

Brentwood Channel Improvements

City of Lenexa, Kansas

The Brentwood Reach of Little Mill Creek was a highly unstable reach of urban stream, characterized by systemic bank erosion and mass wasting. Originally identified in the 2002 Little Mill Creek Watershed Study, the Brentwood Channel Improvement Project was a recommended channel stabilization plan, located between 87th Street and Brentwood Drive. The City of Lenexa hired CDM and Intuition & Logic to provide final design of the proposed channel improvements to address both flooding and channel erosion problems.

Intuition & Logic conducted the initial geomorphic assessment of the study reach to determine the dominant fluvial process. Dominant process varied from channel incision to meander advance. However, both processes are driven by a need for the stream to reduce overall channel slope in an attempt to regain a condition of equilibrium and stability, either by equalizing grade via incision or lengthening the dominant flow path by meandering. Therefore, the final channel stabilization design consisted of reducing channel grade with a series of grade controls and drop structures, coupled with extensive bank restoration and armoring to restore degraded stream banks and to protect them from high-energy flows.

