

MicroStation – WSDOT Centerline Utility

WSDOT Toolbox

Overview

Centerline alignments can be created using the same basic approach in MicroStation as in InRoads. The **WSDOT Centerline** utility generates a complex chain element with the appropriate attributes (level, weight, line style, etc.) based on geometric input. It allows tangents, simple curves, and spiral-curve-spirals.

This utility is available in the **WSDOT Menu** by selecting the following elements:

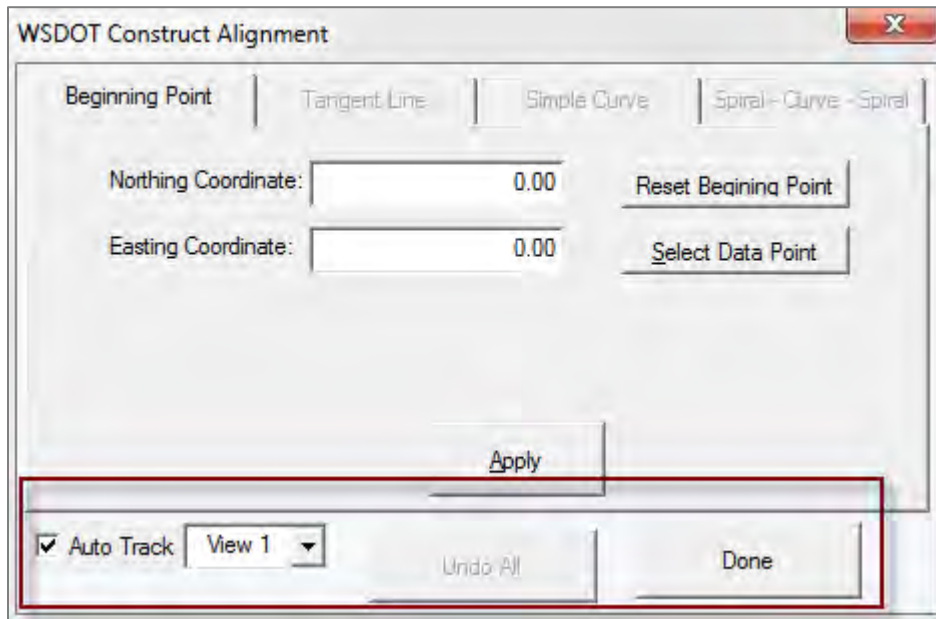
| Level Name |
|-------------------------|
| AL_HW_CLinePSE |
| AL_HW_CLinePSENew |
| AL_RW_CLineCountyRoad |
| AL_RW_CLineRWCntrl |
| AL_RW_CLineRWforPSE |
| AL_RW_CLineRWNonCntrlEx |
| AL_RW_CLineRWNonCntrlPr |

The process starts by indicating the beginning point of the centerline element. Then, using the appropriate tabs, add geometric definition. The utility may be set to auto track the element as it is developed.

Revising a complex chain element already drawn in MicroStation to match the appropriate attributes may also be done by initiating the utility, then closing it. The current active element attributes are set to the selected WSDOT centerline. Use the **Change Element Attributes** command to make the revisions.

Commands

General Commands are found at the bottom of the dialog.



Auto Track – when this command is toggled on, it adjusts the selected view window to follow element progress.

View Selector – determines the view window used by **Auto Track**.

Done – completes the entry for centerline definition and exits the utility.

Beginning Point Tab

Northing/Easting Coordinate – displays and allows entry of beginning point coordinates.

Reset Beginning Point – clears coordinate entries.

Select Data Point – graphically selects beginning point location.

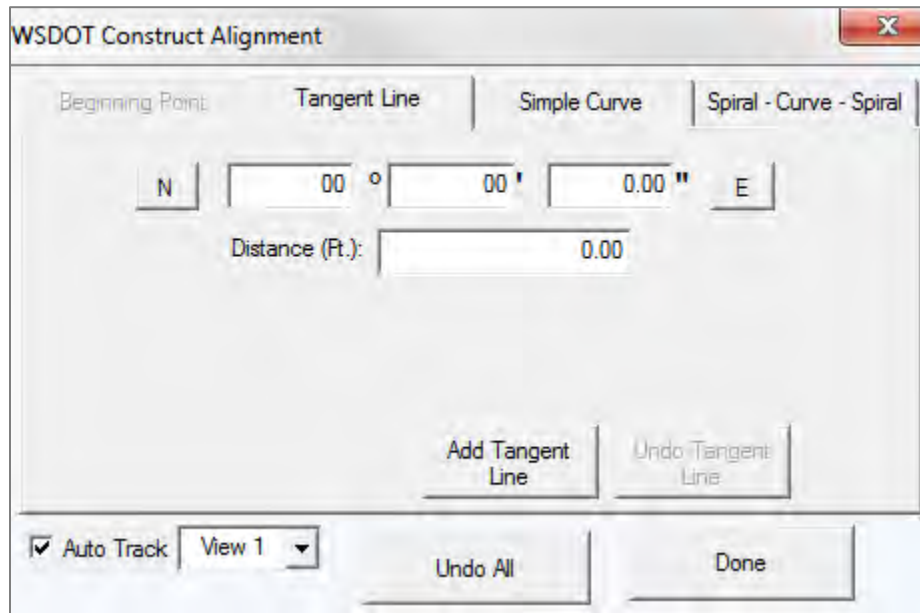
Apply – locks in beginning point coordinates and moves to the next tab.

Tangent Line Tab

Bearing Entry – toggle the N/S and E/W buttons appropriately and enter the values for Degree, Minutes, and Seconds.

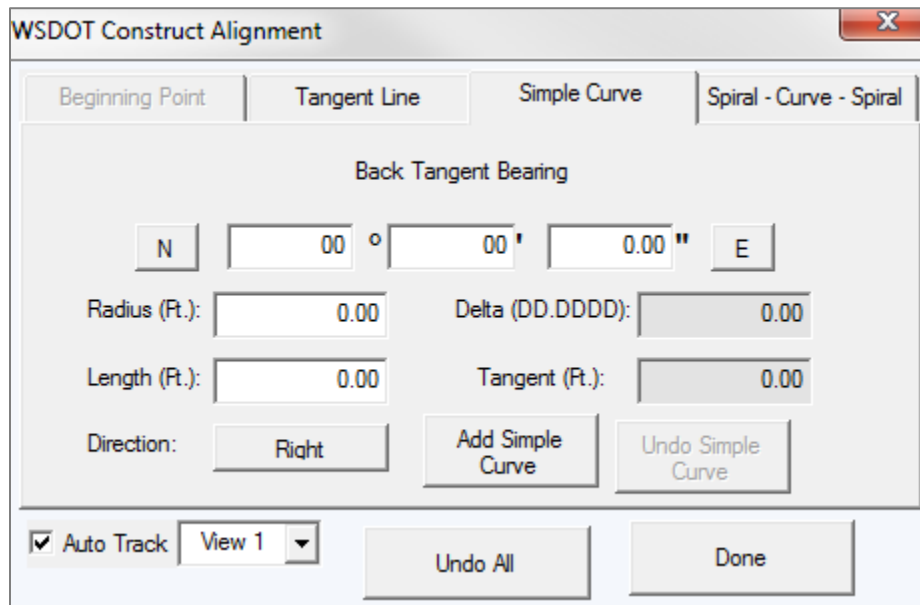
Distance – enter the distance in US Survey Feet.

Apply – locks in bearing and distance entries and adds the tangent line segment to the centerline.



Simple Curve Tab

When working with the *Simple Curve* tab, the *Back Tangent Bearing* is carried over from the previous component, although it may be modified to accommodate unusual scenarios. Entering *Radius* and *Length* values will calculate a curve and provide additional info.



Back Tangent Bearing – indicates bearing from previous element or if first, can be entered similar to Bearing & Distance tab.

Radius – distance from the Curve Center (CC) to the Point of Curvature or Tangency (PC/PT).

Length – distance along curve from PC to PT.

Direction – direction that curve will go - Left or Right.

Delta – sweep angle of curve.

Tangent – distance along back and ahead tangent lines from PC to PI and PI to PT.

Apply – locks in curve data entries and adds the resultant curve to the centerline.

Spiral-Curve-Spiral Tab

Using radius, length, spiral lengths in and out, and direction will calculate and fill in the remaining fields for review.

| Beginning Point | Tangent Line | Simple Curve | Spiral - Curve - Spiral | | |
|------------------------------------------------|--------------|-------------------------|--------------------------|------|------|
| Radius (Ft.): | 0.00 | Delta (DD.DDDD): | 0.00 | | |
| Length (Ft.): | 0.00 | Tangent (Ft.): | 0.00 | | |
| Spiral In (Ft.): | 0.00 | a | DE | Ls | |
| | | 0.00 | 0.00 | 0.00 | 0.00 |
| Spiral Out (Ft.): | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Direction | Right | Add Spiral Curve Spiral | Undo Spiral Curve Spiral | | |
| <input checked="" type="checkbox"/> Auto Track | View 1 | Undo All | Done | | |

Radius - Distance from the Curve Center (CC) to the Point of Curvature or Tangency (PC/PT).

Length – distance along curve from PC to PT.

Spiral In/Out – length of incoming and outgoing spirals measured in Feet.

Direction – direction that curve will go - Left or Right.

a – this is a resultant rate of change in degree of curve of a spiral per 100 feet.

DE – resultant deviation angle of spiral measured from back tangent (or forward tangent on outgoing spiral) to tangent through the spiral at its maximum degree.

Ls – this is the resultant length of spiral measured along its arc in stations of 100 Feet.

Delta – resultant sweep angle of curve.

Tangent – resultant distance along back and ahead tangent lines from PC to PI and PI to PT.

For questions or comments on this tech note, contact your regional CAE Support Coordinator or the WSDOT CAE Help Desk at (360) 709-8013.