



Applying GIS tools to your everyday work at ODOT

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Presentation Outline

- Overview of GIS Unit services
- Web tools
- GIS desktop tools
- Helpful Links
- Q&A



GIS Unit Services

- Enterprise GIS data steward
- Geospatial Data transformation
- Web mapping application (w/IS)
- Mobile GIS project development & support
- Knowledge resource & help for all GIS products and services
- Traditional GIS based maps & output



Web tools - TransGIS

- TransGIS: Enterprise web GIS tool and development framework
- Recently added tools:
 - Highway Summary Report
 - Attribute Query
 - Elevation, Slope & Aspect
 - Street View
- Heavily used tools:
 - Digital Video Log
 - Measure & Zoom to's



Web tools – TransGIS -Demo

- <http://wpdotappl21.odot.state.or.us/transgis/>
(Internal)
- <https://gis.odot.state.or.us/transgis/>
(External)



Web tools – FACS-STIP

- Map Interface
- Data to Go
- 1R Inventory Uploads
- http://wpdotappl21.odot.state.or.us/facs_stip/Home.aspx



Web tools – FACS-STIP (home)

Browser address bar: http://wpdotappl21.odot.state.or.us/facs_stip/Home.aspx

Browser tabs: FACS-STIP V3.0, un.org, Oregon Department of Transp..., Home - GIS Unit

Navigation: Convert, Select

Oregon Department of Transportation | **FACS-STIP Home** | Map Tools | Data To Go | Contact Us

Map Tools
Data To Go
User Guides
Contact Us

ODOT Home
 STIP Home
 2012-2015 STIP
 Asset Management
 ORS 366.215 Highways
 Freight Rail Map
 MCTD Truck Route Maps
 TPOD
 DVL Home Page
 Bridge Log
 Bridge Inspection Reports
 FileNet
 RES/RAZ maps
 TransGIS 2.0

Welcome to the first step in improving transportation data availability. This web-based tool, which is designed for users of every skill level, will allow additional data to be integrated very soon and will hereafter help us work together to make the right information available to the right people at the right time.

Map Tools Data To Go RSS

Use the filters below to search for and export a particular comment or set of comments.

Comment ID	Author	From (mm/dd/yyyy)	To (mm/dd/yyyy)	Type	SubType	Region	Export	Reset
All	All			All	All	All		

ID	Map	Details	Comment	Author	Date	Type	SubType	Region
279			1R INVENTORY UPDATES	nancy.e.martin@odot.state.or.us	9/17/2013	Project	1R	5
278			1R INVENTORY UPDATES	nancy.e.martin@odot.state.or.us	9/17/2013	Project	1R	5
277			1R inventory update	nancy.e.martin@odot.state.or.us	9/11/2013	Project	1R	5
276			1r inventory updates	nancy.e.martin@odot.state.or.us	9/11/2013	Project	1R	5



Web tools – *FACS-STIP (map)*

The screenshot shows the FACS-STIP Mapping Tool interface. On the left is a sidebar with a legend and navigation options. The main area is a map with various overlays. A popup window titled 'Identify Results' is open, displaying traffic data for a selected segment.

Map Legend

- Map Layers
- Navigation
- Identify
 - Select up to 3 layers to Identify.
 - High Clearance Routes
 - Annual Average Daily Traffic
 - Traffic Flow
 - Districts
 - Regions

Identify Results

Annual Average Daily Traffic	
Traffic Flow	High
Highway Number	001
Roadway ID	1
Begin Milepoint	283.83
End Milepoint	283.98
AADT	28100
Truck AADT	4679
Truck Percent	16.65

Map labels include: Region 1, ODOT District 2B, AADT: 10900, AADT: 28100, AADT: 9800, AADT: 10600. Bing map data: Latitude: 45.303607 | Longitude: -122.760649. Footer: Disclaimer ODOT © 2011 - 2012.



Web tools – FACS-STIP (map)

The screenshot shows a web browser window displaying the FACS-STIP Mapping Tool. The browser's address bar shows the URL: `http://wpdotappl21.odot.state.or.us/facs_stip/map.aspx#`. The browser's tab bar includes several tabs: "The FACS-STIP Mapping to...", "un.org", "Oregon Department of Transp...", "My Workplace", "filenet", and "Home - GIS Unit".

The application header features the Oregon Department of Transportation logo on the left and navigation links: "Home | Data To Go | User Guides | Contact Us" on the right. The main title is "The FACS-STIP Mapping Tool".

On the left side, there is a sidebar menu with the following items: "Map Legend", "Map Layers", "Navigation", "Identify", "Data To Go", "Comment", and "Links".

The "Data To Go" section contains the following form fields:

- 1. Capture Start Location (required)
 - Highway Number:
 - Roadway Id:
 - Start Milepoint:
 - Buttons:
- 2. Capture End Location (optional)
 - Highway Number:
 - Roadway Id:
 - End Milepoint:
 - Buttons:
- 3. Select a buffer distance.
 - Dropdown menu:
- 4. Select an asset filter.
 - Radio button: All assets.

The main map area displays a satellite view of a city with a river. Overlaid on the map are several colored lines representing different assets. A green arrow points to a specific location on the map, and a red arrow points to another location. A search bar at the top right of the map area contains the text "PLACE NAME SEARCH has been disabled" and a "Switch Basemap" button.

At the bottom of the map, the Bing logo is visible along with the coordinates: "Latitude: 45.503065 | Longitude: -122.712541". A "Disclaimer" link and the copyright notice "ODOT © 2011 - 2012" are also present.



Web tools – FACS-STIP (data to go)

Browser address bar: http://wpdotappl21.odot.state.or.us/facs_stip/AssetReport.aspx?startMilePoint=301.41&endMilePoint=300.27&hwyNumber=00100&roadway=2&bufferDist=0.5&assetFilter=All

Browser tabs: The FACS-STIP Mapping tool..., Asset Report - v3.0, Oregon Department of Transp..., Home - GIS Unit

Browser menu: Convert, Select

View Asset Reports

- ADA Ramps [View](#) [Export](#)
- Approaches [View](#) [Export](#)
- ATR Sites [View](#) [Export](#)
- Bicycle Facilities [View](#) [Export](#)
- Bicycle Facility Needs [View](#) [Export](#)
- Bridges [View](#) [Export](#)
- Culverts-DFMS [View](#) [Export](#)
- Culverts-District [View](#) [Export](#)
- Culverts-MS4 Permits [View](#) [Export](#)
- Fish Barriers-ODFW [View](#) [Export](#)
- Fish Passage-DSL [View](#) [Export](#)
- Intel, Trans. Sys. (ITS) [View](#) [Export](#)
- Pavement [View](#) [Export](#)
- Rail Crossings [View](#) [Export](#)
- Rail Mileposts [View](#) [Export](#)
- Rail Bridges [View](#) [Export](#)
- Rail Network [View](#) [Export](#)
- Retaining Walls [View](#) [Export](#)
- Safety-Crashes [View](#) [Export](#)
- Safety-SPIS [View](#) [Export](#)
- Safety-Crash Rates '11 [View](#) [Export](#)
- Sidewalks [View](#) [Export](#)
- Sidewalk-Needs [View](#) [Export](#)
- Sound Barriers [View](#) [Export](#)
- Traffic-AADT [View](#) [Export](#)
- Traffic Barriers [View](#) [Export](#)
- Traffic-Posted Speed [View](#) [Export](#)
- Traffic Signals [View](#) [Export](#)
- Traffic Support-Signs [View](#) [Export](#)
- Tunnels [View](#) [Export](#)
- Unstable Slopes [View](#) [Export](#)
- WIM MCTD Sites [View](#) [Export](#)

Reports generated use the following criteria:

Start Milepoint: 300.27
 End Milepoint: 301.41
 Highway Name: PACIFIC (001)
 Highway Suffix: 00
 Roadway Number: 2
 Buffer Distance: 0.5
 Asset Filter Type: All Assets

Note: Any field shown in green indicates a 1R-required field.

Safety-Crash Rates 2011

Records Returned: 10

Highway Number	Roadway ID	Mileage Type	Overlap Mileage Code	Begin Milepoint	End Milepoint	Current Year ADT	Current Year Crash Rate	SEG_DESC	Effective Date
001	1	0	0	299.56	301.09	126906	1.35	Jct STADIUM FWY to U-XING MORRISON ST BR	2011
001	1	0	0	301.09	301.91	87030	1.31	U-XING MORRISON ST BR to Jct BANFIELD /HY 2 -NBD	2011
001	1	0	0	301.91	302.60	126068	2.61	Jct BANFIELD HY 2 NBD to EXIT RAMP STEEL BR	2011
002	1	0	0	0.00	0.46	143158	0.71	Jct EAST BANK FWY to U-XING NE MLK BLVD	2011
002	1	0	0	0.46	0.65	143178	0.7	U-XING NE MLK BLVD to GRAND AVE ON-RAMP	2011
002	1	0	0	0.65	1.33	154780	1.02	GRAND AVE ON-RAMP to CONN FROM NE 16TH AVE	2011
061	1	0	0	0.27	0.89	92958	1.14	U-XING HY 3 to U-XING SW 4TH AVE	2011
081	1	0	0	1.00	1.49	46700	0.72	BEGIN STATE JURIS to ROSS ISLAND BR	2011
091	1	0	0	-0.44	-0.29	12500	4.38	STATE JURIS /STEEL BR to END BRIDGE /CITY JURIS	2011
091	1	0	0	1.24	1.43	14400	0	BEGIN STATE JURIS /MARKET ST to Jct HY 26	2011



Web tools – FACS-STIP (1R uploads)

2013 Transportation Engineering Conference CBW.ppt [Compatibility Mode] - Microsoft PowerPoint

http://wpdotappl21.odot.state.or.us/facs_stip/CommentMgr.aspx?cmntid=2

FACS-STIP Comment Man... Oregon Department of Transp... Home - GIS Unit

Map Tools
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ODOT Home
STIP Home
2010-2013 STIP
2012-2015 Draft STIP
Asset Management
ORS 366.215 Highways
Freight Rail Map
MCTD Truck Route Maps
TPOD
DVL Home Page
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Bridge Inspection Reports
FileNet
RES/RAZ maps
TransGIS 2.0

Welcome to the FACS-STIP Comment Manager. Below you will find information about the comment you requested.

Comment ID: 279

Status:

Comment Details

Comment: [1R INVENTORY UPDATES](#)
 Author: nancy.e.martin@odot.state.or.us
 Date: 9/17/2013 11:33:23 AM
 Region: 5
 Type: Project
 Sub-Type: 1R

Associated Document Details

Document: [One document on file.](#)
 Location: [Distance Measuring Instrument](#)
 Method: [\(DMI\)](#)

279_006EBDataToGo_Assets.xml [Protected View] - Microsoft Excel

Protected View This file originated from an Internet location and might be unsafe. Click for more details.

AC30 NOT IN FIELD INVENTORY

FISH PRES	LAST INSP	HIGHT COVER INLET (FT)	HIGHT CO	CONDITIO	EFFECTIVE	COMMEN	VERIFIED	
		1R	1R	1R			1R	
13								
14								
15								
16								
17								
18								
19	X	0	0		2009		No	NOT IN FIELD INVENTORY
20	X	0	0		2009		No	NOT IN FIELD INVENTORY
21	X	0	0		2009		No	NOT IN FIELD INVENTORY
22	X	0	0		2009		No	NOT IN FIELD INVENTORY
23	X		0	0		2012 UPDATED 2:	NEEDS UPDATED	
24	X	0	0		2009		No	NOT IN FIELD INVENTORY
25	X	0	0	G		2012 UPDATED 2:	NEEDS UPDATED	
26	X	0	0		2009		No	NOT IN FIELD INVENTORY
27	X	0	0		2009		No	NOT IN FIELD INVENTORY
28	X	0	0			2012 UPDATED 2:	NO	NOT IN FIELD INVENTORY
29	X	0	0	G		2012 UPDATED 2:	YES	
30	X	0	0		2009		No	NOT IN FIELD INVENTORY
31	X	0	0		2009		No	NOT IN FIELD INVENTORY
32								
33	NO			G		2012 UPDATED 2:	NEW PIPE	
34	NO			G		2012 UPDATED 2:	NEW PIPE	
35	NO			G		2012 UPDATED 2:	NEW PIPE	
36	NO	0	0	P		2012 UPDATED 2:	NEW PIPE	
37	NO	0	0	F		2012 UPDATED 2:	NEW PIPE	
38	NO	0	0	G		2012 UPDATED 2:	NEW PIPE	
39	NO	0	0	P		2012 UPDATED 2:	NEW PIPE	
40	NO	0	0	F		2012 UPDATED 2:	NEW PIPE	
41	NO	0	0	F		2012 UPDATED 2:	NEW PIPE	
42	NO	0	0	F		2012 UPDATED 2:	NEW PIPE	
43	NO	0	0	F		2012 UPDATED 2:	NEW PIPE	
44	NO	0	0	F		2012 UPDATED 2:	NEW PIPE	
45	NO	0	0	G		2012 UPDATED 2:	NEW PIPE	

ADA_Ramps Bicycle_Facilities Bridges Culverts_D1

7:40 PM 9/22/2013



Web tools – GPS Approaches Inventory

GPS Approach Inventory
Oregon Department of Transportation

about | basemap legend | contact | ODOT GeoPortal | help

PLACE NAME SEARCH: <enter search text here>

Switch Basemap

GPS Approach Data

Width Method:	Throat
CHAMPS Application ID:	0
Property Use:	Commercial
Highway Side:	Left
Surface Width:	30
Surface Type:	Concrete
Milepoint:	8.71
Highway Name:	PACIFIC HIGHWAY WEST
Property Address:	11834
Collection Method:	Resource Grade GPS
Latitude:	45.43459182
Longitude:	-122.76288757
Comments:	shell gas station and jacksons

0 57 feet

Oregon Department of Transportation © 2009-2012

-122.7617° E, 45.4359° N



Web tools – Right of Way GIS

Right of Way GIS
Oregon Department of Transportation

Map Layers

- Right of Way
 - RW Files
 - RW Maps
 - Engineering Stations
- Boundaries
- Transportation Network
- Hydrology
- Imagery

Right of Way Results

Total Maps returned: 9 [Export to CSV](#)

Map Number	Map Name	Map Type	Map Scale
8B-4-23 Info	Willamette River - Hayesville Section	Constructed Line	1"=400'
8B-5-7 Info	W. Portland Jct. - Willamette River Section	Constructed Line	1"=400'
10B-8-8 Info	Wilsonville Interchange (Unit 1) Section	Located Line	1:500
8B-5-10 Info	Wilsonville - Hubbard Hwy	Constructed Line	1"=400'
1A-8-7 Info	Washington Co Line - Marion Co Line Section	Located Line	1"=100'
1A-24-7 Info	I-5: Wilsonville Interchange Section	Located Line	1"=50'
1A-21-15 Info	Hubbard Interchange Section	Located Line	1"=100'
5B-9-12 Info	Clackamas County Line - White School Section	Located Line	1"=400'
7B-28-14 Info	Willamette River - Hayesville Section	Located Line	1"=400'

0 800 feet

Oregon Department of Transportation © 2011

-122.7737° E, 45.3014° N



Web tools – SPIS Analysis

http://wpdotappl21.odot.state.or.us/spis/

Shared Documents - Applicati... ODOT SPIS Analysis Oregon Department of Transp... Home - GIS Unit

SPIS Analysis Oregon Department of Transportation

CDS Reports | about | basemap legend | contact | ODOT GeoPortal | help | print

Display Navigation Analysis

PLACE NAME SEARCH: <enter search text here>

Introduction Legend Results

SPIS Segment Id: 23039
 Weighted AADT: 45000
 Frequency Score: 16.604
 Rate Score: 5.253
 Severity Score: 50
 Total SPIS Score: 71.857
 Percentile Ranking: 95
 Fatal Crash Count: 0
 Injury A Crash Count: 3

Fit Segment to Display Clear Selection

Switch Basemap

TIGARD CITY LIMITS MULTNOMAH CO. PORTLAND

Crash ID	Severity	Crash Year	Collision Type	Surface Cond.	Light	Weather	Work Zone	Alcohol Inv.	Cell Phone Inv.	Speed Inv.	Deer/Elk Inv.	Drugs Inv.	Ped. Cycle Inv.	Truck Inv.	Latitude	Longitude
1247991	1	2007	REAR	DRY	DAY	CLR	0	0	0	0	0	0	0	0	45.43976	-122.75141
1361936	3	2010	REAR	DRY	DAY	CLR	0	0	0	0	0	0	0	0	45.43943	-122.75208
1351106	4	2009	TURN	DRY	DAY	CLR	0	0	0	0	0	0	0	0	45.43976	-122.75141
1232253	4	2007	TURN	DRY	DAY	CLR	0	0	1	0	0	0	1	0	45.43976	-122.75141
1236215	2	2007	REAR	DRY	DUSK	CLR	0	0	0	0	0	0	0	0	45.43976	-122.75141
1261130	1	2007	REAR	DRY	DAY	CLR	0	0	0	0	0	0	0	0	45.43994	-122.75108
1435732	1	2011	TURN	WET	DLIT	RAIN	0	0	0	0	0	0	0	0	45.43976	-122.75141
1315719	2	2009	REAR	WET	DLIT	RAIN	0	0	0	0	0	0	0	0	45.44011	-122.75075

0 459 feet

Oregon Department of Transportation © 2009-2012

-122.7497° E, 45.4439° N

8:02 PM 9/22/2013



Web tools – WZTA

2013 Transportation Engineering Conference CBW.ppt [Compatibility Mode] - Microsoft PowerPoint

http://wpdotapp121/WZTA/#tps

Work Zone Traffic Analysis Traffic Data Sheet

Home ATR Graphing Tool Login Help

Location

ODOT Hwy #: 001
 Milepoint: 305.00
 ODOT Region: 1
 Area Type: UGB
 Area Name: Metro
 Roadway Type: Freeway
 Terrain Type: Level
 Existing Posted Speed Limit (mph): 55
 # of Existing Lanes (Total): 3
 Total Paved Surface Width (feet): 50
 NHS Route: Yes
 OHP Freight Route: Yes
 National Network (Freight): Yes
 Functional Classification: Urban Interstate

Traffic Data

Year of Analysis: 2013
 Linear Growth Rate: 0.28%
 Existing AADT Year: 2011
 Existing AADT: 123900
 Analysis AADT: 124594
 Existing DHV: 9292
 Analysis DHV: 9345
 % Trucks: 12.92%
[Clear Data](#)

Map

Get MP
Zoom In
Zoom Out
Pan
Full Extent
Work Zone
TPS

Road Profile

Traffic Planning Sheet HWY 001, MP 305.0 - LRE: 000100100000 8/23/2013

Area Map

Legend

- Work Zone
- 15mph
- ATR

Work Zone Information

Location	Traffic Data
Highway: 001	Year of Analysis: 2013
Milepost: 305	Linear Growth Rate: 0.28%
Region: 1	Existing ADT Year: 2011
Area Type: UGB	Existing ADT: 123900
Area Name: Metro	Analysis ADT: 124594
Roadway Type: Freeway	Existing DHV: 9292
Existing Posted Speed Limit: 55	Analysis DHV: 9345
# Existing Lanes (Total): 3	% Trucks: 12.92
Total Surface Width (feet): 50	
NHS Route: Yes	
OHP Freight Route: Yes	
National Network (Freight): Yes	

Traffic Planning Sheet HWY 001, MP 305.0 - LRE: 000100100000 8/23/2013

Road Profile

Straightline Diagram

9:03 AM 9/23/2013



Web tools to come – Geometrics Toolkit

The screenshot displays the ODOT Web Mapping Interface. The browser address bar shows the URL: <http://wddotappl22/GeometricsOnlineToolkit/>. The interface includes a navigation menu with options like 'Display', 'Navigation', 'Analysis', 'OCRS Tools', 'Probe', 'Polygon', and 'Profile (freehand)'. A map of Portland is shown with a red profile line labeled 'PROFILE #1' along a route. An inset window titled 'Elevation & Distortion Along Route' is open, showing a graph with two data series: 'Elevation' (blue line) and 'Portland' (red line). The graph plots Elevation (left y-axis, 230 to 320) and PPM (right y-axis, -9.5 to -6.0) against Distance (x-axis, 0.00 to 0.60). The 'Portland' series shows significant fluctuations, while the 'Elevation' series shows a more gradual increase and then a slight decrease.

Distance	Elevation	Portland (PPM)
0.00	235	-6.0
0.05	250	-6.5
0.10	270	-7.0
0.15	290	-7.5
0.20	310	-8.0
0.25	290	-8.5
0.30	270	-9.0
0.35	280	-8.5
0.40	285	-7.5
0.45	280	-7.0
0.50	285	-6.5
0.55	280	-6.0
0.60	285	-6.0



Desktop Tools – ArcGIS (ArcMap)

The screenshot displays the ArcMap desktop environment. The main map window shows a map of Oregon with a network of roads and numerous black dots representing crash locations. The roads are color-coded according to the legend in the Table of Contents. The Table of Contents on the left lists the following layers:

- Crashes 2011
- SIP Segs 2009-2011
- LEGEND_FLD
 - 0 Crashes (Cat. 1)
 - 1-2 Crashes (Cat. 2)
 - 3-5 Crashes (Cat. 3)
 - 6-9 Crashes (Cat. 4)
 - 10+ Crashes (Cat. 5)
- State Highways
- Signed Routes
 - Route Type
 - Interstate
 - U.S. Routes
 - Oregon Routes

The ODOT GIS Data Catalog window on the right shows a list of data layers with checkboxes. The following layers are checked:

- Crashes 2011 (right click for metadata)
- SIP Segs 2009-2011 (right click for metadata)

The status bar at the bottom right indicates the coordinates 1781064.64 521638.301 Feet. The system tray at the bottom shows the date and time as 8:49 PM on 9/22/2013.



Desktop Tools – ArcGIS (ArcMap)

Export to CAD

Input Features

- Crashes 2011
- SIP Segs 2009-2011

Output Type
DGN_V8

Output File
\\wpdotclr\007\R_VMP10_USERSENG\tdb116\ArcGIS\crashes2011_ExportCAD.DGN

Ignore Paths in Tables (optional)

Append to Existing Files (optional)

Seed File (optional)
X:\DATA\DGN\V_8\StMap\seedV8.dgn

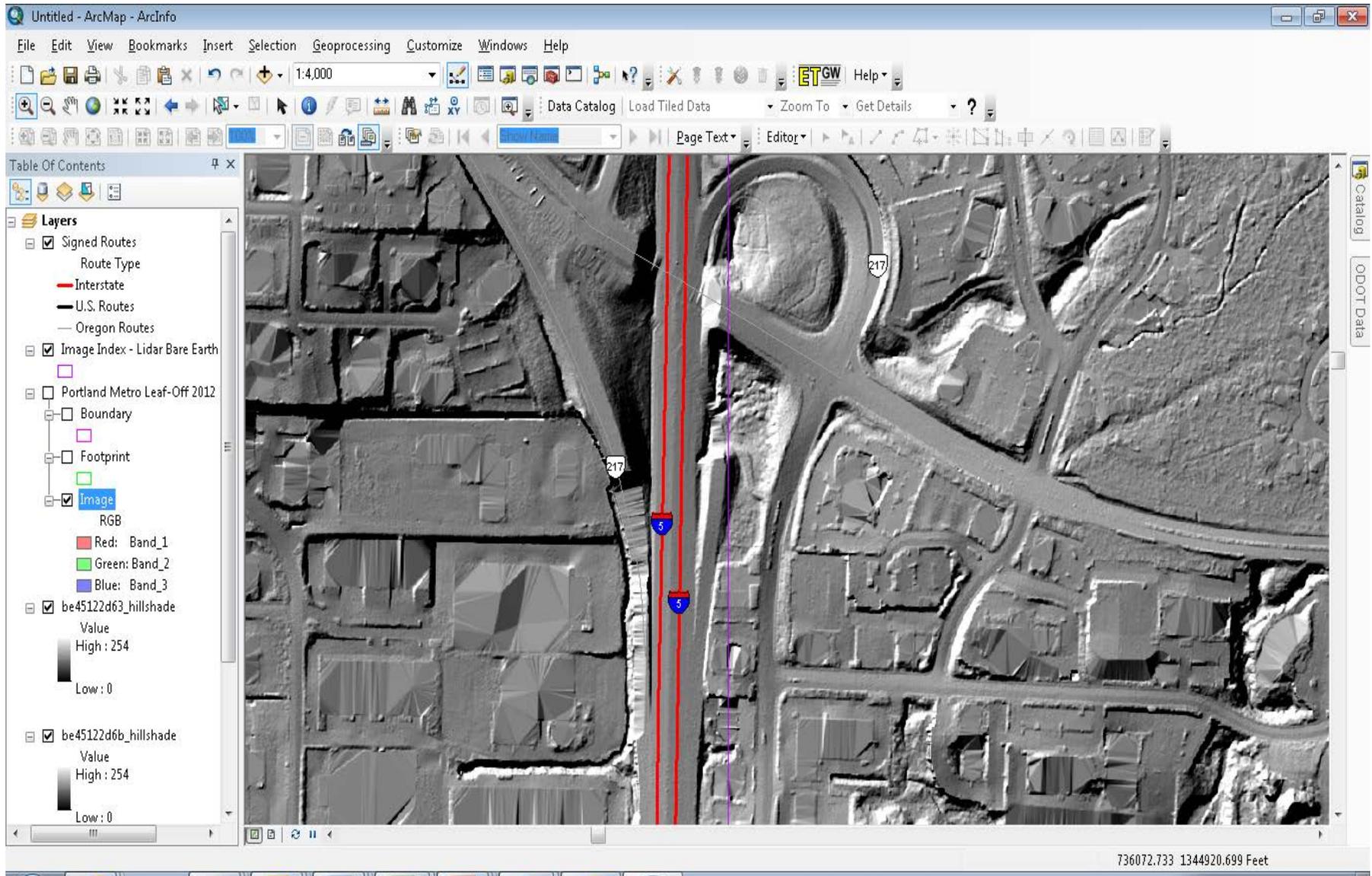
Seed File (optional)

An existing CAD drawing whose contents and document and layer properties will be used for all new output CAD files. The CAD platform and format version of the seed file overrides the value specified by the Output_Type parameter. If appending to existing CAD files, the seed drawing is ignored.

OK Cancel Environments... << Hide Help Tool Help

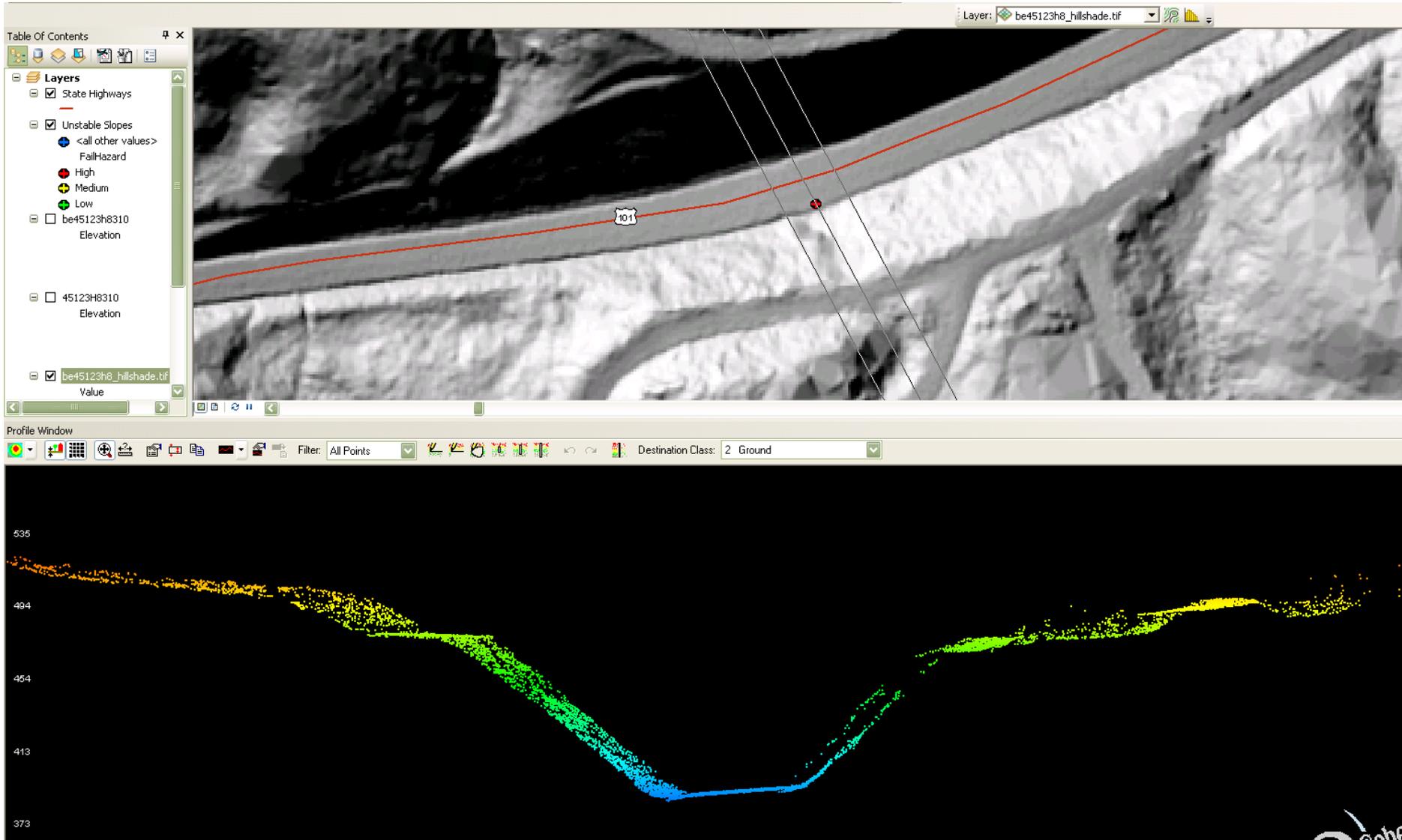


Desktop Tools – ArcGIS (lidar)





Desktop Tools – ArcGIS & LP 360 (Profiles)





Helpful GIS Links

- Trans Data Portal Page
http://transnet.odot.state.or.us/tdd/tdata/Shared%20Documents/TDS_Data_Portal.aspx
- Geoportal Page
<http://wpdotappl45:8080/geoportal/catalog/main/home.page>
- GIS Web application page
<http://transnet.odot.state.or.us/tdd/GIS/Shared%20Documents/Applications.aspx>
- GIS Project Request page:
<http://transnet.odot.state.or.us/tdd/GIS/Shared%20Documents/Projects.aspx>



Q & A

Thank you!

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