



ITS



PORTAL 2.0: Towards a Next-Generation Archived Data User Service

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Portland State University

June 22, 2010

PORTAL Background

- ▶ PORTAL established 2004
 - Simple web interface, single data source
- ▶ Now – 2010
 - 1 TB data; large web site
 - Data: freeway, transit, weather, incident, freight, traffic counts
- ▶ Uses
 - Local transportation professionals
 - Regional Transportation Plan
 - Local news media
 - Research projects
- ▶ Initial Goals Achieved

Think the commute's bad now?
More jobs may mean more jams

Ramp meters, aid trucks, other traffic tools help, but adding more workers could quickly drive metro-area roads to capacity

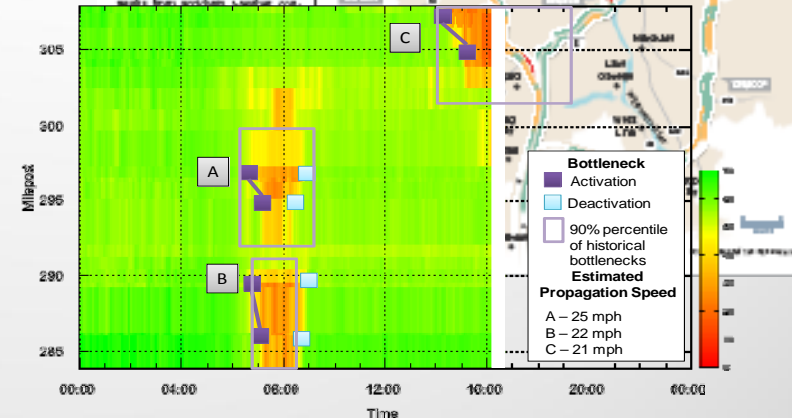
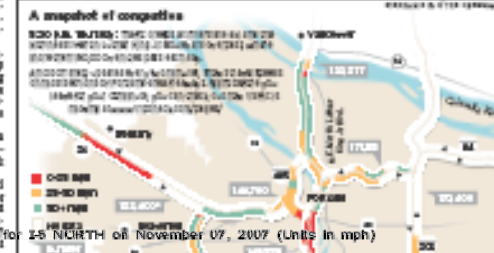
By JAMES HAYES

It was also on a recent weekday and the metro-area's first time the kind of congestion that can cause those work commutes. And with its status, which usually pulled up in a state truck and helped him to find a spare, saving a potential headache or frustration.

...but how long does it take, when it is used in it as a traffic control in a local city — here, as applied in the case, a few more lanes of traffic in a major corridor, such as the one that runs from the city to the airport, and the city's traffic police can be used to help the traffic flow in a more efficient way. However, it is not clear if the city has enough resources to do the job.

...and we all could be adopting to work in it.

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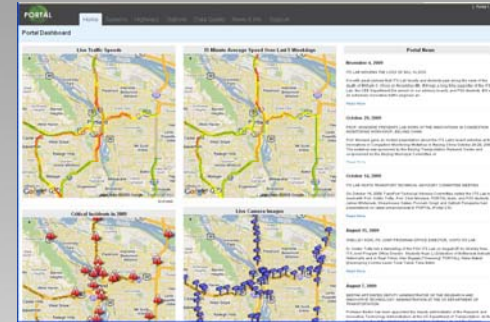
Data Provided by ODOT | Portland State University | PORTAL: portal.its.pdx.edu



Portal 2.0 Next Generation ADUS

- ▶ Objectives
 - Official Transportation Data Archive for the Portland–Vancouver Metropolitan Region
 - Produce tools and performance measures useful to local transportation professionals
 - Explore new, innovative uses of data
- ▶ Funding
 - TransPort MTIP (OR), RTC (WA), OTREC, NSF, FHWA
- ▶ Updated Interface
- ▶ Data Quality Enhancements

Portal 2.0 Interface



- ▶ Wide variety of users; different needs and interests
 - Analysis or understanding of a current event (traffic managers)
 - Trending and forecast information (planners)
 - In-depth analysis (researchers)
- ▶ Design Principles
 - Intuitive, interactive, user-driven graphical interface
 - Good set of defaults and intuitive interface
 - User-driven selections and advanced options and customization
- ▶ Web 2.0 Interface
 - Adobe Flash, Google Maps
 - Effectively display results combining data from diverse sources
 - Functionality grouped by freeway subset (system, highway, station)

Tour of PORTAL 2.0

Portal 2.0

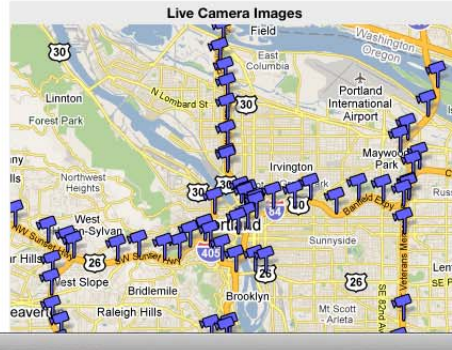
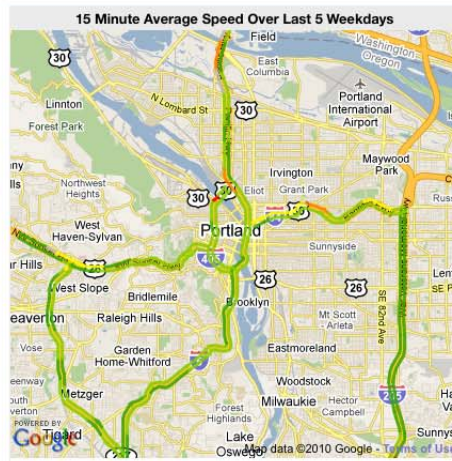
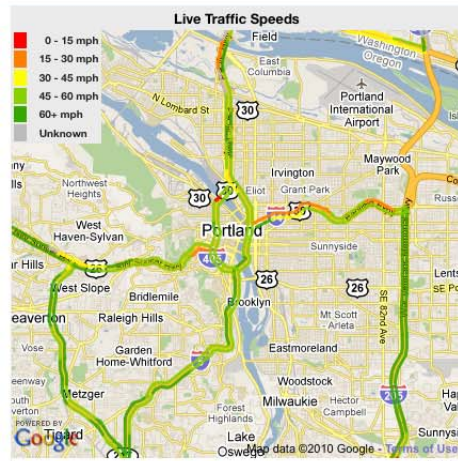
http://portal.its.pdx.edu/home/

Most Visited - Getting Started Latest Headlines

Portal 2.0

PORTAL Home Systems Highways Stations Data Quality News & Info Support

Portal Dashboard



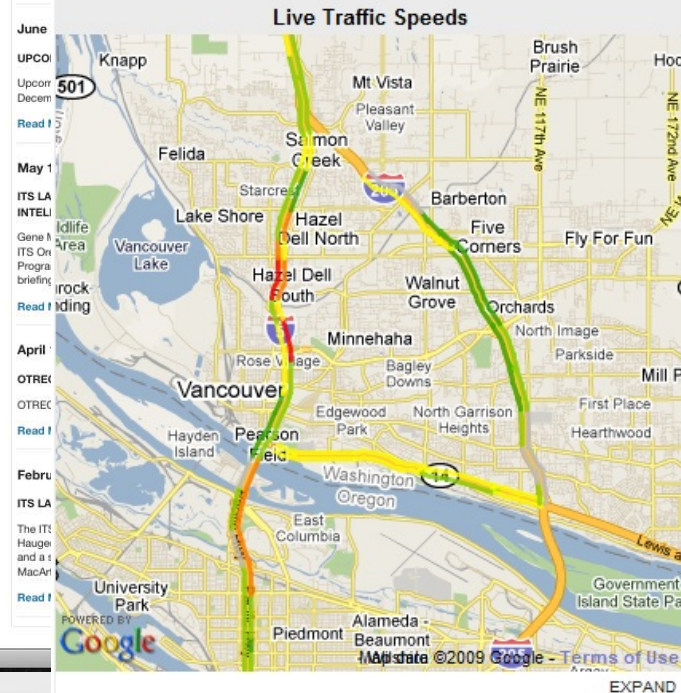
Portal News

June 16, 2010

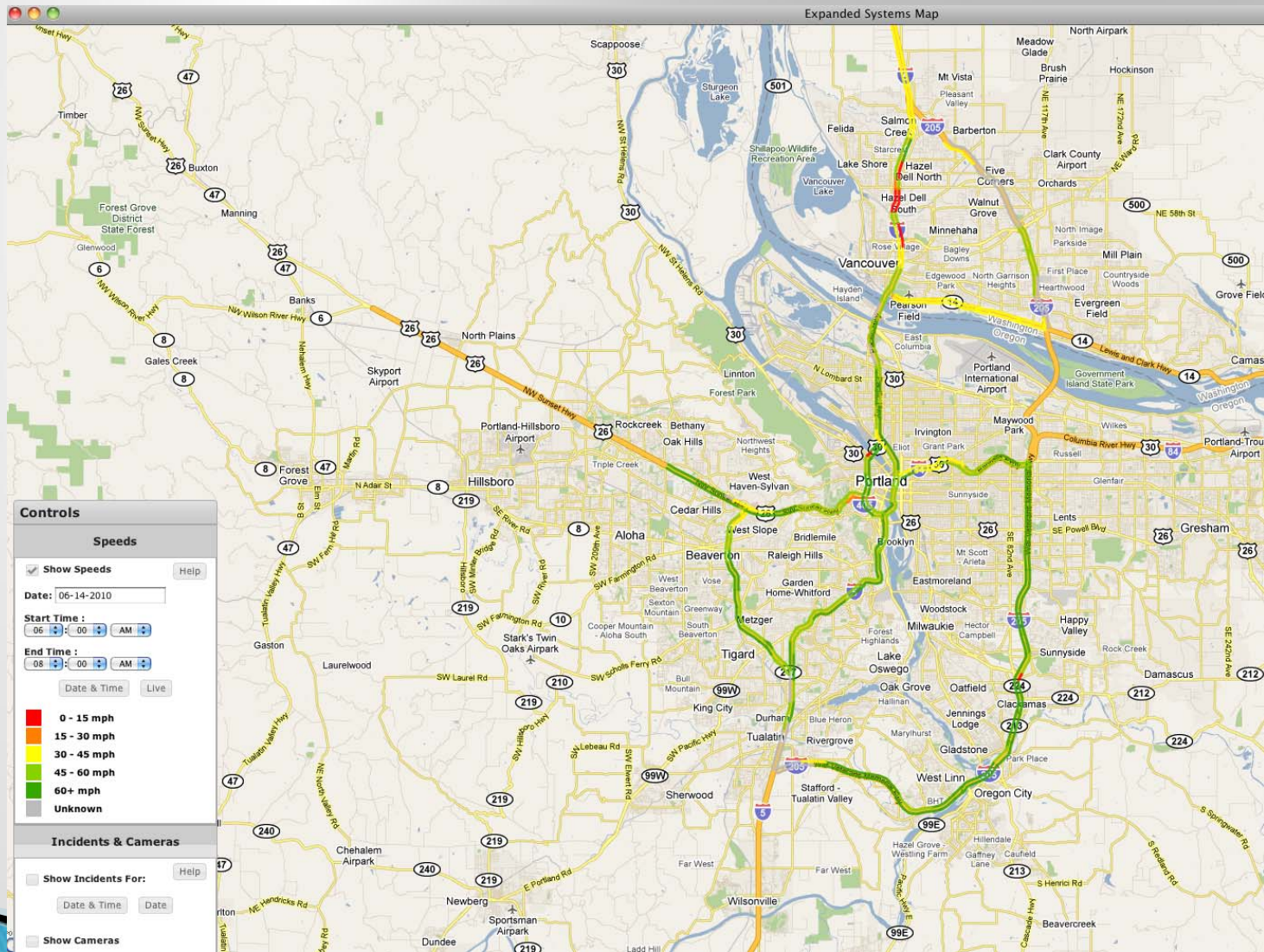
PORTAL 2.0 WEBINAR

Deena Platman and Kristin Tufte host a webinar on Portal 2.0. More information can be found [here](#).

[Read More](#)



Expanded Systems Map



Expanded Systems Map

Controls

Speeds

Show Speeds

Help

Date: 06-14-2010

Start Time :

06 : 00 AM

End Time :

08 : 00 AM

Date & Time

Live

- 0 - 15 mph
- 15 - 30 mph
- 30 - 45 mph
- 45 - 60 mph
- 60+ mph
- Unknown

Incidents & Cameras

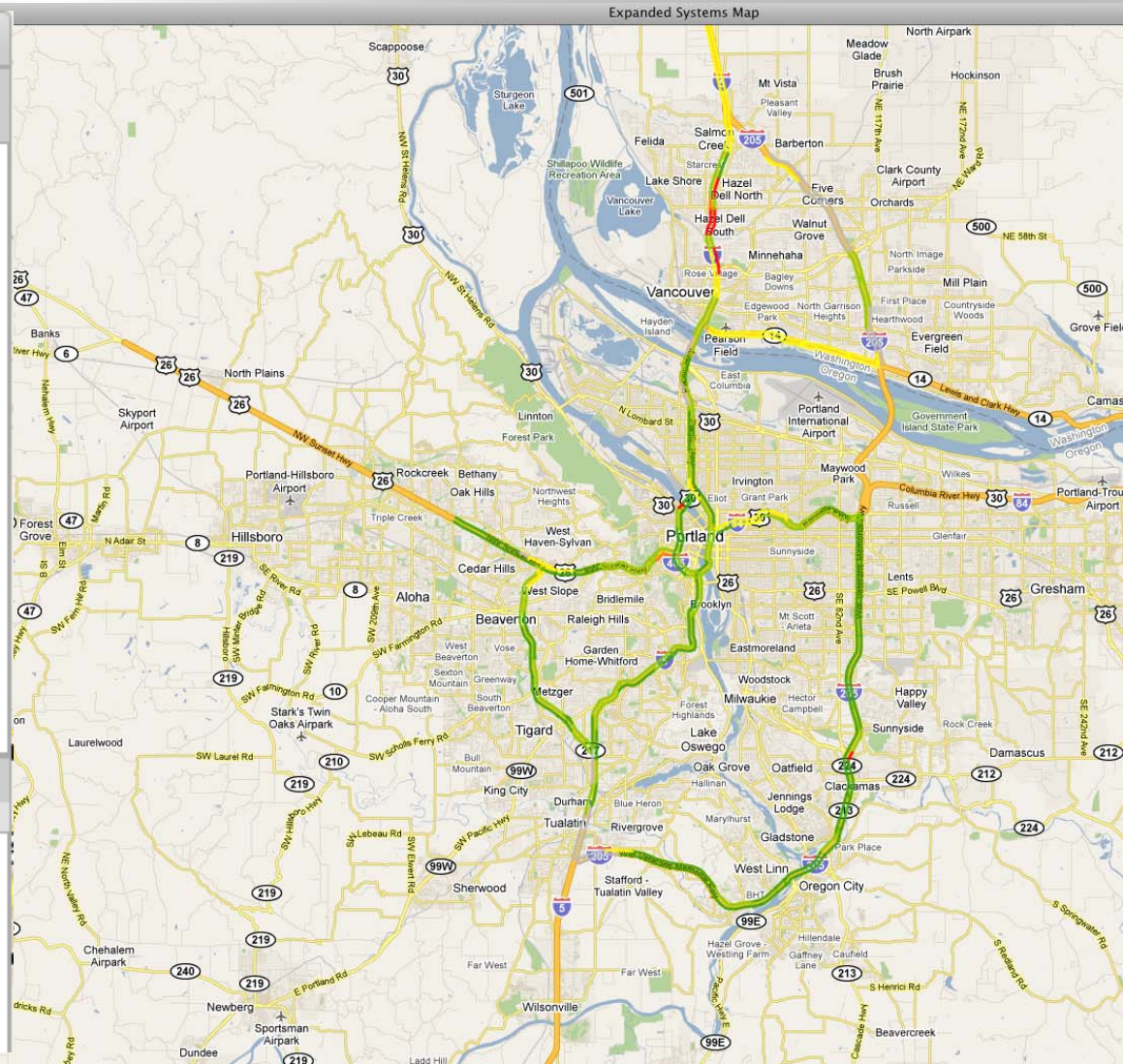
Show Incidents For:

Help

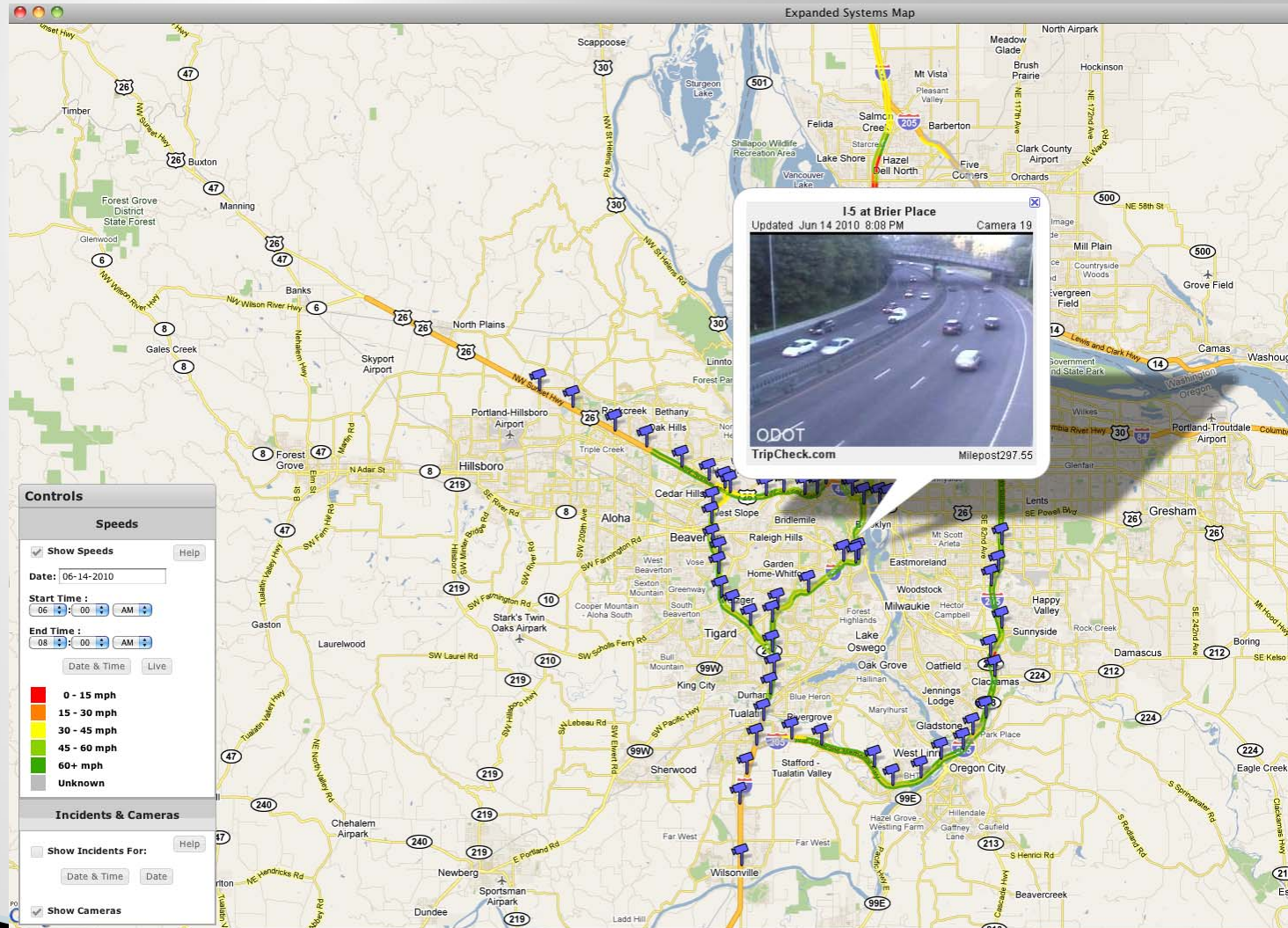
Date & Time

Date

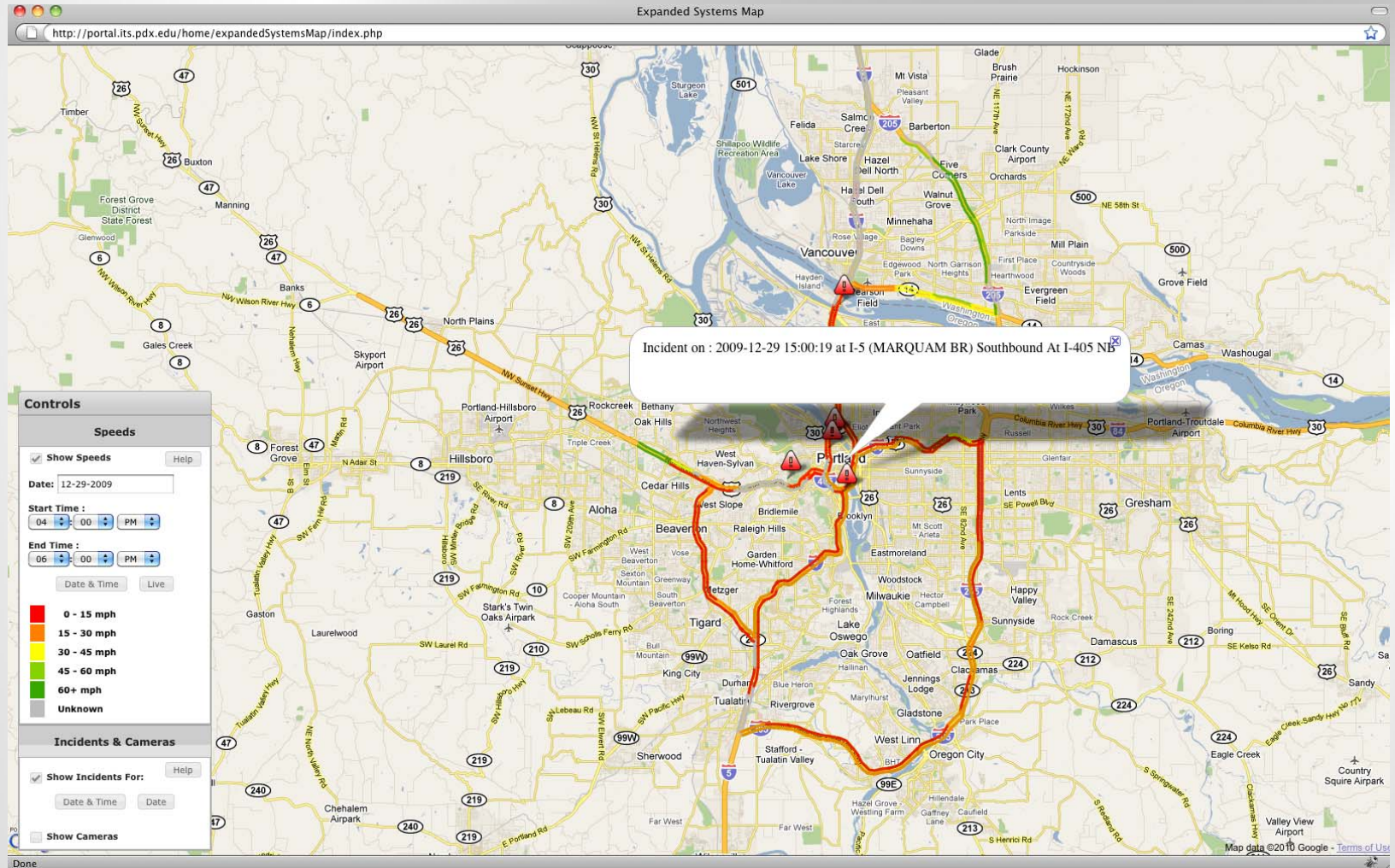
Show Cameras



Live Speeds & Cameras



Dec 29, 2009 – Incidents





Highways Page

Stations Page | PORTAL | Portland State University | Portland Oregon












http://portal.its.pdx.edu/portal2.1/index.php/highways

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Stations Page | PORTAL | Portland... | Portal 1.0

PORTAL Home Systems **Highways** Stations Data Quality News & Info Support

Portal Highway Systems

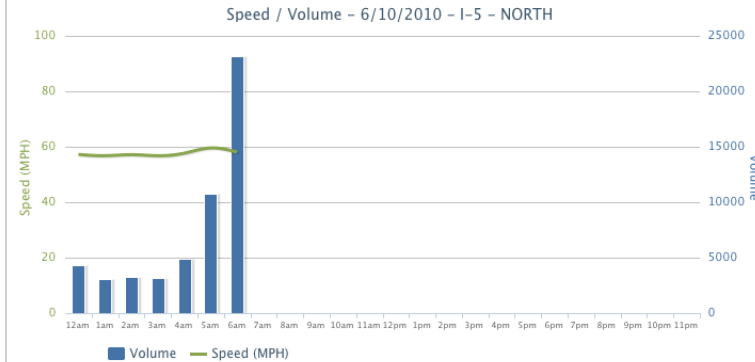
- Highways**
-  **I-5 - NORTH**
 -  **I-5 - SOUTH**
 -  **I-205 - NORTH**
 -  **I-205 - SOUTH**
 -  **I-405 - NORTH**
 - I-405 - SOUTH**
 -  **I-84 - EAST**
 - I-84 - WEST**
 -  **OR 217 - NORTH**
 -  **OR 217 - SOUTH**
 -  **US 26 - EAST**
 - US 26 - WEST**
 -  **US 26-MT HOOD HWY - EAST**
 -  **US 26-MT HOOD HWY - WEST**

Highway Summary

I-5 - NORTH

Daily Stats - Jun 10, 2010

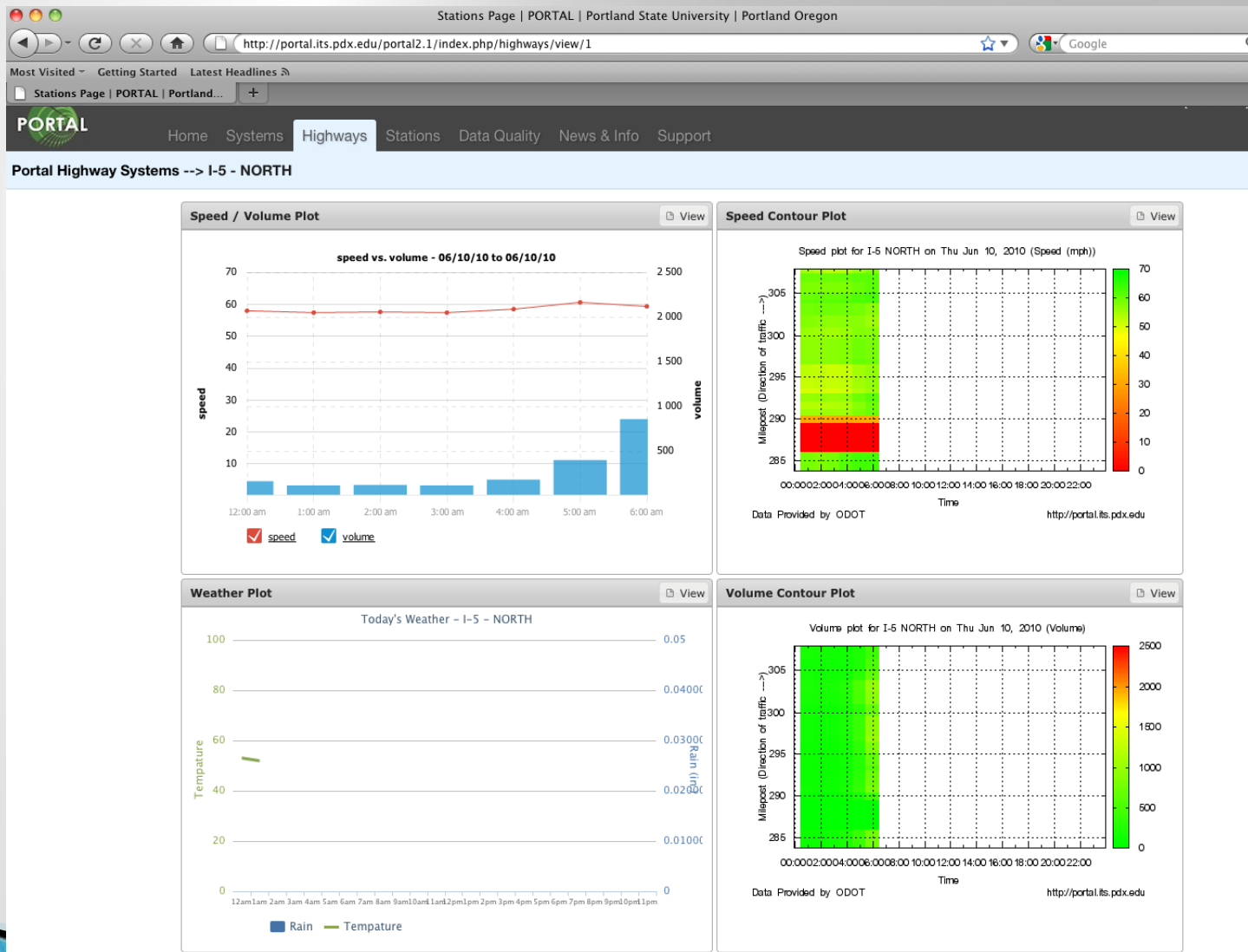
TOTAL VEHICLE MILES TRAVELED	TOTAL VEHICLE HOURS TRAVELED	AVG TRAVEL TIME	AVG TRAFFIC SPEED
43,960 Miles	756 Hours	21 Mins.	58 MPH
CONGESTION %	TT INDEX	95th TRAVEL TIME	95th TRAFFIC SPEED
Coming Soon	Coming Soon	21 Mins.	59 MPH



[Portland State University | Maseeh CECS | ITS Lab | Oregon DOT | Federal Highway Administration | National Science Foundation]



Highways – Expanded





Stations Page – Map

Stations Page | PORTAL | Portland State University | Portland Oregon

http://portal.its.pdx.edu/portal2.1/index.php/stations

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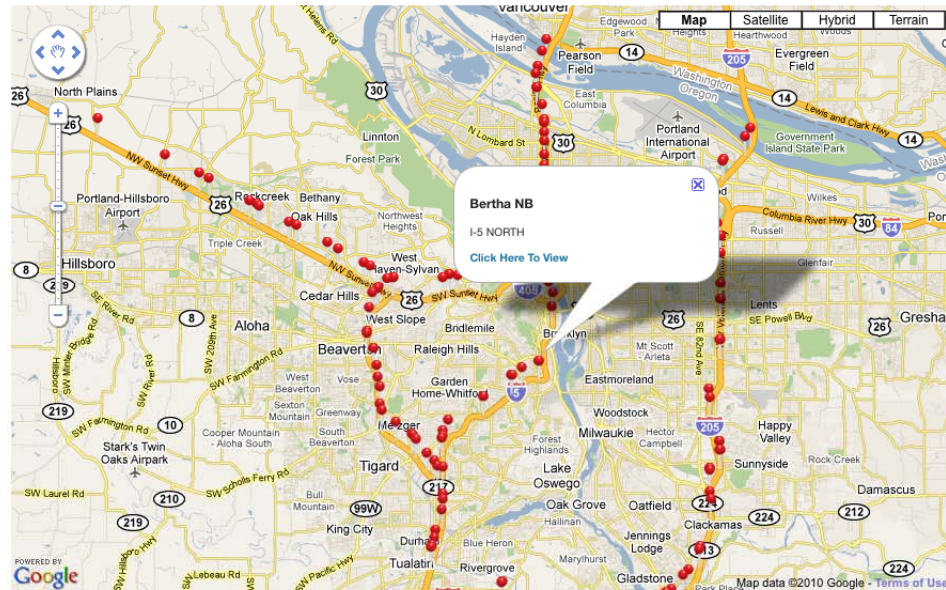
Stations Page | PORTAL | Portland... +

PORTAL Home Systems Highways **Stations** Data Quality News & Info Support

Region One Stations Page

Station Select: Go

Please, click on a pin to explore a station or select a station from the list in the upper left hand corner and click go.



[Portland State University | Maseeh CECS | ITS Lab | Oregon DOT | Federal Highway Administration | National Science Foundation]

This material is based upon work supported by the National Science Foundation under Grant No. 0236567. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.



Stations – Expanded

Stations Page | PORTAL | Portland State University | Portland Oregon
http://portal.its.pdx.edu/portal2.1/index.php/stations/view/1014

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Stations Page | PORTAL | Portland...
Home Systems Highways Stations Data Quality News & Info Support

Region One Stations Page --> Bertha NB Station Select: I-5 NORTH at Bertha NB Go

Station Information

Location Text:	Bertha NB
Highway:	I-5 NORTH
Number Of Lanes:	3
Gis Data:	
Mile Marker:	297.33
Length:	1.19

Estimated Monthly Volume and Reliability Conditions - 05/11/10 to 06/10/10

Month	Reliability (%)	Volume (Vehicles Per Lane Per Hour)
May	~3	~200
June	~18	~1400

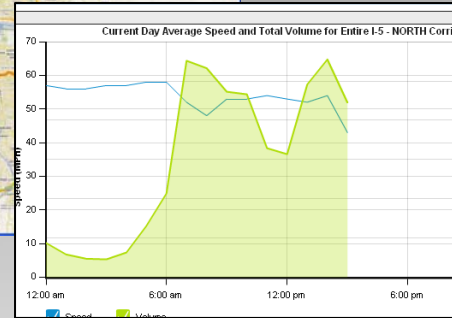
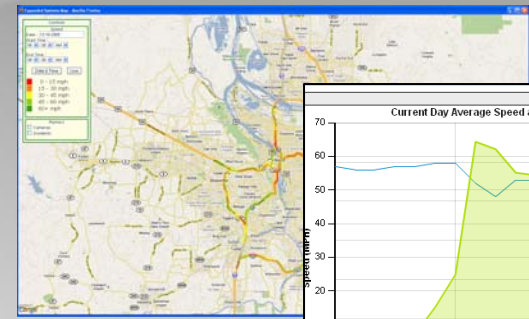
speed vs. volume - 06/9/10 to 06/10/10

Time	Speed (mph)	Volume (Vehicles Per Lane Per Hour)
06/09/10 00:00	~55	~200
06/09/10 01:00	~55	~200
06/09/10 02:00	~55	~200
06/09/10 03:00	~55	~200
06/09/10 04:00	~55	~200
06/09/10 05:00	~55	~200
06/09/10 06:00	~55	~200
06/09/10 07:00	~55	~200
06/09/10 08:00	~55	~200
06/09/10 09:00	~55	~200
06/09/10 10:00	~55	~200
06/09/10 11:00	~55	~200
06/09/10 12:00	~55	~200
06/09/10 13:00	~55	~200
06/09/10 14:00	~55	~200
06/09/10 15:00	~55	~200
06/09/10 16:00	~55	~200
06/09/10 17:00	~55	~200
06/09/10 18:00	~55	~200
06/09/10 19:00	~55	~200
06/09/10 20:00	~55	~200
06/09/10 21:00	~55	~200
06/09/10 22:00	~55	~200
06/09/10 23:00	~55	~200
06/10/10 00:00	~55	~200
06/10/10 01:00	~55	~200
06/10/10 02:00	~55	~200
06/10/10 03:00	~55	~200
06/10/10 04:00	~55	~200
06/10/10 05:00	~55	~200
06/10/10 06:00	~55	~200
06/10/10 07:00	~55	~200
06/10/10 08:00	~55	~200
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06/10/10 10:00	~55	~200
06/10/10 11:00	~55	~200
06/10/10 12:00	~55	~200
06/10/10 13:00	~55	~200
06/10/10 14:00	~55	~200
06/10/10 15:00	~55	~200
06/10/10 16:00	~55	~200
06/10/10 17:00	~55	~200
06/10/10 18:00	~55	~200
06/10/10 19:00	~55	~200
06/10/10 20:00	~55	~200
06/10/10 21:00	~55	~200
06/10/10 22:00	~55	~200
06/10/10 23:00	~55	~200
06/10/10 00:00	~55	~200

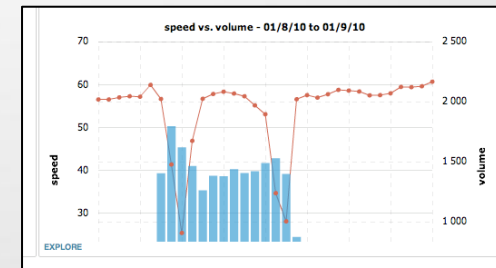
Transferring data from portal.its.pdx.edu...



Portal 2.0 Pages

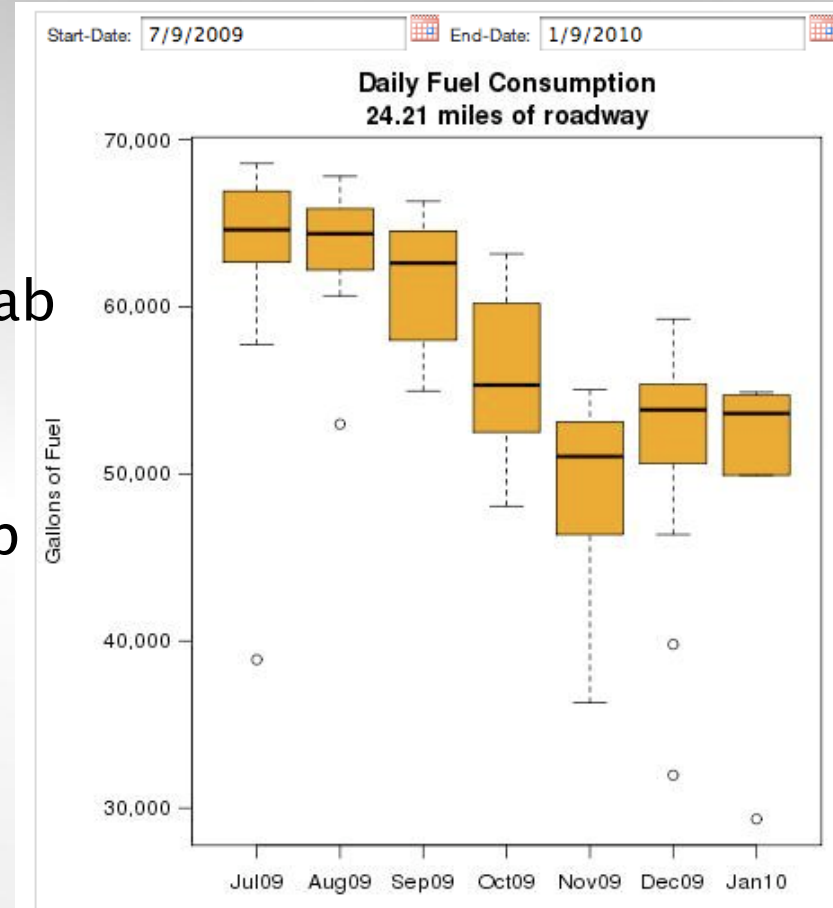


- ▶ Home: User-customizable landing page
- ▶ Systems: Performance of the system as a whole
- ▶ Highways: Tools for analyzing entire highways; will be updated to support user-selected corridors
- ▶ Stations: Tools for analysis of an individual station (a particular freeway location)
- ▶ Data Quality: Detectors producing suspicious data.
- ▶ News & Info: News and information about the Portal 2.0 project and team members
- ▶ Support: Documentation, publications, feedback, problem reports.



Custom APIs – R

- ▶ Easily integrate graphics from ITS Lab projects into Portal 2.0
 - Many projects use Portal data
 - R – primary graphics tool for ITS Lab
- ▶ Portal–R Framework
 - Researchers write graphical displays in R; no need to know web development
 - Displays semi–automatically integrated into Portal 2.0
 - “Static” plots become dynamic
 - Capitalize on the great work done by ITS Lab researchers



I-5 NB – Jul 09 – Jan 10

R program courtesy Alex Bigazzi



Current & Related Work

Select type of bus data to work with:
(please wait for choices to load)
Plot - Map

Map plot type:
Detailed map Total Boardings

Route: 14

Date: 2006-09-28

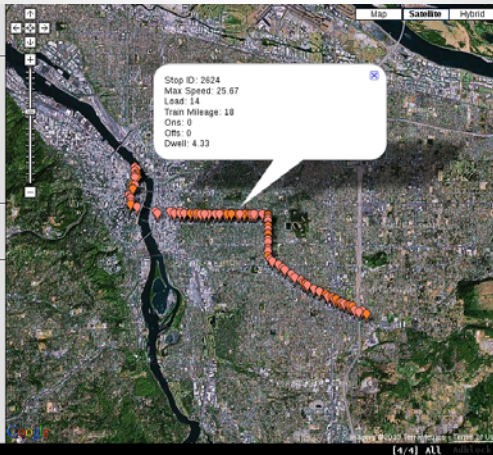
Time: 07:30:00

Speed range (MPH): 0 - 60

Process

Querying all stops...
Total number of stops: 1
Average speed: 1

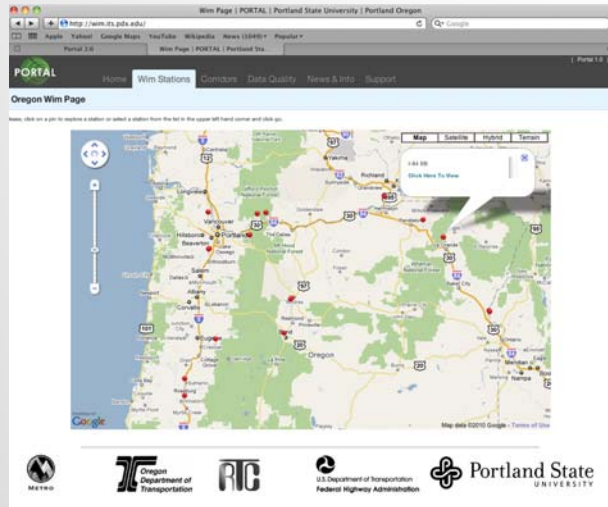
Key-Boardings:
0
1-5
6-10
11-20
20+



Read maps.gstatic.com

[4/4] All

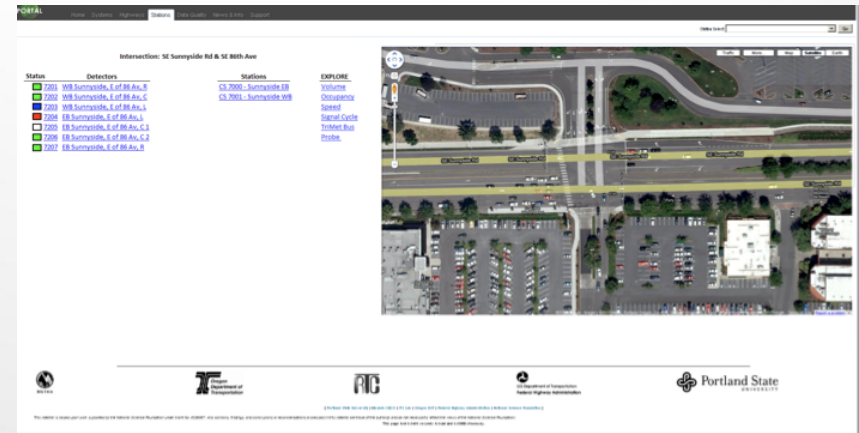
Integrate Transit Data



WIM Data Archive



Oregon Traffic Safety Data Archive



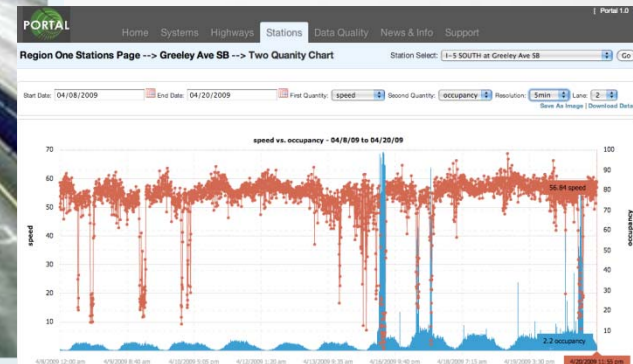
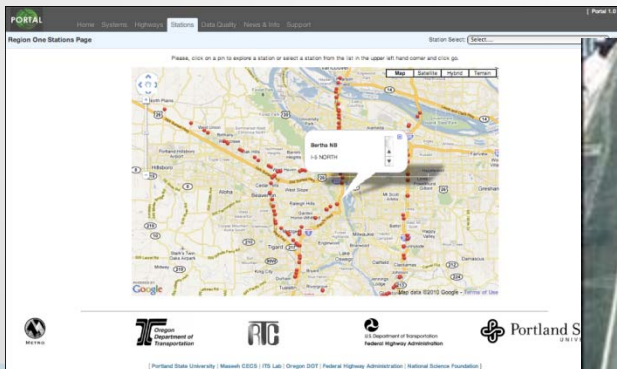
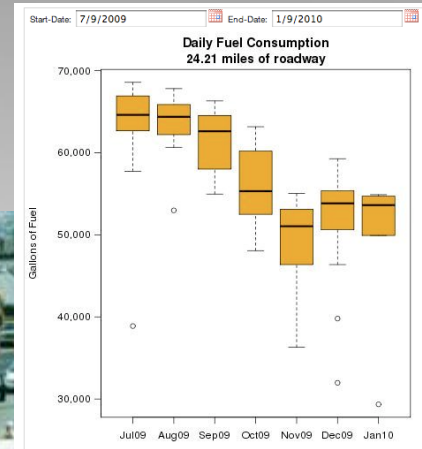
Integrate Arterial Data

Thank you!

▶ Next Steps

- Expansion to Vancouver, WA
- Arterial & Transit Data
- Sustainability/Green Metrics
- Bike/Ped Data

▶ <http://portal.its.pdx.edu>





Acknowledgments

- R.L. Bertini – ITS Lab and PORTAL founder
- Colleagues –
 - Chris Monsere, Miguel Figliozzi, Kelly Clifton, Ashley Haire, Portland State University
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 - Transport ITS Coordinating Committee
 - RTC (Southwest Washington Regional Transportation Council)
 - OTREC
 - City of Portland, Office of Transportation
 - Oregon Department of Transportation
 - TriMet
 - Federal Highway Administration
 - National Science Foundation
 - Oregon Engineering and Technology Industry Council