

RWIS Data Integration for Improved Decision Making

In the data-rich domain of transportation we often focus on obtaining more data or better data, instead of focusing on maximizing the value of existing data by transforming it into actionable information.

Transforming data into actionable information presents several challenges:

1. **Big Data** – Today, some of the data may consist of trillions of records and may occupy terabytes of space. Understanding this data requires a lot of computing power and understanding of statistical patterns and computations.
2. **Disparate Data Formats** – Data sets are generated by many different systems, sensors, and individuals and merging them together can be difficult.

Road Weather Information Stations (RWIS) are roadside sensors collecting road surface and subsurface temperature, water level, precipitation accumulation, as well as air temperature, wind, visibility, and many other data elements.

The value of this data is that it can help us understand the impacts of weather on safety and mobility. For example, 18% of all vehicle crashes occur with wet pavement. It is important to understand the correlation between incidents and pavement weather conditions so that appropriate operational strategies can be implemented. For example, detection of ice on the road may prioritize deployment of chemicals to impacted locations.

However, to truly realize the value of this data, it is important to fuse it with other data elements. RWIS Explorer and associated RITIS tools allow users to view weather, vehicle speed, and incident data across the entire nation in a single view. This tool goes beyond pretty pictures and focuses on real-time situational awareness by combining these data sets with CCTV, radio scanners, and other available data to allow operators to make operational decision in real-time.

The information is presented in an easy to understand manner to ensure operator's ability to quickly assess the situation and understand the impact of each variable. Map based location information is enhanced with graphs of speeds, traffic events, and weather elements. Based on these simplified views, the operators can quickly identify the root cause of problems and deploy appropriate response plan.