Advanced/Innovative Materials Program

- Construction Field Services Division accepts requests for evaluating New Materials & Qualified Products for use within MDOT.
- "New Material" has not been adopted by MDOT & has no current specification requirements per 2012 Standard Specifications for Construction, nor defined basis of acceptance.
- "Qualified Product" has current basis of acceptance & is published on Qualified Products List in Materials Source Guide. These materials must meet MDOT's current specifications & requirements.
Advanced/Innovative Materials Program
Contact Information

Please submit "New Materials Forms" by e-mail to: MDOT-CFS-NewMaterials@michigan.gov

or send to:
Michigan Department of Transportation
Construction Field Services Division
Attn: New Materials Evaluations
8885 Ricks Road, P.O. Box 30049
Lansing, MI 48909

Please submit "Qualified Products Forms" & required documentation to address listed in Qualification Procedures specifically designated for that material.

If you have any questions, please contact: MDOT-CFS-NewMaterials@michigan.gov
Agency-Wide Focus on Innovation

• Created team of Innovation Champions
• Developed website for employees to submit innovative ideas
  • Innovation Champion for appropriate area reviews idea, discusses with management & impacted personnel, approves implementation when appropriate
• Economies, Efficiencies & Innovations Report produced annually
  • $53 million in quantified savings in 2016
  • Estimated $650 million in cumulative quantified savings to MDOT since 2010
Recent Innovations…
Just a Few Examples

Innovations submitted by employees & implemented in 2016-2017
Innovations Making Better Use of Technology

• **Property Damage Reclamation Process Mobile App** – Mobile app used when crash involves damage to public infrastructure. MSP, maintenance forces, local agencies use app to geo-locate damage along with image. Expedites repairs & recovery of funds for damaged public infrastructure through insurance companies. Estimated savings: $125,000/year.

• **E-Invoices** – Airports can now submit invoices for approved work electronically to MDOT Aero Project Managers & Accounts Payable staff to speed process of contractor & consultant payments. Saves staff time, reduces errors, & payments are made more quickly. Saves MDOT estimated $16,000/year & saves contractors estimated $24,000/year.
Innovations Using GIS & GPS

• **Tagged Overhead Sign Cleaning & Replacement Project** – Handheld devices used to geo-locate tagged highway signs for cleaning & replacement. Saves estimated $12,500/year in staff time & improves urban landscape.

• **Concrete Patch Geo-location** – Handheld devices used to geo-locate position of concrete patch work needed, included GPS info as part of project bid document. Low bidder was 9.25% below estimate & indicated GPS info very useful. Saved estimated $117,000 on project.

• **ROW Permits** – GIS mapping tool used to identify permitted & unpermitted work. Map shows items such as proposed & approved permitted activities, & unknown situations such as water main breaks or excavation for utility repairs. Minimizes time spent on travel to inspect & monitor work. Saves estimated $740,000/year.
Innovations Using New Products

• **Replace existing tower lighting at highway interchanges with LEDs** – Reduces energy consumption by 50-60% & eliminates need to replace existing light fixtures every 2 years. Work can be done in house by MDOT forces. Saves an estimated $1,124,540/year.

• **Alternative Culvert Repairs** – Alternative innovative lining for corrugated metal pipe culverts restores structural integrity of severely deteriorated pipes & eliminates costly removal & replacement. Saves estimated $14,900/year in Metro Region.

• **Bridge Inspections for High Load Hits** – Using Light Detection & Ranging (LIDAR) located on freeway shoulder in lieu of hand measurements & associated lane closures. Saves estimated $7,200/year in Metro region.
Innovations Providing Better Customer Service

- **Recycling** – Atlanta Maintenance Garage in North Region decided to recycle broken sign posts. They bevel tops, paint them rustic brown, & use them as trail markers & delineator posts in Roadside Parks. No cost savings quantified, but they look great in parks & reuse something that would otherwise end up in landfill.

- **Keyless Remote to Activate Crosswalk Signal** – MDOT staff worked with city engineer to install keyless remote (similar to that of a car) to activate school crosswalk signals on M-68 in Rogers City, Presque Isle County, North Region. Ice on locked signal cabinet made it difficult for crossing guard to unlock cabinet & activate signals. Two indicator lights in cover of cabinet were also installed to show that signals were activated.
Innovative Partnerships

• **Living Wind Break** – Bay Region received 5,000 seedlings from MDNR to plant in right-of-way as living wind break & partnered with local Conservation Districts to get them planted. Costs not yet estimated, but certainly less expensive than other options.

• **E-Gov Delivery** – Transportation Asset Management Council staff now using E-Gov Delivery to share information with local partners regarding asset management training, saving staff time & improving communication with local agencies.
More…

- **I-94/I-69 Interchange Wall Redesign** – After project was let, MDOT construction team continued to look for innovations & after reviewing site conditions, redesigned one of planned retaining walls, saving approximately $2,000,000.

- **Mile Marker Sign Innovation** – Staff designed mile marker signs using square tube & breakaway foundation. Installed along US-127 Clare area. Material cost savings ($60 vs. $600). Easier & faster for crews to install & repair.
Thank You!