

Partners Using Archived Operations Data

Regional Models of Cooperation Case Study Series

Collective Congestion Management Saves Time and Money in I-95 Corridor

Traffic congestion has plagued many East Coast cities for decades, but a simple solution has been elusive. In the effort to create a more efficient transportation experience for residents in the Delaware Valley, the [Delaware Valley Regional Planning Commission](#) (DVRPC) established [Partners Using Archived Operations Data](#) (the Partners). The Partners convene transportation planning organizations along the East Coast to share information and establish a uniform set of congestion management performance measures. Pennsylvania and New Jersey, in particular, have used the operations data to evaluate past congestion management projects to determine their success and to make the case for funding transit projects that will alleviate congestion problems during and after major roadway construction projects.

Motivation for Establishing the Collaboration

Effective congestion management has been a growing concern among transportation planners across the U.S. for decades—particularly in urbanized areas that span regional, and oftentimes State, boundaries. The Greater Philadelphia region, which is comprised of Bucks, Chester, Delaware, Montgomery, and Philadelphia counties in Pennsylvania, and Burlington, Camden, Gloucester, and Mercer counties in New Jersey, is no stranger to congestion, and DVRPC has been working to solve mounting traffic delays throughout the region for years.

After several informal discussions with neighboring metropolitan planning organizations (MPOs) and State departments of transportation (DOTs), DVRPC, the MPO for the Greater Philadelphia region, realized there was a need for organized regional congestion information. Robust new data sources were available, but consistent performance measures did not exist among the various MPOs and DOTs, so there was no consensus on what methodologies were most appropriate and how results should be communicated. Congestion in the region was obviously affecting the public and local leadership as well, but coherent messaging around the issues did not exist.

Collaboration Structure

To tackle these issues, DVRPC invited neighboring members of the [I-95 Corridor Coalition](#)—an alliance of transportation agencies, toll authorities, and related organizations from the State of Maine to the State of Florida—to meet for a structured discussion about congestion management and the use of archived operations data in 2011. Each region wanted to answer the same questions: which measures should be used, how should they be calculated, and how should they be communicated?

Using archived traffic speed data provided by the I-95 Corridor Coalition, the forum participants have derived travel time-based performance measures and indexes based on speed and travel time data. What began as an I-95-focused forum to discuss freeway congestion has evolved into a much wider effort that incorporates arterial roads and smaller intersections throughout the participating regions. The annual meetings have thus far included organizations from Massachusetts, New York, New Jersey, Pennsylvania, Delaware, Virginia, North Carolina, South Carolina, and Florida.



As a result of the annual meetings, the forum—now known as Partners Using Archived Operations Data—has established four high-level performance measures that the Partners have agreed to follow. These measures include: (1) annual person-hours of delay; (2) travel times; (3) a reliability index; and (4) the duration of congestion.

DVRPC has also taken the lead on providing communications templates for the Partners. These [brochures](#) and presentation templates save staff time and money and help the Partners more effectively communicate congestion management information to the public and local officials.

Collaboration Accomplishments

In addition to opening lines of communication among MPOs and DOTs throughout the I-95 corridor, the forum was able to leverage the I-95 Corridor Coalition's strong relationship with the University of Maryland's Center for Advanced Transportation Technology (CATT) Laboratory. The archived operations data provided by the Coalition is comprised of billions of individual records, requiring vast amounts of storage as well as sophisticated software for processing and analysis. The University of Maryland developed the Vehicle Probe Project (VPP) Suite, a collection of data visualization and retrieval tools that allow users to download reports, visualize data on maps and in graphic forms, and download data for off-line analysis. Developing such a tool in-house at each MPO would be costly and time-consuming, so support from the Coalition and the University of Maryland was crucial.

DVRPC has been using results from the partnership to support construction projects. For instance, a major ongoing reconstruction and bottleneck removal project along the I-95 corridor in Philadelphia has dramatically increased congestion. Using archived operations data from the VPP, DVRPC was able to demonstrate the need for investments in local transit and as a result, the Pennsylvania DOT flexed \$41 million to the Southeastern Pennsylvania Transportation Authority (SEPTA) to improve parallel transit services and offset congestion.

The New Jersey DOT and DVRPC have used regression analyses to evaluate completed projects. Using archived data going back as far as 2008 and 2009, planners have been able to quantify congestion improvements resulting from previous projects. Eventually, they will use the data in both transportation improvement plans (TIPs) and long-range transportation plans (LRTPs).

Challenges and Lessons Learned

This collaboration has revealed that when each State, region, and organization collects different traffic and operations data and uses different methods to measure results, making comparisons across jurisdictions is difficult, if not impossible. The partnership has offered the opportunity for knowledge exchange across agencies, so they can move toward establishing consistent performance measures.

Since the partnership began in 2011, data collection and analysis techniques have changed, which can put a strain on staff resources. The Partners save time and money by sharing techniques and tips for data analysis, programming, and calculations.

Despite these few drawbacks, the Partners have experienced many benefits. Working toward a common goal, providing each other with modeling and methodology improvements, and sharing communications and messaging templates has led to improved project evaluation, strong justifications for better demand management strategies, and investment in transportation alternatives.

