

Clarus — America's 21st Century Surface Transportation Weather Observing and Forecasting System Initiative

Clarus (which is Latin for “Clear”) is a project to demonstrate a regional surface transportation weather observing, forecasting and data management system, and to establish a partnership to create a Nationwide Surface Transportation Weather Observation System. The objective of *Clarus* is to reduce the impact of adverse weather (e.g., improve mobility & safety) for all road and transit users and operators.



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The Surface Transportation Dilemma

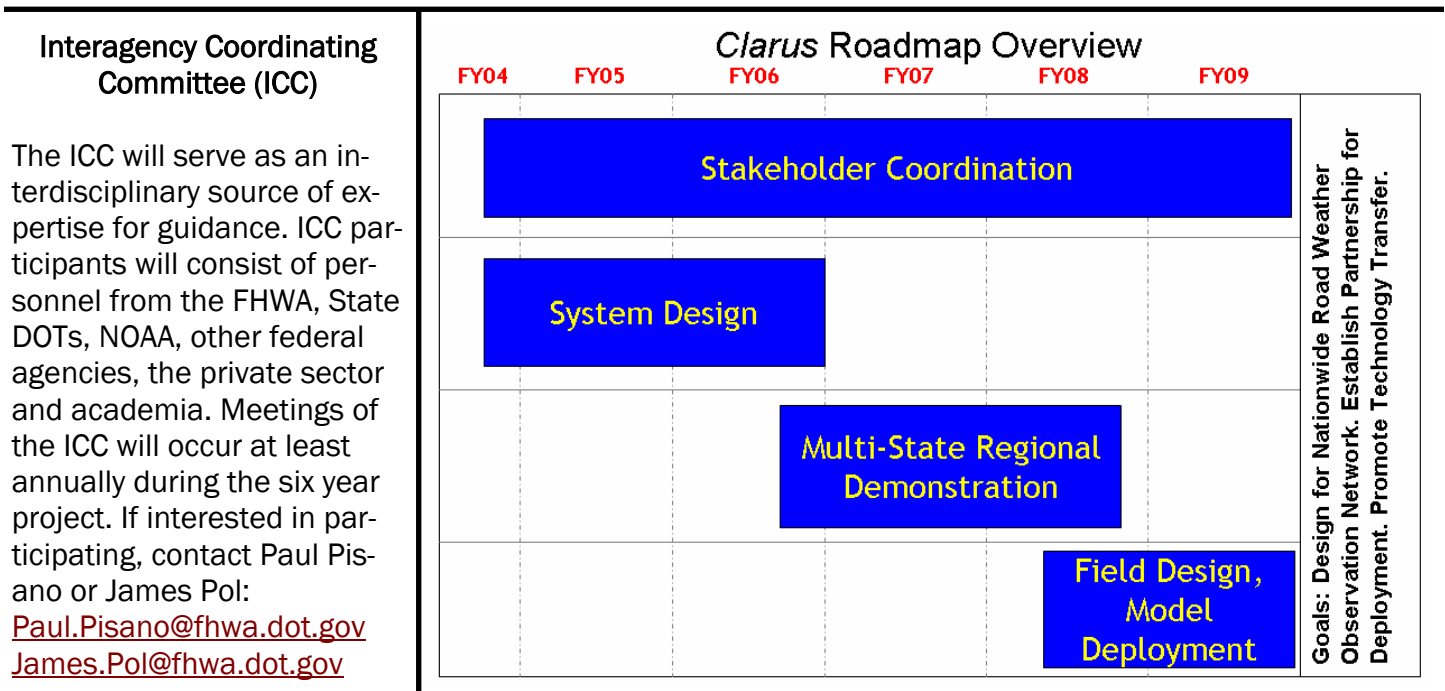
Users of the surface transportation system need more timely, accurate and relevant road condition and weather information. Over 1.4 million passenger vehicles were involved in weather-related crashes in 2001, leaving over 600,000 injured and nearly 7,000 dead. Delay caused by adverse weather has reached 5 billion hours per year. In order to reduce the effects of adverse weather, the nation's foundation of weather and road condition observations must be modernized and organized, and this data must be disseminated to those that can fundamentally change the impact of weather on the surface transportation system.

The *Clarus* Solution

- Develop partnerships between the surface transportation and weather communities to leverage and share resources for both research and operations.
- Strengthen ties among federal agencies with similar objectives such as the Federal Highway Administration (FHWA) and the National Oceanic and Atmospheric Administration (NOAA).
- Demonstrate a framework to collect the nation's current and future surface transportation weather and road condition observations, and provide quality assured data as input to advanced weather models, as the basis for informative value-added products which can contribute to a safer and more efficient surface transportation system.
- Establish an instrumented corridor test bed to host new cutting edge technologies for fixed, mobile and remote sensing.
- Establish an Interagency Coordination Committee.

Clarus: Potential Benefits

- One stop Internet portal for all surface transportation weather related observations
- Continuous quality control of observations with direct feedback to State DOT engineers
- Promote ITS Standards in data formats, communications and network architectures
- Real-time data ready to be incorporated into value-added products, weather or traffic models or decision support systems
- The Clarus database will support the inclusion of new technologies, such as:
 - Vehicle-based sensing technologies
 - Surface visibility and road obscuration information from traffic cameras
 - New remote sensing technologies such as low cost, low power, high-resolution weather radars



Clarus Project Milestones

- **Create the ICC:** The ICC will promote stakeholder ownership and consensus in system design to be a proponent of the ideals and objectives of the project.
- **System Design:** Working across the surface transportation and weather communities, build a consensus for a concept of operations, analyze the gaps in present day observation networks and recommend solutions for an extensible, robust architecture to support 21st Century operations.
- **Demonstrations:** Implement regional multi-state data collection systems with real-time quality control functionality, feedback to State DOT engineers and the creation of an Internet data portal where both current and archived data can be retrieved.
- **Research:** Provide instrumented corridors to promote and test cutting edge observational technologies from fixed, mobile, and remote sensors.
- **Evaluation:** Evaluate and revise the system designs until a blueprint for a deployable nationwide surface transportation weather observing system has been created.
- **Deployment:** Provide support for an organization to implement and continue development of the nationwide network. Promote use of the data into new products and technologies. Educate the users to the advantages of the new products. Monitor the impact on transportation safety and mobility.