

Weather Savvy Roads Pilot Program

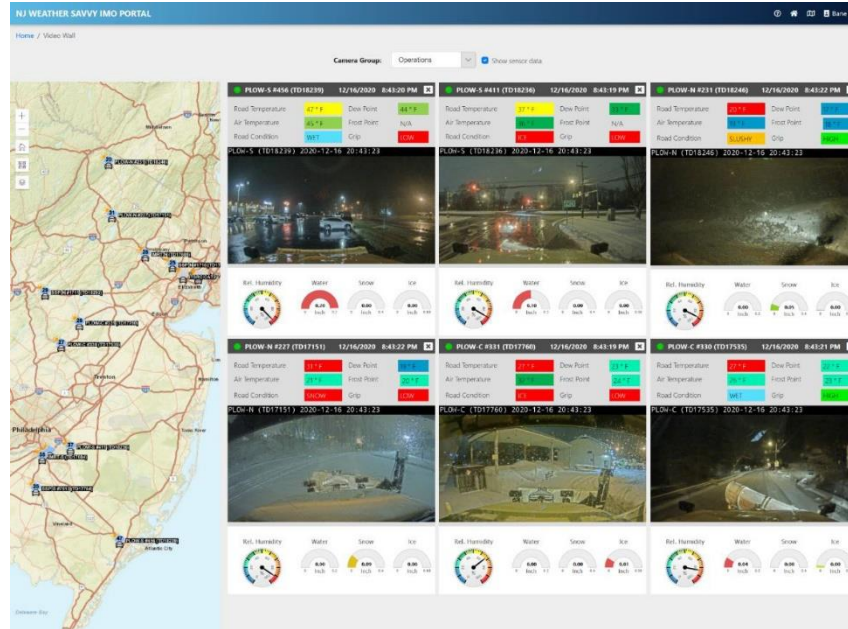


OVERVIEW OF INNOVATION

The deployment of real-time vehicle-based Intelligent Transportation System (ITS) road weather sensors and video cameras, improves NJDOT's ability to detect and forecast adverse road weather and pavement conditions, and determine the most effective roadway and traffic management response. These technologies have enabled the communication of critical road-weather data between vehicles, infrastructure, and Department personnel across the State to assess the impacts of weather on roads, vehicles, and travelers, and has also been used to inform the decision making process by the Department leadership.

NJDOT equipped 24 fleet vehicles with windshield cameras, mobile Road Weather Information Systems (RWIS) sensors, portable PC computers, and cellular routers. The equipment in each vehicle was integrated to provide a continuous feed of road weather data and video of the roadway conditions to the remote data center using cellular communications. The data feed from all vehicles was integrated in a unified data management platform, which also provided a web-based graphical user interface for data and video feed visualization, among other features.

The mobile RWIS provides information on ambient temperature, road temperature, road condition and grip, as well as a windshield view of road conditions. Management can see what the drivers are seeing. The information helps to assess a storm's duration and intensity while it is ongoing and helps management determine appropriate responses.



Source: New Jersey Department of Transportation

BENEFITS

Safety is improved through provision of a continuous feed of road weather data and video of roadway condition which can inform real-time management decisions, post-event analysis, and pavement treatment strategies.

Improves information sharing and communications among agencies including emergency services.

Real-time data is harnessed to inform weather responsive deployment of personnel and vehicle fleet which offers efficiencies for weather responsive management and operations.

FIND OUT MORE . . .

NJDOT Weather Savvy Roads Pilot: Update and Lessons Learned Summary
<https://www.njdottechtransfer.net/weather-savvy-update>

NJDOT Weather Savvy Roads Pilot Program: Final Report
<https://www.njdottechtransfer.net/weather-savvy-final-report>

New Jersey Department of Transportation

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Safety, Operations, Technology

EXAMPLE - Collaborative Hydraulics: Advancing to the Next Generation of Engineering (CHANGE)



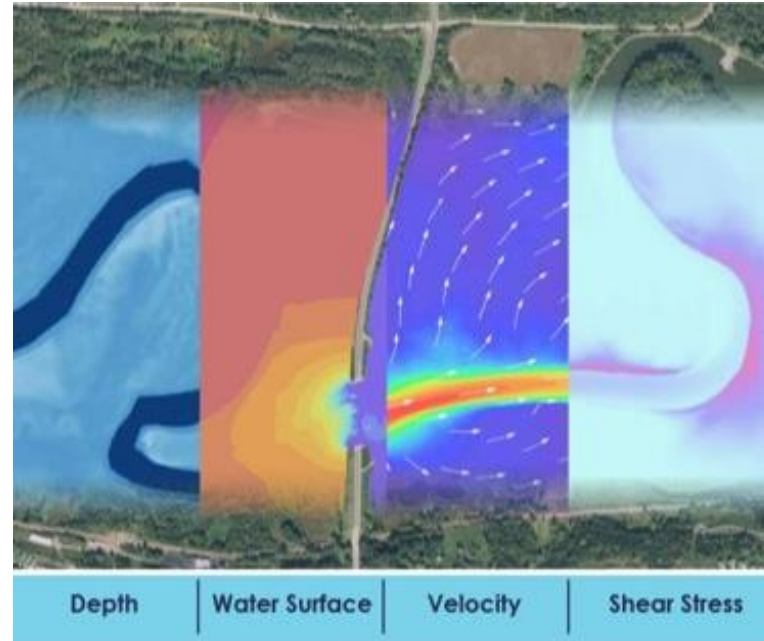
OVERVIEW OF INNOVATION

Next-generation hydraulic tools improve the understanding of complex interactions between river or coastal environments and transportation assets, enabling better design, enhanced communication, and more efficient project delivery.

Two-dimensional (2D) hydraulic modeling software, graphical interfaces, and supporting resources are now available that can be applied to infrastructure design to improve understanding of the complex interactions between river or coastal environments and transportation assets. Recent advances in computer hardware, modeling software, Geographic Information Systems, and survey practices have made 2D modeling very efficient, intuitive, and accessible to engineers and designers.

Because 2D models avoid many of the limiting assumptions required by 1D models, the results can significantly improve the ability of highway agencies to design safer, more cost-effective, and resilient structures on waterways.

In addition, the 3D visualization capabilities of these modeling tools aid in communicating design results and implications to a variety of stakeholders through intuitive and visually rich graphical output.



Source: FHWA

BENEFITS

The benefits of using CHANGE include Improved Quality and Resiliency, Enhanced Collaboration, and Streamlined Delivery.

In the past 3 years, the Colorado DOT saved more than \$14 million using 2D hydraulic modeling to develop more detailed analyses of bridges, culverts, and roadways than with 1D modeling.

FIND OUT MORE . . .

CHANGE Website

https://www.fhwa.dot.gov/innovation/everydaycounts/edc_5/change2.cfm

FHWA Hydraulics Website

<https://www.fhwa.dot.gov/engineering/hydraulics/>

Colorado DOT Video <https://youtu.be/C-c8UTpbSo>

FHWA Resource Center

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Process, Hydraulics