GEOPAK Superelevation Shapes

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WELCOME

- Please turn off/silence your cell phones.

- Questions???
  - Please feel free to ask questions as we go…

Objectives

- Learn about Superelevation Shapes
- Learn how to use the GEOPAK Shape tools

What are Shapes?

- Graphic elements created by GEOPAK that represent the cross slope of the roadway.
- Each group of shapes representing a single piece of pavement is called a Shape Cluster.
- Used by GEOPAK when drawing cross sections.

What defines a Shape Cluster?

- A Shape Cluster is a group of shapes that have three common attributes.
  - Shape Cluster Baseline
  - Profile
  - Tie or PGL Chain

Dependent vs. Independent

- Dependent shapes rely on the baseline chain, profile elevation and tie/pgl chain to determine the "starting point" for the pavement.
  - As a rule of thumb…
    - There is only 1 dependent shape per shape cluster.
- Independent shapes rely on the bordering shapes for vertical placement.

Tie vs. PGL Chain

- A Tie is the physical distance from the baseline to the PGL.
  - Can be positive, negative, or zero
  - The proposed profile elevation is applied at the horizontal offset set by the Tie.
  - To use the Tie option, the PGL must be parallel to the baseline.

Tie vs. PGL Chain

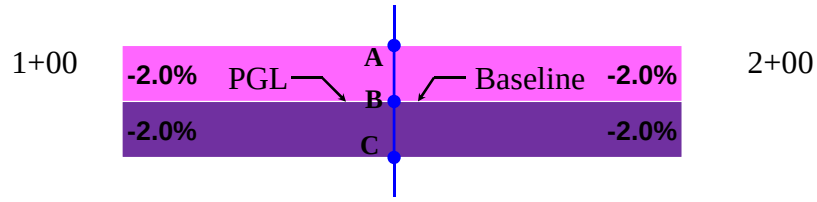
- PGL = Profile Grade Line
  - Location where the proposed profile elevation is to be applied.
- A PGL Chain is a GEOPAK chain that identifies the PGL location.
  - Should be used when the PGL does NOT run parallel to the baseline.

Tie vs. PGL Chain

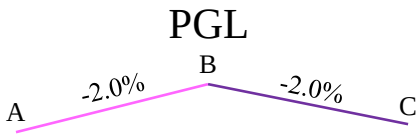
- The PGL Chain stationing does NOT have to coincide with the baseline stationing. It is only used to set the horizontal location of the PGL.
- GEOPAK uses the baseline stationing to determine the Proposed Profile elevation. Therefore the Proposed Profile stationing DOES have follow the baseline stationing.

Examples

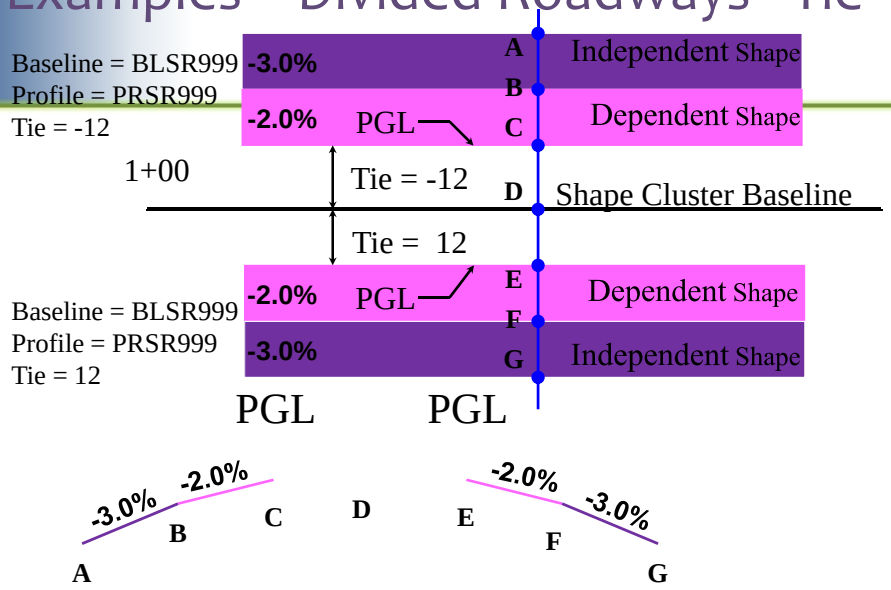
Undivided Roadways



Baseline = BLSR999
Profile = PRSR999
Tie = 0.0

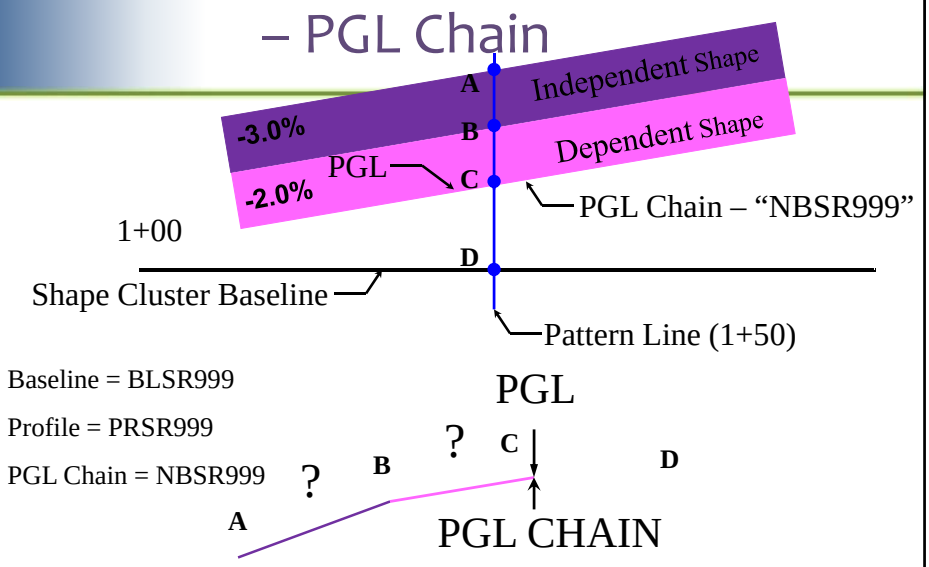


Examples – Divided Roadways - Tie



PGL location coincident with proposed edge of pavement and parallel to baseline.

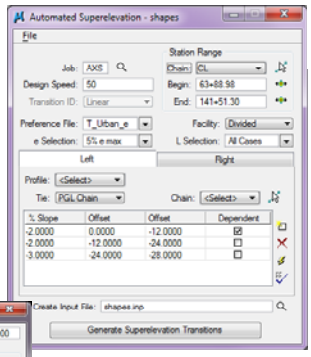
Examples – Divided Roadways – PGL Chain

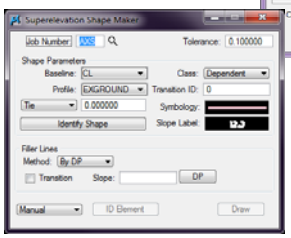


Left shape cluster PGL location not parallel to proposed baseline. PGL Chain required.

Creating Superelevation Shapes

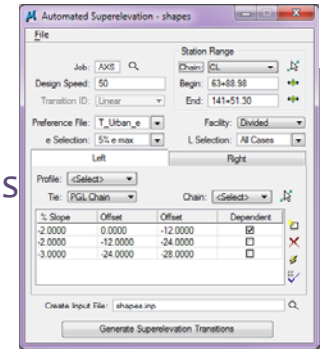
- GEOPAK has 2 tools for creating shapes.
  - Automated Superelevation
  - Superelevation Shape Maker





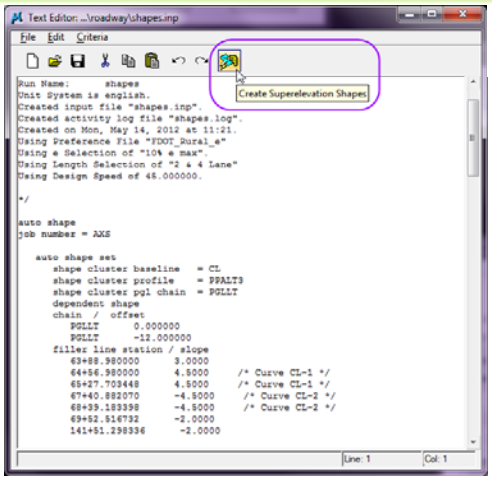
Automated Superelevation

- Recommended for creating the "Travel Lane" shapes for the entire project.
- Calculates the super using tables with the values from PPM.
- Generates an input file and log file.
  - Input file can be modified as needed before shapes are created.
  - Log file documents any issues calculating the super and method used to resolve.



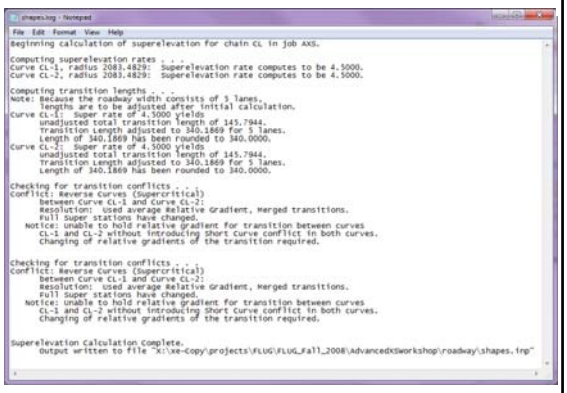
Automated Superelevation

- Input file can be reviewed and modified as needed before shapes are created.
- Icon included within the Text Editor to draw the shapes into the file.



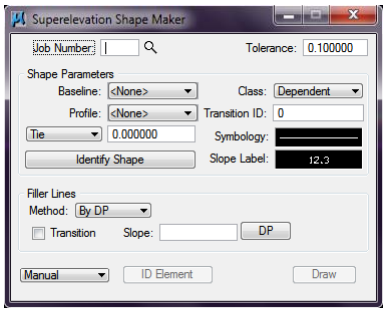
Automated Superelevation

- Log file documents any issues calculating the super and method GEOPAK used to resolve.
  - Creates the file in the current working directory with the same name as the input file.



Shape Maker Tool

- Recommended for turn lanes with different cross slope from the main travel lanes.
- Manual method for creating shapes. Transitions must be calculated before using this tool.

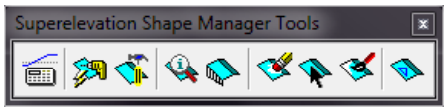


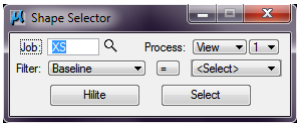
Let's take a look…

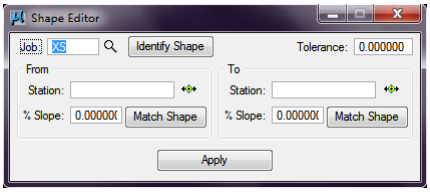
Cross Section Run Set Up

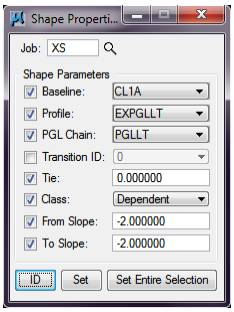
- Use the Scan button to read and list the Shape Clusters in a file.
- Add Shape Clusters to the cross section run from LEFT to RIGHT.
  - GEOPAK locates shapes from left to right across the pattern lines.
  - FDOT Criteria creates the side slope conditions and applies the criteria to the appropriate sides.

Shape Manager Tools









Questions???

Thank-you for joining today's session.

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