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

Mobility on Demand Sandbox Program
Quarter 3 Report 2018
7/01/18 - 09/30/18

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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

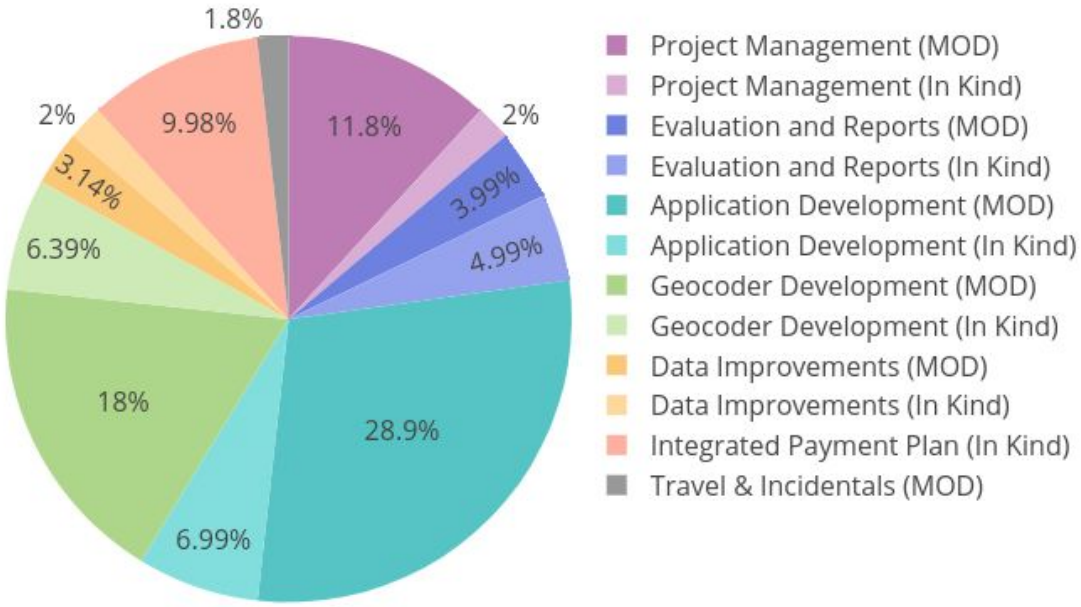
- OpenTripPlanner (OTP) does not currently incorporate shared-use modes.
- Address location for trip origins and destinations are a main requirement for trip planning, however, existing options are inadequate or cost prohibitive for government.
- Accessible trips are a challenge due to the lack of data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

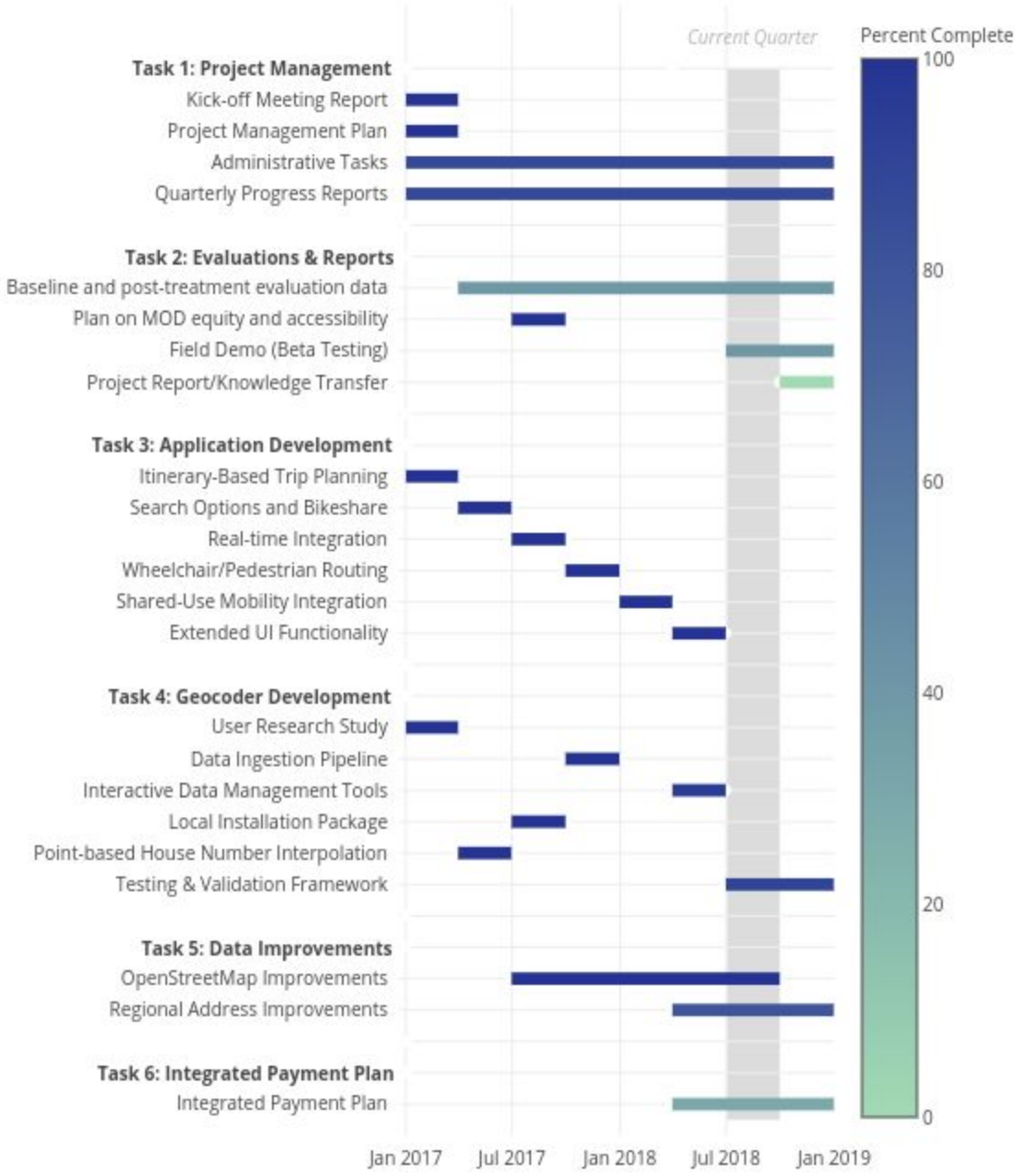
Grant Budget Allocations

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:

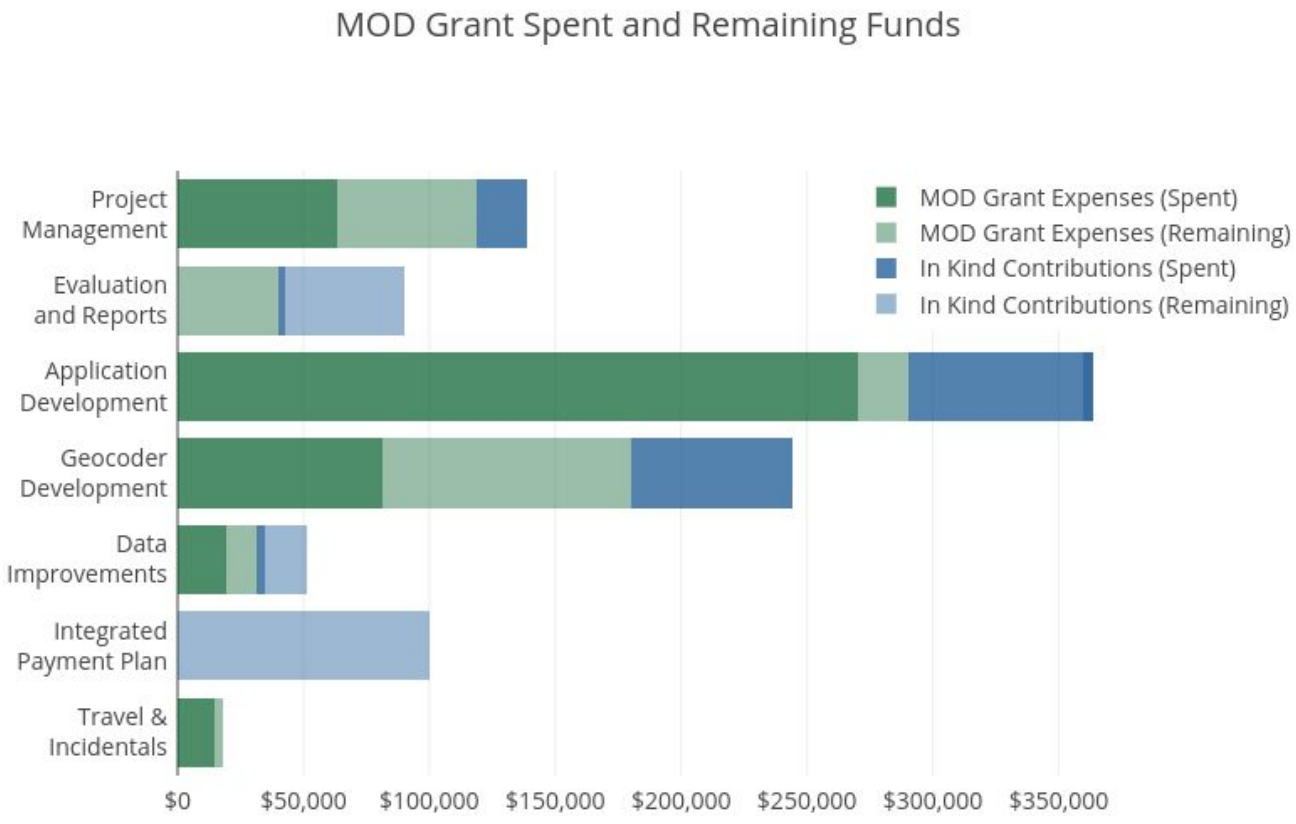


The above Gantt chart illustrates the tasks and status of deliverables in Quarter 3 2018.

Of the $678,000 that TriMet received, $497,649 (73% of allocated grant funds) has been spent thus far. The cleared expenditures through Q3 2018 are as follows:

$63,432 (54% of allocated grant funds) spent toward Project Management;
$270,000 (92% of allocated grant funds) spent toward Application Development;
$111,375 (62% of allocated grant funds) spent toward Geocoder Development;

$31,378 (99.6% of allocated grant funds) spent toward Data Improvements;
$14,533.97 (81% of allocated grant funds) spent toward Travel & Incidentals.



The above bar chart shows the current amount spent for each of the tasks in Quarter 3 2018.

Task 1: Project Management

TriMet's OTP Integration of Transit with Shared-Use Mobility Real-Time and Data Enhancements have been underway since January 2017. 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. There was a budget revision approved 09.19.18 to add move $20,000 from Task 4 (Geocoder Development) and $18,500 from Task 5 (Data Improvements) to increase Task 1 by $38,500 ($100,000 to $138,500) to cover the cost for a report by CUTR on open source software in the transit industry. There are no other schedules changes this reporting quarter.

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

Project evaluations and reports that are required by FTA for this project include:

1. Equity and Accessibility Plan - Completed
2. Evaluation Plan and Report - Completed
3. Knowledge Transfer - Continuing
4. Field Demonstration - Continuing
5. Final Project Report - Development in Quarter 4 2018 and Finalized January 2019 at project close. Will include Open Source Transit Software White Paper.

Quarterly Deliverables

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

Quarterly Progress

The Evaluation Plan and Report under final review. The scope of the heuristic usability study was finalized.

Task 3: Application Development Status

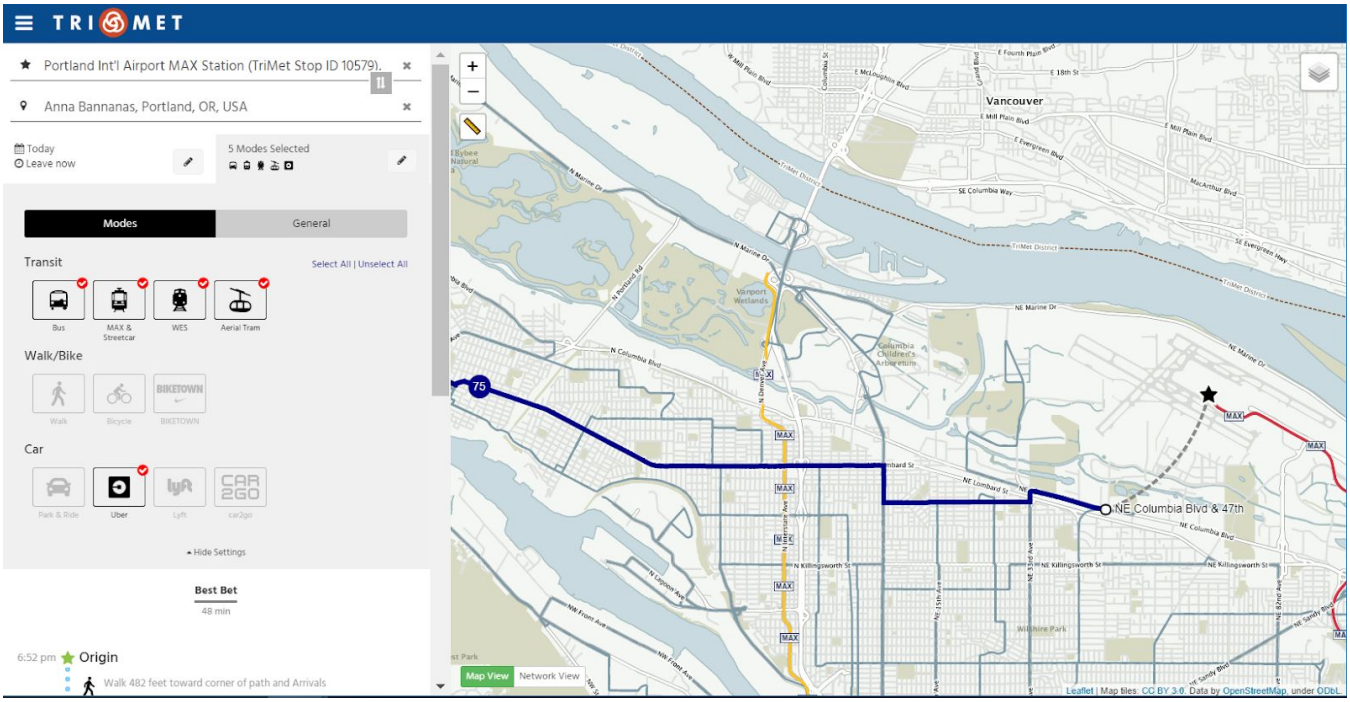
A live demo of the application is now hosted at TriMet at https://modbeta.trimet.org/. The code is available at https://github.com/conveyal/trimet-mod-otp.

Quarterly Deliverables

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

Quarterly Progress

All five milestones were completed on 4/25/18 and the application has been undergoing rigorous internal testing and review. A budget revision was approved 09.19.18 to move $20,000.00 from Task 5 (Data Improvements) to Task 3 by to cover additional feature enhancements following the heuristic study and survey results. Current internal review of the prototype continues this quarter to identify and log bugs in GitHub at https://github.com/conveyal/trimet-mod-otp/issues. Conveyal is providing fixes to these issues.



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.

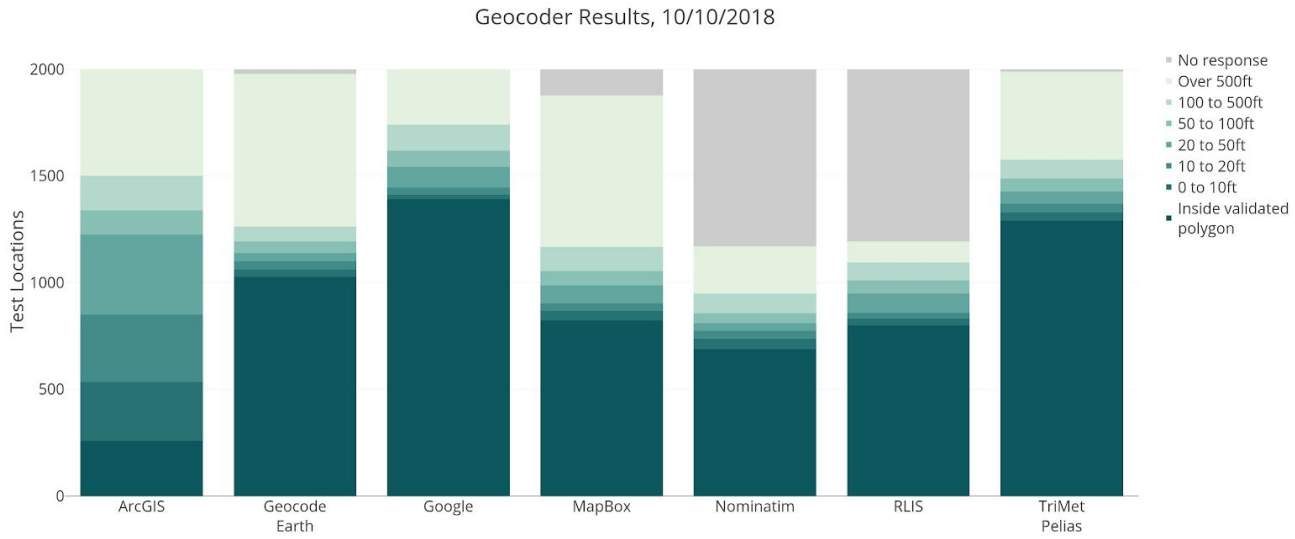
Quarterly Deliverables

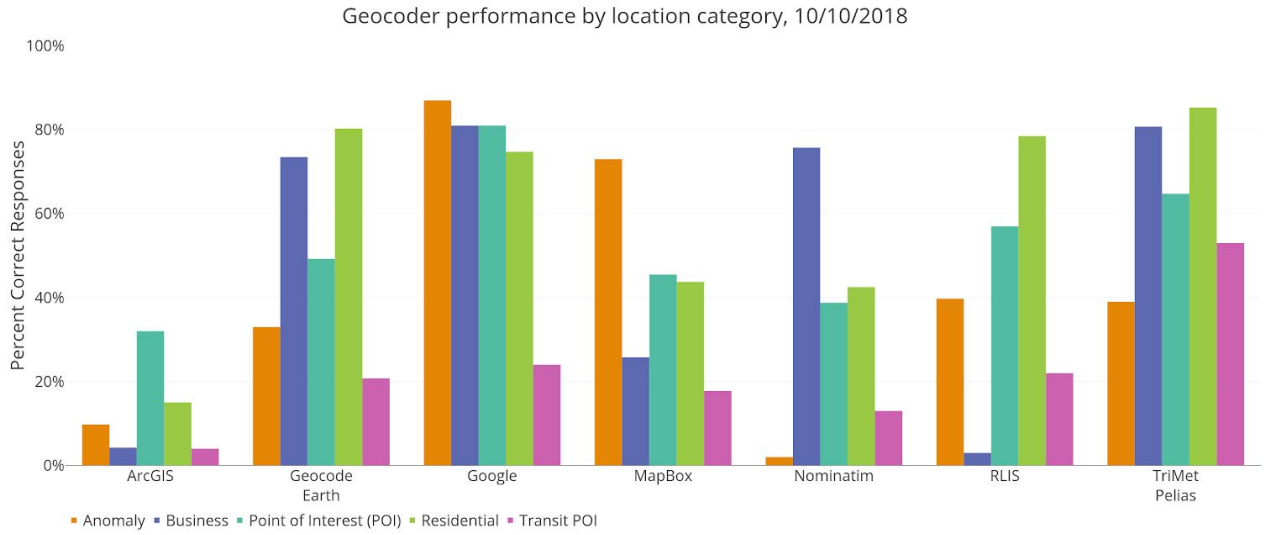
There were no scheduled deliverables for this task during this quarter.

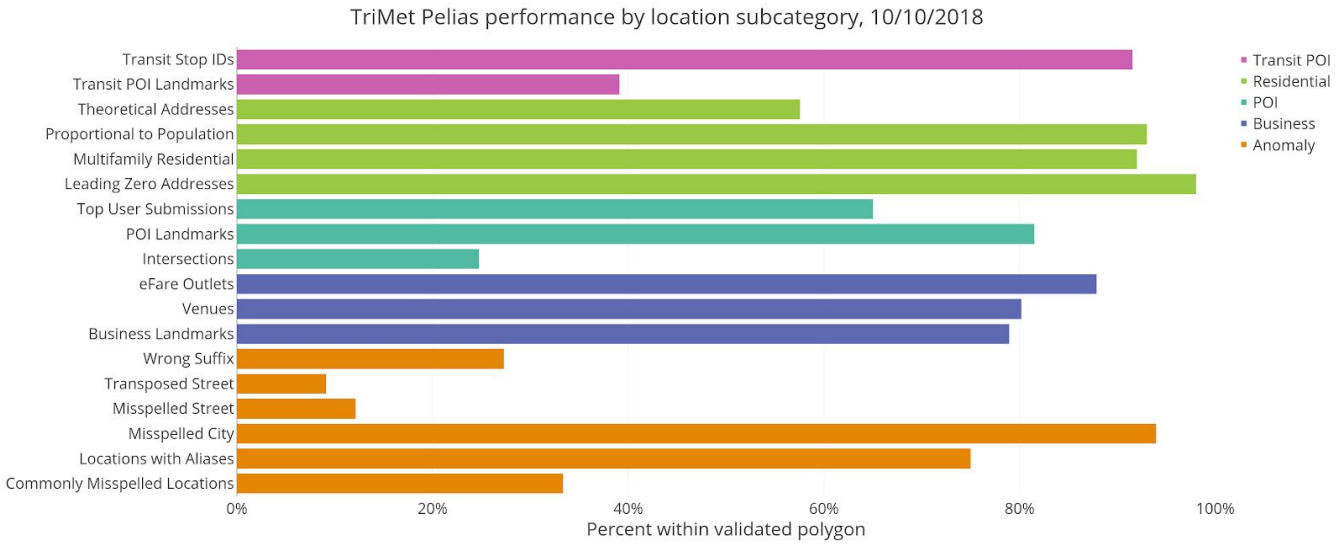
Quarterly Progress

Pelias continues to be refined and tested.

The following charts demonstrates improvements benchmarked against other geocoders:







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

- In 2017, the TriMet team finished adding sidewalk data to all appropriate (e.g., not highways, alleys, or parking aisles) OpenStreetMap street centerlines in our seven county region, except for a minority of streets where thick tree cover made it impossible to see sidewalks in the aerial imagery. For more information about this significant effort, see Madeline's talk at State of the Map US, 2017.
- Since then, we been maintaining sidewalk data by monitoring construction newsfeeds, and using the authoritative quarterly street centerline file update from Oregon Metro.
- Other projects have including updating speed limits to reflect the recent change of all residential streets in Portland from a 25 mph speed limit to a 20 mph speed limit. In the new version of OTP, speed limit tags are used to help route pedestrians on safer streets, so this work is critical for our riders.
- We also updated bike lanes in Washington County using a newly updated shapefile that they provided.
- We used spatial tracking spreadsheets for all of these efforts. They're available in this shared folder in the TriMet MOD Grant Google Drive:
- We have now completed the MOD OSM work, and will be funding our ongoing maintenance of the data with our own budget and with a recurring grant from Oregon Metro.A budget revision

was approved 09.19.18 to move $18,500 from Task 5 (Data Improvements) to Task 1 for the development of a report by CUTR on open source software in the transit industry.

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 and TriMet continue to work on the draft integrated payment plan.

Meetings and Events

Weekly Project Meetings

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:

October 23-24, 2018 MOD Sandbox program workshop is happening concurrently with Rail~Volution in Pittsburgh.

Presentations:

On Oct 6, 2018, Julian Simioni of Cleared for Takeoff gave a talk entitled “Why Geocoding is Hard and How You and OSM Can Help” at State Of The Map US. It was recorded and is available here.