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A Recipe for an Online, Geospatial Transit Performance Archive

Jon Makler

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j o y

**OF WEB-BASED, GEOSPATIAL TRANSIT
PERFORMANCE DATA ARCHIVES**

Jon Makler, AICP | @plangineering

Portland State University

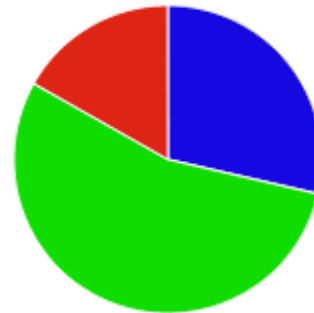
Oregon Transportation Research & Education Consortium

Happy Valentine's Day



Weekday service during AM Peak service times

Stop ID 7571 — NE 47th & Halsey



■ Early
■ On time
■ Late

Route	Direction
77	To Montgomery Park



Portland State
UNIVERSITY

Morgan Harvey, Developer
Dr. Kristin Tufte, Architect



See where it takes you.

Steve Callas
Service & Performance Analysis Manager

About GIS in Transit

- Center for Urban Transportation Research at University of South Florida has hosted biennial “GIS in Transit” conference since 2009 (see www.transitgis.org)
- Accessibility is a key term
 - WMATA, for example, uses GIS to comprehensively track the accessibility of its services and facilities
 - Accessibility Observatory at University of Minnesota uses transit service data for demographic, geospatial analysis
- Emergence of standardized, open data is enabling new generation of analytical tools
 - Oregon State/ODOT Research Project
 - SUNY Albany’s AVAIL (service analysis)
- Travel time reliability isn’t just a highway concept

Why?

- More informed decision making through visualization
- Efficient support for user requests for data
- Enable innovative performance analysis

What Will We Cook Today?

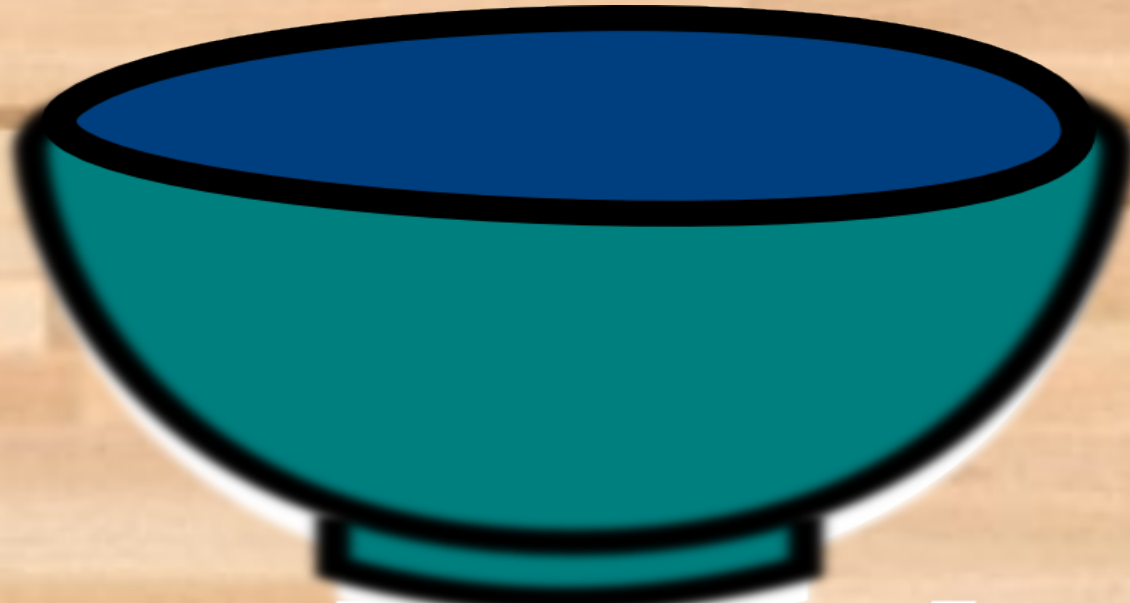
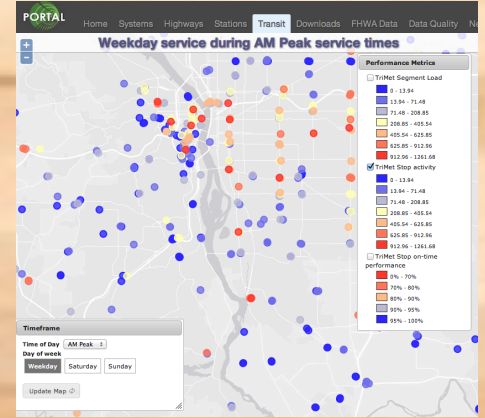
Transit
Performance
Data



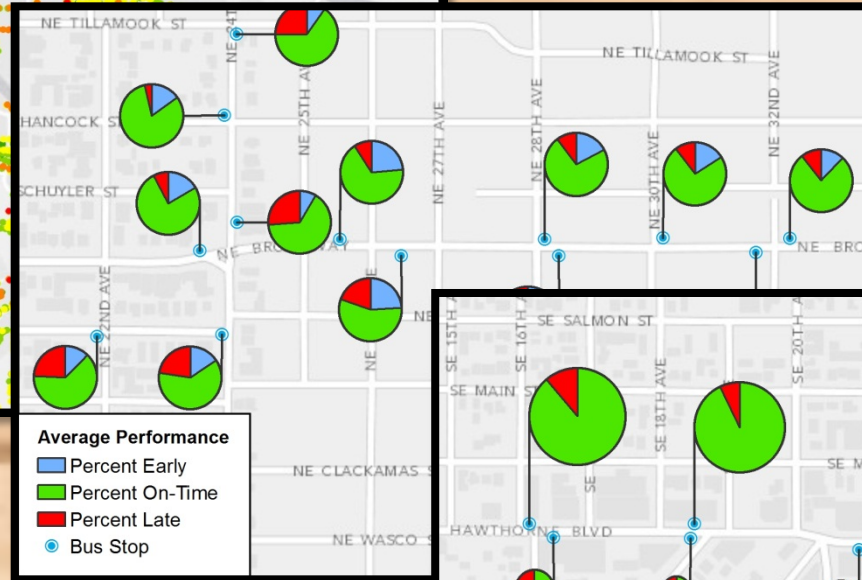
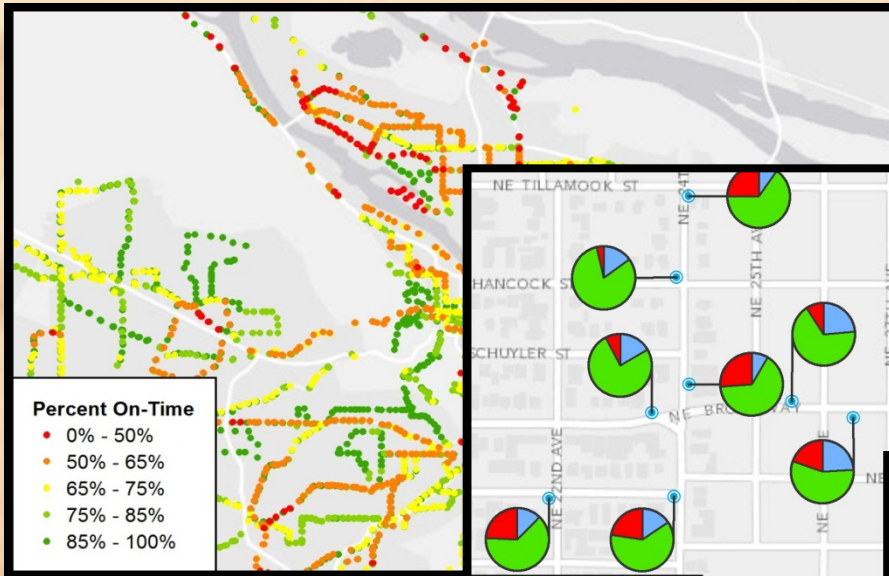
Geospatial

Web-based

Ingredients



Menu Planning



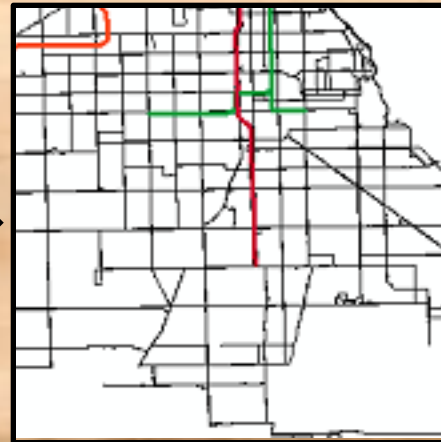
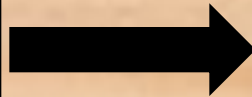
Prepare the Ingredients!

- Prepare GTFS data and set aside
- Collect daily APC and AVL data
- Clean the data based on error messages, mismatched ons and offs, more
- Aggregate by quarter for “typical” data
- Be prepared for partial people
- Export data with enough fields to support GTFS matching

Step 1: Convert GTFS to Feature Class

```
routes.txt
route_id,route_short
R10,10,Airport - Dow

trips.txt
route_id,trip_id,tri
R10,T-10-1,Airport,0
R10,T-10-2,Downtown,
```

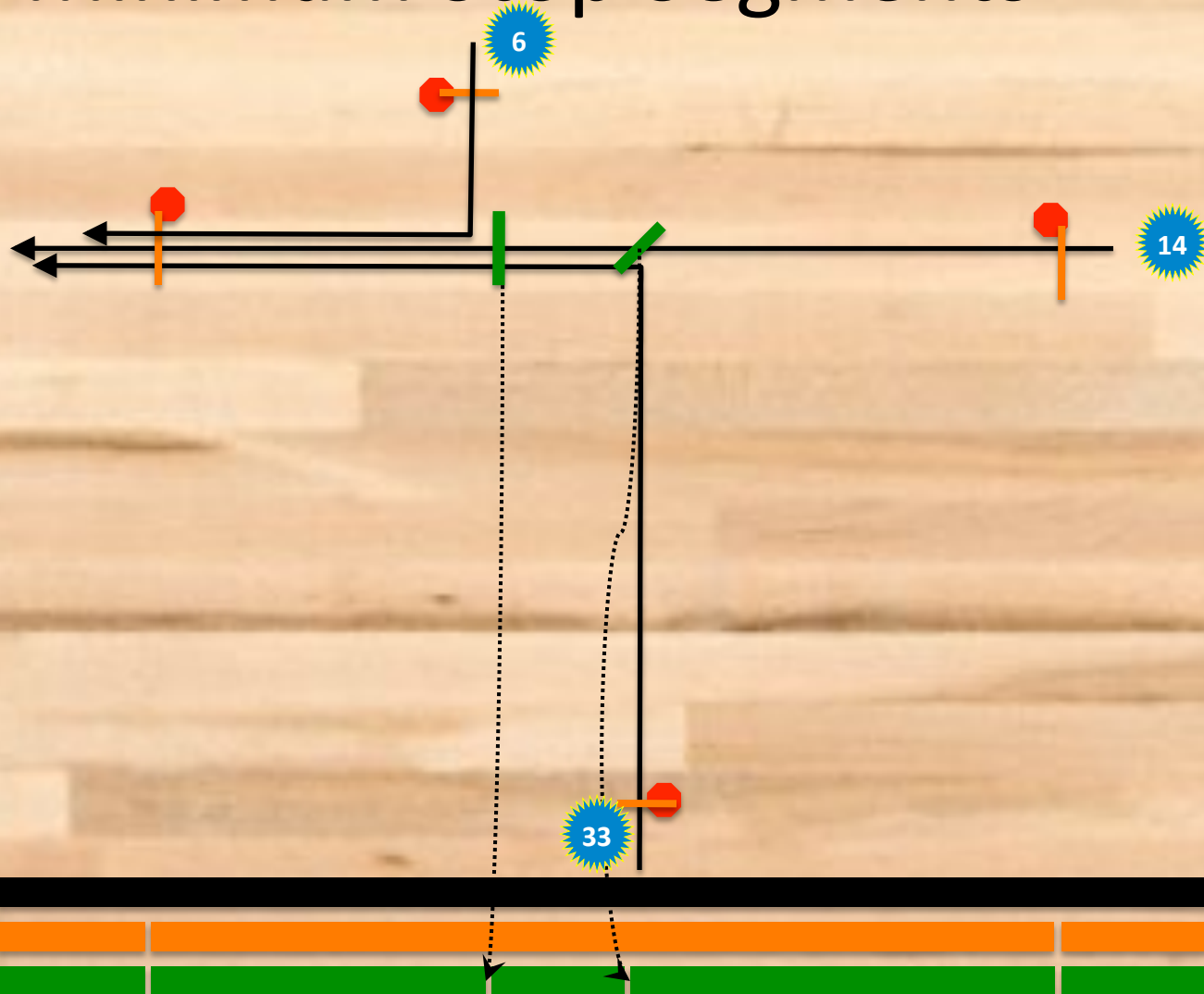


Step 2: ArcPy converts pattern lines to stop segments



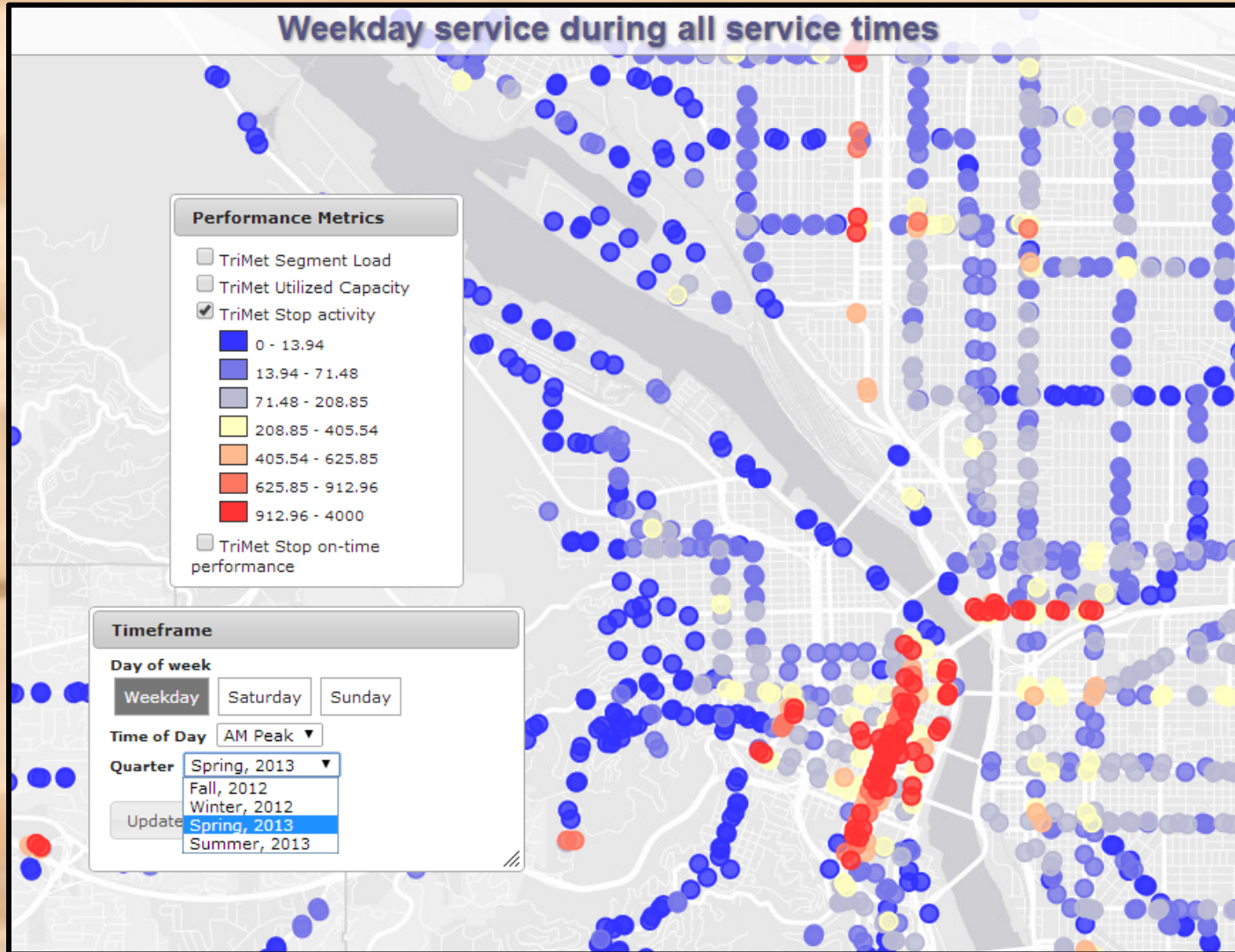
*Now you can
match GTFS and
PAX Data!*

Step 3: Create Minimum Stop Segments

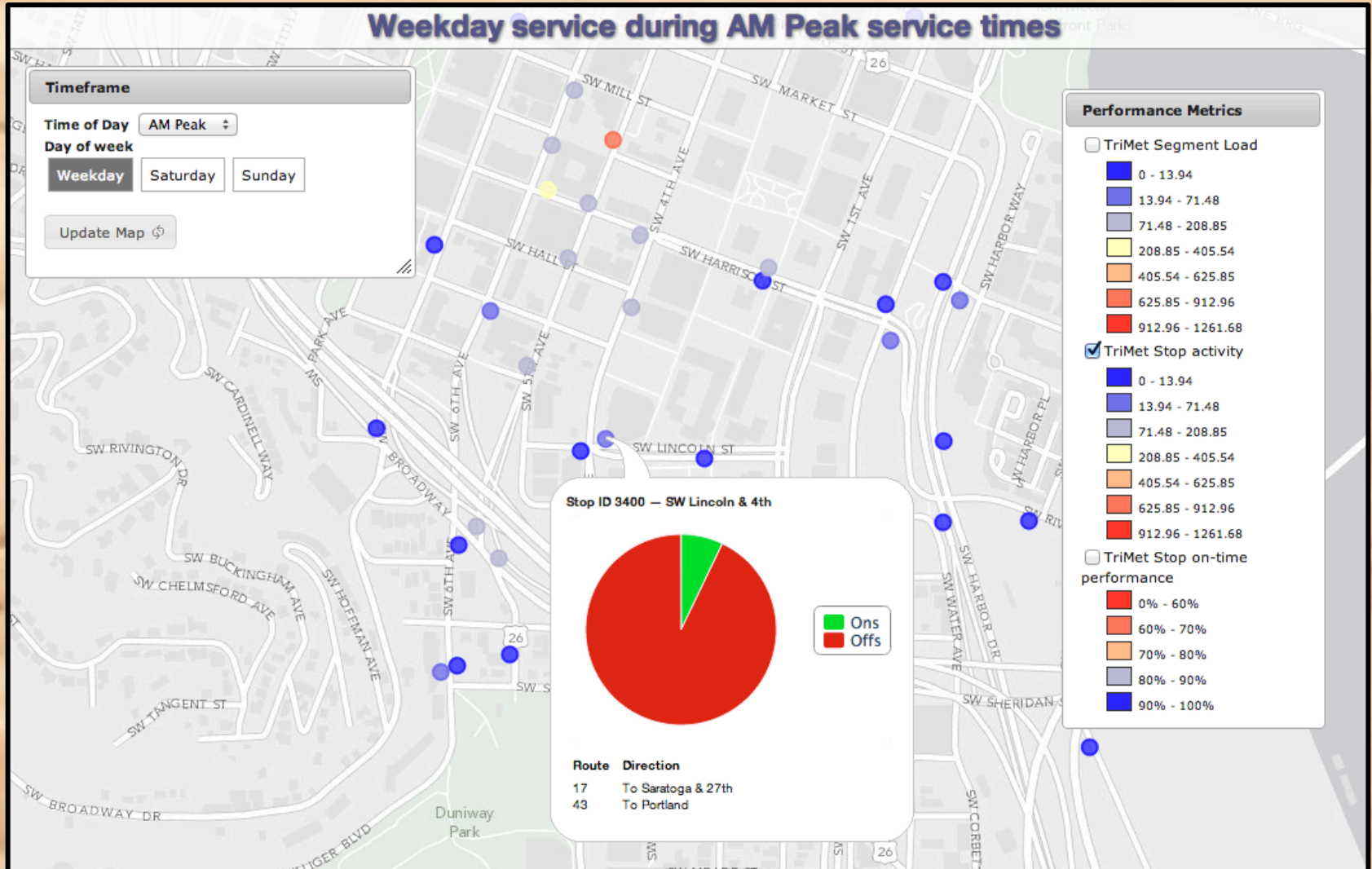


*Now you can
aggregate across
routes!*

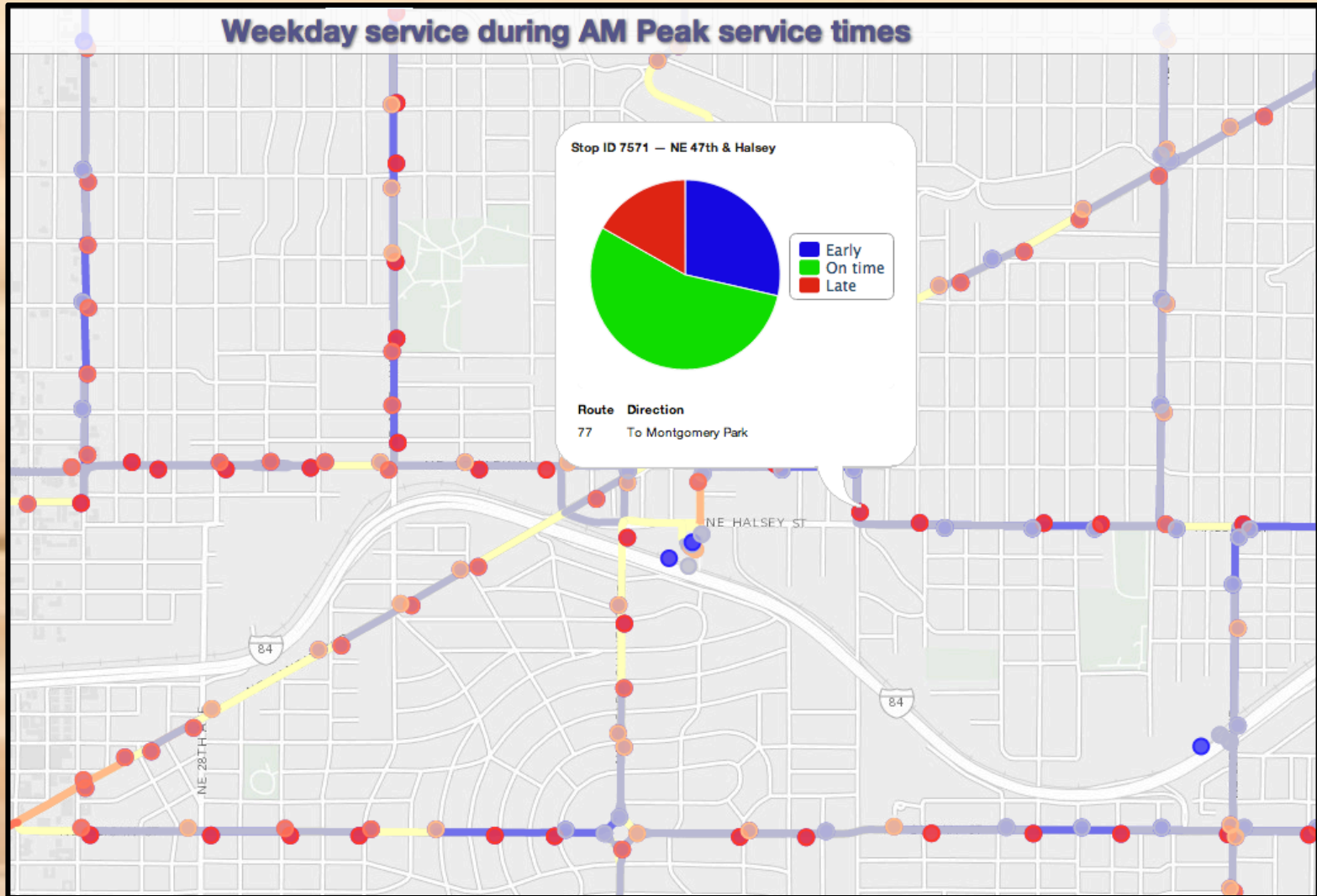
Garnish and Serve!



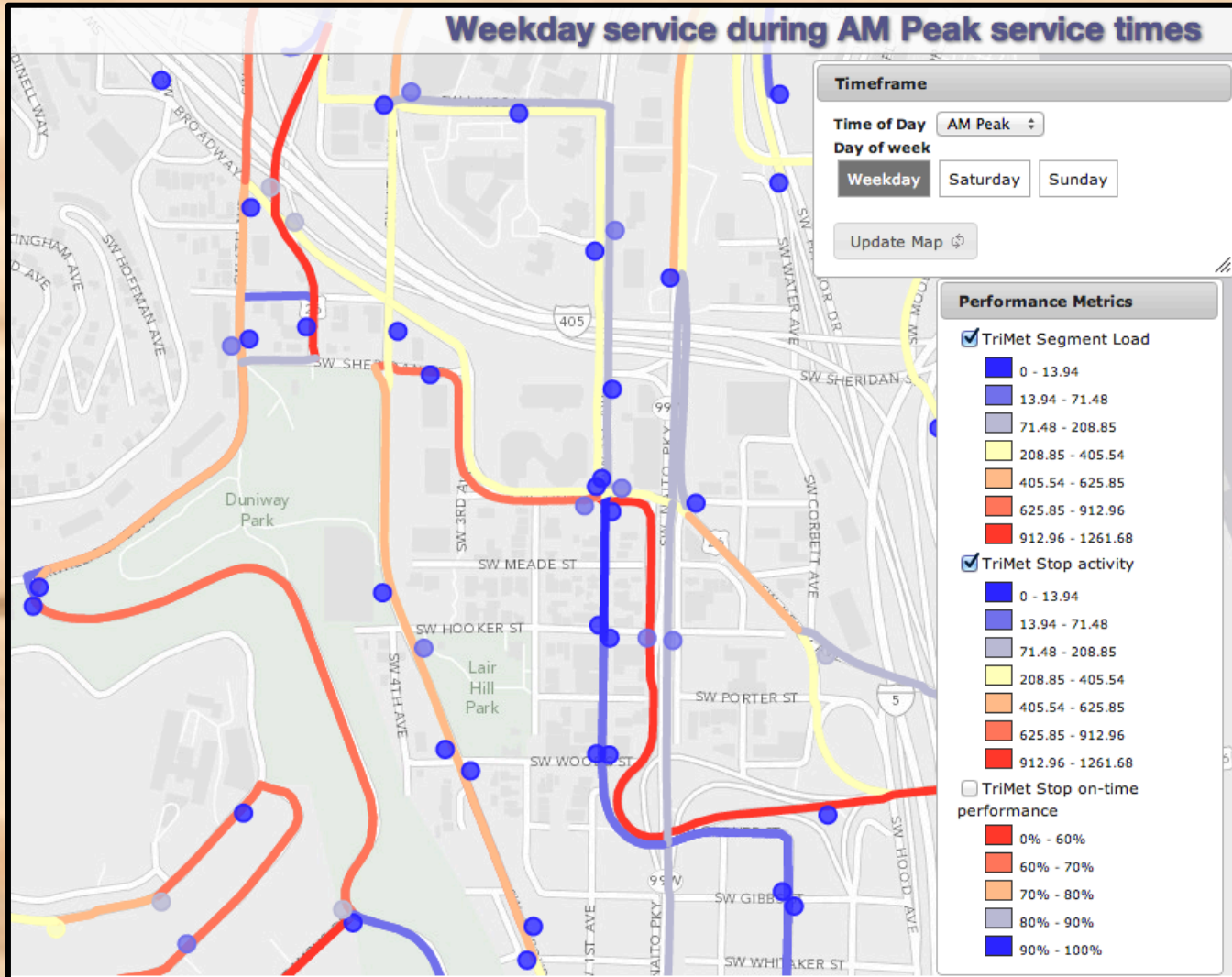
Garnish and Serve!



Garnish and Serve!



Garnish and Serve!



Dessert (aka, next steps)

- Cartographic refinements
 - Line Offsets
 - Point symbology
- Integrate data visualizations (pie charts & plots)
- Data download capability
- Non-temporal queries

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Compass About Applications ▾ On Ramp

Compass

An open way to traffic data
Portland State University's Transportation Data Lab

Transit

In-vehicle technology records how transit service is supplied and consumed. This application explores how transit performance and ridership vary over time and place.

[View Transit →](#)

Highways

In the Portland/Vancouver region, Portal captures data from loop detectors and other devices, revealing trends in highway performance. This application examines points, corridors and networks.

[View Highways →](#)

Arterials

Traffic signal hardware, Bluetooth detectors, and other sources reveal activity on arterial streets. These applications illustrate travel time and other metrics.

[View Arterials →](#)

WIM

Weigh-in-Motion data provide insight regarding the movement of trucks on designated routes. Origin-destination data and routing patterns tell stories about how goods travel.

[View WIM →](#)

On Ramp

As a laboratory, Compass usually has new applications under development. Visit this area to see what we're working on, often with a limited set of data.

[View On Ramp →](#)

About

Learn more about Compass, including the history and people. Access recent presentations and publications.

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Thank You!

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