Flooded Pavement Assessment and Adaptation in Coastal NH

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Research Projects

FHWA: Flooded Pavement Assessment

NH Sea Grant: Climate Adaptation for Road Infrastructure in Coastal NH
Why do we need pavements?
How pavements work

Withstand load from vehicle without excessive deformation
Rigid & Flexible Pavements

Rigid
Very stiff layer PCC

Flexible
Multi-layered AC
- Surface
- Binder
- Base
- Sub-base

PCC
Aggregate Base
Subgrade

Subgrade
During a Flooding Event

- Surface Entry
- Edge
- Capillary Suction from Water-Table
- Vapor Movement
- Water-Table Rise
- High-Ground Drainage
- Rising Sea Levels
Strength/Stiffness and moisture
Pavement Damage
FHWA Project Objectives

Identify when vehicles can safely be allowed on the road after flood events
FHWA Project Objectives

Consider tradeoffs between costs of road closures, damage, safety.
Current Practice

• Survey of FHWA Division Offices
• 95% use visual inspection
• Quantitative pavement condition inspection
• Non Destructive Testing
When is it worth doing testing?

- Cost of testing
- Value of test information
- Practicality
- Timing
- Risk assessment
Final Product

- User friendly decision tree
- Can be updated after events
- Agencies can run analysis to evaluate whether or not additional testing may be valuable before a flooding event occurs
NH SeaGrant Objectives

1. NH Transportation Climate Change Working Group
2. Impacts from climate and sea level changes on pavements
3. Demonstrate the value of adaptation through case study
Pavement Assessment

1. Road classification
2. Groundwater Model
3. GIS Mapping
4. Pavement performance evaluation under different scenarios
NH Transportation Climate Change Working Group

- Engage stakeholders
- Integrate different perspectives and needs
- Effective communication and dissemination

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Overall Goals

Better tools for agencies to make decisions and plan for pavement design, operation, and maintenance considering impact of climate changes, sea level rise, and flooding
Questions?