

I-95 Corridor Coalition Project Profile



> Volume & Turning Movements from Probe Data



A new frontier in probe data and analytics

The I-95 Corridor Coalition is sponsoring research to achieve viable volume and turning movement data through outsourced probe data for both operations and planning purposes. Our primary goal of the project is to ensure that initial product offerings meet practitioner information needs for operations, performance measurement, and planning applications, and that Coalition members understand the fidelity, potential and limitations of such data.

A pioneering project

The I-95 Corridor Coalition was the first to put forth the proposition of providing traffic volumes through outsourced probe data as part of a 2013 **Multistate Corridor Operations and Management Program (MCOMP)** proposal, foreseeing that probe data will ultimately drive many of the operations and planning business processes.

UMD and NREL recognize that the success of this project is critical to broader national initiatives which require quality data to operate and model the transportation system with the goal to optimize for safety, mobility and energy efficiency.

The need for quality flow data

Network wide 24x7 volume data is required to effectively assess user costs, extent of delay, and congestion, and is critical to monitor real-time perturbations to the network resulting from major weather episodes, special events, or traffic incidents. Such data is needed to estimate congestion impact in terms of travel time and delay and their corresponding economic, environmental, and energy impacts.

Turning movement counts which reflect the patterns of vehicle distribution through interchanges and intersections, (the first step in basic origin-destination assessment) are also of key interest. With such information, Coalition members will be able to assess the effectiveness of traveler information in response to incidents or to recognize unusual demand patterns that may result from a special event. This project is being pursued in close coordination and partnership with the leading probe data providers: INRIX, HERE, and TomTom. The ultimate measure of this project's success will be near term availability of viable volume and turning movement products from the private sector.

Our project timeline

Phase 1: Proof-of-Concept (Q1 2017)

Users specifications, theoretical limits, validation methodology, testbed initialization

Phase 2: Product testbed and validation (Q4 2017)

Calibration / validation testbed development, testing historical archive products/concepts, assessment of volume and turning movement data products



► Project Objectives

- ✓ Define a practical and logistical framework for the delivery of probe-based volume and turning movement data.
- ✓ Understand, document, and share data requirement needs for a variety of DOT applications requiring such data.
- ✓ Create a calibration and validation testbed to assist vendors' initial development efforts.
- ✓ Provide representative data products, and set appropriate expectation for data fidelity, form, granularity, and usability.
- ✓ Anticipating the need for an ongoing calibration network, estimate resources needed to maintain/operate a national calibration/validation testbed.

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▶ Project Value



For many agencies, network-wide volume and turning movement data remain key missing dimensions for complete and actionable situational awareness, accurately assessing transportation system performance and developing targeted, cost-effective mobility projects and programs. Having the ability to easily access and leverage these data (both in real-time and historic) along with probe speed and travel time data, offers these substantial benefits:

- ✓ Improved incident management monitoring and action
- ✓ Enhanced work zone monitoring, impact analysis, and safety
- ✓ Additional insight to anticipate and verify “jam” conditions
- ✓ More accurate user delay cost reporting for weather, sporting or other events
- ✓ Comprehensive special event management with the ability to monitor roadway utilization in event of an emergency evacuation
- ✓ Improved traffic signal system timing management, enabling more cost effective, timely, and accurate updates to signal timing plans
- ✓ More complete after-action reviews
- ✓ Faster problem identification / root cause analysis / project development
- ✓ More accurate system performance evaluation
- ✓ Expanded project / program assessment
- ✓ Advance travel demand modeling accuracy
- ✓ Better address air quality and emissions requirements and energy analysis inquiries

▶ What our members are saying



“Real-time volume data would be of great value to NCDOT, especially for incident and work zone management - including timelier detouring or route diversions – better control of evacuations in the event of a hurricane, and improved special event traffic management.”

Kelly Wells

Mobility Program Manager
North Carolina Department of Transportation



“Good quality traffic volume data derived from probes would significantly enhance performance measurement, work zone analysis, and incident management programs, especially for more rural facilities where traditional point detectors are widely spaced.”

Michael Fontaine

Associate Principal Research Scientist
Virginia Transportation Research Council



“Having robust estimated volume and turning movement data derived from probe data would be a tremendous asset for DVRPC, complementing the speed and travel time data we’re already using from the Probe Data Analytics (VPP Suite) to facilitate analysis of our entire road network, including problem identification, project development, and comprehensive, accurate system performance evaluation.”

Jesse Buerk

Senior Capital Program Coordinator
Delaware Valley Regional Planning Commission



“Summer recreational travel is problematic on I-95 along the Maine & New Hampshire border - severe traffic delays regularly occur for motorists traveling northbound on Fridays and Saturdays.

Though NHDOT can calculate average travel times along the corridor to get an idea of minutes of delay, what’s missing is the ability to define how many drivers are being impacted by this delay.

Being able to quickly and easily access volume data in real-time would allow for better traffic management planning and execution, the ability to promptly apprise our Executive Office of the highly congested area(s) and give the public timely, actionable information for better travel decision-making.”

Susan M. Klasen, PE

TSMO Administrator
New Hampshire Department of Transportation