



Hydraulic Infrastructure in a Changing Environment

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Your Destination...Our Priority



Designing Sustainable Infrastructure in a **Changing Environment**

- ▶ Increasing environmental requirements
- ▶ Deteriorating infrastructure
- ▶ Increasing costs



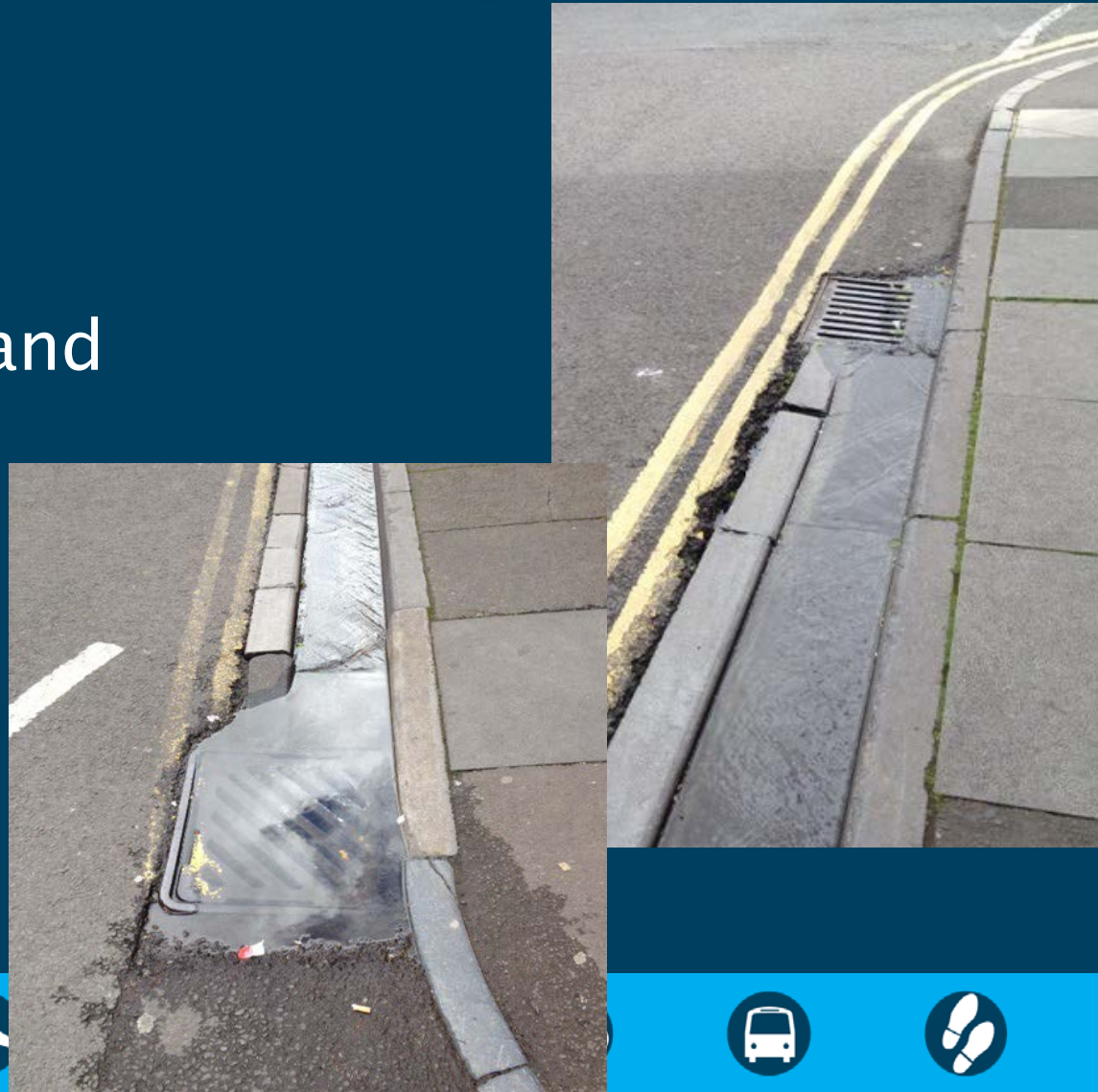
Designing Sustainable Infrastructure in a **Changing Environment**

- ▶ Climate change?
- ▶ Extreme weather events
- ▶ Emergency repairs
- ▶ Increases in drainage complaints
- ▶ More demands to accommodate (and pay for) ag. tile and judicial ditch system improvements.



Designing Sustainable Infrastructure in a **Changing Environment**

- ▶ Changing design criteria and policy
- ▶ Increasing needs and reducing budgets



Designing Sustainable Infrastructure in a Changing Environment

- ▶ Climate change →
 - Use Atlas 14
 - Can you quantify impacts → Avoid knee jerk reaction
 - Resilience and adaption
 - Stay informed



Designing Sustainable Infrastructure in a Changing Environment

- ▶ Environmental – >
 - Maintain relationship with regulatory agencies
 - Participate in rule making and research
 - Training e.g. COE, SWPPP certification
 - Liaisons with DNR, PCA and COE
 - Early coordination
 - Proactive not just reactive



Designing (and Maintaining) Sustainable Infrastructure in a Changing Environment

- ▶ Inventory and Inspection Program (HydInfra)
- ▶ Not just a Hydraulics Issue
 - Support and participation of Maintenance
 - Hydraulic infrastructure condition – repair or replacement
- ▶ HydInfra used for:
 - Statewide planning
 - Program Delivery
 - Maintenance
 - MS4 Mapping



Designing (and Maintaining) Sustainable Infrastructure in a Changing Environment

- ▶ Enhancing Financial Effectiveness: Financial management, project management, **asset management**, information and outreach.
- ▶ Asset management: pavement, bridge, **drainage**, tower lighting and overhead sign structures.
- ▶ Asset Management → most cost effective decisions
 - Replace vs. repair
 - When
 - Capital projects vs. Maintenance
 - Starting this year to collect maintenance data on pipe replacement and repair costs.



MnDOT Strategy

- ▶ Focus on Financial Effectiveness
 - Asset management for culverts
- ▶ Support research
- ▶ Accept change and adapt when needed

