

VII. Drainage Standards

The City of Colorado Springs *Drainage Criteria Manual* does not provide graphical solutions for drainage capacities in mixed use streets. The design engineer shall compute allowable flow capacities and allowable flow depths for mixed use streets using equivalent criteria in the *Drainage Criteria Manual* and the following guidelines. Unless otherwise noted herein, the *Drainage Criteria Manual* shall apply:

1. Vertical curbs shall be used on all mixed use streets, including curb returns. City Standard 8-inch vertical curb is required except where 6-inch vertical curb is desired to create a more traditional or aesthetic appearance. Storm sewer inlets must be placed where the allowable street flows are exceeded. Street capacities are reduced when using 6-inch curb which may result in additional storm sewers.
2. For Local and Collector Streets the initial storm (5-year) flow must not cross the street crown from one side to the other. There must be at least two inches (2") of freeboard at the curb. The major storm (100-year) flow must not exceed twelve inch (12") depth at the gutter and must not flood adjacent property or buildings.
3. For Entry/Spine Streets and Parkways the initial storm flow spread must not encroach beyond the outside travel lane. Major storm flows must be confined in the street section while preserving one drivable lane in each direction.
4. Storm flows in alleys shall be limited to the flows generated from the rear of the lots adjoining the alley. Alley flows shall not cross the intersecting streets into another alley but shall be captured or diverted at the intersecting street.
5. Flow spread in alleys shall be confined to the right-of-way at reasonable and safe depths. All "vee-shaped" shaped alleys must have concrete surfaces. Asphalt alleys may be crowned or cross-sloped with a concrete gutter along the edges that carry storm flows.
6. Alternatives to City Standard inlet types (such as combination castings) are encouraged to provide a more traditional appearance subject to City Engineer approval. Slotted drains are prohibited.
7. Special design features such as curb extensions and speed tables will require special drainage design consideration.

8. The drainage design engineer is alerted to the challenge of finding a suitable location for storm sewer mains in mixed use streets especially if the street is narrow and other utility lines are present.