

October 2023 Peer Exchange

- No Boundaries held its fall 2023 peer exchange from October 17-19
 - Hosted by Virginia DOT
 - In-person meeting at the Hampton Roads District Office in Suffolk, VA
- Meeting information at maintainroads.org/october-2023-virginia/
 - Detailed documentation available for members with login

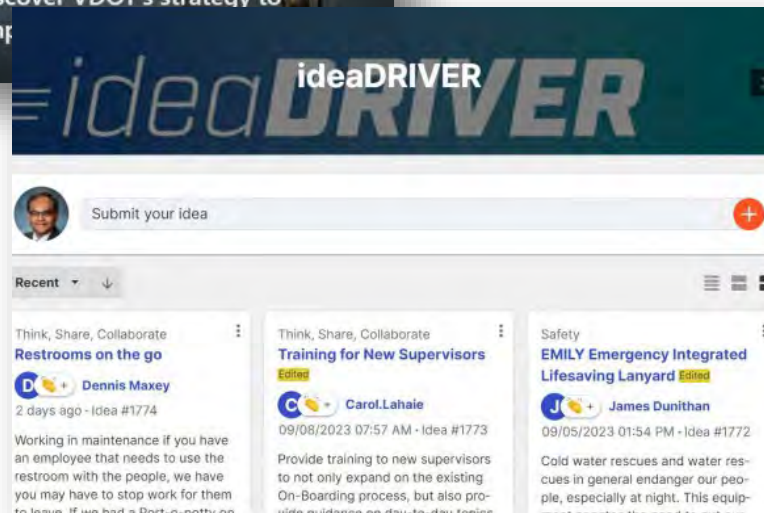
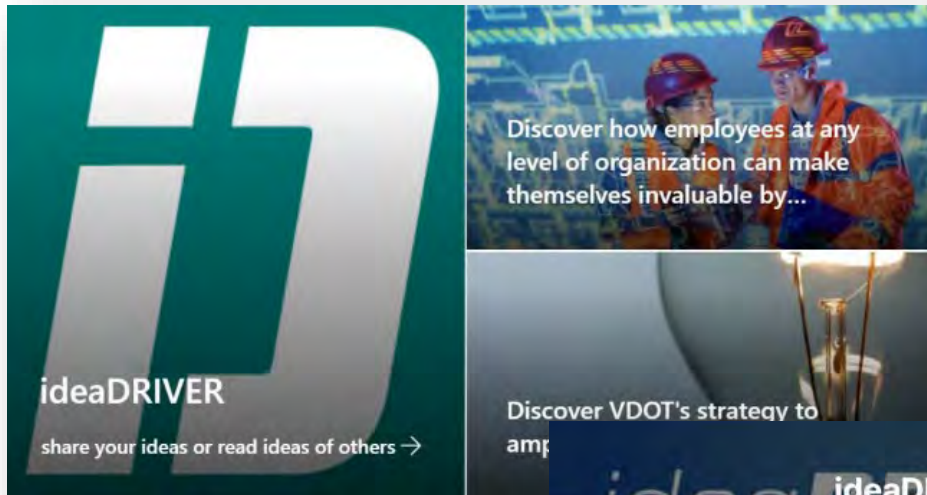


Virginia DOT Welcome and Overview



- Bill Collier, District Maintenance Manager, Virginia DOT
- Christopher G. Hall, District Engineer
 - Overview of VDOT's asset maintenance responsibilities
 - Third-largest highway system in the country
 - Three toll roads
 - Four underwater tunnels
 - Largest ferry system in the state
 - Stationary and movable bridges
 - Rest areas, commuter parking lots, and trails

Presentation: Virginia DOT Innovations Program



Hari Sripathi, Chief of Innovation

- VDOT Strategies in Use
 - **IdeaDRIVER** - Crowdsourced ideas
 - **1-800-FOR-ROAD** - Phone number for VDOT employees to submit issues
 - **Innovation ToolShed** - VDOT employee database
 - **Innovation Labs** - Multidisciplinary collaborations
 - **AHQ Mini Innovation Labs** - Small group brainstorming sessions
 - **Monthly Webinars** - Forum for sharing employee ideas, skills, tools, and success stories
 - **Innovation Catalog** - Highlight innovations implemented across VDOT
 - **Communities of Practice** - Groups dedicated sharing knowledge on specific topics

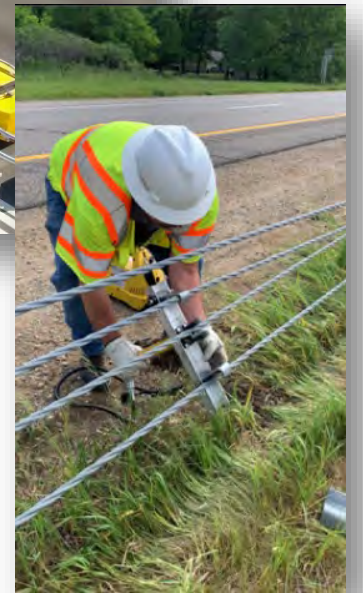
Round Table 1: Member Agency Maintenance Programs

- How is your agency structured? Where does the maintenance program fit in?
 - 9 Districts and Central Office (Illinois)
 - 22,000 employees, of which 6,500-7,000 are Maintenance employees (Caltrans)
- Strengths of your maintenance program
 - Versatile & Creative with Semi-Decentralized Management (South Carolina)
 - Bringing more pavement preservation in house that help the price of contractor overlays stretch further in the climate of high costs (Mississippi)
 - Extremely creative and resourceful group (New York)
- Challenges of your maintenance program
 - Consistency between 5 Regions and 72 Counties (Wisconsin)
 - Lack of budget for all of operations, aged equipment, hiring & maintaining staff (Louisiana)
 - Staffing, geography, weather, population growth, increased expectations (Colorado)

Round Table 2. Innovations Show and Tell

Selected Highlights

- Mobile Barrier System (Illinois) ▶
 - Serves as a temporary barrier wall to protect highway workers.
- Two options to repair Brifen High Tension Cable Barriers (Michigan) ▶
 - Tools increase worker safety and save time on repairs.
- Piloting a push camera system to inspect culvert pipes (Wisconsin)
 - Culvert Asset Management Program (CAMP) has inventory of over 50,000 culvert pipes, 10% are rated “uninspectable.”



Round Table 2. Innovations Show and Tell continued

Selected Highlights

- RETROTEK Unit (Utah) ▶
 - Front-mounted unit reads dry retros of stripe on each side of vehicle (14-foot-wide swath).
- Hose Arm Support (Indiana) ▶
 - Reduces worker injuries and saves money by helping hoses last longer.
- Custom-fit hearing protection (Idaho) ▶
 - dB Blockers™ are fitted to each employee, increasing usage and safety.
- Implemented a tractor lease program in the northwest and southeast regions (Mississippi)



Round Table 2. Innovation Show and Tell continued

Selected Highlights

- Automated flaggers (Ohio) ▶
 - Attaches to a vehicle to help with traffic management.
- Replacing tractor-mounted Over the Fence Mowers with Excavator with brush head (Connecticut) ▶
 - Shifted from a one-size-fits-all replacement and varied the sizes of equipment.



Member Presentation: South Carolina

Selected Highlights

Laura Fulmer, Assistant State Maintenance Engineer

- Compared with other states, South Carolina is:
 - 40th in land area, 4th in roadway network
- SCDOT Maintenance responsibilities ▶
 - Field maintenance - road, roadside and emergencies like hurricanes and snow/ice
- Agency priorities are (1) safety, (2) customer service, (3) aesthetics.
- Accomplishments - Staffing, pay changes through reclassified positions, equipment, asset management, budget, cash flow.
- Challenges - money, people and time.



Member Presentation: Connecticut

Selected Highlights

Bill Gombotz, Transportation Maintenance Manager

- New Employee Bootcamp ▶
 - Takes place over 5 days, two in class and three in field.
 - Everyone starts at the same level.
- Wrong-Way Driver Systems
 - Pilot project identified 16 ramps to install cameras.
 - Phase II started in October 2022, added 9 more ramps.

Topics Covered

- DOT History & Info
- DOT Policies
- Garage Inspection
- Small Hand Tools
- Storm Water/Storm Pollution
- Mowing Operations
- Traffic Incident Management
- Safety Day
- Fire Extinguisher Use
- HAZ MAT/ HAZ COM
- Work Zone Safety
- Work Injury Stories
- 9 Ton Operations
- Crash Units
- Large Mower Operation (Double & Single Flail)
- Zero Turn Mower Operations/Safety
- Union Presentation
- Dead Animal Removal
- Pothole Patching
- Loader Operations
- Environmental Issues
- Chain Saw, Power Prunier, Woodchipper Safety
- Snow Operations
- Radio Operations
- Electrical Safety
- Signs & Marking Presentation
- TSA Training
- Repair Training
- Sign Shop Presentation

Round Table 3. Measures for Determining Maintenance Staffing

Selected Highlights

- What measures does your agency use to determine maintenance staffing needs (lane miles, asset inventory, winter needs, etc.)?
 - Surface Areas (SAs) are used instead of Lane Miles for Maintenance Staffing needs, including shoulders gores, paved medians and other pavement surfaces (Utah)
 - Staffing is determined by lane miles/operator and desired level of service for roadways (North Dakota) ▶

Level of Service

Six levels of service are established so that operations will generally start in the areas of greatest traffic and progress to the low volume routes. Each district shall classify their routes along these guidelines and coordinate their activities with adjoining districts to maintain continuity.

Classification	Desired Recovery Time	Desired Pavement Condition	Desired Coverage	
			Days/Week	Hours/Day
Urban Areas Level 1	1 - 3 hrs.	All lanes/ramps interchanges cleared	7 days/week	18 hrs/day 4 am - 10 pm local time
Rural Interstate Level 2	2 - 6 hrs.	All lanes/ramps interchanges cleared	7 days/week	14 hrs/day 5 am - 7 pm local time
Interregional System Level 3	2 - 8 hrs.	All lanes cleared	7 days/week	14 hrs/day 5 am - 7 pm local time
State Corridor Level 4	3 - 10 hrs.	All lanes cleared	7 days/week	14 hrs/day 5 am - 7 pm local time
District Corridor Level 5	6 - 12 hrs.	All lanes cleared	7 days/week	10 hrs/day 7 am - 5 pm local time
District Collector Level 6	8 - 24 hrs.	All lanes cleared	7 days/week	10 hrs/day 7 am - 5 pm local time

Urban Areas: Bismarck, Minot, Grand Forks, and Fargo

Round Table 3. Measures for Determining Maintenance Staffing

Selected Highlights

- How are those measures used?
 - 50 SAs per FTE as our rule of thumb (Utah)
 - I use lane miles per Highway Technician (HT) for staffing levels. I try to have less than 25 lane miles per HT in each staffed maintenance facilities. (Ohio) ▶
 - Lane miles determine truck/equipment needs. Staffing is then determined based on truck/equipment count. (New York)

County	Current County Data			Current County Drivers		Mandatory District Drivers		Reliable Volunteer Drivers		Seasonal Drivers OBTAINABLE		Current Total HTs
	S&I Routes	S&I Lane Miles	S&I Lane Miles per Route	#	Ratio	#	Ratio	#	Ratio	#	Ratio	
Athens	17	648.59	38.15	21	1.24	4	1.47	1	1.53	3	1.71	29
Gallia	11	439.58	39.96	18	1.64	0	1.64	0	1.64	2	1.82	20
Hocking	12	370.04	30.84	17	1.42	2	1.58	1	1.67	3	1.92	23
Meigs	8	327.90	40.99	14	1.75	2	2.00	2	2.25	2	2.50	20
Monroe	10	432.67	43.27	19	1.90	1	2.00	5	2.50	1	2.60	26
Morgan	11	376.76	34.25	14	1.27	2	1.45	4	1.82	2	2.00	22
Noble	14	469.86	33.56	19	1.36	0	1.36	7	1.86	2	2.00	28
Vinton	9	330.77	36.75	14	1.56	1	1.67	0	1.67	3	2.00	18
Washington	22	645.70	29.35	24	1.09	6	1.36	2	1.45	3	1.59	35
District Total / Average Ratio	114	4041.87	35.46	160	1.47	18	1.56	22	1.75	21	2.01	221

Round Table 4. Winter Pothole Paving Best Practices

Selected Highlights

- What criteria are used by your agency to determine when, where and how to pave potholes during winter?
 - If it is a safety issue, we will work to get it fixed in a timely manner. If it is not a safety issue, we will wait until temperatures are more suitable. Depending on location and severity of the pothole, we will repair with mastic or cold patch material (North Dakota)
 - In HR District patching almost immediately after storm, Statewide Pothole Blitz in March (Virginia)
- What solutions is your agency employing to pave potholes?
 - Hot Boxes, Mastic Melters, Cold Patch, & Pothole Killer (New York)
 - We use a Dura-patcher for extreme issues (Idaho) ▶
 - QPL 43: High Performance Pothole Patching Products:
<http://info2.scdot.org/Materials/Pages/QualifiedProd.aspx> (South Carolina)



Round Table 4. Winter Pothole Paving Best Practices

Selected Highlights

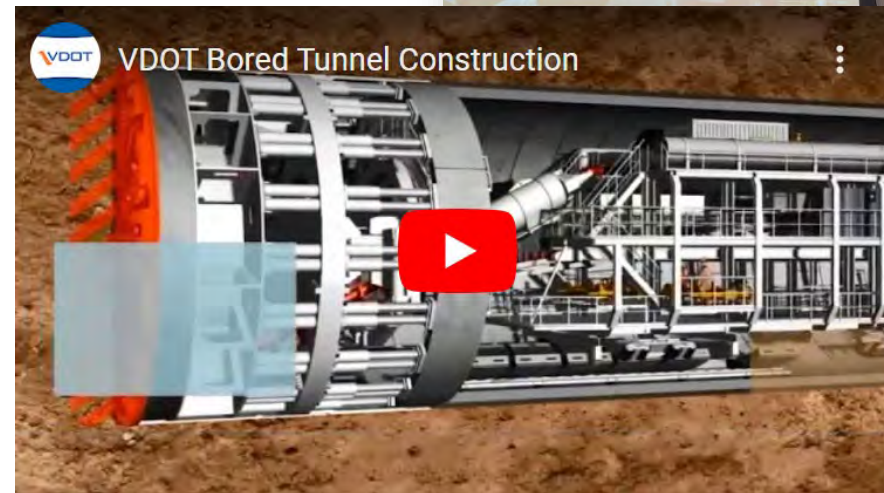
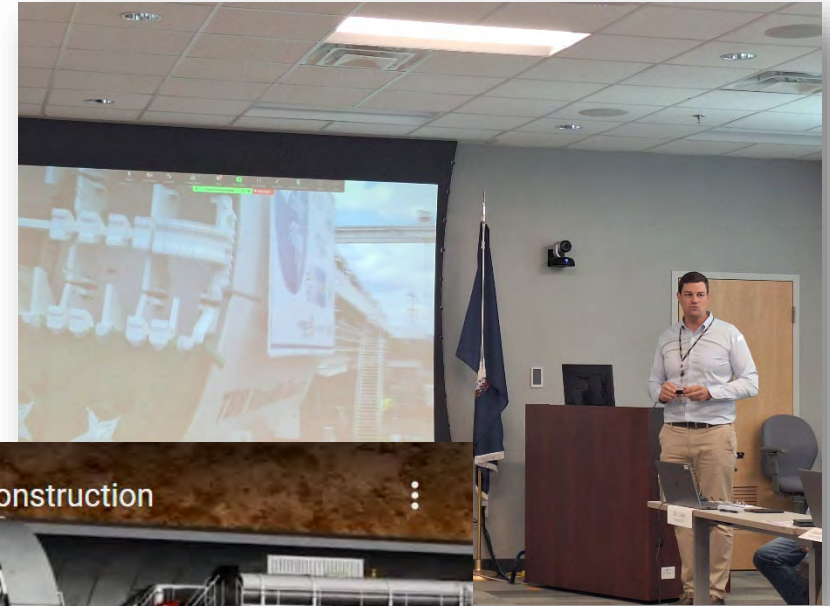
- What differences are there between asphalt and concrete pothole repair in the winter?
 - Repair asphalt and concrete potholes the same during winter, throw and GO! (Michigan)
 - Asphalt / cold mix repairs are quicker and take much less preparation and planning. Typically, the only concrete repairs we do in the winter are for bridge decks that are in excessively poor shape & will not retain cold mix. ODOT will do concrete repairs in heavy traffic volume (Ohio)
- What challenges do you face when paving potholes in the winter? How do you address them?
 - Weather. Plan work on days with warmer temperatures (Illinois)
 - What winter? (Louisiana) ▶



Presentation: Hampton Roads Bridge Tunnel Expansion Project

Ryan Banas, Project Director

- Hampton Roads Bridge Tunnel Expansion is the biggest project in Virginia, one of the biggest in the country.
 - Immersed tunnel challenges - space for casting, traffic, tides and weather
 - Tunnel boring machine (Mary) launched in April 2023. Tunnels at a rate of about 50 feet per day.



Demonstration: Virginia DOT Maintenance Equipment

- Limb Cutting Truck Insert
- Sign/Cone Truck Insert ▶
- Tunnel Washing Insert ▶
- Brine Insert
- Raptor PTRS Device
- TMA With Intrusion Alarm ▶



Business and Planning Meeting

- Commitments and transfers; budget and spending
- Scope of next phase of pooled fund
 - Draft language available for review next month.
- Marketing
 - Pooled fund flyer and trading cards.
- Synthesis Research
 - Showcasing innovation showcases/websites
 - Getting technology to field staff
 - Safety techniques to reduce backing accidents
- Other New Activities for Year 4

Presentation: VDOT Tunnel Projects

Tommy Catlett, District Traffic Operations Assistant Director, Virginia DOT

- Hampton Roads District Operations
 - MMMBT Pace Lighting Project
 - LED lights flash in series to discourage speed changes in tunnels
 - Route 17 Integrated Corridor Management
 - Recommended eight upgrades and adaptive signals to communicate better with drivers
 - HRBT WB Overheight Detection System
 - Three sets of LiDAR signals detect overheight vehicles ahead of tunnel entry
 - Photo-enabled to display offending vehicle on screen within 2.5 seconds

Presentation: Aquaphalt



Michael Wertheim, Director of Sales

- Aquaphalt is a pothole patching product for asphalt or concrete
- Can be applied in any air temperature
- Cures in 24 hours but can be driven on within minutes
- Comes in three aggregate sizes
- Contains no petroleum and comes with a three-year warranty
- Available only in 50-lb buckets, average cost is about \$40-50 each

Takeaways

- “Aha moments,” big takeaways and great ideas to borrow or learn more about came from all portions of the meeting
 - Presentations
 - Roundtable discussions and innovations highlights
 - Demonstrations
 - Informal and offline networking

Next Meeting

- Louisiana - Spring 2023

Name an innovation you saw that you'd like to 'steal' for your own agency...

Aquaphalt

Aquaphalt

Financial Reimbursement from Accidents

Bridge Hit Prevention

Automated marking

Brush bucket

sign/cone truck insert

Warning system on TMA

NY Aquaphalt

VDOT's maintenance progress tracking

Lasers on plows

VR for training