

CHAPTER 6

**DISCUSSIONS, CONCLUSIONS
AND RECOMMENDATIONS**

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This chapter briefly describes the results of the feasibility level investigations to identify significant water resources needs and problems of the Shoal Creek watershed, and to present a plan which would be responsive to them.

DISCUSSIONS

This feasibility study for the Shoal Creek watershed is an interim report being conducted under the Colorado River Basinwide study authority. Studies were initiated at the request of the city of Austin, in fiscal year 1983. The primary problem identified in studies was the need for flood control. Flash flooding on Shoal Creek has occurred through the years with the most recent damaging storms occurring in November 1974, April 1975, and May 1981. The most devastating storm was the May 1981 storm. Although other watersheds in Austin were affected, Shoal Creek was one of the worst hit areas. Five deaths occurred along the creek during this flood. The SPF flood plain of Shoal Creek has 922 structures and Hancock Creek, a major tributary to Shoal Creek has 419 structures in the SPF flood plain.

A range of structural and nonstructural plans were investigated to provide protection to the area. Of the nonstructural plans investigated, no economically feasible plans were identified. Structural plans considered included channelization of the creek, tunnel diversions, and combination tunnel/channel plans. Of these plans, Plan F14 was identified as the NED plan. This plan consists of two 14-foot diameter tunnel diversions and channelization on both Shoal and Hancock Creeks. After review, the city elected to implement only a portion of the NED plan. The city of Austin has decided to buy-down to the Hancock Creek portion of the NED plan. This segment of the plan was therefore designated as the Recommended Plan. The economics of the Recommended Plan are discussed in the following section.

CONCLUSIONS

The Recommended Plan as described in this report represents the city's desire to help alleviate flooding problems along Hancock Creek. The Recommended Plan would capture 62 percent of the average annual flood damages estimated to occur for existing conditions within the Hancock Creek study area.

This plan consists of 3,200 feet of 40- to 50-foot bottom width channel along Hancock Creek. The first cost of the Recommended Plan at February 1991 price levels, is estimated at \$6,634,700. Under current guidelines, the city of Austin would be responsible for \$1,659,000 and the Federal Government would pay \$4,975,700. The city of Austin would be

responsible for all operation, maintenance, and replacement costs, estimated to be \$5,000 annually. The city of Austin has the authority and capability to finance the construction requirements through bonds. Funds to operate and maintain the project following construction can be provided through the city's annual operating budget.

The total annual charges for the Recommended Plan, including operation, maintenance, and replacement costs, is \$646,800. Average annual benefits for the Recommended Plan are \$1,229,700. These include inundation reduction benefits, vehicular benefits, and reduction in insurance overhead benefits. The resulting benefit-to-cost ratio is 1.9 to 1.0.

Although the city of Austin was not in a financial or authoritative position which will allow officials to commit to financing of the NED plan for Shoal Creek, the Hancock Creek project is significantly smaller. The funding problems appear to be short term, and the city is optimistic that funding would be available for the smaller Hancock Creek project.

RECOMMENDATIONS

The Recommended Plan as described in this report is recommended for construction. This plan, is the Hancock Creek channel plan and includes channel improvements for flood control. The estimated first cost of this plan is \$6,634,700.

I recommend that the Hancock Creek channel plan selected herein for flood damage reduction along Hancock Creek be authorized for implementation as a Federal project, with such modifications as in the discretion of the Chief of Engineers may be advisable, at a first cost to the United States presently estimated at \$4,975,700.

Prior to commencement of construction, the local sponsor, the city of Austin, must agree to meet the requirements for non-Federal responsibilities as outlined in the report and in future legal documents. The local sponsor has demonstrated that they have the authority and the financial capability to provide all non-Federal requirements for construction, operation, and maintenance of the project.



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