Explore Portal

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Portal – in one slide...

- Portland-Vancouver Transportation Data Archive
  - Policy of Open Data
  - Publicly-funded (Thanks to NSF, FHWA, Metro, RTC, TREC)
  - Focus on open-source software
  - ~3 TB PostgreSQL Database

- Speed, Count, Travel Time, Weigh-in-Motion, Variable Speed
- Travel Time, Traffic Signal, Bicycle Count, Pedestrian Push-Button
- Ons, Offs, On-Time Performance
- Freeway ODOT, WSDOT, Lane County
- Arterial City of Portland, Clark County, Clackamas County, Washington County, Gresham, Tigard, Beaverton, Vancouver
- Transit TriMet C-TRAN
- Other Weather, Weigh-in-Motion
Portal in Practice
ATM Project Development

SOUTHBOUND Speed Data for OR 217

Southbound OR 217 Congestion Plot
(Figure Credit: Jennifer Bachman, DKS Associates)
ATM Project Development

Variable Speed Sign & Detector Information

Oregon 217 ATM Scenario Using Portal Data
(Figure Credit: Carl S. Olson, DKS Associates)
Oregon 217 ATM Scenario Using Portal Data
(Figure Credit: Carl S. Olson, DKS Associates)
Connecting the Loop: Research -> Planning -> Implementation -> Evaluation
Travel Model Usage: Base Year Network Assignments for Travel Demand Modeling.

Cutline Analysis For Traffic Demand Modeling
(Figure Credit: Peter Bosa, Metro)
Other Uses…

- Educational Use
  - Cloud Data Management
  - Civil and Environmental Engineering Curriculum

- Agency Performance Reporting

- Oregon Department of Transportation Bottleneck Analysis
  - Corridor Bottleneck Operational Study
  - Bottleneck Analysis

- Powell Blvd Signal Analysis

- Portland Metro Multimodal Arterial Performance Measures Guide

- I-84 Traffic Management Plan

- Ronler ATMS Project (Washington Cty)
Data Sources for Performance Measures
Portal in 2005…

Welcome to the Portland Transportation Archive Listing (PORTAL). The purpose of this project is to implement the U.S. National ITS Architecture’s Archived Data User Service for the Portland metropolitan region. This system is being developed at Portland State University by students and faculty in the Intelligent Transportation Systems Laboratory under the direction of Dr. Robert Bertini. We are working in close cooperation with the Oregon Department of Transportation, Metro, the City of Portland, TriMet and other regional partners. This work is supported by the National Science Foundation.

We welcome your participation in our project. The current PORTAL system archives the Portland metropolitan region’s freeway loop detector data at its most detailed level and also archives area weather data. We plan to expand the capabilities of our system and to include multimodal data sources from both Oregon and Washington. We provide access to the system by password. To request access to the system, click on the Request Account link in the left.

FIGURE 4 Sempia volume plot for I-5 North Geing Street loop detector station, March 24, 2005.
Portal today...
# Freeway Data Sources

<table>
<thead>
<tr>
<th>Data</th>
<th>Agency</th>
<th>Detection</th>
<th>Date Ranges</th>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed, Volume, Occupancy</td>
<td>ODOT</td>
<td>Loops, Radar</td>
<td>2004- (loops) ~2014- (radar)</td>
<td>Plots and download in UI</td>
</tr>
<tr>
<td>Travel Time</td>
<td>ODOT</td>
<td>Bluetooth</td>
<td>~2014</td>
<td>Database only</td>
</tr>
<tr>
<td>Speed, Volume, Occupancy</td>
<td>WSDOT</td>
<td>Loops, Radar</td>
<td>~2012</td>
<td>Plots and download in UI</td>
</tr>
<tr>
<td>VMS, VAS signs</td>
<td>ODOT</td>
<td>n/a</td>
<td>~2014</td>
<td>Database only</td>
</tr>
<tr>
<td>WIM</td>
<td>ODOT</td>
<td></td>
<td>~2011-2013</td>
<td>Demo site</td>
</tr>
<tr>
<td>Incidents</td>
<td>ODOT</td>
<td></td>
<td></td>
<td>Currently sample only</td>
</tr>
<tr>
<td>Vehicle length data (planned)</td>
<td>ODOT WA Cty</td>
<td>Loops, Radar</td>
<td>~2015 (planned)</td>
<td>Plots and download in UI</td>
</tr>
</tbody>
</table>
Portal UI: Freeway
# Arterial Data Sources

<table>
<thead>
<tr>
<th>Type of Data</th>
<th>Agency</th>
<th>Detection</th>
<th>Date Ranges</th>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Travel Time</td>
<td>ODOT</td>
<td>Bluetooth</td>
<td>~2014-</td>
<td>Database only</td>
</tr>
<tr>
<td>Travel Time</td>
<td>City of Portland</td>
<td>Bluetooth</td>
<td>~2012-</td>
<td>Plots in UI</td>
</tr>
<tr>
<td>Arterial Volume</td>
<td>City of Portland</td>
<td>Loops</td>
<td>~2014-</td>
<td>Plots and download in UI</td>
</tr>
<tr>
<td>Arterial Speed, Volume</td>
<td>Clark County</td>
<td>n/a</td>
<td>~2014-</td>
<td>Plots and download in UI</td>
</tr>
<tr>
<td>Traffic Signal Data</td>
<td>City of Portland</td>
<td>TransSuite system (incl. MOE, SCATS)</td>
<td>~2014-</td>
<td>Database Only; UI in 2015</td>
</tr>
<tr>
<td>Traffic Signal Data (planned)</td>
<td>Clark County</td>
<td>ATMS.Now</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Portal UI: Arterial
Portal UI: Travel Time

Bluetooth Page

- Bluetooth Travel Times
- Date Range: 02/01/2015 to 02/01/2015
- Time Range: Start: 60:00 to End: 23:59
- Segment: Start Station: Powell & 8th, End Station: Foster & 82nd
- Refresh Data

- Trip Distance (mi): 4.2
- Expected Travel Time (min): 7.2
- Number of Trips: 54
- Average Speed (mph): 22.92
- Average Travel Time (min): 13.59
- Standard Deviation (min): 7.81
- 85th Percentile Travel Time (min): 15.58
- 95th Percentile Travel Time (min): 33.63

Map of travel route from Powell & 8th to Foster & 82nd on 02/01/2015, with travel times displayed.

Graph showing travel time distribution from 02/01/2015 00:00 to 23:59, with data points and line graph indicating travel times.
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<th>Detection</th>
<th>Date Ranges</th>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passenger Counts, On-time Performance</td>
<td>TriMet</td>
<td>AVL/APC</td>
<td>~2012</td>
<td>Plots/map in UI</td>
</tr>
<tr>
<td></td>
<td>C-Tran</td>
<td>AVL/APC</td>
<td>~2015</td>
<td>Plots/map in UI</td>
</tr>
</tbody>
</table>
Portal UI: Transit

Weekday service during all service times

Performance Metrics

- TriMet Segment Load
- TriMet Utilized Capacity
- TriMet Stop activity
- TriMet Stop on-time performance

Weekday service during PM Peak service times

Performance Metrics

- TriMet Segment Load
- TriMet Utilized Capacity
- TriMet Stop activity
- TriMet Stop on-time performance

Stop ID 10428 — NE Weidler & 18th

Route: 17
Direction: To Barbur & 27th
Route: 77
Direction: To Troutdale

Load Map
## Other Data Sources

<table>
<thead>
<tr>
<th>Type of Data</th>
<th>Agency</th>
<th>Detection</th>
<th>Date Ranges</th>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weather</td>
<td>NOAA</td>
<td>Airports (Pdx, Hillsboro, Aurora)</td>
<td>~2004-</td>
<td>Plots of PDX data and downloads in UI</td>
</tr>
<tr>
<td>DEQ Air Quality (Portland Observatory)</td>
<td>DEQ</td>
<td>DEQ</td>
<td>~2014</td>
<td>Database only</td>
</tr>
<tr>
<td>Bike Counts</td>
<td>City of Portland</td>
<td>Loops</td>
<td>~2014-</td>
<td>Plots and download in UI (Stations page)</td>
</tr>
<tr>
<td>Bike Counts</td>
<td>BikePed Portal</td>
<td>Automated detection</td>
<td>~2015</td>
<td>Plots and download in UI</td>
</tr>
<tr>
<td>Parking (planned)</td>
<td>Port of Portland</td>
<td></td>
<td>~2015</td>
<td>Database only</td>
</tr>
</tbody>
</table>
Bike-Ped Portal System Architecture

Count Data Sources

- Data Uploaded via Web interface
- Semi-automated ftp uploads

Data Upload Interface

- Data Upload Script
- Meta-data
- Raw data
- Validated data

Automated QA/QC Checks

Rejected Data

Email with approval link (automated uploads)

Visual Validation Interface

Bike-Ped Portal Web Site

Bike-Ped Portal Database

Web Site
BikePed Prototype – Bike Counts

Ped/Bike Count Stations Page

Pedestrian and Bicycle Data

Type: bike
Station: Interstate & Shaver NB

Date Range: Start: 02/01/2012 | End: 02/01/2012

Time Range: Start: 00:00 | End: 23:50

Plot Charts
BikePed Prototype – Bike Counts

Ped/Bike Count Stations Page

Pedestrian and Bicycle Data

Type

Station

bike

Interstate & Shaver NB

Bike Count for Interstate & Shaver NB

Date: 02/01/2012–02/01/2012

Time Series of Bike Count for Interstate & Shaver NB

Total Count per Day

Jan ’12

Mar ’12

May ’12

Jul ’12

Sep ’12

Nov ’12

Jan ’13

Mar ’13

May ’13

Time: 00:00 – 23:59
BikePed Prototype - Peds

Ped/Bike Count Stations Page

Pedestrian and Bicycle Data

- Type: pedestrian
- Station: Division & 82nd
- Start: 02/01/2012
- End: 02/01/2012
- Time Range: 00:00 to 23:59

Total actuations:
- Actuation with delay (< 20):
  - 608
- Actuation with delay (21 - 40):
  - 116
- Actuation with delay (> 40):
  - 209

![Map of Ped/Bike Count Stations Page]
THANK YOU!

http://portal.its.pdx.edu
http://demo.portal.its.pdx.edu

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