff with field devices.

Their people require connectivity. If they have to have lag-time, they can save data and upload when they get to a connected zone.

Q&A

Q: How do you monitor what is on iPads?
A: OIT monitors and locks devices as needed using their mobile device manager called Intune. Also, they are tied in to iTunes through their State Business-to-Business store. Using their "inTunes" B2B account, they can log on to iTunes as one user per device, so they cannot use their personal iTunes accounts.

Comment from West Virginia: The DOT piloted various devices for various projects. One they tried was an HP Slate - which no one liked for various reasons. They were slow, you had to use a stylus, etc.

West Virginia is looking to possibly use Surface Pros and other Windows tablets. Rhode Island advised they have heard of some issues w Surface Pros, specifically 4G connectivity. Rhode Island does not have Wi-Fi hotspot capabilities on the iPhones that are used by upper management levels.

3.6 Electronic/Digital Signatures

Participants discussed various challenges associated with implementation of digital signatures on contract documents and for change orders. Florida outlined their process for implementation, and a question and answer session followed the discussion.

NIST Level 3 security documentation will be shared among the group. An application must be submitted along with two forms of identification, and the application is then sent to the third party authenticator for verification. Florida pays approximately $90 for a 2-year license. Time savings from digital signatures is one of the primary benefits – if someone is traveling they are able to apply a signature without delay.

With another device or computer, certificates have to be transferred to a new device and a pin authenticates the user based on the certificate client software. Validation has to be checked for each signature placed. Automated forms will allow for completion of workflow activities without checking out and checking back in documents. A public key infrastructure (PKI) validates the certificate via the internet.

Department of Financial Services, Comptroller, and Florida all met and observed the digital signature and discussed challenges with implementations. Showing the process manually to all stakeholders (or using videos) helps to convince them that the process is secure.

The National Institute for Standards and Technology (NIST) is the governing entity on digital authentication processes. One third-party authenticator used in Florida has an acceptable level of security using a key code established once certificates are issued based on proper identification. NIST Level 3 certified products are evaluated and used – this is not a requirement for all types of use but is industry recognized. Contractor and consultant associations and Florida all agreed to the use of e-signatures based on a 2013 memorandum of understanding. Florida also uses a note underneath each signature showing the Engineer of Record for specific sheets in the plans as part of the digital signature. For signing and sealing plans, the "statement" is required per Florida Board of Professional Engineers so that the PE only has to sign one page, not every single page of document

The initial investment was $1.5 million with annual recurring expense of $834,000 to $1 million, with reductions in scanning costs of $125,000 and a full annual projected savings of $22 million with full implementation by July 2016. Specifications have been updated to remove language such as printing, paper, etc. to go truly paperless.

The consulting community has been using electronic signatures for years and they are now converting to a similar digital signature as Florida. Florida administrative code explains requirements for language to be included in a professional engineer seal that in turn will be included in the signature. Each title sheet denotes which pages are being signed and sealed by the professional engineer. Florida requires a digital version of the professional engineer seal but does not allow a wet signature over the digital version of the seal.

In 1998, Florida presented the digital signature concept to the State legislature. Florida Statute 668 governs electronic commerce and Florida Statute 471.025 governs regulation of digital approvals:

Florida Statute 668 – Part I Electronic Signatures

Florida Statute 668.003 (3) :

"Digital signature" means a type of electronic signature that transforms a message using an asymmetric cryptosystem such that a person having the initial message and the signer's public key can accurately determine:

(a) Whether the transformation was created using the private key that corresponds to the signer's public key.

(b) Whether the initial message has been altered since the transformation was made.

A "key pair" is a private key and its corresponding public key in an asymmetric cryptosystem, under which the public key verifies a digital signature the private key creates.

An "asymmetric cryptosystem" is an algorithm or series of algorithms which provide a secure key pair.

Florida Statute 471.025 – Engineering Seals

Florida Statute 471.025(1):

The board shall prescribe, by rule, one or more forms of seal to be used by licensees. Each licensee shall obtain at least one seal in the form approved by rule of the board and may, *in addition, register his or her seal electronically in accordance with ss. 668.001-668.006.*

….Drawings, specifications, plans, reports, final documents, or documents prepared or issued by a licensee may be transmitted electronically and may be *signed by the licensee, dated, and sealed electronically with said seal in accordance with ss. 668.001-668.006.*

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Florida did some analysis to determine what is the best, most acceptable mechanism within the industry. He searched through multiple research and standards societies to determine which standards apply to digital encryption and security. Florida found IdenTrust, which met all legal requirements and had a very reasonable rate in addition to meeting all security requirements. IdenTrust also is very conscientious about managing their integrity and following all Federal, GSA, and other applicable rules and laws.

Users can download a root certificate for free in order to validate other users' signatures. Software certificates reside in the Windows registry. The downside is that if a user has an issue with their computer and IT has to wipe the machine, the certificate is deleted unless the user has a backup of the certificate.

Walking through which documents require digital signature:

- All design plans come into construction with digital signatures.
- Anything that involves money, such as pay quantities, estimates, etc., must have a digital signature.
- Not a question of whether it was digital signature vs. wet signature.
- The cost is approximate $90/per person for a 2-year cycle.
- Any staff that has signature authority must have this. Because of inconsistency from district to district, some signatory authority individuals can also delegate signatures, so they request access for those individuals as well

Challenges to overcome:

- Determining the security level: what level of security is required to be commensurate with the level of security for the document.
- Having the IT Department on-board to ensure that the signatures work correctly.
- Printing to paper: digital signature appearance -- a multi-page document/pdf file signs the entire document.
- Changing one sheet in a set will invalidate the signature thus clearly showing document has been altered.
- For more on digital signatures on design plans: https://fbpe.org/wp-content/uploads/2016/08/January-2016-Newsletter-web.pdf

Q&A

Q: How is Rhode Island handling the signing/sealing of plans?
A: Currently we are signing and stamping the hard copy/wet signatures on the cover sheet of all plan sets. A project plan set is created from the pdf of the final CADD drawings. The cover sheet is printed, signed, sealed, then scanned and combined with the project plan set pdf. This file is then saved to disk, which becomes the final project file for bidding.

Q: What is Rhode Island's policy for digital signatures?
A: The executive Department has a policy, the DOT is not sure what it states or how they are allowed to utilize digital signatures. Other departments within the state, RI DEM, have policies. Rhode Island had investigated previously, but it never became policy.

FHWA has a Personal Identity Verification (PIV) card. She had to give a cheek swab, fingerprints, handprints, retina scan, etc. She also has a 21-digit, upper/lower case, symbol, numeric password. She has to

insert the card via USB port only (no iPad conversion adaptors, etc.) as well as enter the password to sign docs.

Q: How do you use digital signatures in Bluebeam?
A: IdenTrust is the provider of the certificate, which must be used through a software tool, to provide a more secure version than Adobe does. You can insert a signature box in your software and IdenTrust will insert the validated signature.

Q: For a typical process, a change order for instance, how does it work from start to finish?
A: You start with the forms library. The user would pull down a file from the Forms Library and complete the form. When it is finalized and needs to become a final document, the user pre-populates a box where the RE needs to sign and routes it to the RE. The RE clicks the box where it says to Sign Here and signs the document. Then the Document Management system has an automatic workflow that moves it to the next responsible party.

West Virginia is doing some research on digital signatures. They are looking to some of the contractor associations for additional information.

3.7 Wrap Up

FHWA advised that there are workshops and Regional Summits planned in 2016 and Rhode Island should consider taking advantage of these opportunities to continue learning best practices and lessons learned.

Rhode Island advised they have issues traveling to summits and to workshops. They are unable to travel in most cases, but they are looking for ways to gain funding and permissions to do so, as speaking with peers and learning about ways to move these processes forward. Rhode Island did secure permission for a group to attend the EDC-4 summit in Albany.

Going into EDC-4, FHWA advises don't be afraid to point out what RI needs and to please keep the conversation going between Rhode Island , Florida, West Virginia, and FHWA. They have begun building relationships and can capitalize on many of the successes Florida and West Virginia have realized. In addition, there is a network of additional States who can provide support.

In addition, some comments from Rhode Island participants include:

- JOHN PREISS from Rhode Island found the discussion about e-signatures, signing processes, etc. to be most informative. In general, there is a lot to be gained through this entire process. He can see that there are mechanisms to support reporting, materials, workflows, and other processes that could be beneficial for Rhode Island to capitalize on.
- BRIAN FERGUSON from Rhode Island advised there are a lot of useful tools out there right now. The big challenge is convincing all partners that migrating to an electronic storage system is necessary and will vastly improve the overall day to day work required. Setting up and using a document storage system that mirrors our current paper system could be accomplished easily and with minimal disruption to the workflow.
- JAMES PRIMEAU from Rhode Island is ready to go on Tuesday and purchase ProjectWise to start using on his projects!

Appendix B – e-Construction Peer Exchange Agenda

Rhode Island/Florida/
West Virginia
e-Construction
Peer Exchange

RIDOT Training Center
360 Lincoln Avenue
Warwick, Rhode Island 02888

Agenda

August 31, 2016		
Time	**Topic**	**Presenters / Facilitators**
1:00pm – 1:30pm	Welcoming Remarks and Introductions • Goals for the Peer Exchange	Kat Weisner, FHWA Resource Center
1:30pm – 2:00pm	Rhode Island e-Construction Overview • Active Projects in Rhode Island • DOT Structure and Management • Construction Program Size • Current e-Construction Practices	Brian Ferguson, RIDOT
2:00pm – 2:30pm	West Virginia e-Construction Overview • Evolution to Paperless Construction • e-Construction Architecture	Sandra Keller and Doug Clark, WVDOH
2:30pm – 2:45pm	Break	
2:45pm – 3:15pm	Florida e-Construction Overview • Evolution to Paperless Construction • e-Construction Architecture	Amy Tootle and Quinton Tillman, FDOT
3:15pm – 4:00pm	Roundtable Discussion – Securing Organizational Buy-In for e-Construction	RIDOT/FDOT/WVDOH
4:00pm	Adjourn	
Dinner on your own		

September 1, 2016		
Time	**Topic**	**Presenters / Facilitators**
8:00am – 8:15am	Recap of Previous Day's Discussion Themes	Tom Zagorski – Michael Baker International
8:15am – 9:15am	AASHTOWare Implementation • SiteManager • Project Construction and Materials • Support and Customization	FDOT WVDOH
9:15am – 10:15am	Data Collection and Storage Using Collaborative Project Sites (ProjectWise and ProjectSolve) • File Structure and Naming Conventions • User Access & Contractor/ Consultant/FHWA Input • Workflow Examples • Document Retention Policies	Sandra Keller, WVDOH Quinton Tillman, FDOT
10:15am – 10:30am	Break	
10:30am – 11:30am	e-Construction Mobile Devices (iPad and Windows Tablets) • Inspection Documentation and Daily Work Reports • Apps in Use in the Field • Typical Inspection Data Processes	Doug Clark, WVDOH Amy Tootle, FDOT
11:30am – 1:00pm	Lunch	
1:00pm – 1:30pm	FHWA Division Office Pilot for Tablet Devices	FHWA
1:30pm – 2:30pm	Digital Signatures • Implementing digital versus electronic • Obtaining buy-in from key stakeholders	Amy Tootle and Quinton Tillman, FDOT Sandra Keller and Doug Clark, WVDOH
2:30pm – 2:45pm	Break	
2:45pm – 3:45pm	Enterprise Wide Asset Management	FDOT WVDOH
3:45pm – 4:00pm	Discussion on Takeaways for Implementation, Feedback, and Next Steps	Tom Zagorski, Michael Baker International Michele Horak, Michael Baker International
4:00pm	Adjourn	

Appendix C – e-Construction Peer Exchange Roster

Name	Agency	Email Address	Position Description
Jeremy Abraham	RIDOT	jeremy.abraham@dot.ri.gov	Civil 3D Coordinator with Asset Management
Steve Marandola	RIDOT	steven.marandola@dot.ri.gov	Records Management & support for records/ database
Michael Studley	RIDOT	michael.studley@dot.ri.gov	RE - Construction Division
John Preiss	RIDOT	john.preiss@dot.ri.gov	Chief Civil Engineer, Asset Management
Kat Weisner	FHWA	kathryn.weisner@dot.gov	e-Construction Rep for EDC-3 and EDC-4
Al Caldarone	RIDOT IT	alfred.caldarone@doit.ri.gov	Software Development Manager - RIDOT Technology
Brian Ferguson	RIDOT	brian.ferguson@dot.ri.gov	Sr. Civil Engineer, RE for Construction, Lead for RIDOT e-Construction Initiative
Joshua Mombourquette	RIDOT	joshua.mombourquette@dot.ri.gov	Civil Engineer for Construction
Tom Zagorski	Michael Baker	tzagorski@mbakerintl.com	Sr. VP National Director Construction Services
James Primeau	RIDOT	james.primeau@dot.ri.gov	Principal Civil Engineer, previously an RE and a member of the Scheduling section, now in scoping
Michele Horak	Michael Baker	mhorak@mbakerintl.com	Construction Services, support for e-Construction EDC-3, note taker
Amy Tootle	FDOT	Amy.Tootle@dot.state.fl.us	State Construction Engineer, over all construction policies at FDOT
Quinton Tillman	FDOT	Quinton.Tillman@dot.state.fl.us	New Construction Systems Engineer. At FDOT for 17+ years in the CADD Office; spearheaded the digital signature initiative.
Doug Clark	WVDOH	douglas.l.clark@wv.gov	Contract Administration. Finalizes projects and involved past 5-6 years in e-Construction for bidding/letting/award

Name	Agency	Email Address	Position Description
Sandra Keller	WVDOH	Sandra.F.Keller@wv.gov	IS Manager, Information Services Division, Engineering & Specialty Applications Group
Dominic Napolitano	RIDOT	domenic.napolitano@dot.ri.gov	Inspector
Tom Lewandowski	RIDOT IT	thomas.lewandowski@dot.ri.gov	Head of IT at DOT
John Nickelson	FHWA	john.nickelson@dot.gov	FHWA
Wilfred Hernandez	RIDOT	wilfred.hernandez@dot.gov	FHWA