

Chapter 18

Roadway Cross Sections

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Chapter 18

Roadway Cross Sections

18.1 General

Cross sections depict the existing ground conditions, including all manmade features, as sections perpendicular to the respective stations along a survey baseline or construction centerline. The proposed cross-sectional outline of the new facility with all its functional elements is also shown on cross sections. Use standard cross section sheets for showing roadway cross sections. The preformatted sheet cell is located in the FDOT Engineering/CADD Systems Software. This sheet features a standard grid of five lines per inch, both in the vertical and horizontal. The vertical scale can be altered to ten lines per inch by utilizing a toggle feature in the CADD software.

The recommended vertical scale is 1" = 10'. The horizontal scale must be such that the entire roadway R/W is shown on the sheet (generally 1" = 10' or 1" = 20'), but must not be smaller than 1" = 40' horizontal. If the entire R/W cannot be shown on one sheet, more sheets may be utilized and appropriate match lines must be shown with referenced sheet numbers. Show the scale at the bottom right corner of the sheet above the title box.

18.2 Required Information

Show existing ground lines and the existing elevation at the centerline must be noted just below the ground line at the centerline. Indicate the station number of the section opposite the ground line on the right side of the sheet and location baseline of survey indicated along the top and bottom of the sheet. Lines parallel to the baseline of survey should show station equivalencies to the baseline of survey.

Show the surface, as well as the below ground portions of existing features such as pavements, curbs and sidewalks.

Existing parallel underground utilities which lie within the horizontal limits of the project must be shown along with verification notation for those locations which have been verified. Utilities that have been verified should be labeled as shown in **Section 14.3** of this Volume. Small distribution or service lines need not be drafted.

Soil data and the groundwater table elevation from soil borings must be shown on cross sections as described in **Section 17.2.1** of this Volume. If it is determined that an organic or plastic material must be removed below the finished grading template, the lower limits of removal of organic or plastic material will be shown to determine the area and volume of subsoil excavation.

Show the proposed roadway template. The proposed profile grade elevation must be placed vertically or at an angle to the horizontal, just above the profile grade line. Special ditch elevations must also be shown.

Show station equations, even though a cross section may not be plotted at that point. For ramp cross sections equivalent mainline stations must also be shown.

The right of way limits must be symbolically shown for each cross section.

The begin and end stations for project, construction, exceptions, bridge/bridge culvert, and the toe of slope under the bridge must be shown on the right edge of the sheets near the earthwork columns. Show the beginning and ending earthwork stations.

Indicate earthwork quantities in the appropriate columns on the right side of the cross section sheet. Show earthwork summaries in the Summary of Earthwork on the Summary of Quantities Sheet.

The order of assembling the cross sections in the plans set must be:

1. Mainline
2. Side streets
3. Ramps

18.3 Sheet Set Up

Show cross sections on a standard preformatted cross section sheet (available in the FDOT Engineering/CADD Systems Software) with stations increasing from the bottom to the top of the sheet. Usually, only one column of sections is placed on a sheet.

The interval selected for showing sections on the cross section sheet will vary according to project specific factors. For new construction and reconstruction, the normal interval for cross sections is 100 feet for rural projects and 50 feet for urban projects. These intervals may also be appropriate on RRR projects, depending on the variability of earthwork along the project. Other factors that may influence the frequency of cross sections include the presence of intersections, extent of driveway and turnout construction or reconstruction, ADA related work, drainage improvements, etc.

Center sections on the sheet with the survey baseline or the construction centerline placed vertically in the center. In cases where additional lanes are to be constructed adjacent to existing lanes, centering the sections will depend upon the location of the survey line and the side on which the new construction is to be placed. Orient sections such that the complete ultimate section will be approximately centered on the sheet. When the centerlines of construction and survey are not parallel, the distance between the two at each cross section must be shown.

Place as many sections as possible on a sheet with sections being spaced to avoid overlapping. The soil profile should be checked for possible unsuitable material below existing ground which may cause overlapping of sections.

When right of way is narrow enough and a horizontal scale of 1" = 20' is used, two columns of cross sections may be placed on a sheet. Cross section stationing must progress from the bottom to the top of the sheet and multiple columns must be placed from the left to the right. Set up the sheet to provide earthwork columns for each column of sections.

For additional information on cross sections see **Chapter 3** of Volume 1.

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