

LAB 18 - Horizontal Regression Analysis

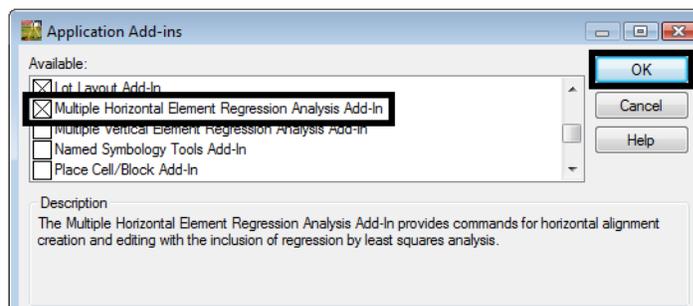
Regression analysis can be used to facilitate the development of horizontal alignments by creating a 'best-fit' alignment through defined points.

Chapter Objectives:

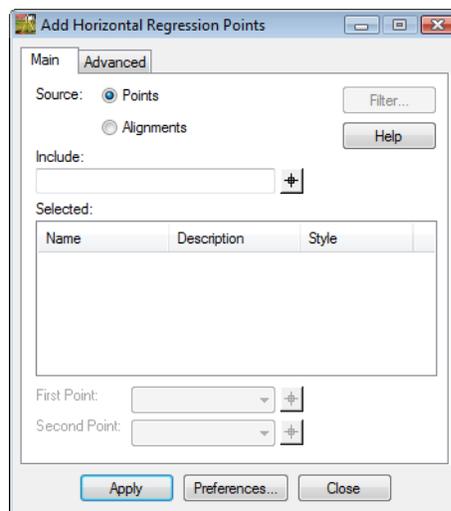
- Setup horizontal regression analysis project parameters

Regression analysis setup.

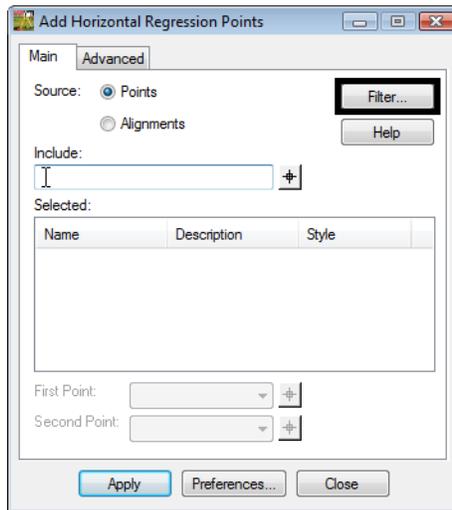
1. Create a horizontal alignment to store the results in.
2. Select **Tools > Application Add-ins** to enable the command.



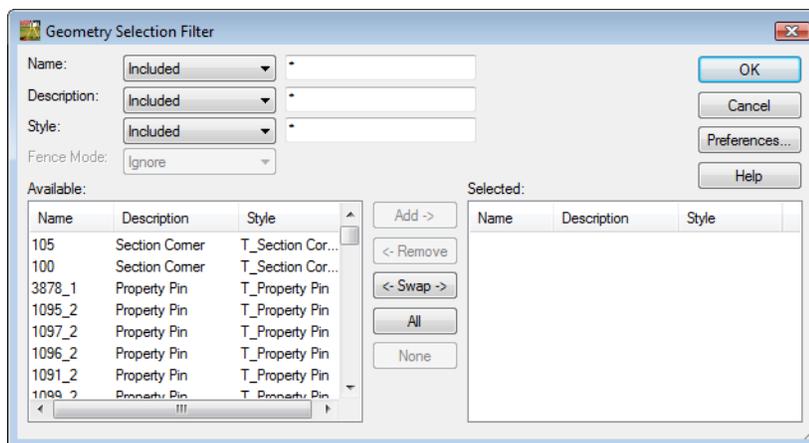
3. Select **Geometry > Horizontal Regression > Add Regression Point**. The **Add Horizontal Regression Points** dialog will appear.



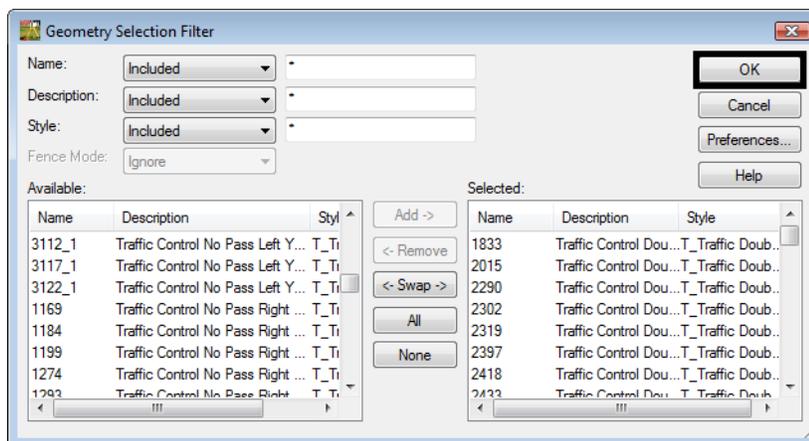
4. <D> in the **Include** field so the **Filter** button becomes activated.



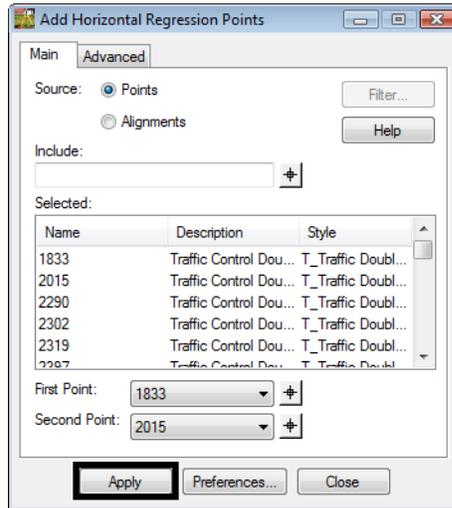
5. <D> the **Filter** button. The **Geometry Selection Filter** dialog will appear.



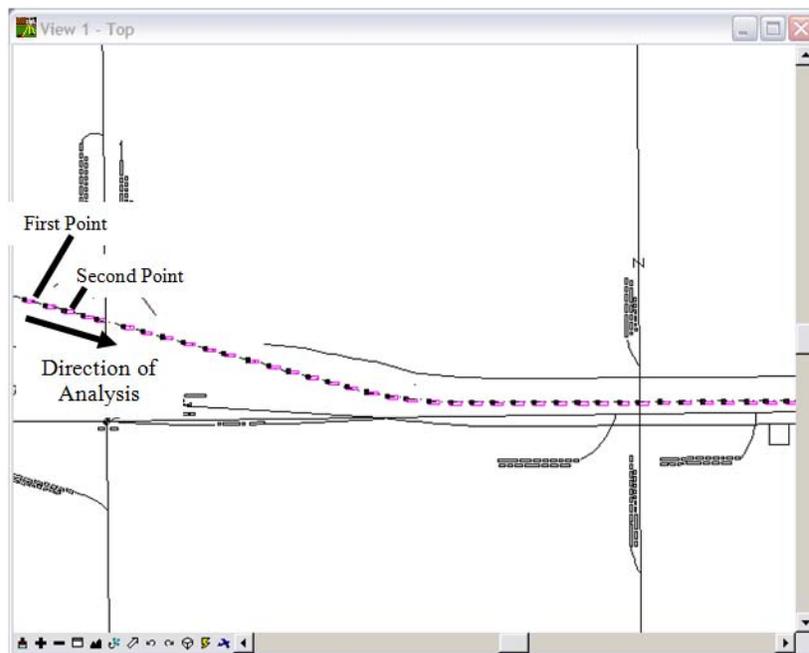
6. Create a selection of centerline points to be used for analysis.



7. <D> the **OK** button in the *Geometry Selection Filter* dialog.

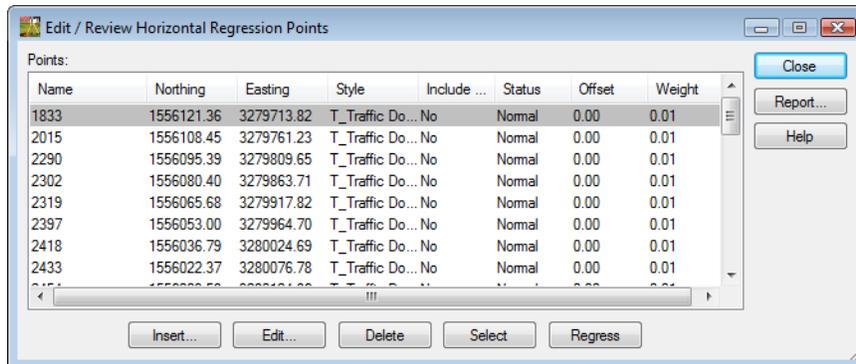


8. <D> the **Apply** button. The dialog will minimize allowing you to graphically define the first and second points to define initial course for evaluation.

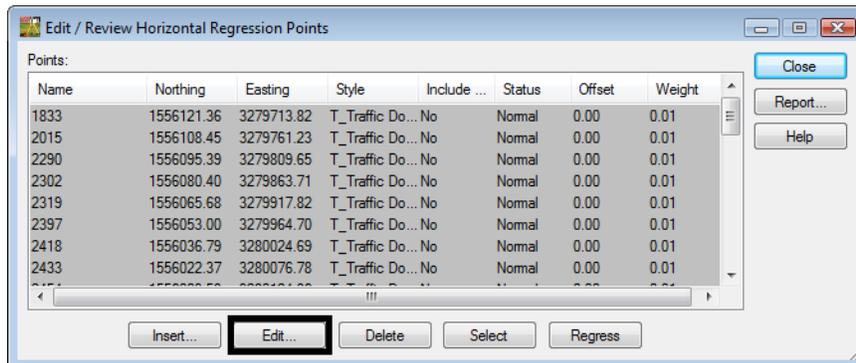


9. <D> the first point in the MicroStation view and <D> second point in the view to define the *direction of the analysis*. The *Add Horizontal Regression Points* dialog will reappear.
10. <D> the **Close** button.

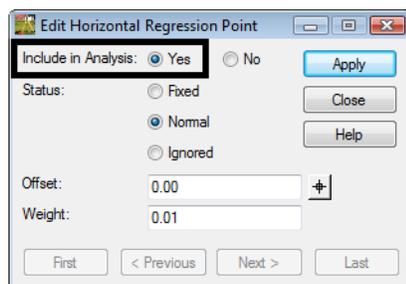
11. Select **Geometry > Horizontal Regression > Edit/Review Regression Points**. The **Edit / Review Horizontal Regression Points** dialog will appear.



12. Refine the selection of points to be used for analysis by using the **Ctrl** and **Shift** keys or using the **Select** button to define a selection area.

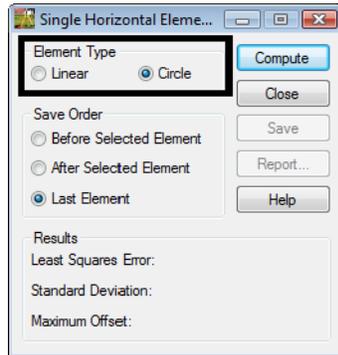


13. <D> the **Edit** button. The **Edit Horizontal Regression Point** dialog will appear.
14. <D> the radio button **Yes** to **Include in Analysis**.

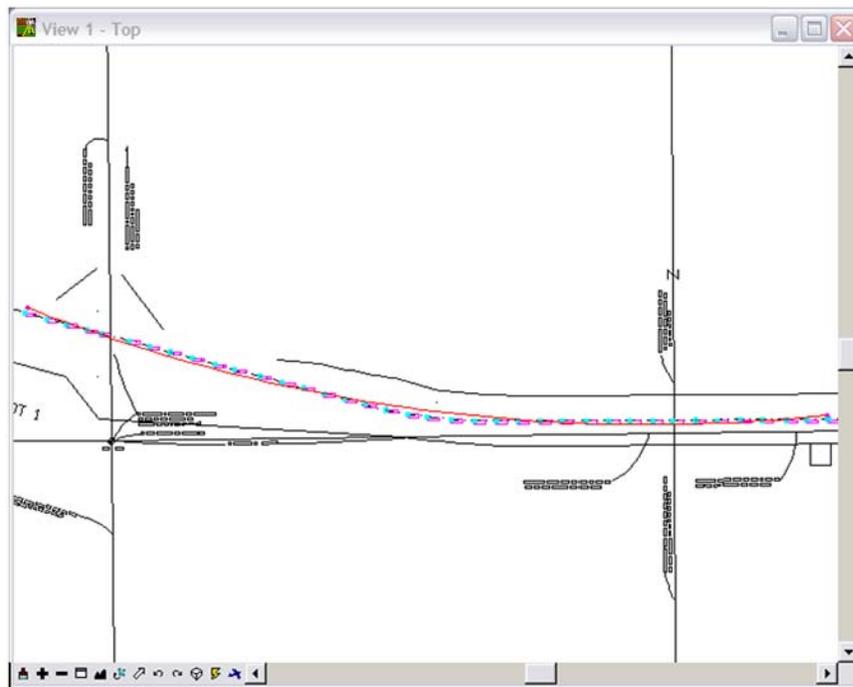


15. <D> the **Apply** then **Close** buttons. Leave the **Edit / Review Horizontal Regression Points** open for further edits.
16. Select **Geometry > Horizontal Regression > Single Element Regression Analysis**. The **Single Horizontal Element** dialog will appear.

17. Select Element Type: *Linear or Circle*



18. <D> **Compute** to view the results in the MicroStation view.



19. <D> **Save** to create the alignment element.

20. <D> the **Report** button to view a summary.

Station	Offset	Value
1833	0+00.00	2.73
2015	0+49.02	-0.35
2290	0+99.13	-2.93
2302	1+55.26	-4.60
2319	2+11.41	-5.68
2397	2+60.05	-5.99
2418	3+22.29	-5.45
2433	3+76.38	-3.78
2454	4+26.14	-2.04
2470	4+76.53	0.45
2499	5+28.53	3.66
2525	5+77.06	7.34
2544	6+28.70	11.32
2561	6+82.04	13.71

21. Review the results.

