PAVT.X – version 07.04.10

Description

PAVT.X is used to draw up to six proposed pavement layers beneath a set of GEOPAK pavement shapes. A maximum of 5 pavement shapes can be processed for each shape cluster. The pavement layers are drawn at the slope and width defined for each pavement shape as shown in Figure 1 below.
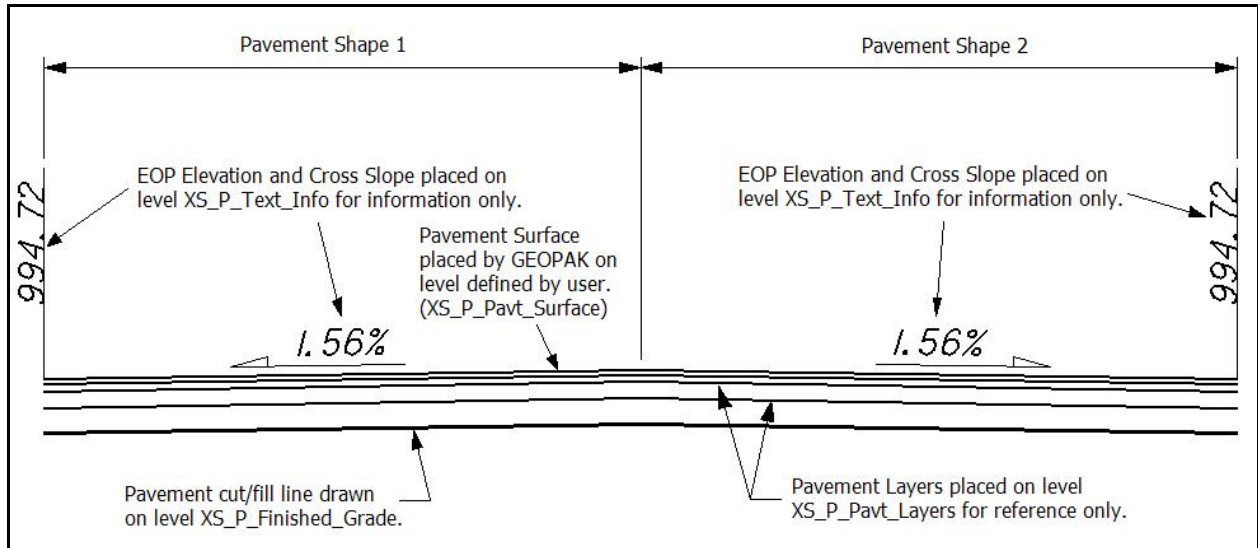

Figure 1

Inclusion Sequence

The ODOT Standard criteria file DEFINE.X contains default definitions for some of the Define Variables used by ODOT's criteria files. DEFINE.X must always be included first in any criteria run.

PAVT.X should always be the first file included for processing after **DEFINE.X.**

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Define Variables

A summary of the variables defined in **`PAVT.X`** is included below. Each variable has been assigned a default value within the criteria. The user should review the variables below to ensure that the default values are acceptable for the project. The value of each variable can be changed by the user before processing the criteria, as needed. See the **ODOT GEOPAK Road Training Guide, Part 2**, Chapter 5 for more information on modifying the default value of the variables.

"PROPOSED DGN FILE NAME"
This variable is used by the DEFINE_DGN variables to identify the base map MicroStation design file that contains the proposed plan view graphics. The default value for the variable has been defined using a relative path as follows:

```
define "PROPOSED DGN FILE NAME" ..\roadway\basemaps\nnnnnBP###.dgn
```

By default GEOPAK will look for design files in the Working Directory assigned for the project. Using the directory structure defined in the **ODOT CADD Engineering Standards Manual**, Section 302, Project Directory Structure, the GEOPAK Working Directory should be defined as the `geopak` folder.

The "`..`" syntax will instruct GEOPAK to look for the proposed design file by starting in the Working Directory, and then go up the project folder path one directory. From there, go into the `\roadway\basemaps` folder to find the file.

The name of the design file, `nnnnnBP###.dgn`, must be edited to reflect the name of the plan view design file for your project. See the **ODOT CADD Engineering Standards Manual**, Section 304 File Naming Conventions for design file names.

The name and path of the "`PROPOSED DGN FILE NAME`" variable can be edited in the GEOPAK *Proposed Cross Sections* dialog as shown below.
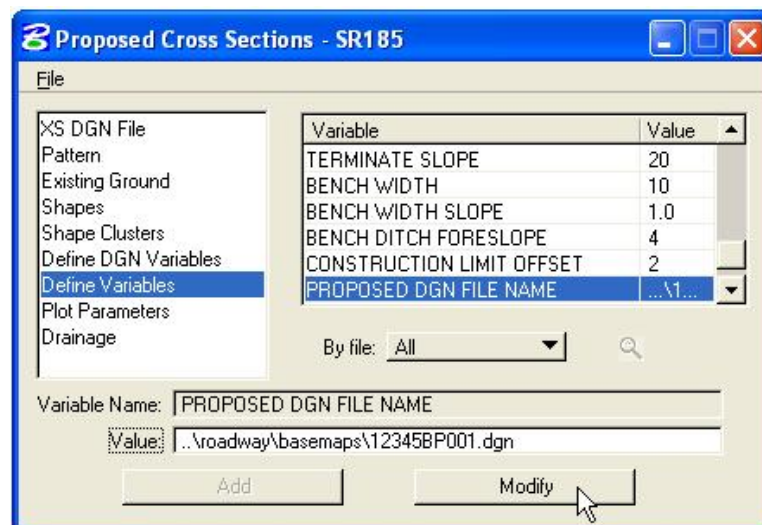
"number of layers"
The total number of pavement layers to be drawn. Up to six layers can be defined. The default value is 4.

"layer 1 thickness"
The pavement thickness for layer 1 in Master Units. The default value has been defined as 0.1042 (1¼")

"layer 2 thickness"
The pavement thickness for layer 2 in Master Units. The default value has been defined as 0.1458 (1¾")

"layer 3 thickness"
The pavement thickness for layer 3 in Master Units. The default value has been defined as 0.3333 (4")

"layer 4 thickness"
The pavement thickness for layer 4 in Master Units. The default value has been defined as 0.500 (6")

"layer 5 thickness"
The pavement thickness for layer 5 in Master Units. The default value has been defined as 0.500 (6")

"layer 6 thickness"
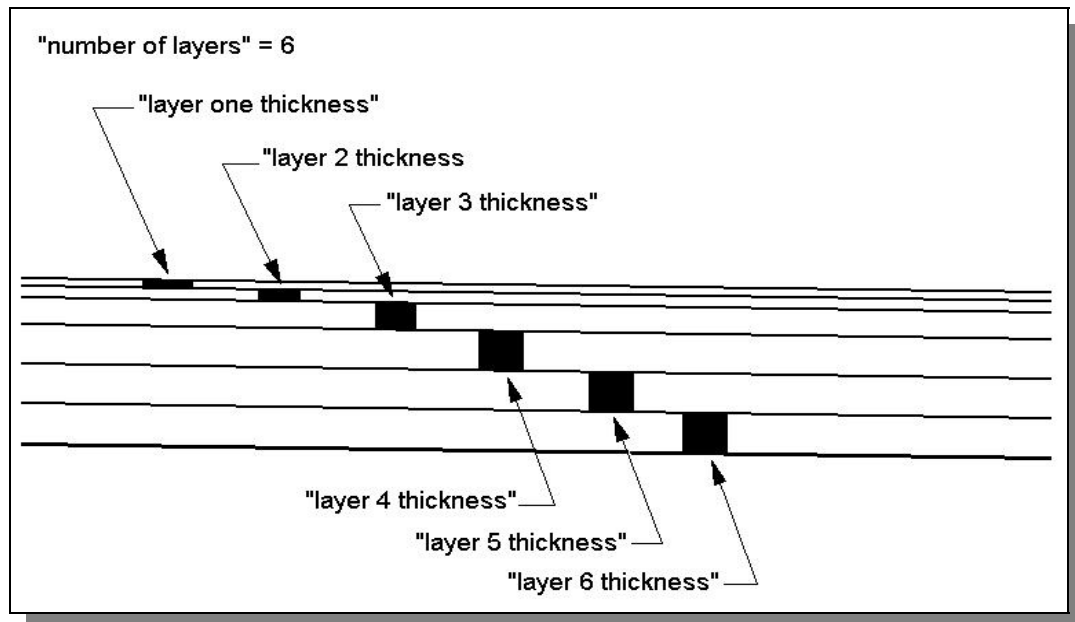The pavement thickness for layer 6 in Master Units. The default value has been defined as 0.500 (6")

Figure 2

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Define DGN Variables

The following DEFINE_DGN variables are used by the criteria to locate the MicroStation elements that PAVT.X will search for in order to draw the proposed pavement.

These variables have been defined with the values listed below in accordance with ODOT standards and should never be redefined by the user.

Additionally, these variables have been defined as "hidden" variables and will not show up in the DEFINE_DGN Variables portion of the Proposed Cross Sections dialog box when preparing a criteria run.

"~Edge of Pavement PR"
This variable is used to define the symbology of the proposed edge of pavement lines. The variable has been defined as follows:

```
define_dgn "~Edge of Pavement PR" \
dgn = "proposed dgn file name" \
lvname = PV_P_EOP \
wt = 2, ByLevel \
co = 0, ByLevel \
lc = 0, ByLevel
```

Labels and Symbology

PROPOSED GRADING
The final cross section cut and fill lines representing the proposed grading are drawn on levels XS_P_Finished_Grade. This level should always be shown on the final cross sections.

PAVEMENT LAYERS
The pavement layers are drawn on level XS_P_Pavt_Layers for reference only. The top pavement layer, to the width of the shapes, is drawn Level XS_P_Pavt_Surface. These two levels are not normally shown on the final cross sections.

TEXT LABELS
The criteria will place labels and direction arrows annotating the pavement slope. The criteria will also place labels for the elevation at the edge of the pavement. These labels are all placed on level XS_P_Text_Info for the designer's reference and are not normally shown on the final cross sections.

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Additional Processing Notes

The criteria will first draw the proposed pavement layers under a set of GEOPAK pavement shapes. After the pavement layers are drawn under the shapes, the criteria will next determine the graphical location of the proposed edge of pavement lines in the MicroStation design file containing the plan view graphics. If the proposed edge of pavement line is located outside the pavement shapes, as shown in Figure 3 below, the criteria will extend the pavement layers to meet the width of the proposed roadway as shown on the cross section in Figure 4 below. Notice that the widening is drawn using the same slope as the adjacent pavement shape.
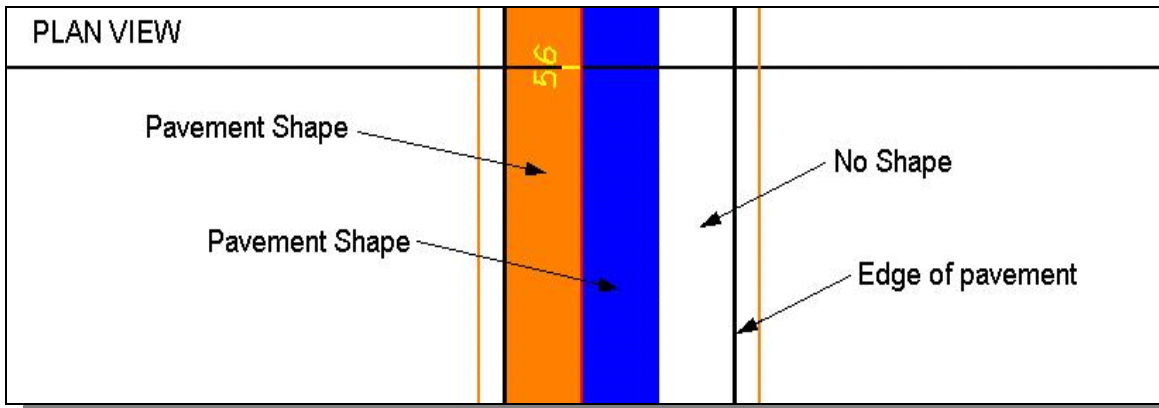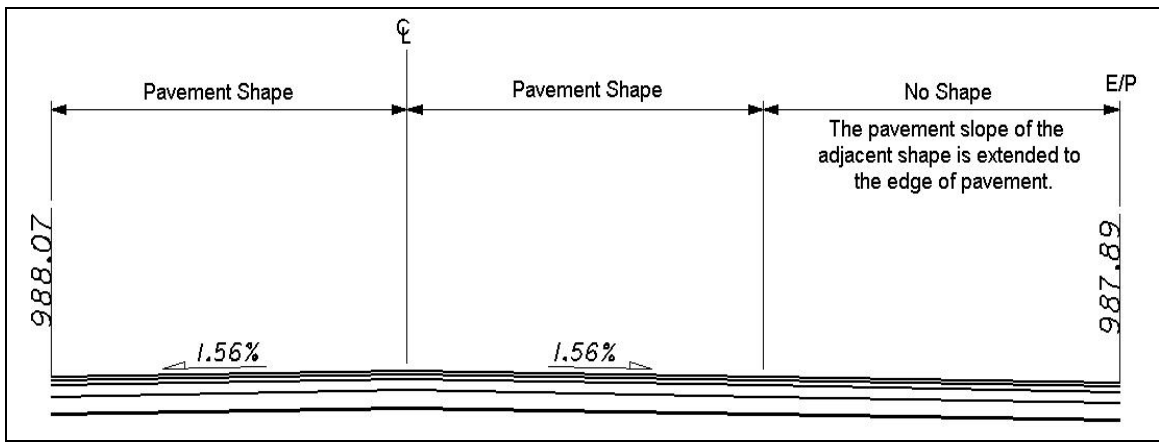

Figure 3

Figure 4

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The top of the proposed pavement is drawn automatically by GEOPAK using the slope and width of the pavement shapes. The **XS Lines** portion of the GEOPAK *Proposed Cross Sections* dialog is used to control the symbology of the top pavement layer, and should be set as shown below. The individual pavement layers are drawn by the criteria on level XS_P_Pavt_Layers. The bottom of the pavement is drawn by the criteria on level XS_P_Finished_Grade.
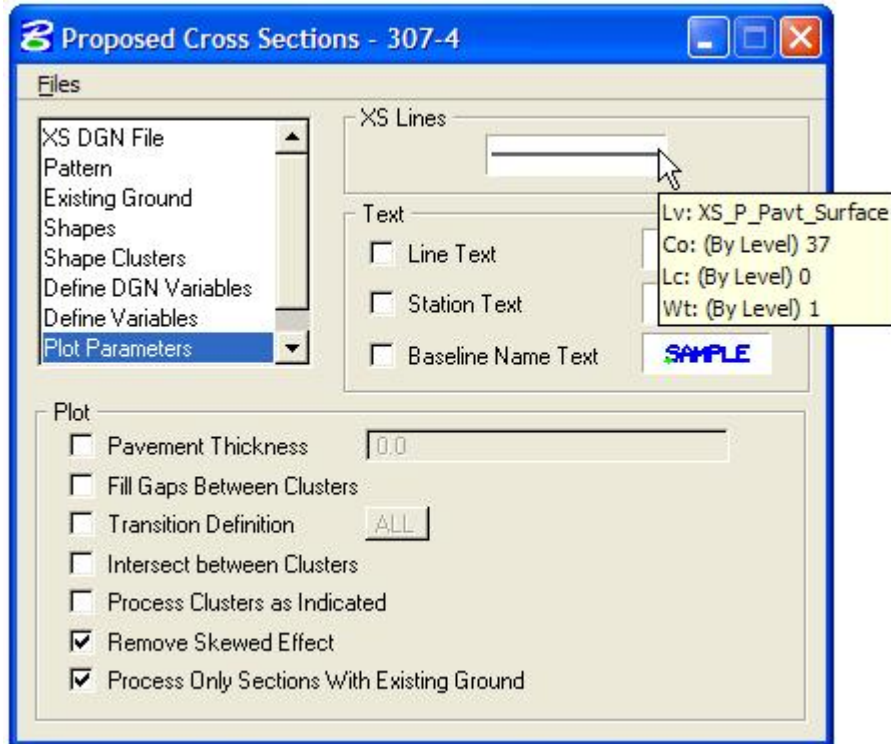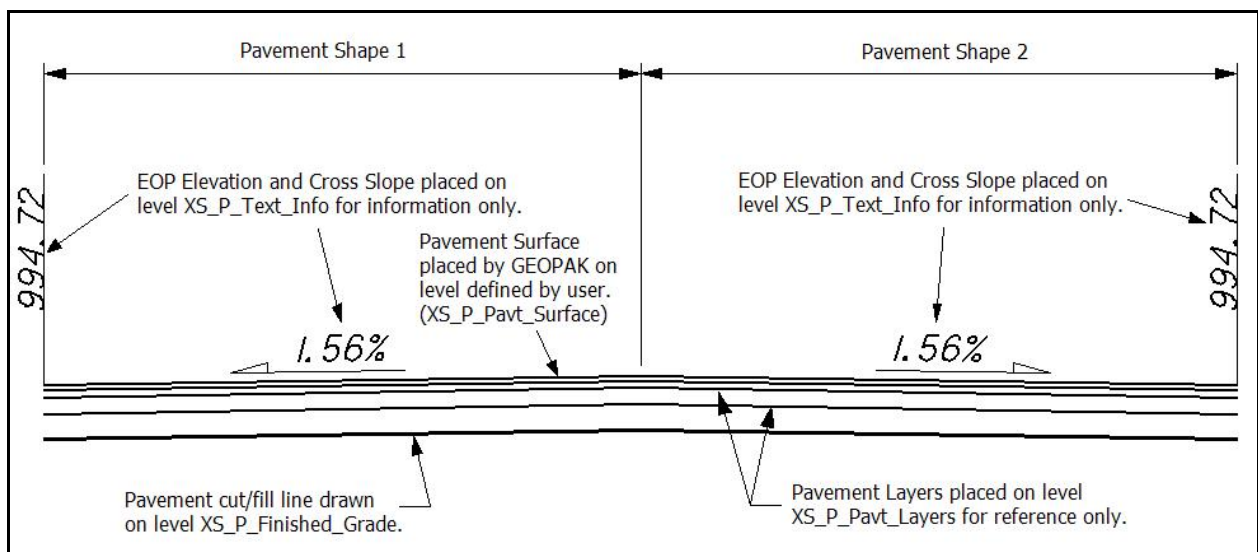

Figure 5

Figure 6

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Marked Points

GEOPAK has a simple, yet very important way of "remembering " where the location of various points are during the drawing process. This is accomplished with marked points.

Some marked points are stored during the criteria processing that are only used temporarily and do not need to be "remembered" as processing continues. These points can be subsequently redefined by another criteria file. There are, however, certain key locations that must be referred to by multiple criteria files. `PAVT.X` will store the following marked points during processing that should never be redefined by another criteria file:
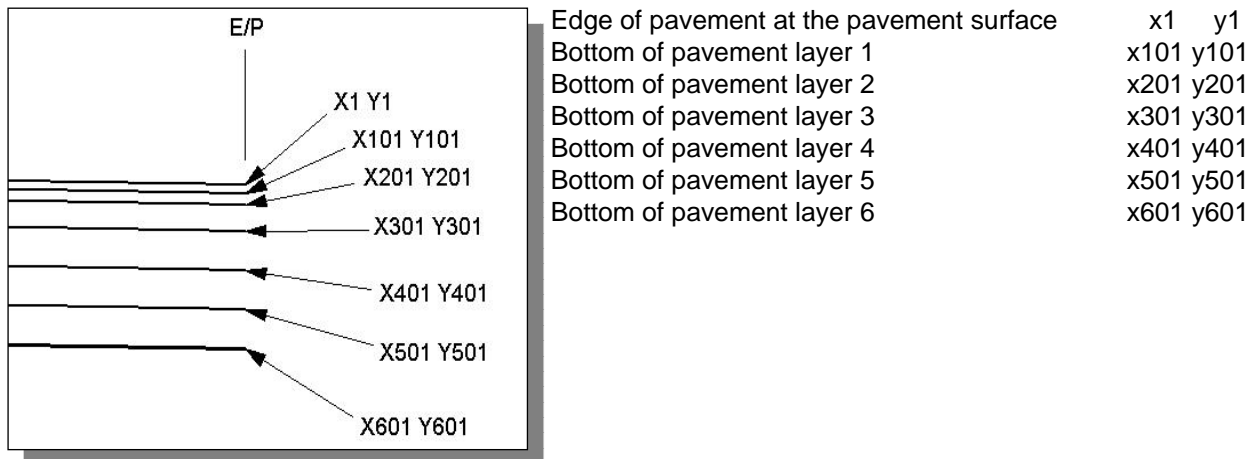

Edge of pavement at the pavement surface	x1 y1
Bottom of pavement layer 1	x101 y101
Bottom of pavement layer 2	x201 y201
Bottom of pavement layer 3	x301 y301
Bottom of pavement layer 4	x401 y401
Bottom of pavement layer 5	x501 y501
Bottom of pavement layer 6	x601 y601

Figure 7

On divided highways the criteria will mark some additional points on the median side of the pavement shapes. The following points are marked as shown in Figure 8 below:

Inside edge of pavement, median to the right	x18 y18
Inside edge of pavement, median to the left	x19 y19

Figure 8