

## SHRP2 *Railroad-Department of Transportation Mitigation Strategies* (R16) Community of Interest Annual Meeting

**TO:** R16 Community of Interest, Jessica Rich (FHWA), Pamela Hutton (AASHTO), Kate Kurgan (AASHTO)

**PREPARED BY:** CH2M R16 Team

**MEETING DATE:** March 27-28, 2018

**VENUE:** BNSF Conference Center, Fort Worth, TX

### Purpose of the Community of Interest Annual Meeting

The purpose of this meeting was to gather invited members of the Community of Interest (COI), formed in support of SHRP2's *Railroad-DOT Mitigation Strategies* (R16) product. The goals for the participants were to enable them to share best practices, lessons learned, challenges, and accomplishments related to a variety of topics; hear from each other about industry trends and concerns; and most importantly, foster a collaborative environment in which to capture the most innovative ideas from all stakeholders for expediting project delivery. The COI meeting agenda is attached as Appendix A.

### Participants

The COI meeting included representatives from 12 state departments of transportation (DOTs), six Class 1 railroads, a shortline/regional railroad holding company, the American Shortline and Regional Railroad Association, FRA, FHWA, AASHTO, and Jacobs in its role as Project Manager and Subject Matter Expert (SME) for the R16 product. A complete list of participants is attached as Appendix B.

### Executive Summary

This annual COI meeting is the second of three in-person COI meetings that are included in the scope of work to implement the SHRP2 *Railroad-DOT Mitigation Strategies* product. The agenda was designed to continue the discussion of key topics already identified by states and railroads participating in the FHWA/AASHTO Implementation Assistance Program and with the input of COI members. Presentations on specific topics were deliberately kept brief so that lengthy discussion periods could be accommodated and maximum input from all parties could be achieved.

This meeting marked a significant milestone where the COI meeting included nearly all of the Class 1 railroads. The attendance of the Class 1 railroads is important because it shows that there is a broad base of common interests and concerns among the DOTs and the railroads. These concerns are often shared at various facilitated meetings requested by the DOTs participating in the program with their individual railroads; but by seeing that certain issues are common across the spectrum of the DOTs and Class 1

railroads helps to show that the broad approach taken in the R16 implementation is generally applicable to the industry as a whole.

The PowerPoint presentations from the meeting are available on the AASHTO SHRP2 website at [http://shrp2.transportation.org/Pages/R16\\_RailroadDOTMitigationStrategies.aspx](http://shrp2.transportation.org/Pages/R16_RailroadDOTMitigationStrategies.aspx). Case studies, examples of agreements, operating and training manuals are available at AASHTO's R16 Innovation Library website at [http://shrp2.transportation.org/Pages/R16\\_InnovationLibrary.aspx](http://shrp2.transportation.org/Pages/R16_InnovationLibrary.aspx).

At the conclusion of the meeting, evaluations were distributed to the participants. Generally, the evaluators gave high marks to the exchange, finding that the content would be a benefit to their agencies. Most important were the presentations on the Section 130 program and master agreements. Several suggestions for future sessions were identified. A summary of the meeting evaluations is included as Appendix C.

The following are key points that were made during the meeting:

- Significant progress has been made by DOTs and railroads over the last year in the areas of improved communication and collaboration in the completion of grade crossing and other capital and maintenance programs. The establishment of DOT and railroad-specific Master Agreements or Agreement Templates for a variety of different project types, flagging best practices, and movement to paperless contracting have reduced costs for both the railroads and DOTs, and simplified their complex interactions.
- Inconsistent application and interpretation of FRA and FHWA policies are creating confusion within the industry. Several of the actions below address certain of these critical issues.
- The use of drones is one of many new technologies that are becoming more mainstream to allow DOTs and railroads to work more safely and efficiently.
- The adoption of certain new technologies, particularly autonomous trucks, can have a dramatic impact on the transportation industry and our collective working environments.
- We all share the challenge of a mature workforce that will see many more retirements in the coming decade, resulting in a significant loss of institutional knowledge and expertise in positions where a single person is responsible for a range of activities. At the same time, the DOTs and railroads find it difficult to recruit and retain a talented workforce given the allure of other technology-based industries. Quality of life and balance of work and family time are more important to the current generation than ever before so creative approaches must be taken to satisfy this need, in addition to the offering of competitive compensation packages.
- The desire or legal ability to make use of alternative procurement methods varies from state to state. The railroads are generally reluctant to embrace Design-Build procurement methodology due to the speed and resource requirements demanded by D-B in response to submittals, and the fact that railroads are asked to approve the project at the 30% design level when the D-B proposers may offer alternate technical approaches that are markedly different from the 30% documents. Some states are

similarly opposed to D-B and more progressive methods and prefer to continue with Design-Bid-Build procurement when the project is within railroad limits with known costs, processes, and timelines.

- Data management and information technology resources are strained as the amount of paperless data grows, sometimes offsetting the potential benefits of going paperless.
- Policy changes, local cost-share requirements, and shifts in funding ratios may result in changes to how the Section 130 program is administered, making it less effective. Several states reported more projects stalling due to local funding issues, while other states have availability of different funding mechanisms, allowing them to adapt more easily.

Key action items were identified by the R16 (FHWA/AASHTO/Jacobs) team:

Action/Issue	Responsible Party	Notes
What parties are responsible for updating crossbuck assemblies at passive crossings (with stop or yield signs) and can Section 130 funding be used for this? It was suggested that an answer to this questions and others below be issued on DOT letterhead and distributed to all FRA and FHWA division offices.	Jessica Rich, FHWA	
It was suggested that a meeting is needed with higher level FRA and FHWA decision makers to encourage support and use of this product after the formal portion of the SHRP2 Implementation Program comes to an end in May of 2019.	Pam Hutton, AASHTO, to elevate this issue with Jessica Rich of FHWA and Frank Frey of FRA; consider this for Peer Exchange in fall of 2018 and Annual COI meeting in Feb of 2019	
Can Section 130 funds be used to replace obsolete signal technology to improve reliability and reduce maintenance costs?	Jessica Rich, FHWA	
Can Section 130 funds be used for upgrading previously upgraded crossings to move to a higher level of warning devices where deemed necessary by engineering study or due to a high number of incidents?	Jessica Rich, FHWA	
Railroads asked for clarity related to requirements that work funded with Section 130 must be competitively bid or if that work could be awarded to contractors already under contract with the railroad.	Jessica Rich, FHWA	
FRA agreed to investigate the reported penalization of railroads for incomplete cells in the National Crossing Database that are the responsibility of state and local agencies. Further, FRA agreed to review the input function for updating the National Crossing Database.	Frank Frey, FRA	

Action/Issue	Responsible Party	Notes
During the meeting it was reported that uploading by either party of only the cells that are their responsibility results in emptying cells that are the responsibility of the other party. It was also noted that when states and railroad partners give each other access rights to the full range of fields in the National Crossing Database, the web input tool overwrites data with blank cells instead of merging the cells or verifying deletion.		
It was noted that the \$7,500 financial incentive to close crossings has not kept up with inflation and this relatively small amount of compensation is not compelling to state and local governments. Will the crossing closure incentive be increased to attract local funding participation?	Jessica Rich, FHWA	
Exchange of contact information and engagement at the regional level was requested by the railroads for FHWA and FRA counterparts	Jessica Rich, FHWA and Frank Frey, FRA	
It was asked by a DOT if drones are approved for fracture critical inspections.	Alana Spendlove (UDOT) and Frank Frey (FRA)	
Can Section 130 funds be used to create Railroad Crossing Safety Plans?	Jessica Rich, FHWA	
A DOT seeking an independent entity to provide education to its staff about signal technology and signal suppliers to define antiquated signal technology.	Mike Loehr, R16 SME	
Railroads and ASLRRA suggested that a National Grade Crossing Conference is needed. Railroads will further discuss this topic with Frank Frey and Dan Leonard (Pennsylvania DOT) to see if an agenda for the upcoming FRA-sponsored conference in 2019 will meet the need.	French Thompson, BNSF (representing railroads), Frank Frey (FRA), and Dan Leonard (Penn DOT) representing the 2019 conference steering committee	
A DOT asked how other DOTs are performing final inspections for signal upgrades performed using Section 130 funds. It was noted that the DOTs do not always have signal expertise to ascertain what upgrades were performed.	Mike Loehr, R16 SME	
For future R16 webinars, it was noted that asking for questions to be sent ahead of the webinar may improve the quality of the Q&A portion of the webinar. To provide enough context for the questions to be derived,	Hal Lindsey, R16 PM for Jacobs	

Action/Issue	Responsible Party	Notes
one or more of the presentations may need to be sent out ahead of the webinar.		
It was noted by a railroad that there is no federally approved or commonly accepted definition of a Humped Crossing. This definition and the means by which humped crossings can be mitigated may also be a topic for a future case study.	Frank Frey, FRA and Paul Rathgeber of UPRR	
One of the DOTs asked if there were any educational materials available for local law enforcement related to four quadrant gates.	Jo Strang noted that Operation Lifesaver is currently updating its education materials, and that these materials would be relevant to local law enforcement. Jo will distribute updated materials upon completion to the R16 COI.	
Given that the R16 program funding will cease in May 2019, there was discussion around drafting a funding request to continue to program.	Jo Strang volunteered to draft the first funding request, noting that final funding, if successful, may come from more than one funding source.	
Further to marketing the R16 product, KY DOT agreed to send Hal information regarding the upcoming Eastern and Southern Rail conferences for distribution to the COI.	Allen Rust of KY DOT; Hal Lindsey, Jacobs	
UPRR agreed to send Hal information regarding a multi-state meeting that includes Nebraska and Kansas for distribution to the COI. UP also volunteered to share with Hal its information related to Improved Grade Crossing Diagnostics for consideration in a future R16 Case Study.	Paul Rathgeber of UPRR; Hal Lindsey, Jacobs	
NS agreed to send Hal information regarding an AREMA Committee 36 meeting that will take place September 16-19 for distribution to the COI.	Stephen Klinger of NS; Hal Lindsey, Jacobs	

## Day 1 Overview

Day 1 of the meeting began with an agenda overview and brief overview of the SHRP 2 program, the *Railroad-DOT Mitigation Strategies* (R16) product more specifically, and R16 webinar, case study and peer exchange activity that occurred since the last COI meeting in January of 2017. Each member of the COI then presented an update of its R16-related activity. A general discussion of industry concerns and trends

followed these report-outs. During lunch, the topic of drones was presented and discussed, particularly the evolving applications and value of this new technology. A Section 130 funding update and discussion was hosted by FHWA after lunch and just before a campus tour hosted by BNSF. Day 1 wrapped-up with a recap of highlights and a networking opportunity.

## Summary of Presentations and Discussions, Day 1

### Session 1: Meeting Overview and Activity Recap

Kate Kurgan, AASHTO, hosted this session. This presentation is included within the Master slide deck, highlighting the R16 product within the SHRP2 family and R16 meetings, webinars, case studies, and other activities that have occurred during the last year.

### Session 2: Community of Interest Update

R16 SMEs Mike Loehr and David Solow hosted these report-outs wherein each member of the COI presented an update of R16 activities since the last in-person meeting in January of 2017.

Common themes included the following points:

- DOTs and railroads are united in their efforts to streamline processes and procedures to speed project delivery and increase efficiency with increasingly smaller staff sizes.
- The drafting of new Master Agreements and refreshing of legacy Master Agreements are commonplace in states where Master Agreements are allowed. In other states where Master Templates are the norm, the updating is also proceeding.
- Movement to paperless contracting and use of e-signatures to execute contract documents are on the rise; however, internal policies limit, or can prohibit, the use of e-signatures.
- The creation of tracking systems and databases to store and access information is also on the rise.
- State DOTs and their resident railroads have generally strong working relationships, forged at the local level. Regularly scheduled meetings are widely used to maintain this level of communication and collaboration.
- Creating and updating DOT Railroad Manuals was also a common theme, with the railroads preferring that the states use links to the railroad's documents due to frequent changes that are made on an unscheduled basis.
- Movement to conduct flagging by third-party contractors is also on the rise, satisfying the need for flagging on short notice but also raising concerns about third-party training and expertise and union work requirements.
- There is continued interest in improving predictive modeling for trespassers.

### Session 3: State of the Industry Open Discussion

R16 SME Susannah Kerr Adler moderated a discussion of challenges and trends common to the COI members. Highlights from the discussion are below:

- Movement from paper to electronic files is commonplace but not without challenges.

- Although many shortline/regional railroads accept e-signature of contract documents, the Class 1 railroads do not, but are moving in this direction.
- Texas DOT has created a common railroad electronic in-box that has become a central database and repository where document retention policies can be applied, archiving certain types of documents for a specified duration.
- Changing workforce – how to attract new and retain the existing workforce.
  - Washington State DOT is reconfiguring offices to be more collaborative and starting a pilot program where infants (under 6 months old) can be brought to the office.
  - Colorado DOT is providing more flexibility for their staff to work remotely.
  - BNSF and Penn DOT spoke about the advantages of internship programs.
  - BNSF also noted the benefits of mentoring programs, field trips, and monthly project engineer meetings where training and best practices can be shared; and the importance of work/life balance was noted to be significant for millennials.
  - BNSF also spoke about AREMA Committee 24 and the merits of its 25-to-30 student chapters that have been set up at universities and colleges around the U.S.
  - It was noted that reductions in compensation and benefit/pension packages make it difficult to attract and retain new staff.
  - It was also noted that millennials do not recognize the long-term benefit of pension programs.
  - Some DOTs and railroads are only one person deep in expertise in key positions.
  - The need to set realistic expectations for recruits was also stated, along with the benefits of recruiting candidates that are passionate about their job.
  - BNSF stated that our industry is not that attractive to young people when compared to Google, Apple, or Amazon. It is incumbent on us collectively to highlight the benefits of working in this industry.
  - South Dakota DOT discussed the importance of cultural fit for new employees and the need to structure the job with defined responsibilities.
  - CSXT reminded everyone of cyclical times when the economy was bad and college graduates had limited job opportunities, resulting in greater interest in the transportation industry.
  - It was also noted that DOTs have been losing employees to city and county governments; this has prompted some DOTs to perform compensation surveys, increase salaries, and remind recruits of the social benefits of government work.
  - Railroads, DOTs, federal agencies and consultants all admitted that it is an open season for recruiting staff with staff jumping between all the different parts of the industry.
  - Lastly, it was noted that developing from within can sometimes be easier than recruiting externally.

- Advent of autonomous vehicles
  - ASLRRA stated that the adoption of autonomous automobiles and trucks will bring significant changes to our industry. This topic will likely be of great interest to millennials.
- IT resource limitations
  - SD DOT mentioned that process changes continue to increase (e.g., movement to electronic vs. paper files) but limited IT capacity at the agency this is a challenge.
- Changes in funding shares for Section 130 Program
  - NS noted the reduction in number of Section 130 projects, seeing about one-third as many completed due to 90/10 federal/state funding requirement.
  - Concern is that unspent federal funds will not be re-budgeted, creating a negative feedback loop.
- Railroad industry consolidation
- Shift to contractor (vs. railroad employee) flagging
  - On the positive side, contractor flagging can ensure quantity demands are met (e.g., for planned bridge inspections).
  - On the negative side, there are concerns about flagger training and qualifications.
- Right-of-Entry Delays
  - DC DOT noted that while progress is being made keeping PE and construction projects on schedule, Right of Entry (ROE) seems to always be delayed.
  - Turnover at the railroads and DOTs was noted as one reason for these delays.

#### **Session 4: Working Lunch, Topic: Drones – Evolving Applications and Values**

Susannah Kerr Adler moderated this session with presenters Alana Spendlove of Utah DOT and Frank Frey of FRA.

The following points were noted during the presentations and subsequent group discussion:

- FRA will be hosting a Drone Summit in the near term.
- Drones are changing the way we work and allow us to do it more safely by keeping staff out of dangerous areas.
- UDOT has a robust policy for Unmanned Aircraft Systems (UASs), using them on the highway side, for:
  - Structure inspection (not having bridge inspectors hanging off bridges)
  - Surveying and mapping
  - Traffic monitoring
  - Incident management



- CN and most Class 1 railroads still require a ROE when a third-party drone is on or over railroad property. CN noted two incidents that were prosecuted successfully by the FAA and FBI, one where a drone was flown into the operating cab of a locomotive.
- NS is seeking permission to use drones for crossing signal project use. They noted that use of drones is becoming more acceptable and that initial implementations have been positive.
- BNSF stated that they have a significant amount of drone coverage for their network, both for Line of Sight (LOS) and Beyond LOS (BLOS). They noted that this large amount of data has to be stored and analyzed. They also noted that it is fairly easy to overlay the images of one flyover with another to highlight changes.
- UDOT is working to have more employees trained as pilots so that a drone can be employed in each incident management truck.
- Mike Loehr noted that size matters, in that the larger the platform, the more sophisticated the equipment. He also suggested that the claims of drone vendors need to be scrutinized as some exaggerate the capabilities of the technology.
- NS noted that it flew and documented its entire network about 10 years ago.

### Session 5: Section 130 Updates and Group Discussion

Jessica Rich of FHWA hosted this update and discussion. Following Jessica's presentation, the following discussion highlights were noted:

- BNSF asked what entity is responsible for updating crossbuck assemblies at passive crossings by December of 2019. It was also asked if Section 130 funds can be used. This issue has been highlighted in the Action Item Table within the Executive Summary above.
  - Delaware DOT and others strongly agreed that this needs to be clarified. For public crossings in Delaware, if the pavement marking or sign are for the train, then the responsibility is the railroad. If for automobiles, then the DOT.
  - FRA noted that DOTs have the right to install a yield or stop sign on the crossbuck; NS said this decision needs to be made thoughtfully as some states treat the crossbuck itself like a stop sign.
  - The railroads said they are happy to partner with states but need clarity of roles and responsibilities.
  - It was suggested that FHWA and FRA issue a joint guidance letter on US DOT letterhead to reduce the variations in local interpretations (this has been noted in the Action Item Table within the Executive Summary).
  - The railroad expressed some frustration that they do not know who their FHWA regional counterparts are; FHWA directed the railroads to the regional Safety Engineer or Safety Specialist (also noted on the Action Item Table within the Executive Summary).
  - AASHTO suggested that a Section 130 Part 2 Case Study could be prepared and that the R16 mandate is to increase communication and collaboration between railroads and DOTs. (This Part 2

Case Study has been proposed by the R16 team subject to FHWA approval and will be scheduled in 2018.)

- TXDOT agreed that if specific questions need to be asked, that we should do that and then post the answers on the R16 web page; AASHTO cautioned that the R16 team can ask questions and publish answers, but we cannot issue FHWA/FRA guidance or propose policy.
- The R16 team took an action to follow-up with FHWA and FRA on this request for a joint guidance document to be issued.
- The next topic related to functionally obsolete signal equipment and its eligibility for Section 130 funding for replacement (this question has been added to the Action Item Table within the Executive Summary).
- BNSF noted that over 60% of accidents occur at crossing with flashing lights and signals. Can the railroads and states go back to those crossings and make additional safety improvements or can Section 130 funds only be used to upgrade from passive to active crossing? This question has been added to the Action Item Table within the Executive Summary.
- Another question was related to DOT directing the railroads to sole source vs. competitively source the spending of Section 130 grants for crossing improvements. Some states direct the railroad to sole source, others do not. This question was also added to the Action Item Table.
- Can Section 130 funds be used to develop Safety Action Plans? This question was added to the Action Item Table.
- Penn DOT stated that it is looking for an independent entity to provide education to its staff about signal technology, and signal suppliers to define antiquated signal technology. This issue has been noted in the Action Item Table within the Executive Summary.
  - It was noted that the National Highway Institute hosts a two-day general Grade Crossing course, but not a Signal Course. It was also noted that Positive Train Control (PTC) brings another level of sophistication and complexity to be addressed by states and railroads.
  - CDOT hires a consultant (Transystems) and University of Wisconsin to perform this training.
  - BNSF suggested that the railroads would be happy to present Railroad 101 classes to DOTs.
  - BNSF also said that a National Grade Crossing conference is needed to restart dialogue with a new generation of staff at both DOTs and railroads; railroads are willing to provide some level of sponsorship. ASLRRA agreed with this. FRA referred to a 2019 conference that will be held in Pittsburgh and welcomed railroad input for the agenda. This will be a 3.5-day conference and may include both policy and technical training. Frank Frey and Dan Leonard are on the conference steering committee. This note has been added to the Action Item Table.
  - ASLRRA noted 49 CFR Section 209 Appendix C and that there are several hundred non-holding railroads.

- Virginia DOT asked how DOTs are performing final inspections for signal upgrades using Section 130 funds. This action was added to the Table in the Executive Summary.
- CSXT expressed concern that the \$7,500 allowance to close a grade crossing has not kept up with inflation and is not compelling enough to satisfy its original intent. This question was added to the Action Item Table in the Executive Summary.
- BNSF noted that AREMA hosts webinars and is always looking for instructors. It was noted by TX DOT that not many state DOT staff participate in AREMA.
- Lastly, it was noted that Section 130 funds can be used to improve sidings or relocate yards to minimize or eliminate stopped trains that block roads.

### Session 6: BNSF Campus Tour

BNSF hosted a campus tour that started in its Visitor Center and museum. The tour included various pieces of artwork commissioned by early rail barons to entice East Coast-based Americans to travel and move to the west. The tour concluded with a view and description of the newly modernized BNSF National Operations Center.

### Session 7: Wrap-up for Day 1

The following summary of Day 1 was presented by Pam Hutton as we wrapped up Day 1:

- The COI has made good progress over the last year but more opportunities remain:
  - Master Agreements are continuing forward where they make sense and where state law allows.
  - Contracted flagging is becoming more mainstream, but this brings both comfort (in the form of quickly responding to needs) and concerns (as it relates to the training and qualifications of the contracted flaggers).
  - Movement to shared electronic files, paperless contracting and use of e-signatures are on the rise.
  - Most importantly, communication and collaboration efforts between railroads and DOTs are improving and barriers are being broken down. Networking and sharing of best practices are increasing and bearing good fruit.
- We share the challenge of recruiting and retaining a highly qualified workforce. Many different thoughts and practices were shared today to provoke all of us to keep working on this challenge.
- As Jo Strang noted, the transportation industry is rapidly changing with the advent of autonomous automobiles and trucks. How this will impact our industry long term is not fully known yet but these impacts will likely change our current business models and practices.
- Related advances in new technology (Drone or Unmanned Aerial Vehicles) are bringing efficiencies and improved workplace safety but must be applied prudently as one of many tools we collectively use to do our jobs.

## Day 2 Overview

Day 2 of the meeting began with a brief recap of Day 1 and an overview of the Day 2 agenda. The FRA presented updates on several different topics of interest, followed by presentations and discussions related to Master Agreement Successes and Challenges. The COI then talked about the most important topics to assign to remaining webinars and case studies. Following a lunch break, a panel discussion was hosted on the topic of Sealed Corridors from the perspectives of the DOT, railroad, and FRA. The final topic of the day stimulated discussion about how the COI can leverage the R16 program for the remainder of its funding period and how the R16 COI might be extended beyond May of 2019. The final topic of the day was a wrap-up discussion.

## Summary of Presentations, Day 2

### Session 8: What's Going on with FRA Lately?

Frank Frey of FRA presented this session. Highlights of the discussion that followed Frank's presentations included the following:

- Penn DOT said it has limited interaction with the FRA and suggested that a higher level of coordination between FRA and FHWA is a must.
- AASHTO noted this group's ability to escalate questions, but not to finally resolve issues.
- It was suggested that a meeting is needed with higher-level FRA and FHWA decision makers. This has been noted in the Action Item Table within the Executive Summary.
- The discussion then moved to cleaning up the National Crossing Database.
  - New rules in 2015 require railroads to update their inventories every three years; the states support this voluntarily.
  - TXDOT noted that it is having issues with inaccurate GPS latitude and longitude coordinates, mainly for shortline/regional railroads. FRA said that corrected latitude/longitude coordinates can be sent to FRA but state DOTs must partner with railroads to do this.
  - It was noted that in-vehicle navigation and integration of connected and autonomous vehicles and railroad crossing warning is useless if GPS data is not accurate.
  - BNSF noted that the form is a joint RR/DOT form and that partnership is required. BNSF and the other railroads stated that they are often penalized by the FRA for incomplete or blank cells that are the responsibility of the DOT. This was noted as an issue for resolution in the Action Item Table within the Executive Summary.
  - DE DOT said this represents an inequity as the FRA does not require the FHWA to provide their information in a timely manner but does require it from the railroads.
  - BNSF stated this is a consistent problem that is often discussed but never resolved.

- It was also discussed that when states and railroad partners give each other access rights to the full range of fields, the web input tool overwrites data with blank cells instead of merging the cells or verifying deletion. This issue has been raised in the Action Item Table.

## Session 9: Master Agreements: Success and Challenges

This session was moderated by David Solow. Panelists were Connie Raezer of WS DOT, Robert Travis of TXDOT, Paul Rathgeber of UPRR, and Megan McIntyre of BNSF. Following a WS DOT presentation and opening remarks from the other panelists, the discussion focused on these points:

- UPRR reported improved agreement turnaround times so long as there is no real estate involved in the agreement or changes made to a bridge structure. The importance of understanding each party's processes was noted. Further, the benefits of standard work processes were noted to counter the negative impacts of turnover at both railroads and DOTs.
- The differences between Master Agreement and Template Agreements were noted. A Template Agreement is "fill in the blank", where scope and location are added. Both have a purpose and value.
- It was generally agreed that Master Agreements are ideal for Section 130 grade crossing projects but not for Design/Build (D/B) given the complexities and unique nature of most D/B projects. It was also agreed that Master Agreements are not usually applicable for bridge or road widening projects, but several states have master templates for these types of projects where the terms and conditions are already agreed to, leaving the review to the intricacies of the particular project.
- The railroads collectively agreed that D/B is difficult for them as they are asked to approve projects well before the design is 100% defined. The railroads also said that managing a D/B project requires them to add staff or consultants. CSXT noted that railroads can't generally move approvals through their system at the speed required by D/B projects due to the need to integrate input from many internal stakeholders.
- It was also generally agreed that it takes approximately 1.5 years to negotiate the terms of a Master Agreement.
- Are there Master Agreements for Construction & Maintenance (C&M) projects? These C&M agreements are used to convey the right to construct and maintain an asset on railroad property. TX DOT suggested that parties start with a template agreement and then move to a Master Agreement format over time.
- DC DOT noted that the negotiation of indemnification is typically the most challenging issue related to a new Master Agreement.
- TXDOT said that the use of the words "extent allowable by law" has great value in reaching agreements.
- Kansas City Southern Railroad uses Master Agreements for signal and Section 130 projects, and said that Master Agreements are not applicable for all projects.

- CSX is revising its Master Agreement structures and currently is working with DC DOT to put the first Master Agreement in place.
- NS noted that updating Master Agreements can take from 3.5 hours to more than three years due to the negotiation of indemnification language.
- G&W has some Master Agreements in place, but noted that each of its railroads is a separate legal entity requiring its own Master Agreement.
- CDOT said they have had Master Agreements in place with UPRR since 2012 for all scopes except C&M. The C&M agreement is in its final stages of legal review. CDOT is currently working with BNSF on a final draft that may include C&M projects and real estate transactions. CDOT was challenged to create Master Agreements that address all types of projects, including purchase of long lead-time material and C&M services.
- VDOT is performing D/B and P3 projects with its railroads. The technical requirements for D/B are now 27 pages vs. 3 pages a few years ago.
- AASHTO encouraged everyone to take a copy of the book “Strategies for Improving the Project Agreements Process Between Highway Agencies and Railroads” and particularly noted Appendix C, that includes Model Agreements. Model Agreements are also posted on the R16 web page and be easily downloaded.
- Relative to Master Agreements with Amtrak, DE DOT noted that it is at an impasse with Amtrak. WS DOT stated they have an operating agreement with Amtrak for the operation of the Cascades service but no Master Agreement.
- NS noted that including its documents in agreements or guidance to contractors can lead to problems. NS would prefer that live links to the current NS document(s) be included instead.

### Session 10: Topics for Future Webinars and Case Studies

Pam Hutton and David Solow led this discussion with the goal of prioritizing the topics for the remaining three webinars and five case studies within the R16 work.

- It was generally agreed that future webinars should be 60 minutes in length and open to the COI and the general public. This meeting would be immediately followed by a 30-minute COI meeting that is limited to the COI only.
- Topics for final three webinars:
  - Section 130 Funding, Part 2 – Focus on construction financing (for example, what is needed for reimbursables, when can railroads sole source)
  - Flagging – Best Practices, Issues, Concerns
  - Benefits of Drones and other New Technologies
- Topics for five remaining case studies
  - Section 130 Funding, Part 2 – Focus on Construction Financing (piggyback on webinar)

- Flagging – Best Practices, Issues Concerns (piggyback on webinar)
- Alternative Contracting Methods – Recipe for Success (could be a Part A addressing D/B and CMGC and a Part B addressing Progressive D/B and P3)
- Crossing Assessments and Improved Diagnostics
- (Final topic remaining open until late 2018; if Alternative Contracting Methods evolves into a Part A and B, then no further topics can be accommodated)
- Discussion highlights that culminated in the selection of the above webinar and case study topics included the following:
  - Penn DOT referred to 23 CFR 646 that spells out how to expend Federal funds with respect to railroads, but it was noted there is sometimes a conflict between Penn DOT and Pennsylvania’s Public Utilities Commission (PUC) interpretation (i.e. funding for crossing surfaces).
  - VDOT said that refusing payment of PE costs may change the likelihood that some Section 130 projects will proceed. This issue has been included in the list of questions for Section 130 Funding, Part 2 webinar.
  - TXDOT suggested that a guidance letter may be needed to bring clarity; BNSF said that such a letter needs to be issued to all FRA and FHWA regions and divisions due to different and sometimes contrary interpretations that BNSF currently experiences. This suggestion has been noted in the Action Item List within the Executive Summary.
  - FRA noted that NTI offers a two-day workshop and that the COI may be able to engage with these instructors.
  - It was noted that asking for questions to be sent ahead of the webinar may improve the quality of the Q&A section. This action has been noted in the Action Item Table in the Executive Summary.
  - DE DOT said they created a decision tree to guide the choice of the best contracting methodology; that decision tree includes a recommendation not to use D/B within railroad limits.
  - BNSF said they can’t provide track windows months in advance and this limits their ability to support D/B contracting method; it was also noted that the railroad structural review process is not set-up for D/B review process.
  - VDOT is more favorable to D/B and is pushing more risks to D/B contractor.
  - For the case study, it was suggested that a review of delivery methods and lessons learned be presented, including Design-Build-Build vs. CMGC vs. D/B vs. progressive D/B and P3.
  - It was also suggested that the Class I and shortline/regional railroads submit issues and challenges associated with alternative contract methods to the R16 team along with how to mitigate them (“I can say yes, if the following conditions are met”).
  - BNSF stated that most of its own projects are DBB and that they are evaluating CMGC, but don’t prefer D/B.

- UPRR likewise does not prefer the use of D/B contract methodology.
- NS said CMGC accounts for less than 5% of their projects, 10% for D/B and the balance are DBB, especially for projects with state or municipal governments.
- Another topic that was raised by FRA as possible case study was Mitigation of Humped Profile Crossings; UPRR noted that there is no definition of a humped crossing and agreed this would be a good topic. These points have been noted in the Action Item Table.
- For states with a PUC, it was suggested that a “how to navigate” paper would be welcome; AASHTO suggested this is a better research topic.

### Session 11: Peer Exchange 2018 Agenda Planning

Pam Hutton and David Solow continued this discussion. In addition to the topics presented in the slide deck, these other ideas were discussed:

- BNSF suggested Best Practices Related to Railroad Real Estate, hosted by a railroad panel composed of field personnel.
- The perspective from the shortline community is needed at the peer exchange.
- Include the decision-making process related to using Section 130 funds to upgrade passive crossings to active or active to active with advanced lights and signals, and how best to stretch limited dollars.
- UPRR suggested Crossing Assessments and Improved Diagnostics; along these lines Penn DOT suggested tapping into FRA accident probabilities through the web-based application on the FRA website.
- Arkansas DOT suggested further discussions on the value of the COI for the community; also, workforce development and succession planning. Recruiting was added to this list later by UPRR.
- Mike Loehr suggested Transportation and Infrastructure funding be based on value capture, preparing for the coming day when grant funding will be available but judged heavily on value capture. FTA and APTA are preparing for this eventuality on the transit side of the house.
- G&W expressed interest in the development of a repository for the processes that each state follows.
- It was noted by CSX and confirmed by the other railroads that only a small fraction of private crossings has agreements in place with their respective railroads.

### Session 12: Panel Discussion: Sealed Corridors from Perspective of DOT, Railroad, and Federal Government

Mike Loehr moderated this panel; presenters were Richard Mullinax of North Carolina DOT, Frank Frey of FRA, Troy Creasy of CSXT and Stephen Klinger of NS. Following opening remarks and presentations, various questions were raised by the COI as noted below:

- WS DOT asked if there are any educational materials available for local law enforcement related to Four Quadrant Gates. The FRA website has a PDF for incident responders; additional materials may be available through Operation Lifesaver. Jo Strang is on the National Board of Operation Lifesaver; its



program is currently being updated and can be shared with the COI when completed. This action was captured in the Action Item Table within the Executive Summary.

- TXDOT said some confusion exists amongst law enforcement about its authority at crossings and on railroad property and the laws related to ignoring grade crossing warning devices.
- FRA noted that it has an app that contains a compilation of laws by state specific to railroad crossings.
- CN suggested that there is merit in creating discussions between railroad law enforcement and local law enforcement.

### Session 13: Leveraging R16 COI in 2018 and 2019 – Group Discussion

Pam Hutton facilitated this final discussion. The following highlights were captured during this discussion:

- Pam noted that the R16 product is one of the highest ranked products across the entire SHRP2 program when surveyed for value delivered.
- February of 2019 would be better than January or March for the final COI meeting and the meeting should be held in Washington, DC so higher-level FRA and FHWA officials could be invited. Another alternative is to hold the COI meeting in Salt Lake City per UDOT's invitation.
- ASLRRA suggested that now is a good time to ask for additional funding to extend the R16 program beyond its current sunset of May 2019. This funding could come from FRA, FHWA, the railroads, or some combination thereof.
- Pam agreed that it is critical for us to articulate what can be done with additional funding, chiefly, the goal of achieving quicker project delivery for DOTs and railroads.
- It was suggested that the in-person COI meeting should occur more than once annually and that it would be great to see 49 states in attendance.
- ASLRRA volunteered to draft a request for funding and this was agreed to by the COI. This "ask" will include our collective list of needs, actions, and what issues need quick resolution.
- FRA noted that a GAO report addressing FRA and FHWA work related to grade crossing improvements is in draft and should be released this summer. This report could affect our future meetings, case studies, and webinars.
- A question was raised whether a new highway-rail subcommittee should be created at AASHTO/TRB.
- Further to marketing the R16 product the following materials will be sent to Hal for distribution to the COI:
  - Kentucky DOT will send information regarding the upcoming Eastern and Southern Rail conferences.
  - UPRR will send information regarding a multi-state meeting that includes Nebraska and Kansas.
  - NS will send information regarding an AREMA Committee 36 meeting that will take place September 16-19, 2018.
- CSXT mentioned that Committee 5 of AREMA also has a crossing subcommittee.

## Appendix A – COI Meeting Agenda



# SHRP2 R16 Community of Interest (COI) Meeting Agenda March 27-28, 2018

*This meeting is a facilitated discussion for a corps of peers and experts from lead DOTs and railroad industry to share experiences on various topics related to R16 technologies and their implementation*

### Day One – Tuesday, March 27, 2018 BNSF Headquarters Campus, Fort Worth, TX

Time	Agenda Topic	Speaker
8:30 – 8:45 AM	<b>Welcome</b>	
	<ul style="list-style-type: none"> <li>Welcome from FHWA, AASHTO, FRA and BNSF</li> <li>Safety Moment</li> <li>Housekeeping</li> </ul>	Jessica Rich (FHWA), Pam Hutton (AASHTO), Frank Frey (FRA), French Thompson (BNSF)
8:45 – 9:15 AM	<b>Meeting Overview and Activity Recap</b>	
	<ul style="list-style-type: none"> <li>Review of meeting agenda</li> <li>Brief overview of webinar, case study and peer exchange activity that occurred since last COI meeting</li> </ul>	Kate Kurgan (AASHTO)
9:15 – 10:15 AM	<b>Community of Interest Update</b>	All COI Members
	<ul style="list-style-type: none"> <li>Self-Introductions and Report Outs from Each COI member (DOTs and RRs), addressing the following questions:               <ol style="list-style-type: none"> <li>Since the last COI meeting one year ago, how has your DOT/RR continued to implement Railroad-DOT Mitigation Strategies? Be specific.</li> <li>Based on your experience, are you achieving the expected benefit or value? Be specific.</li> <li>In what way has R16 changed your agency’s everyday state of practice or culture? Have you entered into any new partnerships? Conducted business between the RRs and DOTs in a different manner? If so, please be specific.</li> </ol> </li> </ul>	Moderated by R16 SME Mike Loehr, approx. 5 minutes each; Group Discussion
10:15 – 10:30 AM	<b>Break</b>	
10:30 – 11:15 AM	<b>Community of Interest Update</b>	All COI Members

	<ul style="list-style-type: none"> <li>Continued COI Report Outs</li> </ul>	Moderated by R16 SME David Solow
11:15 – 12:15 PM	<b>State of the Industry Open Discussion</b>	Group Discussion
	<ul style="list-style-type: none"> <li>Innovations/challenges ahead for the Industry – Roundtable</li> </ul>	Moderated by R16 SME Susannah Kerr Adler
12:15 – 1:15 PM	<b>Working Lunch, Topic: Drones – Evolving Applications and Values</b>	Moderated by Susannah Kerr Adler; Presenters: Alana Spendlove (UDOT) and Frank Frey (FRA); Lunch provided by BNSF
1:15 – 2:30 PM	<b>Section 130 Updates and Group Discussion</b>	Jessica Rich
2:30 – 3:00 PM	<b>Break</b>	
3:00 – 4:00 PM	<b>Campus Tour – BNSF Host</b>	French Thompson
4:00 – 4:30 PM	<b>Wrap-up and Adjourn</b>	Pam Hutton
5:15 – 6:00 PM	<b>Networking Opportunity</b>	All COI Members



Photos courtesy: Arkansas State Highway & Transportation Department, Missouri DOT, Oregon DOT, and

## SHRP2 R16 Community of Interest (COI) Meeting Agenda March 27-28, 2018

*This meeting is a facilitated discussion for a corps of peers and experts from lead DOTs and railroad industry to share experiences on various topics related to R16 technologies and their implementation*

### Day Two – Wednesday, March 28, 2018 BNSF Headquarters Campus, Fort Worth, TX

Time	Agenda Topic	Speaker
8:30 – 8:45 AM	<b>Recap of Day 1 and Agenda Overview</b>	
	<ul style="list-style-type: none"> <li>• Safety Moment</li> <li>• Housekeeping</li> <li>• Recap of Day 1</li> <li>• Proposed adjustments to agenda for Day 2</li> </ul>	French Thompson Jessica Rich Kate Kurgan
8:45 – 9:15 AM	<b>What's Going on with FRA Lately?</b>	Frank Frey
	<ul style="list-style-type: none"> <li>• Updates on Positive Train Control, Radar Technology, Rail Crossing Violation Warning system development</li> </ul>	
9:15 – 10:30 AM	<b>Master Agreements: Successes and Challenges Facilitated Discussion</b>	Moderated by David Solow; Presenters: Connie Raezer (WS DOT), Robert Travis (TX DOT), Paul Rathgeber (UPRR) and Megan McIntyre (BNSF)
	<ul style="list-style-type: none"> <li>• Take-aways from Current Agreements</li> <li>• What type of work is best suited for Master Agreements</li> </ul>	
10:30 – 10:45 AM	<b>Break</b>	
10:45 – 11:15 AM	<b>Topics for Future Webinars and Case Studies</b>	Moderated by Pam Hutton and David Solow
	<ul style="list-style-type: none"> <li>• Topics of industry interest for upcoming R16 Webinars and Case Studies</li> </ul>	

11:15 – 11:45 AM	<b>Peer Exchange 2018 Agenda Planning</b>	Moderated by Kate Kurgan and Mike Loehr
	<ul style="list-style-type: none"> <li>COI planning for Peer Exchange in September of 2018 in Miami (draft agenda, topics of industry interest, proposed speakers, logistics, etc.)</li> </ul>	
11:45 AM – 1 PM	<b>Non-Working Lunch</b>	Lunch provided by BNSF
1:00 – 2:30 PM	<b>Panel Discussion - Sealed Corridors from perspective of DOT, RR and Feds</b>	Moderated by Mike Loehr; Presenters: Richard Mullinax (NC DOT), Frank Frey (FRA), Troy Creasy (CSXT), and Stephen Klinger (NS)
	<ul style="list-style-type: none"> <li>Update on NC DOT – FRA Piedmont Improvement Program</li> <li>State, Federal and Railroad Perspectives</li> </ul>	
2:30 – 2:45 PM	<b>Break</b>	
2:45 – 3:30 PM	<b>Leveraging R16 COI in 2018 and 2019 – Group Discussion</b>	Moderated by Pam Hutton
	<ul style="list-style-type: none"> <li>Planning for 2019 COI; future of SHRP2's R16 product; additional industry needs; the role of FHWA, State DOTs and partner railroads going forward</li> </ul>	
3:30 – 4:00 PM	<b>Wrap-up</b>	Moderated by Kate Kurgan
	<ul style="list-style-type: none"> <li>Group Discussion</li> <li>Set date and tentative location for 2019 COI meeting</li> </ul>	
4:00	<b>Adjournment</b>	

## Appendix B – Participant Contact List

Name	Organization/Agency	Job Title	Email Address	Phone Number
Susannah Kerr Adler	Jacobs	R16 SME	susannah.adler@jacobs.com	(571) 218-1117
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Name	Organization/Agency	Job Title	Email Address	Phone Number
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Megan McIntyre	BNSF	Assistant Director of Public Projects	megan.mcintyre@bnsf.com	(206) 625-6413
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<b>Name</b>	<b>Organization/Agency</b>	<b>Job Title</b>	<b>Email Address</b>	<b>Phone Number</b>
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## Appendix C – Evaluation Report Results

### Summary of Evaluations of COI Meeting, held March 27 – 28, 2018

Twenty-one evaluations were provided to staff following the two-day meeting; 10 of these were signed by the evaluator. With a total attendance of 32, less AASHTO, FHWA, FRA and Jacobs/CH2M staff, we received evaluations from 87% (21 of 24) of the participants. Of those who self-identified, seven were state departments of transportation (DOTs) and three from railroads.

The following are some highlights of the feedback.

- The evaluators gave high marks to the overall COI meeting, with an average of 9.52 (with 10 as the highest rating) that it “met expectations” and 9.19 that it presented “clear information.”
- Evaluators rated the overall discussion content with an average 9.57 (with 10 as the highest rating). The highest rated session was on the Section 130 updates and industry discussion, with a rating of 9.52. The lowest was on the drone discussion with 7.76.
- Comments regarding the “most important ideas” from the exchange generally focused on Section 130, mentioned by eight of the respondents, and Master Agreements, referenced by four.
- As to questions or issues not addressed and suggestions for future topics, participants mentioned the application of Section 130 funds, design-build procurement method success stories, use of quiet zones, grade crossing safety issues, humped crossing mitigation, trespassing issues/treatments in railroad right-of-way, state reluctance to close crossings, establishing common guidelines/policies for how every project should be performed, FHWA Section 130 requirements for bidding out and financial reporting of projects, FHWA consistency across the nation in interpretation and implementation, and improved collaboration between FHWA and FRA.
- Additional comments mentioned the positive value of face-to-face meetings and that the Annual Meeting addressed “meat and potato issues.” Participants described the discussions as “excellent” and “informative.” Three participants were in favor of high level involvement from FHWA and FRA decision makers at the COI meetings to provide better insight regarding issues and solutions.