MWBPP: ITD Innovative Technology Demonstrations

- October 15, 2019
- Presented by Kyle Bartfay, Sales Manager Phoscrete Concretes David Heilman, CEO Jet Filter System
- Working Group Members:
 - Brian Mintz (Chair), Lorella Angelini (Consultant), Open (Academia), Greg Heilman (Industry), William Olivia (Owner-WisDOT), Walter Peters (Owner-ODOT), Jeff Pouliotte (Owner-FDOT) Tim Woolery (Industry), Ed Welch (TSP2), Judith Corley-Lay (TSP2)



Work Scope

- ITD: Innovative Technology Demonstrations
- ITD is a AASHTO/TSP2 National Working Group formed to introduce and demonstrate new and innovative technologies, products, and services to the DOT and other Owners.



Problem Statement

- Incomplete Documentation
- Bias of Case Studies and References
- One Strike and You're Out
- Lack of Inter-Agency Communications



A Faster Path to the Best Solutions

- Because of all the complexities and risks involved in bringing new products and services into acceptance and use by the states, ITD offers a faster path to demonstrate, observe, document, and share both successes and failures of innovative technologies.
- ITD helps industry speed the best solutions to market, and saves the agencies the cost of wasted time and resources on unsuccessful technologies.



Key Points

- Joint Effort Owner (DOT) & Product Supplier
- Field Demonstrations
- Rigorous Independent Oversight for up to 60 months
- Results vetted thru TSP2 ITD Working Group



ITD Partners





Manufacturer

- On-Site Installation Support
- Compensates Consultant
- Responsible for Follow Up



Independent Consultant

 Key to the ITD program is engaging an independent consultant to document all installations, good, bad, and ugly.



Owner Commitment

- Identifies location
- Purchases product
- Provides traffic control, equipment, and labor
- Performs scheduled inspections



TSP2 Bridge

- Approves Participants
- Program Oversight
- Publishes Data
- Presentations



Academia

- Consulting
- Inspection
- Data Review
- Presentations



Demonstrations and Reporting

- Demonstrations can be product, process, service and/or equipment for bridge preservation.
- ITD Reports to be a resource for DOT's and other bridge preservation practitioners.
- Replaces inefficient, non-rigourous evaluation of pilot installation (deployment) of innovative products at every DOT.



Simple Two Page Application



INDUSTRY APPLICANT

Your Name:

Company Name:

Industry Company Contact Info:

TSP2 Industry Member? (Y/N) Working Title of Demonstration:

Is this a Product, Service, Process, or Equipment:

Brief Description of Demonstration: Detailed Description of Demonstration: Expected Results of

Demonstration: Primary Consultant/Contact Info: Primary Owner Sponsor/Contact Info:

Anticipated Number of Owners/Locations:

DEMONSTRATION PLAN (in collaboration w/ Consultant & Owner)

Applicant's Involvement:

Consultant's Involvement:

Owner's Involvement:

Expected Duration of Demonstration:

Number of Demonstrations:

Data to be collected:

Metrics for Success:

Expected content of Interim Reports:

Expected content of Final Report:

Expected Presentation Format:



ITD Program Underway MALP Concrete Repair

Rapid-Setting Concrete Repair for Bridge Decks, Expansion Joints, plus Vertica/Overhead Patch and Shotcrete

Phoscrete Corporation: Brian Mintz brian@phoscrete.com



MALP Performance Characteristics

Traffic-Ready (Sealant-Ready) in 30 minutes

Easy to Mix, Place, Finish , and Clean Up

Chemical Bond to Concrete and to Phoscrete Works in Sub-Freezing Temperatures

Natural Corrosion Resistance

Does not Shrink or Crack



Phoscrete HC ASTM C-403

Standard Method for Time of Setting of Concrete







MALP Deck Patch Cold Climate First ITD Installation

MassDOT December 4, 2015





MALP Overhead Patch 2 Year Inspection

Oklahoma DOT Packsaddle Bridge, March 1, 2017



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MALP Overhead Shotcrete
2 Month InspectionOklahoma DOTApril 19, 2019





Expansion-Joint Header + Seal "Done-In-One"

I-595 Fort Lauderdale FL July 11, 2019

ITD Program Underway Box Culvert -Maintainable Weep Hole Filters

Drainage & Soil Filtration to extend the life of Retaining Walls, Seawalls, & Bridge Infrastructure

JET Filter Systems: David Heilman dheilman@jetfiltersystem.com

What are Maintainable Weep Hole Filters?

Weep hole drainage & removable soil filtration geotextile.

Multitude of Applications

Earth Retaining structures are used for a variety of applications.

Maintainable Filter Installations

- Installations - DOT, FHWA, FLH, USACE

World-wide Sales:

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- Canada
- Mexico
- Belize •
- Bahamas
- BVI
- Trinidad
- Columbia
- Mozambique •

Over 150,000 units installed on 5 continents.

Innovative Technology Demonstration Challenges:

- No industry category or standard specification
- Risk investments in wrong testing
- Find a standard format to work with all DOT's

ITD Opportunity:

- Guidance from APEL Committee
- Reasonable cost for evaluation & test plan
- Chance to define a product category and test specifications

ITD is a path to gain industry acceptance.

US-31/Macatawa North Branch

- > 172' twin box culvert holes manually plugged
- Constructed in 1963
- 52 existing 3" weep-holes
- Class II & aggregate backfill
- High groundwater
- High pressure against walls

Significant water flowing along median to culvert walls.

Selecting the ITD Project

Over time,

- Soil leached through weep holes
- Many manually plugged
- Water leaking through cracks & seams

Pressure relieved through wall/ ceiling cracks & seams.

Significant erosion below weep holes.

Installation

Cored/re-cored 52 - 4" holes.

Installation

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Ongoing evaluation

111A

Maintainable Drain, Steel, 4 inch 1 Ea Good Notes: Light flow of water coming from the drain. Sample collected from this drain today. Time to fill 500 ml was 3:05.48 for a flow rate of 0.162 liters per minute. Sample was clear and did not have much sediment at all. See attached photo.

Periodic inspection: flow rate, soil filtration & fabric clogging.

Preliminary Observations

Significant relief of water pressure.

Preliminary Observations

Initial observations showed different filtration per fabric type.

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Preliminary Observations

hoto 2019-06-14 Samples of 101A,107B,108C,109D,110E.jpg

Periodic inspection: flow rate, soil filtration & fabric clogging.

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Jet Filter's Next Steps

- Continue monitoring Michigan DOT culvert ITD project
- Evaluate and interpret reports
- > Apply knowledge gained
- Implement additional ITD projects in other states
- Use ITD results to gain industry acceptance

David Heilman

Jet Filter System dheilman@jetfiltersystem.com (616) 405-9418 cell (800) 475-2029 https://jetfiltersystem.com/

Planned ITD Program Silane+Epoxy Deck Sealer

Deck-SIL[®] Unique Dual System Heals and Waterproofs Bridge Decks Advanced Chemical Technologies: Tim Woolery Tim@advchemtech.com

Duel Protection that Heals and Waterproofs Extends the Life of Concrete Surfaces.

DUAL PROTECTION THAT HEALS AND WATERPROOFS

ACT Silane+Epoxy Deck Seal

ITD: Innovative Technology Demonstrations

Participate in one of our existing programs

- MALP Concrete Repair
- Maintainable Weep Hole Filters
- Silane-Epoxy Deck Seal
- Propose a new ITD Program
- Join our TSP2 Working Group!

