OpenRoads Design: Superelevation Exercises

Exercise 1: S.R. 185 Superelevation

In this exercise we will define the superelevation sections for the State Route 185 Corridor.

✓ Open ProjectWise Explorer



- ✓ Browse to the folder containing the training data. The folder location will be provided by the instructor for each class.
- ✓ Browse to the **400-Engineering****Roadway****Basemaps**\ folder.

Create new design files for the project using the **OHDOT Create Design Files** application. To create these files, one of the existing BK files may be opened.

- ✓ Select the OHDOT Create Design Files application to create the superelevation basemap design files for the project.
 - Create the file listed below

Design File name	Comments
123456_KS001.dgn	S.R. 185 Superelevation

- ✓ Open the file **123456_KS001.dgn**, checking the current file back in to ProjectWise
- ✓ Attach the following reference files:

300-Survey\Basemaps\123456_FB001.dgn 400-Engineering\Roadway\Basemaps\123456_BK001.dgn 400-Engineering\Roadway\Basemaps\123456_KM001.dgn

507 Superelevation Exercises

- ✓ From the **Corridors** tab, select **Create Superelevation Sections**
- ✓ You are prompted to define the Name for the superelevation section. Use the same name as the horizontal alignment, CLP_S185.
- ✓ Next you are prompted to select the alignment. Select the CLP_S185 alignment
- ✓ Use the entire length of the chain for the start and ending stations by toggling on the Lock to Start and Lock to End options
- ✓ Before accepting the creation of the superelevation dialog select the feature definition and Name. (Shown to the right)

Next, the software will step you through the process to define the pavement lanes.

✓ Define two lanes for the superelevation as shown below

Parameters		*	Parameters	
Name	Left-Lane1		Name	Right-Lane1
Туре	Primary	\sim	Туре	Primary
Side Of Centerline	Left	\sim	Side Of Centerline	Right
nside Edge Offset	0.000		Inside Edge Offset	0.000
Vidth	12.000		Width	12.000
Normal Cross Slope	-1.60%		Normal Cross Slope	-1.60%

✓ After defining both lanes, right click to terminate the lane creation process. The *Calculate Superelevation* dialog is opened. Choose the **ODOT_Undivided.xml** file by navigating to the following location in the OHDOT standards

..\OHDOT\Standards\Superelevation\



Create Superelevati	- 🗆 ×	
Parameters		^
Name	CLP_S185	
Lock To Start	\checkmark	
Start Station	385+00.00	
Lock To End	\checkmark	
End Station	438+84.37	
Minimum Tangent Length	1000.000	
Lane Creation Method	Manual	~
Feature		^
Feature Definition	Superelevation	~
Name	SE1	

 ${}$

💯 Superelevatio	n	✓ 4 2 a-a- a-a- a-a- a-a- a-a- a-a- a-a-
Ohio DOT Trai Ohio DOT Trai O Closed, I O 1 Active Pri O 2 Sold Proj O 3 Standard CADD Star O CONNEC WorkSp O HDC O S Additiona Excel Standar Flight Project IPS Files Renditions - D S Standard	ning/Testing / eric. thomas@dot.ohio.gov nactive and Cancelled Projects ojects ects s s diadads T_Config naces DTCEv01 ndards perclevation Projects to sard Sheets ts	
ile Name:		
pplication:	All Applications	~
vtension:	All documents	~
A CENTRICITY		

Use the settings shown below.

🔏 Calculate Su	perelevation	5 <u>00</u> 3		\times
Rules File Name	c:\users\ethomas\appdata\local\bentley\projectwise\workingdir\	ohiodot-pw.bentley.	com_ohio	odot
e Selection	8% eMax Figure 202-7E			~
L Selection	AASHTO			~
Design Speed	55			~
Pivot Method	Crown			~
Open Editor				

✓ After accepting the dialog settings, the *Superelevation Editor* dialog is opened.

									1 1 1		
							1				
										/	
										_/	
1 11 10	88+28 39 °	1+56 3.94	+84 39	8+12 401	+40 404+	69 407+9	37 411	5 414+53	417+81	492 1 + 0 9	424
	XBBS		¢ 🖬 🔘								
	Supereleva	Name	Station	Curve Set	Cross Slope	Transition	Pivot Edge	Non Linear	Point Type	Ignore	Distanc
•	Right-Lane1	Right-Lane1	385+00.00	0	-1.60%	Linear	LeftEdge		Normal Crown	False	None
	Right-Lane1	Right-Lane1	408+98.26	0	-1.60%	Linear	LeftEdge		Normal Crown	False	None
	Right-Lane1	Right-Lane1	409+39.26	0	0.00%	Linear	LeftEdge		Super Runoff	False	Vector:
	Right-Lane1	Right-Lane1	409+80.26	0	1.60%	Linear	LeftEdge		Reverse Crown	False	Vector
	Right-Lane1	Right-Lane1	411+44.26	0	8.00%	Linear	LeftEdge		Full Super	False	None
	Right-Lane1	Right-Lane1	420+23.73	0	8.00%	Linear	Left Edge		Full Super	False	None
	Right-Lane1	Right-Lane1	421+87.73	0	1.60%	Linear	LeftEdge		Reverse Crown	False	Vector
		and a rest of the second second second second	422+28.73	0	0.00%	Linear	Left Edae		Super Runoff	False	Vector
	Right-Lane1	Right-Lane1									

Review the superelevation parameters and close the dialog when completed. The maximum superelevation rate should be 8.0% for this alignment.

✓ Save settings in the superelevation design file

The **Assign Superelevation to Corridor** command is used to associate the superelevation settings with the corridor model and the template points. This assignment is made in the corridor design file.

- ✓ Browse to open the **12345_KM001.dgn** file containing the corridor for S.R. 185. Be sure to check the superelevation design file back into ProjectWise.
- ✓ Attach the superelevation definition design file, 12345_KS001.dgn, to the corridor design file, 12345_KM001.dgn.
- ✓ From the Corridors tab, select the Assign to Corridor command to associate the superelevation settings with the corridor model. (Shown to the right)
- ✓ Choose the graphics that were drawn for the boundary of both superelevation sections, and then right-click (reset) to accept the sections



✓ When prompted to **Locate Corridor**, select one of the handles for the S.R. 185 corridor boundary.

✓ The *Associate Superelevation* dialog is opened. The dialog should default to the correct settings, but it is good practice to review the settings before accepting them.

Left-				THE .	PIVOLPOINL		Start Station	Stop Station	Priority
	-Lane I	\sim	L-ACSC_T_EP	~	PGL	~	385+00.00	438+84.37	1
Righ	ht-Lane1	~	R-ACSC_T_EP	~	PGL	~	385+00.00	438+84.37	1
		~		~		~			

After associating the superelevation sections with the corridor, use the **Open Cross Section View** command to review the corridor.

✓ From the Corridors tab, select the Dynamic Sections > Open Cross Section View command. Advanced tip:

If a **multi-model view** isn't already open, you can use the **View Control** commend by holding the right-mouse button within the design model view. Select **3 views Plan/XS/3D**. Then follow software prompts to view cross sections.

- ✓ When prompted, select the corridor, and select a new view window to display the corridor.
- ✓ Add some temporary dimension lines to the cross-section view to facilitate reviewing the pavement width and cross slopes
 - Hold down the right-mouse button in the cross-section view.
 - Choose the Place Horizontal Temporary Dimension command
 - Identify the starting and ending points to add temporary dimension lines for each lane of pavement like the example below
 - Once you've placed Temporary dimensions you can also remove them by holding down the right-mouse button and select **Remove All Temporary Dimensions** command.



After reviewing the corridor cross sections, close the cross-section view window. Click Save settings to save view layout.

This completes the work on S.R. 185. Exit OpenRoads Designer and check the file back into ProjectWise.

OpenRoads Software Version

This document was prepared using the following software version:

OpenRoads Designer CONNECT Edition - 2021 Release 1 Update 10 - Version 10.10.01.03

This document was updated using the following software version:

OpenRoads Designer CONNECT Edition - 2022 Release 3 Update 12 - Version 10.12.02.04

Contacts

For any questions, suggestions, or problems with this document please contact the ODOT Office of CADD and Mapping Services by use of the following form on the ODOT website:

https://odot.formstack.com/forms/cadd_servicerequest