



U.S. Department of Transportation
Federal Transit Administration



Mobility on Demand (MOD) Sandbox Demonstration: Tri-County Metropolitan Transportation District of Oregon (TriMet) OpenTripPlanner (OTP) Shared-Use Mobility *Final Report*

Background

The Tri-County Metropolitan Transportation District of Oregon (TriMet) was one of 11 recipients of the Federal Transit Administration's Mobility on Demand (MOD) Sandbox Demonstration projects, which are designed to encourage innovation, technology, and partnerships.

TriMet's OpenTripPlanner (OTP), initially released as an open source project in 2009, was the first trip planner to introduce multiple modes in one trip, with the original focus on incorporating biking and walking networks with transit; adoption of OTP has been strong, with implementation in dozens of cities and countries. Through this project, TriMet built upon the core of OTP to incorporate shared-use mobility options.

Objectives

The four main objectives of this project were to extend the code to incorporate shared-use mobility modes, real-time information, and enhanced accessibility narrative into the OTP; extend the functionality of the Pelias geocoder for government agencies and improve the match rate and accuracy of locations; improve OpenStreetMap and OpenAddresses data to support new and enhanced existing features for comprehensive trip planning and geocoding; and research a possible future integration of the one-click payment feature for the application.

Findings and Conclusions

TriMet's project significantly improved transit trip planning by allowing for shared-use modes as part of multimodal trip planning, as well as enhancing mapping, geocoding, and spatial data features.

TriMet made it possible to combine transit with shared-use mobility modes such as bikeshare and ridesourcing in a single door-to-door itinerary. The project also included improvements to the OTP interface, real-time information, address matching, local accessibility data, and pedestrian routing. The approach used existing software and data and leverage open source software, open data, and open standards to facilitate widespread adoption and easy replicability by other transit agencies.

Results of the project include the following:

- The project made it possible to combine modes to provide a solution for the first/last mile problem and offer more affordable trip options than ride-sourced trips alone, while also reducing travel time when compared to transit-only mode.
- The open source geocoding tool Pelias was improved to become more robust with its performance comparable to proprietary, paid geocoding services, while also providing features for ease of implementation and customization for agencies planning to deploy it.
- As Open Application Programming Interfaces (APIs) are critical to development of multimodal trips planners, cities and other regulating agencies might consider requiring such APIs from private mobility providers as a condition of operation.
- The current OTP application provides partial “book and pay” functionality. After a trip is planned, customers can open their ridesourcing app with all necessary details already pre-entered, thus decreasing some known frictions associated with multimodal booking.

Approaches that contributed to the success of the project included:

- Transparency throughout the process (document sharing and continuous feedback)
- Inclusiveness in all aspects of the project and design
- Sustainable public-private partnerships
- Communication tools that allow constant dialogue
- Continuous stakeholder engagement (weekly meetings, kickoff, progress, and prototype release workshops)
- Targeted surveys, feedback, and analyses

Benefits

TriMet’s OTP enhancement project is a leap forward, accomplished using open source software that minimized initial cost and delay, an added value for other agencies planning to start up their own multimodal trip planner. The project demonstrated that a partial “plan and book” experience via deep-linking between OTP and mobility service provider apps offers a relatively seamless customer experience while providing more flexibility than a typical Mobility as a Service (MaaS) platform.

Project Information

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