OTP SUM: OTP Integration of Transit with Shared-Use Mobility Real-Time and Data Enhancements

Mobility on Demand Sandbox Program
Quarterly Report Q4 2017
10/01/17 - 12/31/17

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Project Summary

A project dashboard is available at www.trimet.org/mod. It provides more comprehensive information about the project and up-to-date status reports.

Challenges Addressed by Project

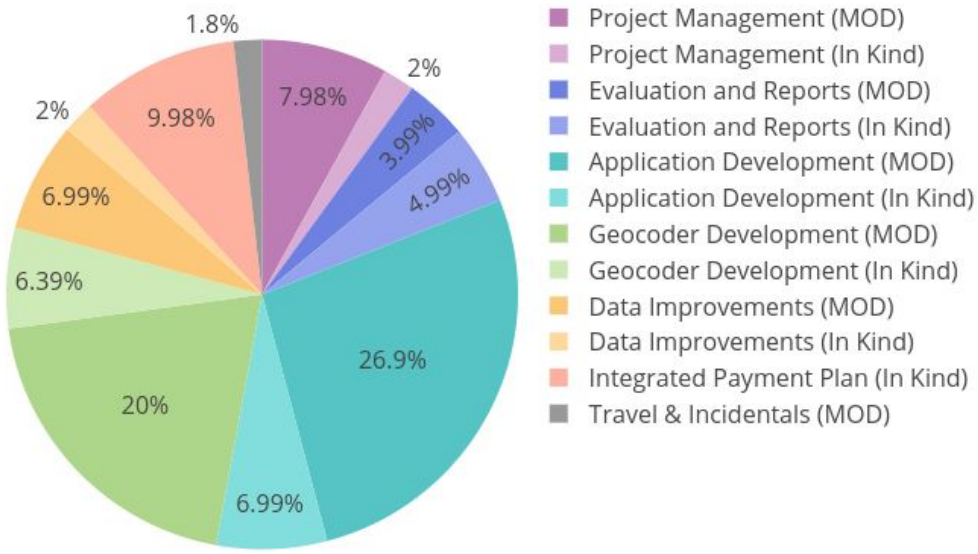
- OpenTripPlanner (OTP) does not currently incorporate shared-use modes.
- Address location for trip origins and destinations are a main requirement for trip planning, however, existing options are inadequate or cost prohibitive for government.
- Accessible trips are a challenge due to the lack of data available on the accessibility of pedestrian infrastructure and the absence of these features in a trip planner.

Anticipated Outcomes, Benefits, Impacts

- Extend the OpenTripPlanner code base to support the integration of transit trip planning with shared-use mobility modes, such as bike share and transportation network companies (TNCs), as well as updated real-time transit information.
- Implement a fully functional and comprehensive open geocoder built off the existing Mapzen Pelias geocoder. A non-proprietary and non-restrictive option for address locating would substantially lower the barrier to entry for many transit systems to offer trip planning and can achieve significant cost savings for transit agencies, government agencies, and the public.
- TriMet, in collaboration with the OpenStreetMap community, established best practices for representing accessibility information and will build out this accessibility information in the OSM network and provide a model for replicating this work in other regions.

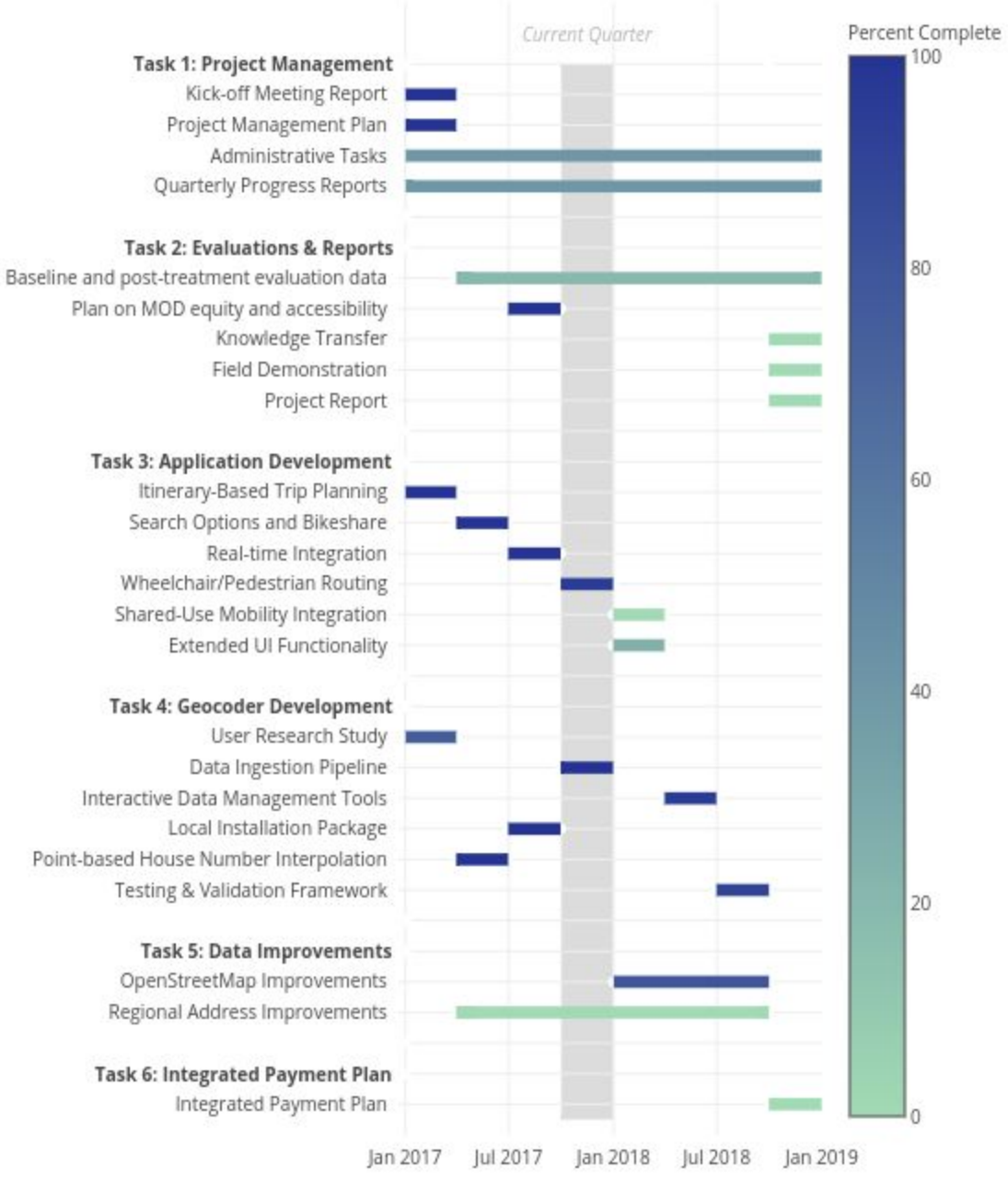
Grant Budget Allocations

TriMet's funding allocation from the FTA of $678,000 is matched with 32% of in-kind contributions, totaling over $1 million.



Project Scope and Budget Status

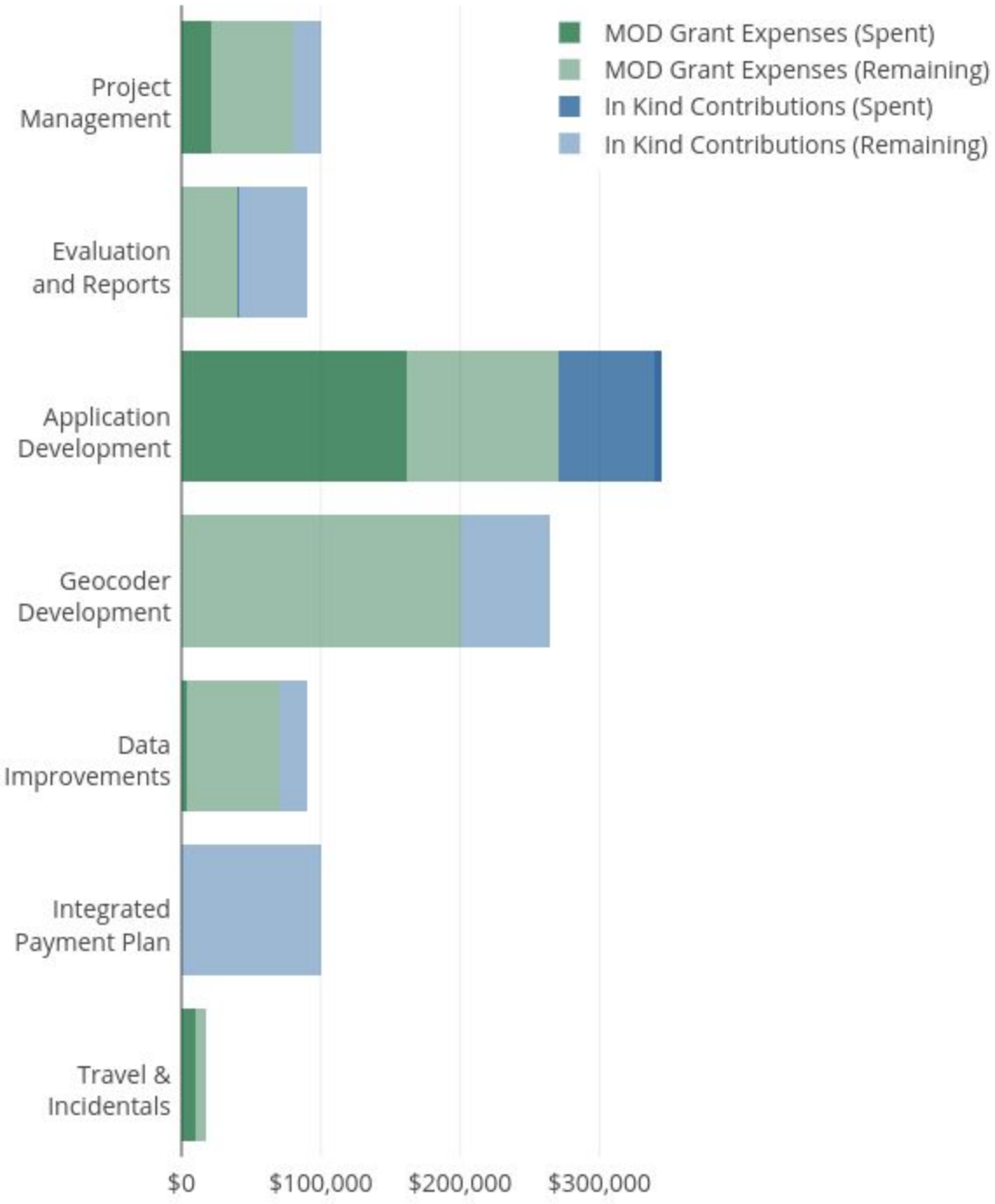
The MOD Sandbox project is divided into six main tasks: Project Management, Evaluations & Reports, Application Development, Geocoder Development, Data Improvements and an Integrated Payment Plan. The project is on schedule and in budget. Progress is as follows:



The above gantt chart illustrates the tasks and status of deliverables in Quarter 4.

Of the $678,000 that TriMet received, $193,113 (28.5% of allocated grant funds) has been spent thus far. The cleared expenditures through Q4 2017 are as follows:

- $21,669 (27% of allocated grant funds) spent toward Project Management;
- $162,000 (60% of allocated grant funds) spent toward Application Development;
- $0 spent toward Geocoder Development;
- $796 (1% of allocated grant funds) spent toward Data Improvements;
- $8,648 (48% of allocated grant funds) spent toward Travel & Incidentals.



The above bar chart shows the current amount spent for each of the tasks in Quarter 4.

Task 1: Project Management

TriMet's OTP Integration of Transit with Shared-Use Mobility Real-Time and Data Enhancements have been underway since January. All milestones and deliverables have been met and we are on schedule.

Quarterly Deliverables

Deliverables for this quarter are in the form of ongoing tasks that include scheduled weekly meetings and administrative tasks.

Quarterly Progress

Task progress includes:

- weekly scheduled meetings (slack or webinars) to ensure continued communications;
- use of Trello for project management;
- a dedicated and open TriMet MOD Project Google drive for project management;
- use of InVision for application interface development and review;
- continued update of the online project dashboard available to the public at TriMet.org/MOD to ensure transparency;
- and RealTime Board for live, remote whiteboarding sessions.

Task 2: Evaluations and Reports

The FTA requires the following project evaluations and reports: Evaluation Plan and Report, Equity and Accessibility Plan, Knowledge Transfer, Field Demonstration, Final Project Report.

Quarterly Deliverables

Evaluation and Test Plan for Application (**Appendix A - MOD Application Test Plan**).

Quarterly Progress

Inquiries into local firms have been made to perform usability studies.

Task 3: Application Development Status

A live demo of the application is now available at https://trimet-mod-dev.conveyal.com/

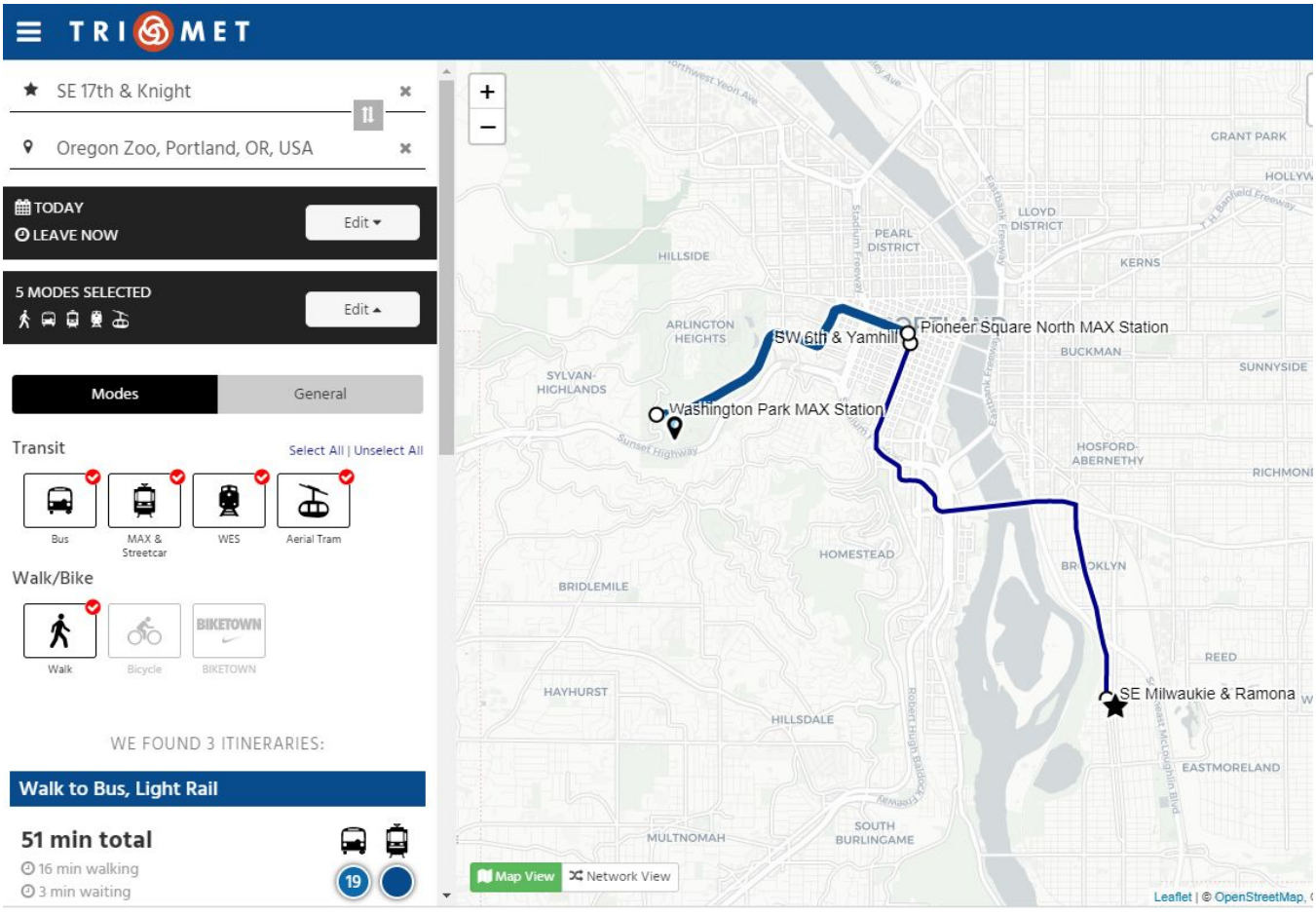
Quarterly Deliverables

Search Options and Bikeshare (**Appendix B - T3M4 RouteStopViewer_PedImprvmts_Docs**). It was delivered on Thursday, January 4, 2018. The code for this deliverable is available on a private GitHub site until production. In summary, the work includes the following features:

- **UI/UX Design:** Refinement of designs of Milestone 3 tasks; preliminary mockups for Milestone 4 tasks
- **Stop Viewer:** Detailed view of specific stop including route served, scheduled departure times, and real-time arrival information if available
- **Trip Viewer:** Detailed view of a single vehicle trip with scheduled departure times and highlighting of section utilized by current itinerary
- **Route Viewer:** Listing of all available routes with map display of selected route. Also includes initial implementation of a global "application menu"
- **Extended Pedestrian Routing:** New system for weighting pedestrian routes based on OSM way characteristics using custom configuration file. Includes new API endpoint for testing and calibration.

Quarterly Progress

In addition to the completed milestone, the user interface design continues to be refined in InVision and the live demo.



Screen capture of demo version of application.

Task 4: Geocoder Development

Pelias is a non-proprietary and non-restrictive option for address locating that is an important requirement for trip planning. This task includes the implementation of a reference framework for government agencies to auto-feed their authoritative address data into a publicly accessible geocoding service.

Quarterly Deliverables

Deliverables expected for last quarter include Mapzen's Milestone 2 – Data Ingestion Pipeline, which was submitted at the end of December. Testing has not been completed at this time. Mapzen has handed over control of the Repo for this work to Open Addresses. Documentation is available here: https://github.com/openaddresses/submit-ui

A significant amount of work has been performed on the remaining two deliverables:
Milestone 3: Interactive Data Management Tools **(Appendix C - T4M3 InteractiveDataTool_Documentation).**
Milestone 6: Testing & Validation Framework (**Appendix D - T4M6 Testing_Package_Documentation**).

Quarterly Progress

The closure of Mapzen on February 1, 2018, was announced in December 2017, which resulted in an early termination of the MOD Sandbox contract with Samsung. It is expected to have no negative impact on the project. The Pelias team at Mapzen is establishing a new company to support the open source project. In addition to the Samsung/Mapzen's $64,000 in-kind contribution, Samsung has waived the remaining $200,000 awarded contact as an in-kind contribution.

Task 5: Data Improvements

Improve OpenAddresses and OpenStreetMap (OSM) in support of comprehensive trip planning and geocoding (address matching).

Quarterly Deliverables

There were no scheduled deliverables for this task during this quarter.

Quarterly Progress

Updates to OSM continue as planned.

Task 6: Integrated Payment Plan

As a partner on this project, moovel will facilitate compatibility with their planned booking and payment features so customers can plan and pay for their trips in one app.

Quarterly Deliverables

There were no scheduled deliverables for this task during this quarter.

Quarterly Progress

Moovel participated in the October meetings and events offering insight into the development of the plan. August 25th.

Meetings and Events

October 11, 2017 TriMet MOD Sandbox Grant partners update and technical breakout sessions
October 12-13, 2017 Mobility on Demand (MOD) Workshop, held in Atlanta, GA

TriMet conducts weekly project meetings on the following rotating Slack channels every Thursday at 10am PST.

- Geocoder Meetings (https://trimet-mod-sandbox.slack.com/messages/geocoding/)
- Application Development Meetings (https://trimet-mod-sandbox.slack.com/messages/general/)

Upcoming Events

February 15, 2018 USDOT & ITS America Webinar on Standards and Specifications for MOD
March 12-14, 2018 Shared Use Mobility Summit, On-Demand Services in Trip-Planning Apps
April 5-6, 2018 TechFestNW , The New Mobility Framework
April 9-11, 2018 Fare Collection/Revenue Management & TransITech Conferences, MOD Update
April 18-19, 2018 TriMet MOD Grant Workshop II, moovel PDX

Appendices

Appendix A - MOD Application Test Plan

Appendix B - Task 3 Milestone 4 (T3M4) RouteStopViewer_PedImprvmts_Docs

Appendix C - Task 4 Milestone 3 (T4M3) InteractiveDataTool_Documentation

Appendix D - Task 4 Milestone 6 (T4M6)Testing_Package_Documentation