GoTime Mobile Application Development: A Solution for Accessible Real Time Travel Information
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**ABSTRACT TEXT:** MassDOT Real-Time Traffic Management (RTTM) systems consists of over 700 miles of statewide highway and more than 137 signs displaying travel times to over 300 destinations. Close to 2.2 million motorists view the signs daily. MassDOT engaged VHB to design, develop, and deploy the GoTime mobile application to complement the ongoing roll-out of the RTTM system.

The GoTime mobile application enhances the RTTM information dissemination objectives by providing a modern, publicly accessible, mobile component to the RTTM system. By giving drivers a tool with which to make informed travel decisions, the GoTime mobile application supports MassDOT objective to create a cleaner, more efficient, and sustainable transportation system.

The project objective, as set forth by MassDOT, was to rapidly develop and deploy a visually appealing and easy-to-use mobile application (for both iOS and Android) showing the same real-time travel information displayed on the RTTM signs. GoTime provides a simple map-based interface that allows users to view the currently posted travel-time information for routes displayed on selected RTTM signs. Users can define, identify, and store favorite routes for rapid access prior to their travel.

The application uses static route data (link geometry) and dynamic travel time data, both provided via the freely available MassDOT RTM application programming interface (API). Building against the API allowed the developers to create a solution that seamlessly integrates the stateâs ongoing roll-out of additional RTTM devices and related travel time data as it becomes available.

The developers methodology successfully balanced the critical project drivers of time to market, functionality, and cost. Time to market and cost were the most critical factors and ultimately determined the level of attainable functionality.

Making Complex City Transportation Performance Information Available and Useful for Residents and Commuters
Stephanie Dock, AICP, Research Program Coordinator, District Department of Transportation, Washington, DC

**ABSTRACT TEXT:** The District of Columbia Department of Transportation (DDOT) has just completed the development of a yearlong effort to make surface transportation data and related performance measures available to the public in an engaging way through web-based interactive maps and graphics. The newly released web tool allows the public to navigate visual stories related to transit, bike, pedestrian, and vehicle traffic in the District, and to better understand the traffic congestion, reliability, and accessibility patterns across the city.

This joint-presentation by the DDOT Research Program Administrator and the Center for Advanced Transportation Technology Laboratory will cover both policy and technical considerations that went into the development of this resource including:

- The thought process for determining which measures to include (and exclude).
- The relationship between the key stakeholders including transit operators, Department of Transportation, and the public.
- Tying the performance back to DDOT projects.
- The multi-agency, international design process used for developing the user interface.
- The GIS mapping and associated data visualization technologies.
- Data collection and processing.

A live demonstration of the platform will be provided as part of the presentation.
Visualization of Travel Corridors using Large-Scale GPS Traces
Nikola Ivanov, PMP, Deputy Director, CATT Laboratory, College Park, MD

ABSTRACT TEXT: The widespread use of GPS-enabled devices such as smartphones and in-vehicle navigation systems has generated a wealth of travel demand data. Depending on the particular data collection method, the information available to transportation researchers and practitioners may include the origin and destination locations of trips taken, as well as the time the trip was taken, and possibly some or all of the waypoints along the route. This data therefore has the potential to provide for a much more detailed analysis of travel demand, as compared to traditional manual survey methods such as the National Household Travel Survey.

Several studies have designed methods for using GPS location data sourced from mobile devices to improve estimation of origin-destination (OD) matrices. For this research, we take a different approach: instead of focusing on the trip origin and destination locations, we design a tool that allows users to explore travel demand from the point of view of travel corridors. We have obtained a data set containing a modest-sized sample of trips taken within or through Maryland and Washington DC over 30 million trips in total. Each trip contains a sequence of timestamped locations along the route travelled, allowing us to determine which roads the driver took and at what time they were traversed.

We then employ a novel route clustering algorithm to allow visualization of highly traveled corridors in the network. Instead of simply displaying all of the trip trajectories on the map, which can quickly become chaotic and uninformative, we consolidate similar route trajectories to form streamlined corridors, making travel patterns intuitively clear. Our tool allows the user to vary the degree to which they desire the routes to be clustered: low-detail clustering will force trip trajectories to condense into a relatively small number of major corridors, while high-detail clustering displays a more diffuse picture of the trajectories. A user can then click on a particular corridor, and the tool will show the origin and destination locations of the trips that traversed the corridor.

The entire analysis can be done for various time periods, as controlled by the user. Since a mass transit system is designed to serve not individual trips, but many overlapping trips along a corridor, we believe the tool will be useful to organically (i.e. through mining of the data) discover high-demand corridors. When combined with knowledge of public transit availability along the corridors, this tool can be used to suggest new public transit services, and inform potential ridership estimates. A visualization tool also has the benefit of being able to quickly create a compelling case to policy makers, who control the implementation of such projects.