

---

# Shoulder Design Changes

**Design Manual**  
**Chapter 3**  
**Cross Sections**

Originally Issued: 05-28-10

Revised: 06-20-19

---

Several changes have been implemented:

- Removed the earth fill layer and continued the granular material down to the subgrade. This was done to add strength to the shoulders.
- Added a four foot wide earth embankment at a 10:1 slope adjacent to the shoulder.
  - This provides a clearly defined point where the design shoulder ends. Previously the granular shoulder continued out to the foreslope making the shoulder appear wider than it was designed to support vehicles.
  - It provides for resurfacing. Previously the first overlay required about twelve feet of foreslope grading.
  - Removed edge treatment fillet and the flatter than 6:1 elements of the shoulder. They were no longer necessary after moving the resurfacing lip adjacent to the shoulder.
- Trench width subgrade treatment changed to standard width treatment.
- For composite shoulders, the paved width for outside lane shoulders changed to 6 feet due to the switch to 12 foot wide outside lane pavements. The switch to 12 foot lanes was made to alleviate concerns with longitudinal cracks forming in 14 foot lanes.
- Shoulders are paved full depth and are tied to the mainline pavement. This is done to provide support and stability to the mainline pavement.
- Expressway median shoulders are paved full depth and full width. This is to simplify operations for contractors (the pavement can be placed in one operation) and eliminate maintenance problems associated with granular material placed outside the pavement.

# Chronology of Changes to Design Manual Section: 003C-003.5 Shoulder Design Changes

- |           |  |
|-----------|--|
| 6/25/2019 | Revised<br>Revised to include changes to shoulders related to the switch to 12 foot outside lanes. |
| 5/28/2010 | NEW<br>This section documents shoulder design changes made in April 2010.                          |