NDDOT TRansportation Innovation Program – TRIP

Presented to: Regional NDDOT-UG PTI Meetings– Fall 2016
Transportation Innovation Program (TRIP)

- **Objective of Initiative:**
  - To identify and implement innovative ideas for transportation projects, processes and products.

- **Focus Areas:**
  - bridges and structures,
  - construction, operations and maintenance,
  - roadway surfacing,
  - planning, environmental, safety,
  - service delivery, transit, multi-modal,
  - innovative training, research
TRIP

• History:
  – Program Initiated by NDDOT in October 2014
  – Obtained FHWA STIC Incentive Grant to Administer
    • STIC – State Transportation Innovation Councils
  – NDDOT initially set aside $5 million for advancing ideas
  – Recently the budget set to $2.5 million/year

  – Current Plan is for 3 Fiscal Years
    • October 2014 to September 2015
    • October 2015 to September 2016
    • October 2016 to September 2017
TRIP

• History:
  – Past Calls for Ideas
    • April 20, 2015
    • May 29, 2015
    • July 10, 2015
    • August 31, 2015
    • December 15, 2015
    • February 16, 2016
    • May 16, 2016
    • August 15, 2016
  – 81 ideas Submitted as of August 15, 2016
  – 19 ideas selected for advancement from May and Previous
  – Still vetting August 15, 2016 submissions
TRIP

• Process
  – UGPTI Administers Call for Ideas and Subsequent Steps
  – Ideas Submitted to NDDOT TRIP Webpage
    • http://www.dot.nd.gov/business/innovate/
  – Ideas Reviewed by TRIP Team
    • Logan Beise – Programming Division
    • Tim Horner – UGPTI Program Director and Chair
    • Ben Birkemeyer – Motor Vehicle Division
    • Jennifer Blumhagen – Driver’s License Division
    • Kent Leysring – Fargo District Maintenance
    • Travis Lutman – Maintenance Division
    • Justin Ramsey – Environmental & Transportation Services Division, DOT Chair
    • Tyler Wollmuth – Bismarck District Construction,
    • Erv Zimprich – Information Technology Division,
• Process (continued)
  – TRIP Team may ask for Presentation from submitter
  – TRIP Team makes recommendation to NDDOT Exec Team
  – Exec Team Agrees or Disagrees to Advance Idea
  – Submitters are notified of success or otherwise
  – Process takes 3 to 4 months
• Using a Texas Underseal on HBP Overlay projects
  – Project constructed in 2015 (ND 22 RP 0.00 to RP 12, Underseal on RP’s 1.5 to 6.0).

• Studying the use of Fiberglass Rebar & Dowels Bars in Bridges and Pavements
  – Review being conducted by NDDOT Materials & Research Division
Using Fiber Reinforced HBP

- Two projects will be built using this.
  - Hwy 200 near Dunn Center will have two sections with fiber.
    - Mile 109 to mile 113 will have a 1.5 inch overlay with fibers
    - Mile 113 to 116.5 will have a 2 inch overlay with fibers.
    - This project will look at two things
      » 1) can we get longer service life out of the same thickness of pavement with fibers
         (2 inch section) 2) can we reduce pavement thickness and get the same service life
         as a thicker section (1.5 inch section).
      » A control section will be built from mile 102.5 to mile 109 with a 2 inch lift with no
         fibers to serve as comparison

- Highway 20 north of Jamestown
  - M&R using the thickness reduction concept to address Hwy 20 had width issues relating to the lane and shoulder widths.
  - A portion will be 3 inch mill with 2 inch overlay
Status - TRip Ideas advanced through May 16, 2016

• Installing Culvert Movement Monitoring/Instrumentation
  – Installation is scheduled to occur between 9/12 and 9/15

• Using URETEK Deep Polymer Injection on frost heaves
  – Currently under contract for construction on Hwy 57 near Ft Totten.

• Monitoring traffic flows with Distributed Acoustic Sensing
  – Project was bid in July and awarded. Contractor has 35 working days (beginning August 22) to complete the project.
Status - TRip Ideas advanced through May 16, 2016

- Using Geogrid Reinforcement under aggregate base for flexible pavement
  - Project identified.
  - A monitoring plans will be developed

- Using a MIT Scan T2 for collecting concrete pavement thicknesses
  - Received FHWA approval for purchase.
  - Processing purchase order and write specification centered around non-destructive test concept
Status - TRip Ideas advanced through May 16, 2016

- Using Hydrated Lime as an anti-stripping agent in new full-depth HBP pavements
  - Still working on identifying a project using full depth asphalt
- Developing a digital driver’s license applications process
  - Still under development
- Using TSC Smart Cone technology for security, work-zone safety and surveillance applications
  - Still under development
• Using Jointbond to address longitudinal HBP joint deterioration  
  – Will be used on Hwy 83 (September).  
  – Will develop monitoring plan.

• Using WatershedGeo HydroTurf® for drainage way armoring  
  – Working on selecting a Federal Aid eligible location.

• Using a Technical Analysis Process to Review Contract Award
Using ULTRA Guard™ Safety Enhancement System on existing guardrail
- Locations identified and have received a price quote
- Setting up the project, getting it Federal Aid Eligible, and writing sole source documentation.

Using Terrestrial Laser Scanning for High Accuracy As-Builts and Design Models
- Identified slide repair on Hwy 46 (Mile 67) as candidate project for pre and post quantity surveys.
Using Flexible Hoses to repair the “Bump at the Ends of Bridges”
  - Working with Bridge Division to identify:
    • a repair project
    • A project where the “fix” can be installed with original construction and be used as needed.

Using Micro Milling with Microsurfacing projects
  - Project identified as Hwy 46 from Mile post 0.00 to Mile post 19.00
  - Miles 0.00 to 17.00 will be a test section
  - miles 17.00 to 19.00 will be a control
Status - TRiP Ideas advanced through May 16, 2016

- Using Roadway Drainage Geocomposite Underdrain System under PCCP unsealed Joints
  - Need to identify pilot location.
  - Exec direction is to not seal joints over test site – narrow saw cut only
Next Round of Ideas Due December 12, 2016
Questions?

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