

Peer Exchange Report Out Materials

Northeast Bridge Preservation Conference
Newport, RI
2012

Discussion Highlights (note main discussion items)

- 4 DOT, 5 Industry
- New Jersey – 1 year field eval for deck patching on one structure with vendor rep then send to lab for testing. No list for joint repair. There are two lists – capital program one is maintenance. Painting uses NEBCo. Joints
- Connecticut does lab testing/office eval first. Talk to other states and see what they are using
- Install and qc are important
- Choosing the appropriate material for the application
- Delaware, no qpl
- Delaware, Conn will look at VE and innovative products
- Mass doesn't allow much variance from QPL
- Delaware MSE wall straps - \$1mil VE proposal, did university research project
- Mass MSE wall including design, they are more open to items off the list
- DE uses low perm conc bare deck, NJ rubberized asphalt, Conn asp and membrane
- Conn has problems with approved products changing
- DE requires contractor to submit repair method for cracking
- DE uses silane, Conn does not but wants to look at sealing prior to membrane
- RI end beam painting – Conn single on interior or two coat system with shrouded tools
- Risk based approach – no
- Reciprocity – no but a consideration
- Timeframe varies pretty greatly

Group number: 2

Discussion topic: Standardization of the testing and approval process.

Discussion Highlights (note main discussion items)

- Standardize specification on a regional basic.
- Eliminate reinventing the wheel for each state.
- Compile clearing house of information between state DOT's
- Short staff in the DOT material review process.
- Compile historic data for a product and performance history.
- Preservation specs could follow same guidelines.

Notable Practices (Note practices, strategies, policies, products, etc that are working well)

- NEPCO works well, needs expand scope
- Some states are working across state lines to aid in approval process.

Action Items (Note recommendations for research, leadership, communication, facilitation, technical assistance, etc)

- More collaboration between states.
- Development of clearing house for specifications, material requirements, and testing requirements.
Develop committee for compiling information.

Discussion Highlights (note main discussion items)

- State = 1, FHWA = 1, Vendor = 4, Consultant = 3
- 50 States QPL is a significant problem
- Newzeland has a centralized review/testing process
- States have different standards & specification that all product need to meet and therefore state QPL
- Data center at regional level will be helpful – NTPEP – State will not accept but state will have to do their own approval
- NewZeland uses performance based specification.
- Manufacturer require certain tests (such as Chlorid testing) to give any warranties.
- Industry develop a way to document/web site to provide the links - identify a repair and the products available for such repairs – the states it has been used – name & contact number.
- Regional partnership developing problems, products to address those problems, and updated on a regular basis.
- Is it enduring solution?
- Green vs. cost?

Notable Practices (Note practices, strategies, policies, products, etc that are working well)

- Manufacturer's representative is present during the installation of innovative products.
- Some manufacturers provide safety training, application training, before applying the product.
- Some states have designated road test sites to test pavement, pavement markers, etc.
- Accelerated testing and on-site testing data is helpful to add to QPL.

Action Items (Note recommendations for research, leadership, communication, facilitation, technical assistance, etc)

- Utilize the regional partnerships to establish a regional list of approved products
- List all the tests performed by the states in one location to avoid duplication.
- Require manufacturer's representative be present during installation of innovative products (mostly offer it for free).
- National test program with predefined performance measures that vendors can participate in, the results published nationally and added to Data Mine that would be available for states.
- Use NDT techniques to identify the primary cause of poor performance of innovative product.
- Identify Innovative techniques/products that are not being used currently and make aware of the agency personnel.
- Highlight agencies using innovative product - Room for failures to incorporate innovation?
- Have a uniform QPL process to ensure integrity of the process and product.

Discussion Highlights (note main discussion items)

- **Bridge Painting**
 - NJDOT tried metalizing, too expensive, went back to 3-Coat System with zinc.
- **How New Materials Get Approved**
 - NJDOT - Lab Testing of proposed paint system, test materials to verify they are performing as specified; 4 week testing period. Contractor performed test.
 - RIDOT - Dave Fish, Bridge Manager, gives Materials the need for a certain project. Materials tests products in house to verify their performance.
 - DC DOT - Material would be in contract, small bridge repair. If product conforms, may be used on a full contract. Material conforms to vendor specifications before permitted in small contract.
- DOT Staffing issues of new Material Review, new technologies are not being tested in a timely manner or not at all. With the review process delayed, newer materials are submitted.
- Federally Funded creates more issues of putting new materials, following their criteria creates a delay in construction award.

Notable Practices (Note practices, strategies, policies, products, etc that are working well)

- **Alberta Testing – Canada – Extreme Freeze Thaw**
- **Create common guidelines of testing procedures and results**
 - If it passes in the most extreme test, it will pass your states test
- Delaware does not have an Approved Product list, project specific

Action Items (Note recommendations for research, leadership, communication, facilitation, technical assistance, etc)

- **More discussion between states "Approved Materials List"**
 - Expensive for Vendors to pay for conformance testing with each state
 - Some states not even worth the investment to test new material
- Nationwide Approved List, environmental issues aside
- DOTs need specific section to review the latest and greatest materials and use them in the field in a timely manner.

Discussion Highlights (note main discussion items)

- Ultimate decision maker are the specialists who are intimately familiar with the problem. [Bridge Maintenance || Preservation Performance Criteria] IS there bias and influence going on here?
- There is a recognized need to update the QPL list to remove the clutter.
- It is recognized that some 3rd parties have great influence on the decision.
- Selection Criteria Price / Value / Quality with contractors.
- "The System" puts limitations on how creative one can be.
- Current vendor approach: Find the person with the greatest pain, work with them, THEN proceed to get qualified. Separate the people from the issue. Must remove the historical bias and CLEARLY DEFINE the problem in a non-biased way. What IS the problem?
- Supplier must be willing to put some skin in the game. Supplier must be willing to be present for the application to ensure their product does what it says.
- Contractors cost more than in-house staff and the risk of dilution is now greater. Time to rebuild an inhouse maintenance team.
- Product for new construction vs. maintenance is an important consideration and factor. MAINTENANCE is different from NEW CONSTRUCTION.
- Life Cycle Cost consideration is an important part of the product evaluation.
- Stop squeezing price out of suppliers (They need to cover R&D, Manufacturing, Cost of Sales, Quality Control, Analysis overhead) and start looking at the overall cost of the repair. LIFE CYCLE Cost and % of overall project cost assessment could be defined.
- An objective way to decide on the solution is much needed to remove political and historical influence. A Preservation Performance Criteria is needed.
- Clean vs. Retrofit projects are different from capital vs. maintenance expenditures.
- Too much pressure to get projects done rushed. Need to take the time to do it right.
- Empower maintenance to act like adults and make decisions because Suppliers are also risk in the game.

Notable Practices (Note practices, strategies, policies, products, etc that are working well)

- Contractors and suppliers who are up-front, honest and quality work create better relationships.
- Transparency is benefitting society . Bidding, contracting, tracking.
- Suppliers leverage the domino effect to get their words
- Knock down the existing rules and make money available for entrusted trial and effort of new products. Maintenance department should be empowered (reduce paperwork and wait times to process requests), Suppliers are also expected to put skin in the game – IE: Be onsite to ensure QC.
- Continue the Bridge Preservation initiative because legacy is slowly being exposed and idea exposure is accelerating.

Action Items (Note recommendations for research, leadership, communication, facilitation, technical assistance, etc)

- Separate the people and history from the Issue.
- Invest in building maintenance teams to uphold quality.
- Stop process interference – TRUST YOUR DOT decision-makers experience to make decisions and spend budget.

Discussion Highlights (note main discussion items)

- All states have a product approval list
- Maine – good communication between units, perhaps not so in other agencies.
- RIDOT sub contracts all maintenance work, have tried to have better communication.
- ConnDOT – has a lab to test all products, lab gets spec, they look into performance. Survey back into engineering crews for spec. As long as material meet performance spec they can use it. Split some work done in house other is sub-ed out. Contractor provides labor and materials.

How easy is it to get on the QPL list?

- It's a hassle. Every state is different.
- Jean –QPL goes on big projects. Main crews rely on products that help them, they use what they know.
- MassDOT uses NTPEP – has a spec on coatings. It limits performance of a lot of materials. Many materials that perform better that you will never see.
- Have a look at criteria they are using. If criteria don't meet needs should talk to NTPEP.
- Standards may be too limiting.
- Maintenance guys sit down and write the spec for materials
- A lot of things limit innovation. The less broad the less innovative.
- RB – states tend to be conservative. Use what we know. Our own worst enemy. Want to make sure something meets min standard. Should be a way to look at new products. MAP-21 and experimental???? Missing step-by-step process for implementing a new product.
- BT – contractors are not always trying to use a new innovative project. Cant sole course with fed money. Contractors are not going to use it.
- Contractors is out to make money.
- RIDOT will not be good for trying new stuff.
- Maine is open to trying new things. If contractors uses something new and doesn't install it correctly, then doesn't work, they get a bad wrap.
- ConnDOT spec_says a tech rep must be on site. When does the string get cut and the contractor is on their own. Had cases of disputes between contractor and manufacturer because they had to say if it was installed properly. Working relationship of product manufacturer and contractor. A lot of finger pointing in the field. All built into the price.
- WS – contractor certification program; performance and warranty in tender document. Signed a joint warranty. 2 year covered by maintenance bond; 5 year warranty. Agreements were signed when bids were opened. Those that didn't have the agreements they were tossed. This was done in Edmonton, Canada. Engineer specified performance criteria not the materials. Got six different materials.
- BF – people on QPL committee are the people in the field. Have hands on type of people. Not the people that haven't been working with the bridges.
- BF – how do we keep track of what worked and what didn't work?
- Need to have follow-up, share that information. Need to have a good, fair, poor. Why it didn't work.
- The information about joints, seals, bearings should be documented.
- WS – when a new product is used a data plate is put on the bridge. Inspectors can see what was done. If inspectors find a problem they know where to go.
- ConnDOT – looking at putting bar codes on bridges. Getting a quote for a data management system. Information would be put into the file in the field.

Summary:

- General consensus that an automated data management system that can be used in the field would be a good thing. Data entered in the field, then reviewed.
- Creating a performance based spec, rather than something that is very general.
- Post construction review – what worked, what didn't, why not, must be documented, share that information with other states, share best practices.
- Communication should be improved. Need better communication between engineers and field crews.

Notable Practices (Note practices, strategies, policies, products, etc that are working well)

- ConnDOT has a tech rep in field working with contractor when using a new product.
- WS – city of Edmonton, Canada. Warranty agreement between GC, contractors, and manufacturer. 2 year bond and 5 year agreement.

Action Items (Note recommendations for research, leadership, communication, facilitation, technical assistance, etc)

- Need to have field people involved in development of criteria for NTPEP. Is this just some academic standard?
- Bring test trials of new things and talk about what we are doing and what worked and what didn't work. Why it worked, why it didn't. Tighten up the spec. Take extra care to document when new products are used.

Discussion Highlights (note main discussion items)

- CN & PA have QPLs
- QC/QPL: new products submitted to material labs to meet state specifications
- State A approves product; neighboring State B will not be because of bad experiences - How get neighboring states to work together on product approvals/applications
- Warranties can be thru specific divisions and not an entire state practice
- Is there way to create database that shows state practices—what works, pros/cons, etc?
- Different experiences between original construction and maintenance when installing similar products – such as joints
- Bridge maintenance biggest issue/concern is joints—how repair/maintain/eliminate.

Notable Practices (Note practices, strategies, policies, products, etc that are working well)

- Cyclical maintenance practices
 - Lack of funds is barrier to implementing cycle bases strategies; reactive maintenance consumes resources
 - Road/bridge location plays factor-northern/snow areas on shorter cycle than southern areas-even in same states.
- Preservation determined by what current system on deck, when installed, visual observation, testing, etc.
- States moving to removing joints—longer spans

Action Items (Note recommendations for research, leadership, communication, facilitation, technical assistance, etc)

- Better ways to share experiences with materials – between DOTs and between divisions/regions within state;
 - Reluctance to share negative experiences
- Training for project inspectors understand applications process to ensure proper installation
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Group number: 8

Discussion topic: Materials

Discussion Highlights (note main discussion items)

- Suggest DOTs work together to evaluate and approve products (regional QPL)
- Vendors looking for a category for products that do not fall into specific categories
- How do you determine success of a product?
- Suggest vendors contributing to research needs statements
- Look into feasibility of developing a central database with product and contact information so each State could view.
- State crews have more flexibility with not holding to QPL.
- New products (needs and evaluation)
- Chemist on staff is uncommon but would be beneficial
- Develop common approach to product evaluation (Standard Specification for region?)

Notable Practices (Note practices, strategies, policies, products, etc that are working well)

- In-house capabilities to perform maintenance/work
- New products have manufacturer rep on site to make sure product installed properly
- When new products installed, information made available to applicable DOT personnel.

Action Items (Note recommendations for research, leadership, communication, facilitation, technical assistance, etc)

- Look into developing central database by categories of products
- Look at regional standardization of products

Discussion Highlights (note main discussion items)

- Hot Mix/ Warm mix.. How many miles
- ConnDOT has new specs for Hot/Warm Mix
- Bonding issues with warm mix, torching not allowed in PennDoT
- Vermont does not do warm mix, looking at it, using torch applied. Working on specs for spray applied. Does Asphalt overlay (Majoriy)
- Maryland, doing Hot Mix for highway not bridges, do not overlay bridges, unless they are in real bad shape. Latex overlay.
- PennDOT does proprietary only for one time only (trial). Evaluate success and further develop specifications at high level for the product.
- Moisture sensor product from New York, be a good one to test how new membrain works.
- PennDoT has risk based approach environmental issues ,scale quantifiable, safe, high risk

Notable Practices (Note practices, strategies, policies, products, etc that are working well)

- RJ Watson has PDM (Polyurea), similar to truck liner, spray down and broadcast with sand. Missouri and few other states are using their product and they are on QPL.
- Do we need structural membrane to prevent cracks moving up. Some European products out there providing that sort of performance.
- TSP2 is developing and researching how to share the information
- What detail needs to come with products, how to keep up the database and keep it updated and maintain it. Do we need a working group.
- What products are working good, what is not.
- Maryland doing some GPR and IR, instead of taking thousands of cores out there. Less delay, mainly nigh time, less traffic control. Using other data to check the IR gathered data.
- Vermont has asphalt overlay from get go, no latex overlay.
- Maryland pressure washed some of bridges with high corrosion and applied corrosion inhibitors and sealed it, observing their performance at this time.
- PennDoT has some program going on Migrating corrosion inhibitors
- ConnDOT uses high water volume, low pressure bridge washing. Doing water samples. Paint flakes.
- Vermont does high volume water wash, deck flush, no bearings. Access Is difficult under
- bridge. Require fall protection if they are near rail, since standard highway rail or too low and fall hazard.
- PennDOT specifies how often the bridges have to be washed. Urban area contracted out. They use the bridge management system.
- Systematic approach on what material is used and how it performed.
- Maryland they do not worst first, how long material last and what treatment needs to be done.
- Vermont, Maryland and PennDOT agree that PontIS is hard to use.
- Vermont have their inspector do more out there.
- PennDOT has their own software they use for bridge management.

Action Items (Note recommendations for research, leadership, communication, facilitation, technical assistance, etc)

- TSP2 develop inventory of qualified material, pro and cons, for various bridge elements (easy to search).
- How to provide feedback on new features needed in existing product
- Each state provide feedback on new products, how it is working out, share the information with other states. Put in detail on traffic information, bridge type, environmental (proximity to sea water, etc). Temp variation, construction details. What made it work and what failed. (what was the temp during installation, did it rain/snow, etc).
- Organizing the information such that access would be easy. May be data mining tools to find the best past solutions.
- The matrix that has pros and cons how is that going to be put into PONTIS, what is the approach
- Assist in developing deterioration of preservation items

Discussion Highlights (note main discussion items)

- Possible Regional Approval /Agreement for particular products (From Vendors) / Reciprocity
- New England states are using a sharing program (RIDOT/VDOT)
- Independent testing, provide ASTM tests to be preformed prior to being put onto an approval list
- Trial testing in the field requests (Cost / Time)
- Time for Approval too long
- Different waterproofing methods / applications, adjustments with Bituminous overlay temps
- Deck delaminations and ways to detect / fix

Notable Practices (Note practices, strategies, policies, products, etc that are working well)

- Performance Level Testing done one time for Region (reduce Cost/Time for Approval)
- Differing Temps for bituminous overlays / Use of "warm" mixes
- If soil overtops structure, cold applied membranes are used, otherwise hot applied used (NHDOT)
- (MassDOT) steep slopes cold applied used
- (RIODT) uses exposed concrete decks for steep slopes
- (VDOT) spray-on waterproof membrane for steep slopes
- (MassDOT) correlating different methods / compare

Action Items (Note recommendations for research, leadership, communication, facilitation, technical assistance, etc)

- Regional Agreement for Approved Products
- Sharing data among regions / Technology