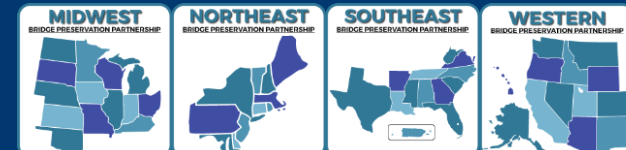


Concrete Patching Solutions



Overview

- Purpose
 - Assist in identification of potential solutions for concrete patching that other agencies have utilized. Provide contacts for other agencies to reach out to during and after the meeting to learn more.
- Contents
 - Identification of 5 solutions for concrete agencies presented by agencies partnered with the manufacturer.
 - Open panel discussion at the end for questions.

Rapid Set Cement, CTS Cement Agency Perspective

Agency Oregon DOT	Clayton Davey clayton.j.davey@odot.oregon.gov
Description of Problem	Structural Overlay option for bridges with short construction windows.
Description of Solutions	2-lane road bridges that require rapid opening and low permeability and resistivity, therefore the use of Rapid Set LLP
Agency Perspective	After the first couple of trials we have used it now in 8 other bridges and we are moving forward to this as the prescribed solution. Planning to add tens of other bridges.

Rapid Set Cement, CTS Cement Manufacturer Perspective

Product Rapid Set Cement	Julio Cesar Paniagua JPaniagua@CTSCEMENT.com
Description	CSA based materials: LLP, UHPC, DOT Repair Mix, Rapid Set
Applicable Use	Patching, partial/full depth repairs, overlays, bridge decks/joints
Additional Products by Manufacturer	Products CTS Cement Categories include: Additives, Flooring, Grouting, Pavements & Overlays, Repair & Restoration, Sealants & Adhesives, Shotcrete & Fill, Shrinkage Compensating Cement, Stucco

Fibercrete, FPT Infrastructure Agency Perspective

Agency PennDOT	Jonathan Moses jmoses@pa.gov
Description of Problem	Concrete deck patching for rutted areas, spalls, expansion joints, corner/transverse/longitudinal cracks
Description of Solutions	Fibrecrete (Gray Mastic) for long-term patching
Agency Perspective	<p>PennDOT is satisfied with the performance of the material</p> <p>Fibrecrete handles many difficult partial depth repairs on concrete</p> <p>Fibrecrete is easy to prep and place and holds up well over time</p> <p>Very quick return to traffic versus alternative concrete patching</p> <p>Oldest installation is ~8 years old and it is still performing well</p> <p>PennDOT used Fibrecrete on multiple high ADT roadways with great success</p> <p>PennDOT has recommended its use to other states and local partners</p>

Fibercrete, FPT Infrastructure Manufacturer Perspective

Product Fibercrete	Rich Bagenstose rich.bagenstose@fptinfrastructure.com
Description	Flexible and durable concrete patching
Applicable Use	<p>Spalls, corner cracks, longitudinal and transverse cracking/spalling, expansion joints. Main advantages are....</p> <ul style="list-style-type: none"> • Long-term repair – 10+ years • Flexible material handles concrete movement with freeze/thaw cycles • Can be installed in 0 °F to 90 °F • Requires less concrete prep than most other patching <ul style="list-style-type: none"> Prep to sound concrete, rough edges to ensure bond, remove debris No need to remove/fix rebar • Quick set up and cure – open to traffic 1-2 hours • Seals the concrete deformation without additional sealants
Additional Products by Manufacturer	SAMIscreed (Asphalt Mastic), Fibrejoint (APJ), Mataspan (Precompressed foam expansion joints), Matacryl (Bridge deck waterproofing)

PPC-1121, Kwik Bond Polymers

Agency Perspective

Agency NYSDOT	Salah Ali Salah.Ali@dot.ny.gov
Description of Problem	Durability, chipping, adhesion, thermal expansion crack at interface with the deck. Cure time and Application in a colder temperature than other nosing materials
Description of Solutions	PPC has been used for its tensile & compressive strength and compatibility with PCC. It can be placed in variable thickness & full depth; PPC overlay can be placed in stages for it bonds well to itself. The primer used high molecular weight methacrylate(HMWM) is a penetrating sealer for concrete. PPC is textured, grooved and diamond ground (as needed) for better traction and smoother ride.
Agency Perspective	PPC is a durable deck patch & repair (partially and full depth) that's compatible with concrete decks and pavement. PPC favored & has been used for When and Where contracts across the state; especially Urban areas/cities like NYC and Long Island where return of traffic is crucial, limited lane closure . It cures in low temperatures as low as 0 degrees.

PPC-1121, Kwik Bond Polymers Manufacturer Perspective

Product PPC- 1121	Tzur Frenkel tzur@kwikbondpolymers.com
Description	High strength, longest-lasting header available. More than 35 years of proven performance history. Rapid 2 hour cure, even in cold and humid conditions. Optional penetrating healer/sealer primer re-bonds cracks and promotes adhesion beyond original bond line. Successful in a broad range of climates.
Applicable Use	Joint headers, spall repair, overlays
Additional Products by Manufacturer	Hybrid Composite Synthetic Concrete (HCSC)

Magnesium Phosphate Cement (MPC), Phoscrete Agency Perspective

Agency VDOT	Glenn McAninch glen.mcaninch@vdot.virginia.gov
Description of Problem	<ol style="list-style-type: none"> 1. When temperature is below 40°. VDOT uses temporary patch material and re-mobilizes for permanent repair. 2. Cure time on high traffic volume roads with limited lane closure times. 3. Too much water added to rapid set mixes causing cracking and early patch failure. Drying shrinkage cracking in patch materials. 4. Corrosion traveling outside the patch can be issue with higher PH patching materials (Halo Effect)
Description of Solutions	<ol style="list-style-type: none"> 1. Permanent patch material that can cure in limited time below freezing. 2. Patching material with very short cure time and short mix time. 3. Per-packaged mix materials clear concise directions. VDOT has found that the use of fibers limits drying shrinkage cracking. 4. Cures slightly acidic with Phosphoric acid
Agency Perspective	<ol style="list-style-type: none"> 1. Temperature range down to -10°. 2. Traffic ready in 1-hour. 3. Pre-measured kit. Dry mix contains fibers. 4. Mitigates and draws in corrosion

Magnesium Phosphate Cement (MPC), Phoscrete Manufacturer Perspective

Product MPC	Kyle Bartfay kyle@phoscrete.com
Description	Phoscrete is a Magnesium Phosphate Cement (MPC) concrete. Phoscrete MPC concrete formulas bond strong and last long without any cold joints. Fast-setting Phoscrete MPC concrete is traffic ready as soon as 30 minutes from the final bucket mix. Phoscrete stops rust on contact of rebar and protects from freeze/thaw and chloride penetration for quick and long-lasting repairs.
Applicable Use	Concrete Repair: Bridge Deck Spalls, Expansion Joint Header (compatible with any joint seal), Vertical/Overhead repair, corrosion mitigation .
Additional Products by Manufacturer	Phoscrete Formula 1 HC and VO Phoscrete Formula 3 HC and VO Phoscrete Endure Reseller of Willseal, Pecora, and Galvatech2000's Rustanode Primer

T-17 Polymer Concrete, TRANSPO Agency Perspective

Agency N/A	
Description of Problem	Failing patches, poor adhesion, slow cure, poor early strength, repairs in freezing conditions.
Description of Solutions	TRANSPO T-17 Patching Projects
Agency Perspective	T-17 exceeded expectations

T-17 Polymer Concrete, TRANSPO Manufacturer Perspective

Product T-17 Polymer Concrete	Guy Harrigan gharrigan@transpo.com
Description	TRANSPO T-17 Polymer Concrete
Applicable Use	Patching, Bearing Pads, Closure Pours, Joint & Headers, Pier Caps
Additional Products by Manufacturer	TRANSPO T-70 & T-78 Crack Sealers, Armour-Guard Membrane, T-18 Polymer Overlay System, Color-Safe MMA Topcoat

Questions for the Panel?