Multimodal Data Set Clean-up for
Portland Oregon Metropolitan Region

Data Set Description and Dictionary

Freeway Data

April 12, 2012

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1 Data Description

This document provides the data description for the PORTAL Freeway Data Set for the FHWA Test Data Set project submission. Data collection period is Sept 15, 2011 through Nov 15, 2011.

1.1 Freeway Loop Detector

The *Loop Detector Data* consists of 20-second speed, volume and occupancy data collected from dual-loop detectors installed in the main line lanes and on-ramps on the Portland-area freeways. Figure 1 visualizes the physical layout of the detector installations. Most mainline detectors are placed near on-ramps with most placed just upstream of the on-ramp as shown in Figure 1.

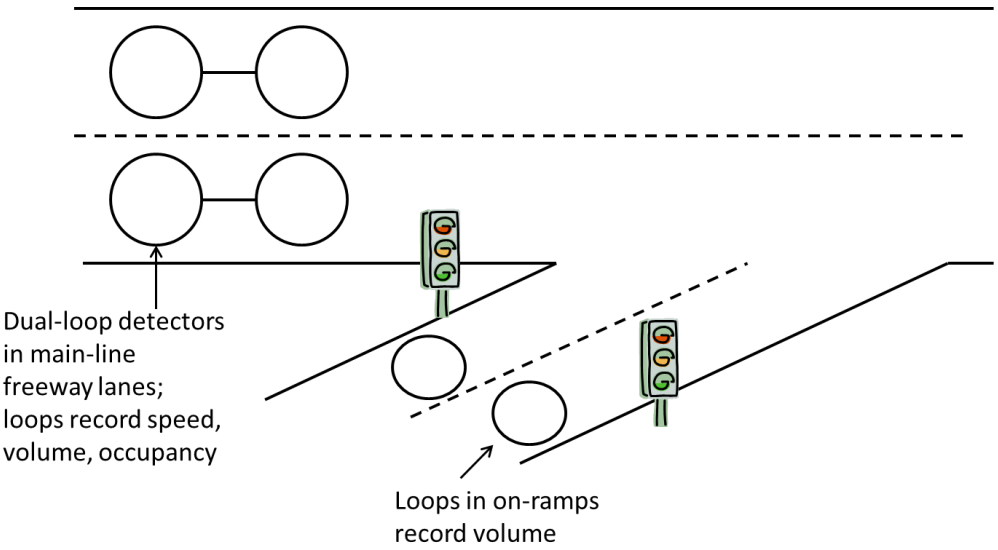

Figure 1 Loop Detector Physical Layout

1.1.1 Meta-Data (Detectors, Stations, Highways)

The freeway loop detectors are classified in a hierarchical organization consisting of detectors, stations and highways. Figure 2 shows a picture of the detector and station organization. A Detector refers to an individual loop detector. A station is a set of related loop detectors. Detectors are contained in Stations. In Portland, all installations use dual loop detectors (speed traps). Thus, a detector row in the detectors meta-data file refers to a single dual-loop detector. Each such dual-loop detector covers one lane and all lanes are covered by a detector. Two types of stations exist: one station for the mainline detectors (in the highway lanes) and one station for the detectors on the on-ramp itself. Figure 3 shows the location of the loop detectors on I-205.

1.1.2 Start and End Mileposts

The section of I-205 NB covered by this test data set is 10.09 miles long and ranges from the Sunnyside Road ramp at milepost 14.32 to milepost 24.41, approximately one mile past the end of the detection. The section of I-205 SB covered by this test data set is 12.01 miles long and runs from Sunnyside Road ramp at milepost 14.58 to milepost 26.59, approximately one mile past the end of the detection.

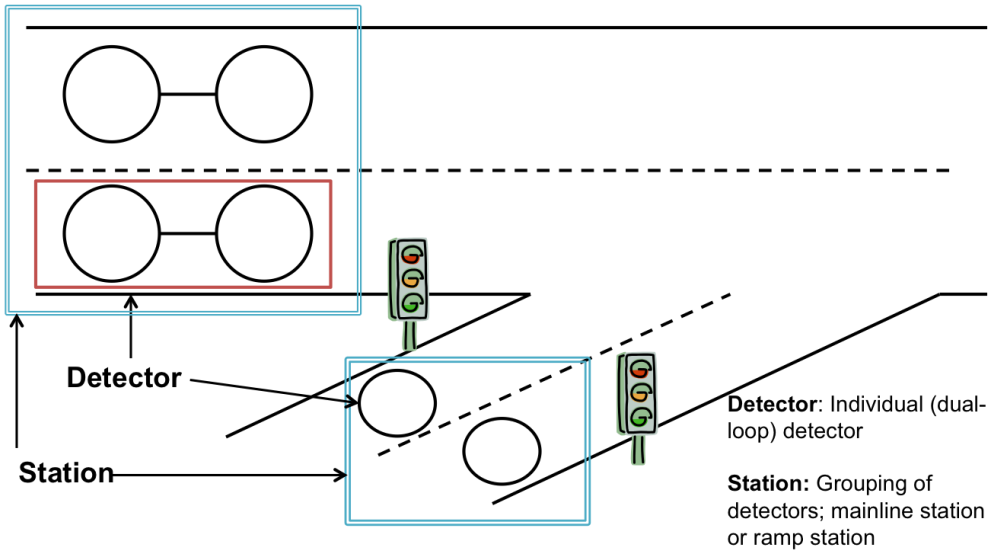

Figure 2 Detector, Station Hierarchy

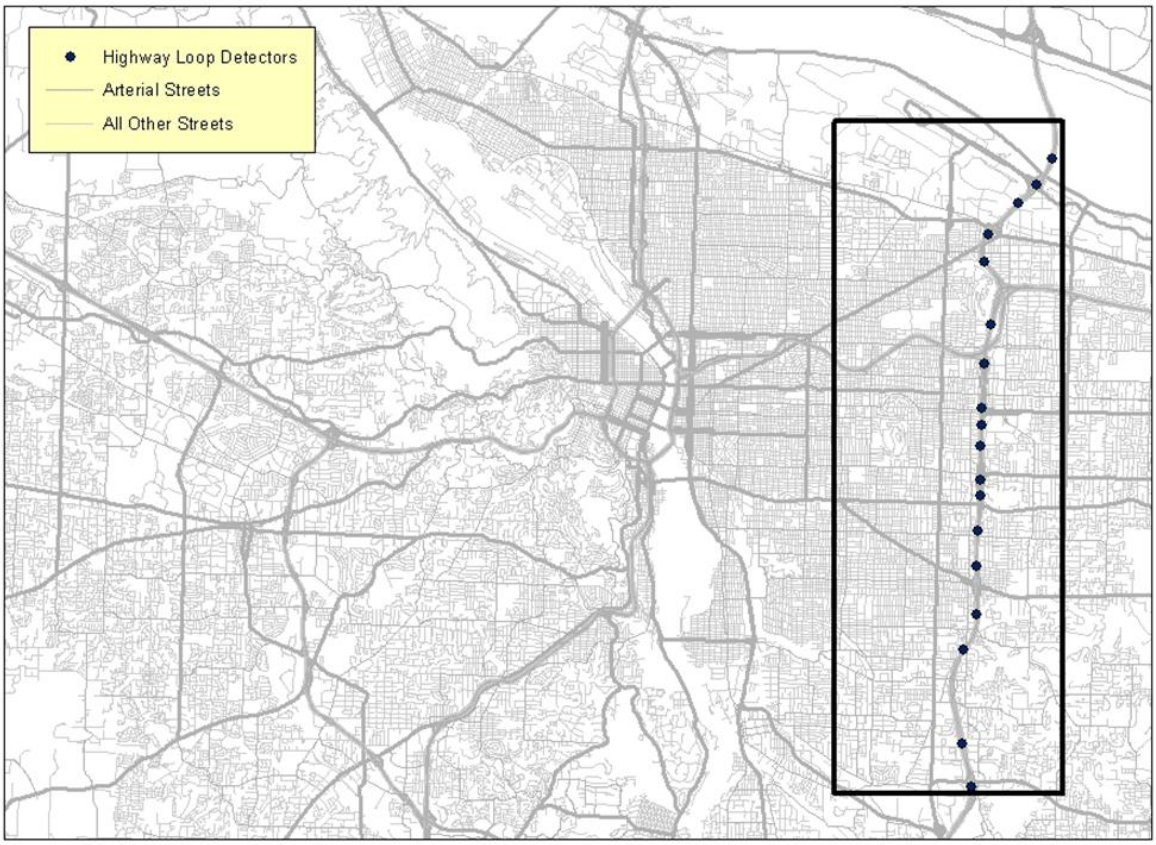

Figure 3 Freeway Loop Detector Locations

1.1.3 Data Quality Flags

Data quality flags in PORTAL are assigned using a set of tests developed at the Texas Transportation Institute. These tests are listed in Table 1. The tests apply to 20-second aggregated data. Each test includes a condition; data samples that satisfy that condition are considered improbable and may indicate a malfunction. For example, a report of a 20-second

count greater than 17, which corresponds to a flow of over 3000 vehicles/hour, is considered improbable.

The data quality flags appear as an integer field in each 20-second data record. The flags are represented using the bits of an integer. If a condition is true, the appropriate bit of the data quality flags value is set. The dqflags values can be computed by looking at the integer value and determining what bits in the integer are set to create that integer value and then mapping those bits to the appropriate DQ flag value. For example, if the integer value is 5, then bits 1 and 3 must be set, meaning that the DQ_MAXVOL and DQ_MAXSPD flags are set.

Table 1 Detector Configuration Tests: Conditions

Condition	Condition Name	Bit Position (Value)
Count > 17	DQ_MAXVOL	1 (1)
Occupancy > 95%	DQ_MAXOCC	2 (2)
Speed > 100 MPH	DQ_MAXSPD	3 (4)
Speed < 5 MPH	DQ_MINSPD	4 (8)
Speed = 0; Volume > 0	DQ_MVC_S0VGT0	5 (16)
Speed > 0; Volume = 0	DQ_MVC_SGT0V0	6 (32)
Occupancy > 0; Volume = 0	DQ_MVC_OGT0V0	7 (64)

1.1.4 Outages

Table 2 shows the long outages occurred during the period for the two-month data collection.

Table 2 Outages for Loop Detectors

Stationid	Location	Milepost	Period	Detectorids
1045	Sunnyside NB	14.32	9/17/2011 10:00 - 9/18/2011 11:00, 9/22/2011 9:00 – 9/22/2011 10:00, 10/7/2011 20:00 - 10/8/2011 6:00, 10/15/2011 2:00 - 10/15/2011 5:00, 10/19/2011 20:00 - 10/20/2011 4:00	1345, 1346, 1347, 1348
1049	Airport Way WB to SB	24.77	11/12/2011 1:00 – 11/12/2011 2:00	1345, 1346, 1347, 1348
1050	Airport Way EB to SB	24.66	11/12/2011 1:00 – 11/12/2011 2:00	1385
1052	Division SB	19.25	9/27/2011 8:00 - 10/4/2011 13:00	1401, 1402, 1403
1098	Johnson Creek SB	16.24	10/12/2011 18:00 - 11/7/2011 10:00	1730, 1731, 1732
1117	Powell to I-205 NB	19.4	9/20/2011 15:00 - 9/20/2011 17:00	1809, 1810, 1811
1125	Sunnyside SB	14.58	9/22/2011 9:00 – 9/22/2011 10:00	1856, 1857, 1858
1140	Columbia to I-205 NB	23.41	11/12/2011 1:00 – 11/12/2011 2:00	1941, 1942, 1943

1141	Columbia to I-205 SB	23.41	11/12/2011 1:00 – 11/12/2011 2:00	1945, 1946, 1947
1142	Glisan to I-205 NB	21.12	9/15/2011 18:00 - 11/15/2011 23:00	1949, 1950, 1951
5045	Sunnyside NB (on-ramp)	14.32	9/17/2011 10:00 - 9/18/2011 11:00, 9/22/2011 9:00 – 9/22/2011 10:00, 09/28/2011 10:00 – 9/28/2011 11:00, 09/28/2011 12:00 – 9/28/2011 13:00, 10/7/2011 20:00 - 10/8/2011 0:00, 10/8/2011 2:00 – 10/8/2011 3:00, 10/8/2011 5:00 – 10/8/2011 6:00, 10/15/2011 2:00 - 10/15/2011 5:00, 10/19/2011 21:00 - 10/20/2011 4:00	1350
5052	Division SB	19.25	9/27/2011 8:00 - 10/4/2011 13:00	1406
5098	Johnson Creek SB	16.24	10/12/2011 18:00 - 10/14/2011 22:00, 10/15/2011 2:00 - 11/7/2011 10:00	1735
5117	Powell to I-205 NB	19.4	9/20/2011 15:00 - 9/20/2011 17:00	1812
5125	Sunnyside SB	14.58	9/22/2011 9:00 – 9/22/2011 10:00	1861
5142	Glisan to I-205 NB	21.12	9/15/2011 18:00 - 11/15/2011 23:00	1952

1.1.5 Aggregation Calculations

Aggregation calculations are described a separate file AggregationAnalysis.pdf. To create length-based measures such as VMT, VHT, Delay, and Traveltime for an individual detector, a length is associated with each detector, as provided in the detectors.csv file . This length is used to calculate VMT, VHT, Delay and Traveltime. The length is calculated using the midpoint method and is the length from halfway to the nearest upstream detector to halfway to the nearest downstream detector.

1.2 Incident

The PORTAL incident data consists of two types of data: Incident data from the ODOT ATMS database and planned event data from the ODOT Trip-Check Traveler Information Portal (TTIP) information web site.

1.2.1 ODOT Incident Data

Incident data is received from the ODOT Advanced Transportation Management System (ATMS). Incident data is entered into the ATMS database by operators at the ODOT Traffic Management Operations Center (TMOC); several entries are created for each incident – an incident report, incident status changes and incident clearing. The incident data set provided is the result of processing the incident entries received from the ODOT ATMS; multiple incident entries created by the TMOC operators are processed and condensed into a single incident record. Thus, this processed data set contains one incident record per incident.

The processing of this data set to combine multiple entries for an incident into one incident record is now described. The processing adds three fields: duration, an 'unable to locate' flag, and a highway identifier and combines information from multiple incident entries. Some incident information changes from entry to entry—for example, the number of lanes affected by an incident may change as an incident is cleared from the mainline highway lanes to the shoulder.

The duration of an incident is defined as the difference between the incident confirm time and the "last update time" of the final entry for the incident. This determination of duration is subject to error as the final entry for an incident can be created after the incident is cleared; however, the final entry for an incident is almost always at the time of the clearing of the incident. An Unable To Locate ("UTL") flag is added to incident records based on the occurrence of the text "UTL" in the incident comment field. Finally, the highway id is added to incidents that occur on a major highway in the Portland area.

In addition to adding these three fields, fields such as incident lane information are combined from the multiple incident entries. Typically the processed data contains the 'most severe' information in any of the incident entries. The incident record contains the highest impact level from the multiple incident entries, the most severe lane impact, and the highest number of lanes affected. Flag fields in the incident record are marked true if the flag field is true for any incident entry.

1.2.2 TTIP Planned Event Data

The data in the Planned Event data set is defined as planned ODOT activities along a roadway. Typically these planned events are road construction or road maintenance. The entries may indicate delays and closures of roadway sections or may be informational only. Information for events in the Portland area is provided. Planned Event data is obtained from the TripCheck Traveler Information Portal web site (http://www.tripcheck.com/TTIPv2/).

1.3 Weather

The weather data comes from two sources: NOAA QCLCD data and RWIS station data.

1.3.1 NOAA QCLCD Data

The NOAA QCLCD data is obtained from the NOAA web site. Data for three locations are provided: KHIO (Portland-Hillsboro Airport), KPDX (Portland International Airport) and KTTD (Portland-Troutdale Airport). Data provided includes windspeed, temperature, humidity and visibility.

1.3.2 RWIS Station Data

This data is obtained from Road Weather Information System (RWIS) detection locations in the state of Oregon. Automatic weather stations provide weather at a given point alongside a given roadway. Since the station exists in a single location, it might not reflect the actual conditions of the road surface in the entire vicinity, especially if there are large variations in tree coverage and elevation. However, they are generally reliable and provide real-time information. The standard measurements are reported in metric scales.

Data reported includes temperature, windspeed, humidity, precipitation and several more. There are several RWIS stations near the selected corridor; weather for all is included: two on

the I-405 Fremont Bridge, two on the I-205 Glen Jackson Bridge, one on the I-5 Interstate bridge, one near Troutdale and one on US Hwy 26. Data for all is included. RWIS data is obtained from the TripCheck Traveler Information Portal web site (http://www.tripcheck.com/TTIPv2/).

1.4 GIS Files

A GIS file for the highways and streets in the Portland metropolitan region is provided. Additional GIS layers for the Portland Metropolitan region can be found at this link: http://www.oregonmetro.gov/rlis.

2 Data File Listing and Description

The following sections contains a listing and description of data files for the freeway and data dictionaries for the freeway data. In addition to the tables listed below, the ramp meter plans for ramps in the selected corridor are provided.

2.1 Freeway Loop Detector

Table 3 List of Freeway Loop Detector Data and Meta-Data Files

File Name	Primary Key	Description
freeway_loopdata.csv	timestamp, detectorid	Primary loop detector data table. Contains 20-second speed, occupancy, volume and data quality flags for the freeway data.
freeway_detectors.csv	detectorid	The detectors file contains meta-data for each detector in the data set. A detector is defined as a single dual-loop detector. Table 8 provides the data dictionary for the detectors table.
freeway_stations.csv	stationid	The stations file contains meta-data for each station in the data set. A station is a set of detectors at a particular location, for example all mainline detectors at a location, or all on-ramp detectors at a location. Table 9 provides the data dictionary for the detectors table.
highways.csv	highwayid	Meta-data describing highways in the Portland-Vancouver metropolitan region. Data set focuses on I-205 NB and SB; other highways are included for reference purposes. Table 10 provides the data dictionary for the highways table.
freeway_loopdata_5min.csv	timestamp, detectorid	5-minute aggregation of the freeway loop detector data.
freeway_loopdata_15min.csv	timestamp, detectorid	15-minute aggregation of the freeway loop detector data.
freeway_loopdata_1hr.csv	timestamp, detectorid	1-hour aggregation of the freeway loop detector data.
arterials.zip	N/A	Esri shapefile for highways and streets in the Portland region.

2.2 Incident

Table 4 List of Incident Data and Meta-Data Files

File Name	Primary Key	Description
incidents.csv	incidentid	Incidents from ODOT incident database.
plannedevent.csv	highwayid, start_mp, start_time	Planned ODOT activities along a roadway; primarily construction and maintenance events.

2.3 Weather

Table 5 List of Freeway Loop Detector Data and Meta-Data Files

File Name	Primary Key	Description
pdx_weather.csv	stationid, reporttime	Quality Controlled Local Climatological data (QCLCD) Weather from NOAA.
rwis_weather.csv	head_id, head_date	The ODOT Remote Weather Information System (RWIS) provides automated weather collection from a number of fixed locations within the state of Oregon

3 Data Dictionaries

3.1 Freeway Loop Detector

In the Freeway Loop Detector file (freeway_loopdata.csv) and the aggregation files (freeway_loopdata_5min.csv, freeway_loopdata_15min.csv and freeway_loopdata_1hour.csv) dates and times are represented with a timestamp with time zone. The timestamp is the timestamp of the local (Portland) time and includes an indicator of time zone. An example timestamp is: 2011-09-01 04:39:40-07. The -07 at the end of this timestamp indicates UTC-07 or Pacific Daylight Time (PDT). Time zones in the data set are -07 for UTC-07 (PDT) and -08 (Pacific Standard Time (PST)). The data in the data set spans from September 15, 2011 through November 15, 2011. Daylight savings time was in effect through 2 AM PDT November 6, 2011. At this point the time zone changes from UTC-07 (PDT) to UTC-08 (PST). The time zone flags are visible in the text string in the .csv files. When displaying data in Microsoft Excel, the time zone flags are not visible. In addition, default Excel formatting does not display the full timestamp. It is recommended to use the custom format: m/d/yy h:mm:ss for displaying timestamp cells in Microsoft Excel.

Table 6 Data Dictionary for PORTAL Primary Freeway Loop Data File (freeway_loopdata.csv)

Attribute Name	Attribute Type	Description
detectorid	smallint	Id of the detector (key)
starttime	timestamp with time zone	Start of the 20-second interval which is represented by this data (key)

volume	smallint	20-second count for this detector.
speed	smallint	20-second average speed for this detector. Speed is measured by speed-trap (dual-loop) detectors. (mph)
occupancy	smallint	20-second average occupancy for this detector. (percent between 0 and 100)
status	smallint	Detector failure management data status from the ODOT ATMS. See Table 7 *ODOT ATMS Status Flag Descriptions* below for values and definitions.
dqflags	smallint	Representation of data quality flags. Flags described in Section 1.1.3.

Sample

Attribute Name	Example 1	Example 2
detectorid	1311	1001
starttime	2011-09-01 04:39:40-07	2011-09-01 00:06:40-07
volume	0	3
speed	0	55
occupancy	0	4
status	2	2
dqflags	8	0

Table 7 ODOT ATMS Status Flag Descriptions

Value	Status	Data	Description
0	Inhibited	None	A higher level failure (controller, comm) is inhibiting the detector from providing data
1	Disabled	None	The detector has been disabled by the Operator
2	OK	OK	The detector has passed all of the threshold tests.
3	Suspect	OK	The detector has failed the threshold test less than a predetermined number of consecutive periods and is deemed "suspect". Data is considered "good" from suspect detectors.
4	Soft Failed	None	The detector has failed the threshold test a predetermined number of consecutive periods. A "Soft Failed" detector must pass the threshold test a predetermined consecutive number of times to automatically be deemed "OK".
5	Hard Failed	None	The detector has either been "Soft Failed" for a set number of consecutive periods or has failed the threshold test a set number of times during the day. "Hard Failed" detectors will automatically recover but only after a significant number of consecutive "good" data conditions. Typically this is set to what amounts to 15 minutes.

Table 8 Data Dictionary for PORTAL Detectors Table (freeway_detectors.csv)

Attribute Name	Attribute Type	Description
detectorid	smallint	Id of the detector (key)

highwayid	smallint	Id of the highway on which the detector resides.
milepost	real	Detector location milepost.
locationtext	text	Textual description of the detector location.
detectorclass	smallint	Detector class: 1 – Mainline; 2 – HOV; 3 – Unknown; 5 - On Ramp
lanenumber	smallint	Lane in which the detector resides. In this data set, Lane 1 indicates the left-hand (high-speed) lane.
stationid	smallint	Id of the station associated with this detector.

Sample

Attribute Name	Example 1	Example 2
detectorid	1345	1346
highwayid	3	3
locationtext	Sunnyside NB	Sunnyside NB
detectorclass	1	1
lanenumber	1	2
stationid	1045	1045

Table 9 Data Dictionary for PORTAL Stations Table (freeway_stations.csv)

Attribute Name	Attribute Type	Description
stationid	smallint	Id of the station (key). Station Id Naming Conventions: 1000's mainline stations; 2000s HOV lanes; 5000's on-ramp stations
highwayid	smallint	Id of the highway on which the station resides.
milepost	real	Station location milepost.
locationtext	text	Textual description of the station location.
upstream	smallint	Id of the closest upstream station; 0 if no upstream station.
downstream	smallint	Id of the closest downstream station; 0 if no downstream station.
stationclass	smallint	Detector class: 1 – Mainline; 2 – HOV; 3 – Unknown; 5 - On Ramp
numberlanes	smallint	Number of lanes at this station. (One Detector for each lane.)
latlon	text	Latitude/longitude of station location separated by commas.
length_mid	real	Length associated with this station using the midpoint method. Length used for aggregate calculations. (Stations associated with ramps do not have lengths associated with them.) (miles)

Sample

Attribute Name	Example 1	Example 2

stationid	1045	1046
highwayid	3	3
milepost	14.32	16.2
locationtext	Sunnyside NB	Johnson Cr NB
upstream	1124	1045
downstream	1046	1047
stationclass	1	1
numberlanes	4	3
latlon	45.43324,-122.565775	45.45322,-122.572585
length_mid	0.94	1.89

Table 10 Data Dictionary for PORTAL Highways Table (highways.csv)

Attribute Name	Attribute Type	Description
highwayid	smallint	Id of the highway (key)
shortdirection	character (1)	One character representing the direction of the highway
direction	text	Direction of this highway segment.
highwayname	text	Name of the highway (does not include direction)

Sample

Attribute Name	Example 1	Example 2
highwayid	1	2
shortdirection	N	S
direction	NORTH	SOUTH
highwayname	I-5	I-5

Table 11 Data Dictionary for PORTAL Aggregation Tables (freeway_loopdata_5min.csv, freeway_loopdata_15min.csv, freeway_loopdata_1hr.csv)

This table provides a description for the three aggregation tables included in the data set (5-min, 15-min and 1-hr). All three files have the same attributes. Information about the timestamp field is provided at the start of Section 3.1.

Attribute Name	Attribute Type	Description
detectorid	smallint	Id of the detector (key)
starttime	timestamp with time zone	Start time of the time interval represented by this data. (key)
volume	smallint	5-minute, 15-minute, 1-hour volume for this detector.
speed	real	5-minute, 15-minute, 1-hour average speed for this detector. (mph)
occupancy	real	5-minute, 15-minute, 1-hour average occupancy for this detector. (percent)
countreadings	smallint	Count of readings for this detector in the 5-minute, 15-minute, 1-hour interval. This field represents the

		number of readings received from this detector during the time interval. We expect 15 readings in a 5-minute period; however, countreadings could be less than 15 due to communication errors.
vmt	double precision	5-minute, 15-minute, 1-hour vehicle miles travelled for this detector. (miles)
vht	double precision	5-minute, 15-minute, 1-hour vehicle hours travelled for this detector. (hours)
delay	double precision	5-minute, 15-minute, 1-hour delay for this detector. (minutes)
traveltime	double precision	5-minute, 15-minute, 1-hour travel time for this detector. (minutes)

Sample

Attribute Name	Example 1	Example 2
detectorid	1167	1166
starttime	2009-02-2823:55:00-08	2009-02-2823:55:00-08
volume	68	16
speed	57.88	65.25
occupancy	4.87	1
countreadings	15	15
vmt	131.24	30.88
vht	2.27	0.47
delay	0.07	0
traveltime	2	1.77

3.2 Incident

Table 12 Data Dictionary for PORTAL Incident Data File (incidents.csv)

Incidents for the entire region (Multnomah, Clackamas and Washington counties) are included as construction on adjacent highways may affect performance on the I-205 corridor.

Attribute Name	Attribute Type	Description
incidentid	integer	Incident Id
incidenttypeid	smallint	Incident type: 0 Unknown; 1 Accident; 2 Stall; 3 Debris; 4 Tow; 5 Construction; 6 Congestion; 7 Other Closure; 8 Other Incident; 9 Tag
detectiontypeid	smallint	Detection type: 0 Unknown; 1 Call Report; 2 Operator Detected; 3 All Purpose Incident Detection (APID) algorithm Detected; 4 Double Exponential Smoothing DES Detected; 5 Other. APID and DES are routines used to detect incidents from data collected from field devices.

impacttypeid	smallint	Impact type: 0 No Impact; 1 Low Impact; 2 Medium Impact, 3 High Impact, 4 Unknown
incidentlevel	integer	Incident level. 1 An incident with no injuries and no lanes blocked; 2 an incident with minor injuries and/or one lane blocked; 3 an incident or incident with or without serious injuries that blocks two or more lanes but does not shut down the freeway or interstate; 4 an incident or incident that completely blocks the freeway or interstate for more than two hours
starttime	timestamp without time zone	Confirmed time of the incident.
cometresponseflag	smallint	Indicates if ODOT incident response trucks dispatched. COMET is a legacy name for ODOT's incident response unit. (0=false, 1=true) (0=false, 1=true)
policeresponseflag	smallint	Indicates if police responded to incident. (0=false, 1=true)
fireresponseflag	smallint	Indicates if fire responded to incident. (0=false, 1=true)
hazmatresponseflag	smallint	Indicates if hazardous materials team responded to incident. (0=false, 1=true)
maintresponseflag	smallint	Indicates if maintenance responded. (0=false, 1=true)
regionmaintresponseflag	smallint	Indicates if regional maintenance responded. (0=false, 1=true)
sec2amaintresponseflag	smallint	Indicates if Section 2a maintenance responded. (0=false, 1=true) ODOT has divided Oregon into regions and districts (sections). A map is available here: http://www.oregon.gov/ODOT/TD/TDATA/gis/odotmaps.shtml#ODOT_Region_Maps
sec2bmaintresponseflag	smallint	Indicates if Section 2b maintenance responded. (0=false, 1=true)
sec2cmaintresponseflag	smallint	Indicates if Section 2c maintenance responded. (0=false, 1=true)
diversionflag	smallint	Flag to indicate diversion routes are used in the response plan. (0=false, 1=true)
countycodeid	integer	Indicates county id: 3 Clackamas, 26 Multnomah, 34 Washington
citycodeid	integer	Indicates city id (see City Ids and Names table below)
primaryroute	character varying(40)	Textual description of primary route on which the incident occurred.
primarymilepost	real	Milepost on primary route where incident occurred.
secondaryroute	character	Textual description of secondary route on which incident occurred.

	varying(40)	
secondarymilepost	real	Milepost on secondary route where incident occurred. If milepost 0, indicates no milepost for secondary route provided.
directiontypeid	integer	Direction of roadway on which incident occurred: 0 Unknown; 1 Northbound; 2 Southbound; 3 Eastbound; 4 Westbound
locationtypeid	smallint	Location of incident: 0 Unknown; 1 Freeway; 2 Connector; 3 Collector/Distributor; 4 Entrance Ramp; 5 Exit Ramp; 6 Arterial; 7 Intersection; 8 Bridge; 9 Tunnel; 10 Other
locationtext	character varying(140)	Textual description of incident location.
numlanesaffected	smallint	Maximum number of lanes affected by the incident.
affectedlanetypeid	smallint	Type of lanes affected: 0 None; 1 Left Lanes; 2 Right Lanes; 3 Center Lanes; 4 All Lanes; 5 Off Road Left; 6 Off Road Right; 7 Left Shoulder; 8 Right Shoulder; 9 Gore area (left); 10 Gore area (right)
guardraildamage	smallint	Flag indicating if guardrail was damaged. (0=false, 1=true)
pavementdamage	smallint	Flag indicating if pavement was damaged. (0=false, 1=true)
signdamage	smallint	Flag indicating if sign damage occurred. (0=false, 1=true)
signaldamage	smallint	Flag indicating if signal damage occurred. (0=false, 1=true)
lightpoledamage	smallint	Flag indicating if light pole damage occurred. (0=false, 1=true)
structuredamage	smallint	Flag to indicate structure damage at incident(0=false, 1=true)
otherdamage	smallint	Flag to indicate other type of damage at incident. (0=false, 1=true)
fatalcount	smallint	Count of fatalities in incident.
pedestriancount	smallint	Count of number of pedestrians involved in incident.
railroadcount	smallint	Count of rail
automobilecount	smallint	Count of number of automobiles involved in incident.
motorcyclecount	smallint	Count of number of motorcycles involved in incident.
pickupvancount	smallint	Count of number of pickup trucks and vans involved in incident.
dotvehiclecount	smallint	Count of number of DOT vehicles involved in incident.
constvehiclecount	smallint	Count of number of construction vehicles involved in incident.
motorhomebuscount	smallint	Count of number of motor homes and busses involved in incident.
lighttruckcount	smallint	Count of number of light trucks involved in incident.
tractortrailercount	smallint	Count of number of tractor trailers involved in incident.
othervehiclecount	smallint	Count of number of other vehicles involved in incident.
estimatedend	timestamp without time	Estimated end time of the incident as determined by ODOT ATMS staff.

	zone	
hazardvehicleflag	smallint	0 = No hazardous material present, 1 = Hazardous material present
geolocatedflag	smallint	Flag to indicate that the incident has been located on the map. (0=false, 1=true)
lastupdatetime	timestamp without time zone	Last update time of the incident.
xposition	integer	Latitude
yposition	integer	Longitude
duration	time without time zone	Estimated duration of the incident. Duration is calculated as length of time between incident confirmed time (starttime) and last update time.
utlflag	smallint	Unable to locate flag.
highwayid	smallint	Identifier for the highway on which this RMS is located (see highways.csv)

City Ids and Names

City Id	City Name	City Id	City Name
18	Beaverton	2	North Plains
26	Canby	160	Oregon City
41	Cornelius	167	Portland
63	Estacada	183	Sandy
65	Fairview	192	Sherwood
68	ForestGrove	211	Tigard
75	Gladstone	214	Troutdale
83	Gresham	215	Tualatin
92	Hillsboro	229	West Linn
115	Lake Oswego	234	Wilsonville
130	Maywood Park	236	Wood Village
138	Milwaukie	270	Damascus
140	Molalla		

Sample

Attribute Name	Example 1	Example 2
incidentid	879980	881882
incidenttypeid	1	1
detectiontypeid	1	1
impacttypeid	0	0
incidentlevel	1	1

starttime	8/3/2011 17:24	8/29/2011 8:46
cometresponseflag	1	0
policeresponseflag	0	0
fireresponseflag	0	0
hazmatresponseflag	0	0
maintresponseflag	0	0
regionmaintresponseflag	0	0
sec2amaintresponseflag	0	0
sec2bmaintresponseflag	1	1
sec2cmaintresponseflag	0	0
diversionflag	0	0
countycodeid	26	26
citycodeid	130	167
primaryroute	I-205 N	I-205 N
primarymilepost	23.25	24.26
secondaryroute	PRESCOTT	AIRPORT WA
secondarymilepost	0	0
directiontypeid	1	1
locationtypeid	1	1
locationtext	23.25 I-205 EAST PORTLAND FREEWAY 064. Multnomah	24.26 I-205 EAST PORTLAND FREEWAY 064. Multnomah
numlanesaffected	0	0
affectedlanetypeid	0	0
guardraildamage	0	0
pavementdamage	0	0
signdamage	0	0
signaldamage	0	0
lightpoledamage	0	0
structuredamage	0	0
otherdamage	0	0
fatalcount	0	0
pedestriancount	0	0
railroadcount	0	0
automobilecount	0	0
motorcyclecount	0	0
pickupvancount	0	0
dotvehiclecount	0	0
constvehiclecount	0	0
motorhomebuscount	0	0
lighttruckcount	0	0
tractortrailercount	0	0

othervehiclecount	2	5
estimatedend	8/3/2011 21:24	8/29/2011 12:46
hazardvehicleflag	0	0
geolocatedflag	1	1
stationid	0	0
segmentid	3038	3041
jurisdictionid	300	300
lastupdatetime	8/3/2011 18:14	8/29/2011 9:08
xposition	-122566512	-122556264
yposition	45554532	45565832
duration	0:50:20	0:22:19
utlflag	0	0
highwayid	3	3

Table 13 Planned Event Data Dictionary (plannedevent.csv)

Planned events (typically construction) for the entire region are included as construction on adjacent highways may affect performance on the I-205 corridor.

Attribute Name	Attribute Type	Description
location_name	character(50)	State highway name
link_name	character(30)	Route, eg:US101
highwayid	integer	Internal (state) highway number (see highways.csv)
start_mp	float	Starting Milepoint
end_mp	float	Ending Milepoint
travel_direction	character(10)	North, south, east, west
start_lat	float	Geolocation Link start (in micro degrees)
start_lon	float	Geolocation Link start (in micro degrees)
end_lat	float	Geolocation Link end (in micro degrees)
end_lon	float	Geolocation link end (in micro degrees)
warningadvice	character(50)	Indicates 'alert' for informational only entries.
roadwork	character(50)	Indicates if construction or maintenance.
severity	character(20)	None, minor, major, etc
start_date	timestamp	Expected start time
clear_date	timestamp	Expected end time
odotcategoryid	character(2)	odotCategoryID ▪ A: Crash/Hazard ▪ C: Construction Work ▪ CH: Cancelled Herbicide Application ▪ CV: Commercial Vehicle Information ▪ H: Herbicide Application

		▪ I: Information ▪ M: Maintenance Work ▪ T: Traffic Congestion ▪ W: Weather Impact
odotcategorydescript	character(255)	ODOT category description
odotseverityid	integer	Severity ID ▪ 0 : Informational only ▪ 1 : Estimated delay < 20 minutes ▪ 2 : Estimated delay of 20 minutes - 2 hours ▪ 3 : Estimated delay of 2 hours or greater ▪ 4 : Closure ▪ 5 : Seasonal Closure ▪ 6 : Unconfirmed ▪ 7 : No to Minimum Delay ▪ 8 : Closure with Detour
odotseveritydescript	character(255)	Severity description.
highwaydirection	character(2)	Direction of travel (e.g. NS = north to south)
recordinitials	character(10)	Initials of data entry person
publicontact	character(255)	Responsible agency name
publicontactphone	character(20)	Agency phone number
infourl	character(255)	URL for additional information

Sample

Attribute Name	Example 1	Example 2
head_id	81995	112363
head_date	2011-10-1113:46:04	2011-10-1617:01:10
location_name	COLUMBIARIVER	WILLAMETTE
link_name	I-84	ORE58
id_alpha	2	18
offset1_mi_dec	64	56
offset2_mi_dec	64	70
travel_direction	east	east
start_lat	45.710545	43.616387
start_lon	-12151%	-12214%
end_lat	45.710545	43.520114
end_lon	-121.51058	-121.940344
trafficconditions		
warningadvice		
roadwork	roadconstruction	roadconstruction
severity	minor	minor
description		
start_date	2010-02-1912:07:00	2011-08-1806:00:00

clear_date	2012-02-1912:08:00	2011-10-1717:00:00
odotseveritydes		
odotcategoryid	C	C
odotcategorydescript	ConstructionWork	ConstructionWork
odotseverityid	1	1
odotseveritydescript	Estimateddelayunder20minutes	Estimateddelayunder20minutes
highwaydirection	WE	WE
recorderinitials	None	MLB
publiccontact	KimberlyDinwiddie	ChuckLemos,ProjectManager
publiccontactphone	(503)731-8281	(541)744-8080
infourl	http://www.oregon.gov/ODOT/HWY/REGION1/ColumbiaGorge/	None

3.3 Weather

Table 14 Data Dictionary for PDX weather Table (pdx_weather.csv)

Attribute Name	Attribute Type	Description
stationid	character(4)	Id of the weather station (KHIO, KPDX, KTTD)
reporttime	timestamp	Time of the report
windspeed	float	Wind Speed (miles per hour)
tempf	float	Temperature (Fahrenheit)
humiditypercent	integer	Relative Humidity (Percent)
weathertext	character(20)	Text describing the weather
skytext	character(20)	Text describing the sky conditions
precip	integer	Hourly precipitation totals (hundredths of an inch)

Sample

Attribute Name	Example 1	Example 2
stationid	KPDX	KHIO
reporttime	2011-10-0100:17:00-07	2011-10-0100:53:00-07
windspeed	4.35	2.61
tempf	57	56
humiditypercent	83	80
weathertext	Clear	Light Rain
skytext	Brokenclouds;Overcast	Overcast
precip	1	4

Table 15 Data Dictionary for RWIS (rwis_weather.csv)

In the RWIS data, certain values are used to represent null data. For example, the "null" value for current temperature (currtemp) is 1001 and the default value for barometric pressure (pressure) is 65535. Care should be taken with these null values when averaging columns.

Attribute Name	Attribute Type	Description

message_date	timestamp	Update time
location_name	character(50)	Location name
latitude	float	Latitude
longitude	float	Longitude
currtemp	float	Current temperature (.1° Celsius) (null value: 1001)
winddirection	character(10)	Compass direction, north, south, east, west, northwest, etc.
windspeed	float	Wind speed on 2 minute average (.1 meter/second) (null value: 65535)
precipitation	character(30)	Precipitation Descriptions: Initialized, Other, Unidentified, Snow, Light, Yes, NoCom, Fault, None, Rain, Unknown, NoData
humidity	character(5)	Relative humidity (percent) (null value: 101)
surfacewaterdepth	float	Depth of water on the roadway surface (millimeter) (null value: 255)
surfacetemperature	float	Pavement surface temperature (.1° Celsius) (null value: 1001)
dewpoint	float	Dewpoint temperature (.1° Celsius) (null value: 1001)

Sample

Attribute Name	Example 1	Example 2
message_time	2011-10-1821:45:00	2011-10-1821:46:00
location_name	BendParkway/NorthCanal(US97MP135)	LavaButte(US97MP151)
latitude	44077900	43908700
longitude	-121304290	-121356300
currtemp	7.4	4.7
winddirection	south	northeast
windspeed	1.8	0.4
precipitation	Yes	None
humidity	65%	72%
freezepoint	1001	1001
precipsituation	unknown	unknown
surfacewaterdepth	255	255
surfacetemperature	9.8	1001
pressure	65535	65535
dewpoint	1.1	2.2