

Ohio Storm Water Conference

May 2019

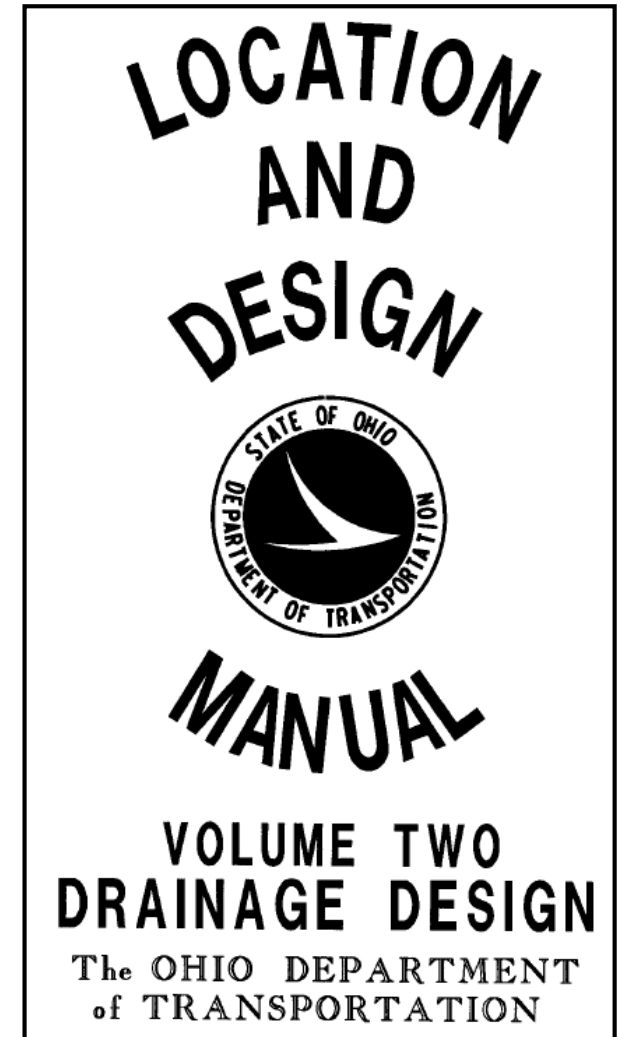
Transportation Roundtable

Agenda

- ODOT Manual Updates
- Ohio EPA Regulatory Updates
- ODOT Research Update
- National Research Update
- Erosion and Sediment Control Update
- Open Discussion

ODOT L&D Volume 2 Updates – January 2019

- Water Quality Volume
 - Detention Basin
 - Constructed Wetland
 - Infiltration BMPs
- Retention Basin
- Water Quality Flow
 - Vegetated Biofilter
 - Manufactured Systems



ODOT L&D Volume 2 Updates – January 2019

- Water Quality Volume

- $WQ_v = (P * A * Cq) / 12$

- $P = 0.75 \text{ in.}$

- $Cq = 0.858i^3 - 0.78i^2 + 0.774i + 0.04$

- $P = 0.90 \text{ in.}$

- $R_v = 0.05 + 0.9i$

- WQ_v : 30% – 80% Larger



ODOT Owns 58 BMPs
sized for WQ_v (<5%)

ODOT L&D Volume 2 Updates – January 2019

- Retention Basin
- WQ_v : 30% – 80% Larger
- Perm. Storage: 75%
- Temp. Storage: 75%
- Perm. Storage: 100%
- Temp. Storage: 100%
- Total Storage: 70% – 140% Larger



ODOT Owns 4
Retention Basins

ODOT L&D Volume 2 Updates – January 2019

- Water Quality Flow

- $WQ_F = CiA$

- $i = 0.65 \text{ in/hr}$

- $i = 0.62 - 1.85 \text{ in/hr}$

- WQ_v : 0% – 280% Larger

- Only for Manufactured Systems



ODOT Owns 61
Manufactured
Systems (<5%)

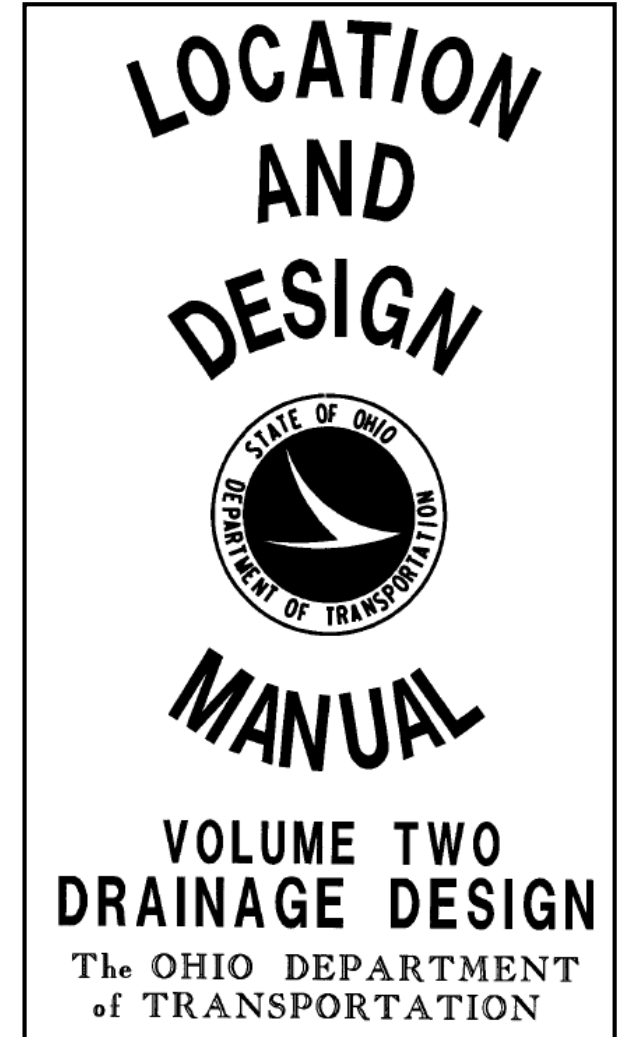
ODOT L&D Volume 2 Updates – January 2019

- No Changes to:
- Vegetated Filter Strip
- 35% of ODOT BMPs
- Vegetated Biofilter
- 57% of ODOT BMPs



ODOT L&D Volume 2 Updates – January 2019

- Grandfathering
- Stage 2 or R/W acquisition by January 31, 2019 – use old requirements
- Otherwise, update for new WQ_V or WQ_F

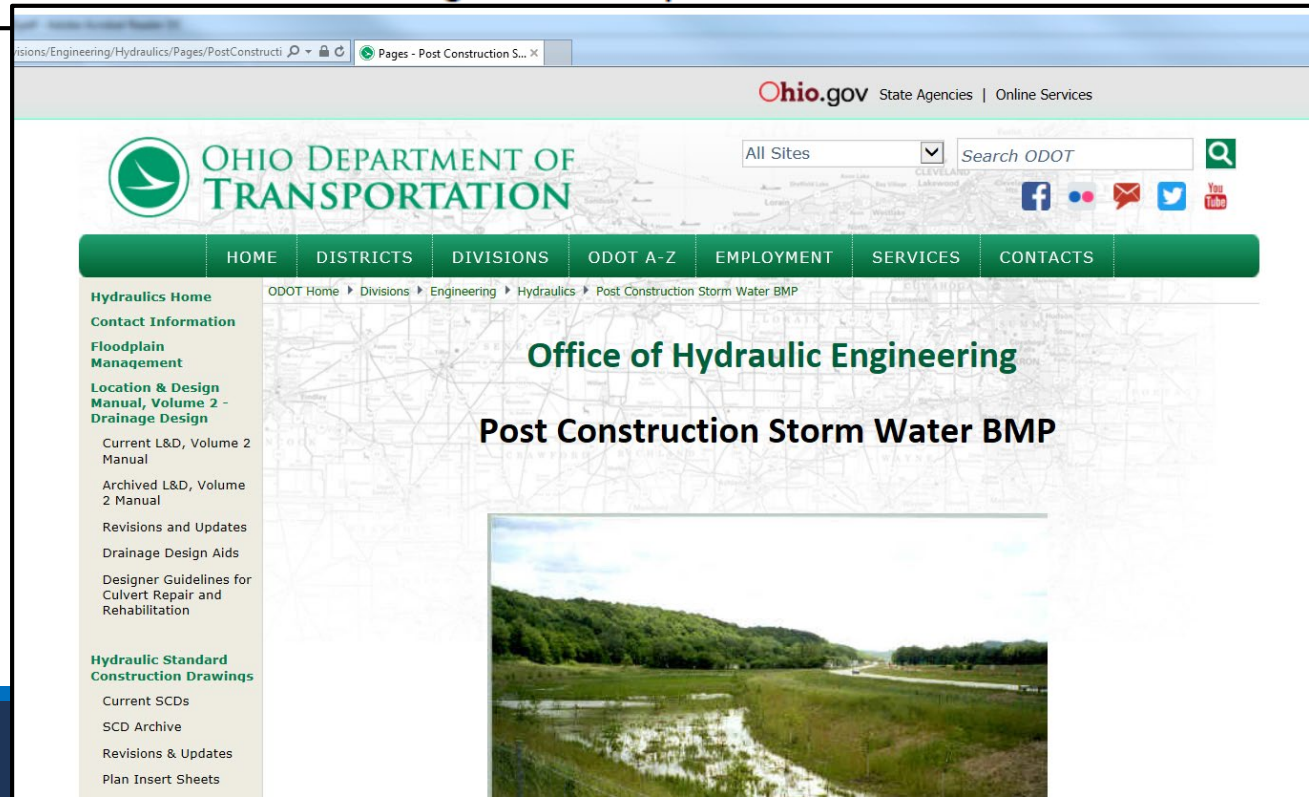


ODOT L&D Volume 2 Updates – Resources

The following design resources are available on the ODOT, Office of Hydraulic Engineering's website:
<http://www.dot.state.oh.us/Divisions/Engineering/Hydraulics/Pages/PostConstructionStormWaterBMP.asp>

[X](#)

- Post-Construction BMP Design Review Checklist
- BMP Calculation Spreadsheet
- Post-Construction BMP Design Examples
- Post-Construction BMP Training Workshop Slides



ODOT L&D Volume 2 Updates – July 2019

- Stop building vegetated biofilters on rock
- Min. 1' separation from bedrock and vegetated biofilter invert

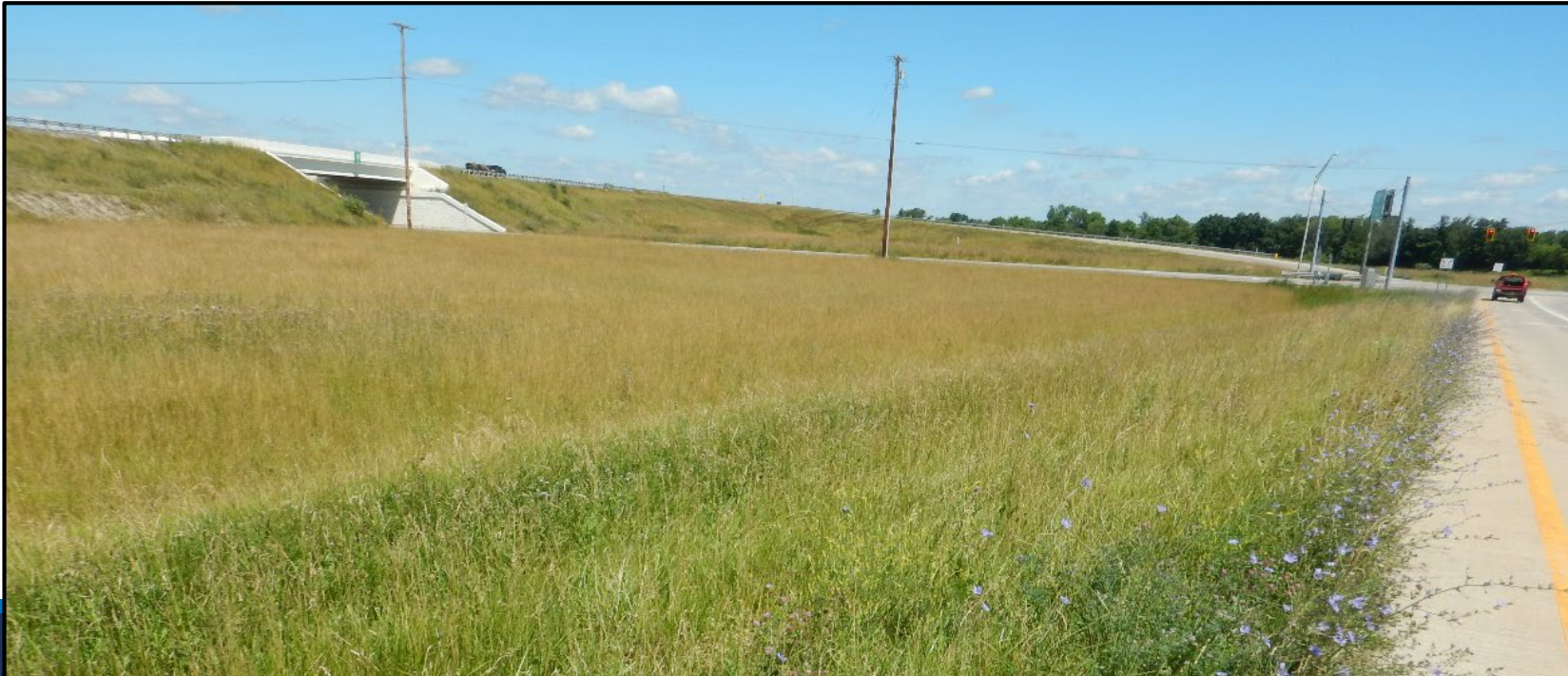


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Ohio EPA MS4 Permit

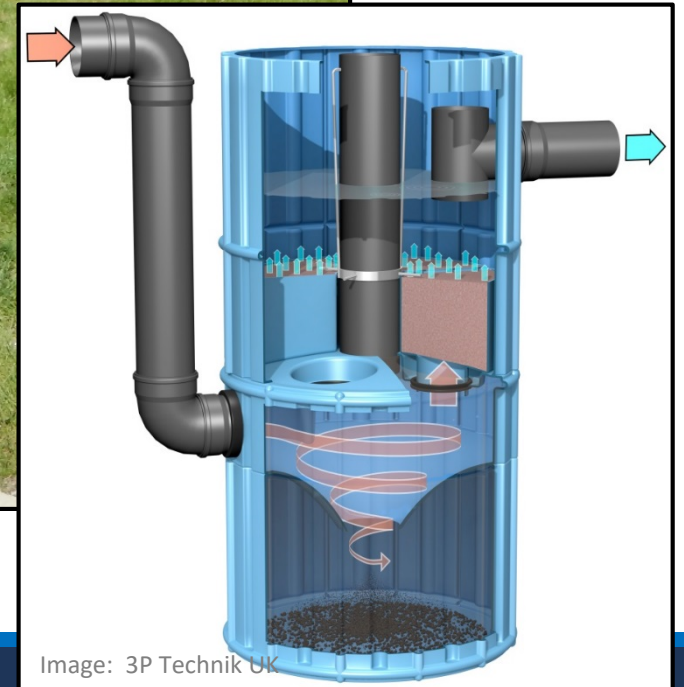
- No big changes expected; maybe increased documentation
- Post-construction BMP inventory / map
- Annual Report: # of sites with BMPs, # of BMP inspections
- Inventory can be difficult for roadway BMPs



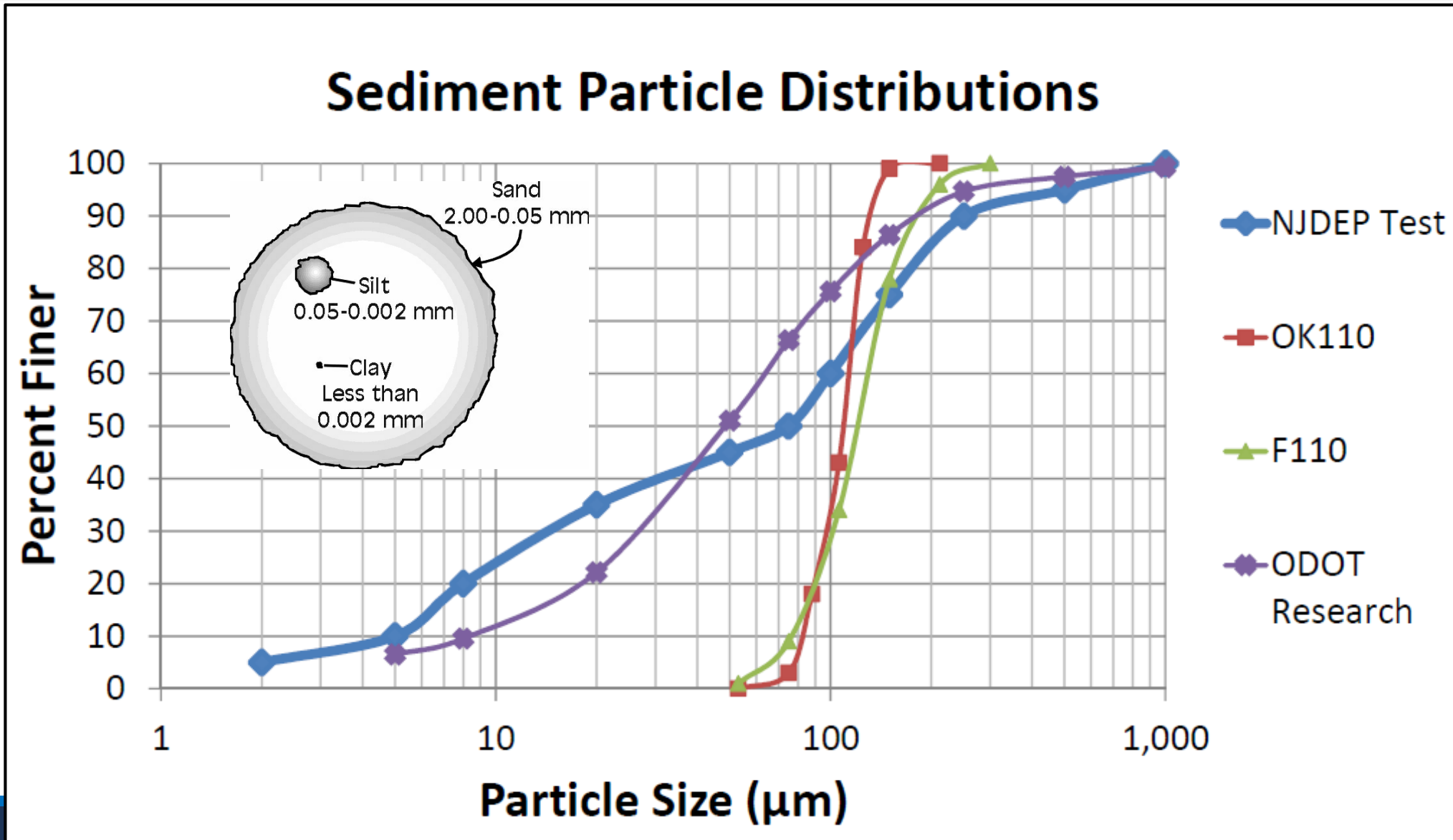
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Research: Particle Size Distribution



Research: Particle Size Distribution

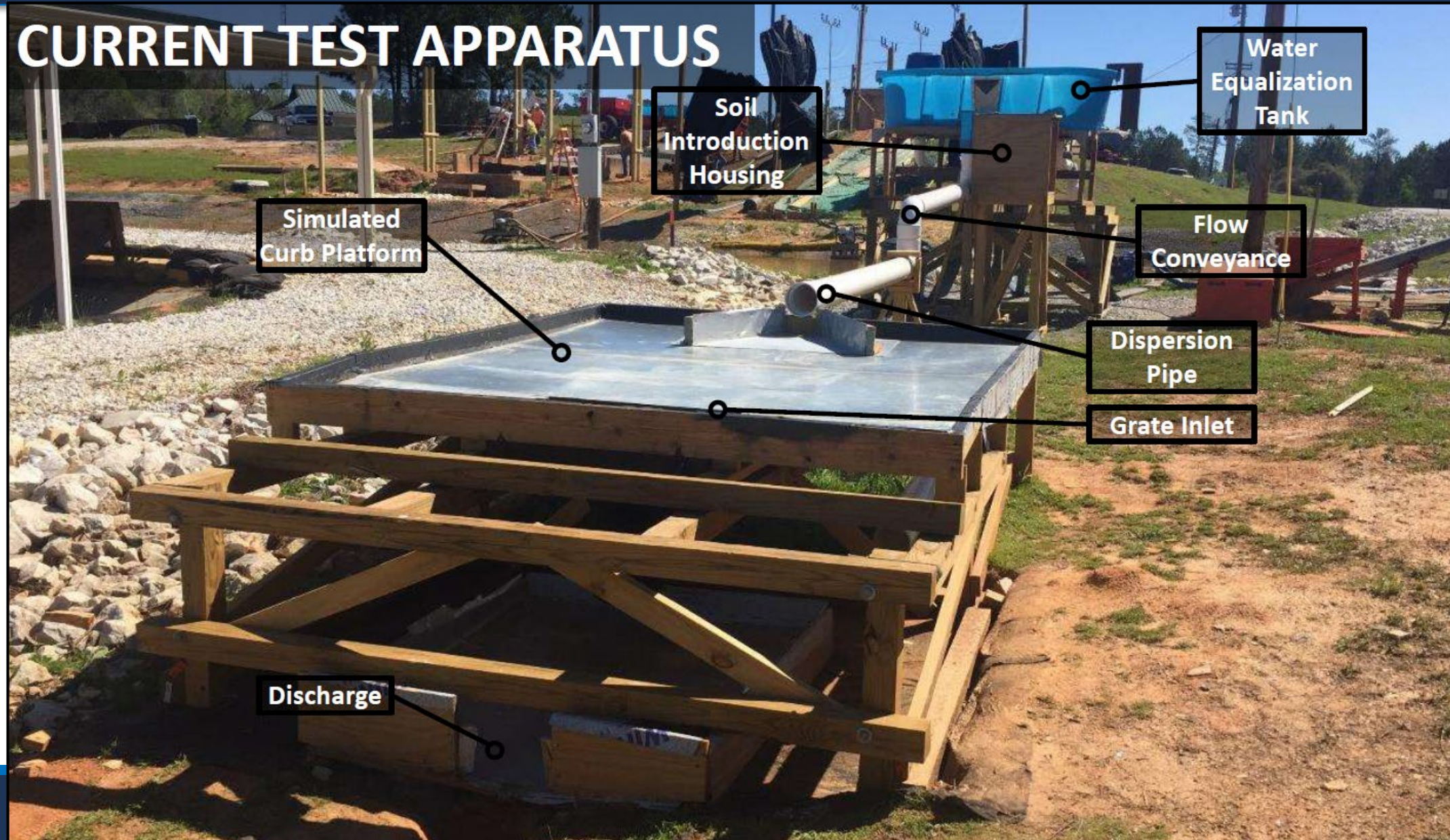


Research: Catch Basin Inserts – Field Testing



Research: Catch Basin Inserts – Lab Testing

CURRENT TEST APPARATUS



Research: Volume Reduction by Soil Amendment

- 10 different sites in Ohio
- 3 different rainfall zones
- 4 different amendments
- Monitored for 1 year
- Amending now
- Monitoring for 1 year after soil amendments
- Finish December 2021



Research: Construction Inlet Protection Testing

- Test standard inlet protection (silt fence, geotextile, aggregate, etc.)
- Test vendor-supplied inlet protection
- Determine which are the best considering performance, cost, and safety



Study: Non –Point Pollution Control Management Measure

- Revise the Ohio Coastal Non-point Pollution Control Program plan associated with local roads, highways and bridges management measures.
- Study lead – Chagrin Watershed Partners
- Completion date June 2019 – this phase

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Federal Research

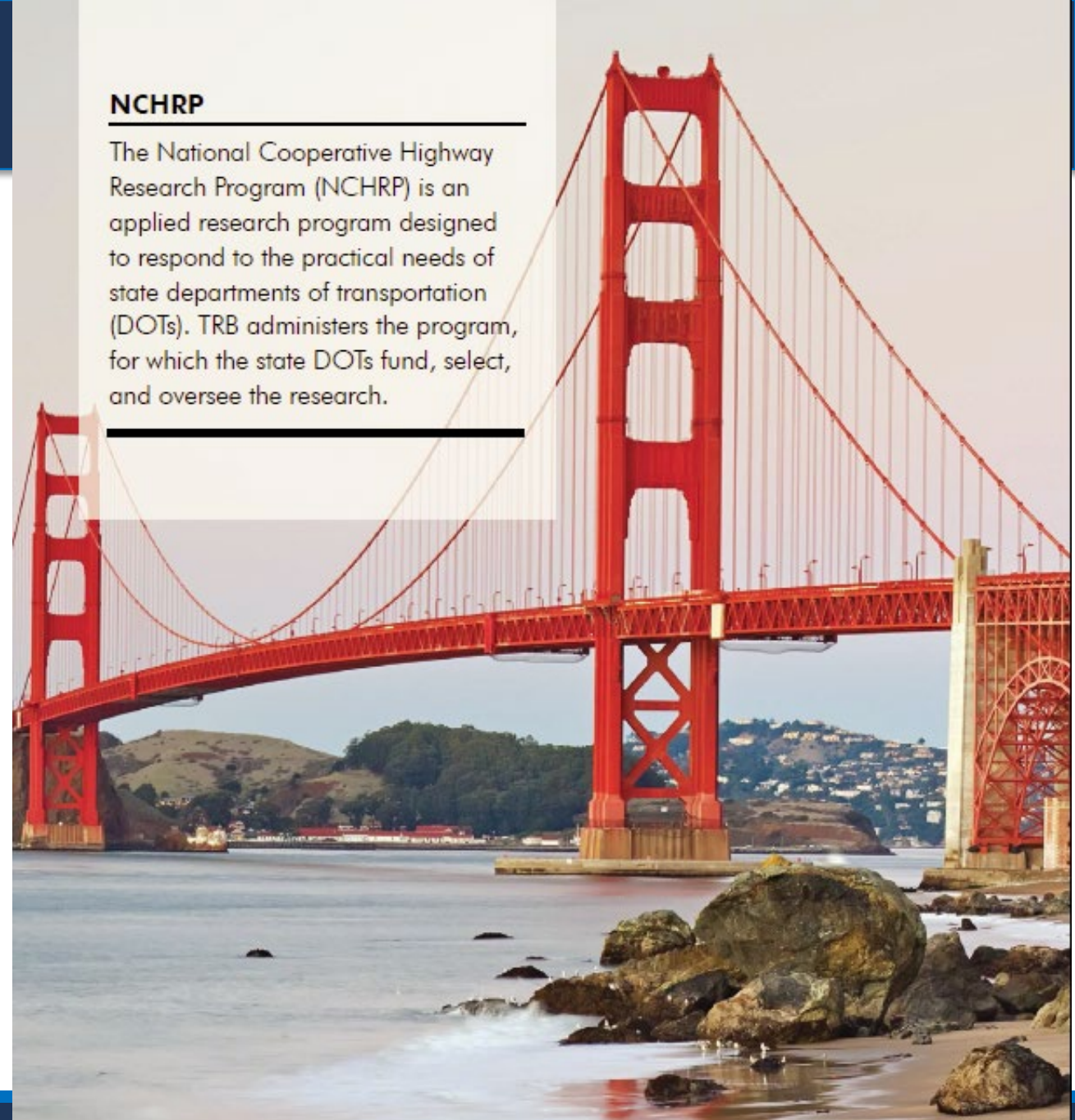
The National Academies of
Sciences, Engineering and
Medicine

Transportation Research Board
(TRB)

<http://www.trb.org/Main/Home.aspx>

NCHRP

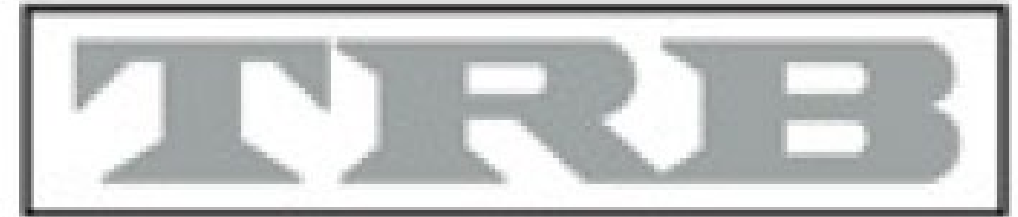
The National Cooperative Highway Research Program (NCHRP) is an applied research program designed to respond to the practical needs of state departments of transportation (DOTs). TRB administers the program, for which the state DOTs fund, select, and oversee the research.



NCHRP 25-60 Watershed Approach to Mitigating Hydrologic Impacts of Transportation Projects

- Awaiting award – 2019
- Research will develop a fuller array of effective strategies and techniques for managing increased stormwater runoff volumes and mitigating hydrologic impacts associated with transportation projects.

- Objectives
 - ID watershed OPPS to conserve, restore, enhance or create landscape Hydrologic features.
 - Plan, site and design sites w/ hydro features
 - Quantify hydro outcomes from selected features
 - Develop strategies for implementing a watershed based approach for hydro -mitigation

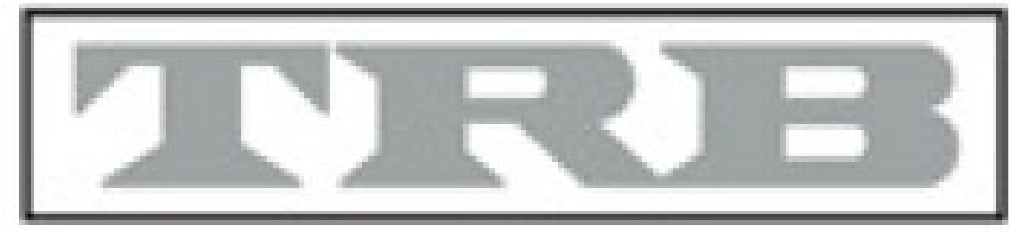


NCHRP 25-53 Approaches for Determining and Complying with TMDL Requirements Related to Roadway Stormwater Runoff

■ Objectives

- Approaches for determining the significance and the relative contribution of stormwater pollutants from roadways relative to other sources with a given watershed size.
- Approaches for determining the relationship between performance, cost effectiveness, and technical feasibility of implementing traditional BMPs used by DOTs and resulting benefits to the watershed.

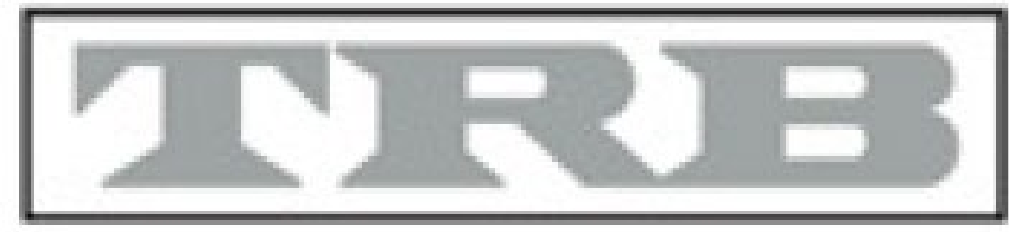
Final report not posted as of May, 9, 2019



NCHRP 14- 26 Culvert and Storm Drina System Inspection Manual

■ Objectives

- Report complete – can be found here -
http://onlinepubs.trb.org/onlinepubs/nchrp/docs/NCHRP14-26_FR.pdf
- Appendix A – is the maintenance guide – still not published – it is overdue
- Link to report presentation -
<http://onlinepubs.trb.org/onlinepubs/webinars/170130.pdf>



NCHRP 14-39 Vegetated Compost Blankets

- Using Vegetated Compost Blankets to Achieve Highway Runoff Volume and Pollutant Reduction
- University of Maryland
- Completion Date: 04/26/2021
- Evaluate hydrologic and water quality benefits of vegetated compost blankets in the highway environment



NCHRP 15-61 Climate Change and Hydraulics

- Applying Climate Change Information to Hydraulic Design of Transportation Infrastructure
- Completion Date: 06/30/2019
- Recommendations on incorporating climate change information into design storm calculations



NCHRP 25-25/Task 119 BMP Database and DOTs

- Enhancing the International Stormwater BMP Database to Serve as a Highway Specific BMP Database
- Currently surveying DOTs on future uses of BMP Database
- Completion Date: 12/02/2019



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ODOTs Erosion & Sediment Control Program Update

- ODOT moving forward with SWPPPTrack™ being required for **all** ODOT projects that require an NOI.
- ODOT is beginning development of an erosion and sediment control guidance manual.
 - Timeline – 2018-2020 – On schedule
 - Includes – SWPPP design guidance for practitioners + contractors field guide
 - Opportunities for feedback



Open Discussion – Current Issues

- ✓ MS4 Permit
- ✓ Construction General Permit
- ✓ TMDL
- ✓ Reporting
- ✓ Inventory
- ✓ General

Closing Comments