May Branch,
Fort Smith, Arkansas
Feasibility Report
And
Environmental Assessment

Executive Summary

This combined feasibility report and environmental assessment evaluates and recommends to decision makers the channelization of May Branch to alleviate flooding problems. May Branch is a small tributary to the Arkansas River which lies entirely within the city limits of Fort Smith, in northwest Arkansas along the Oklahoma border. The study was conducted by Little Rock District, U. S. Army Corps of Engineers, and the City of Fort Smith, Arkansas, the non-Federal sponsor. The study complies with the Corps of Engineers and the Council of Environmental Quality requirements.

Project Purpose, Need, and Recommendation

The purpose of the feasibility study is to identify, evaluate, and recommend to decision makers a coordinated, implementable solution to the identified water resources problems and opportunities for May Branch in Fort Smith, Arkansas. It is recommended that improvements to May Branch for flood control with minor environmental restoration benefits be authorized for construction. The recommended plan is the Locally Preferred Plan (LPP). On October 27, 2005, the Assistant Secretary of the Army (Civil Works) granted an exception to allow full Federal participation in cost-sharing reaches 1 through 4 of the LPP and that reaches 5 and 6 will be constructed at 100-percent non-Federal expense.

Approximately 2.75 miles of the original channel of May Branch was covered and converted to an underground storm sewer tunnel in 1910. It extends from Park Avenue to the outfall at the Fort Smith Levee/Floodwall's P Street Pump Station located at North P Street and Clayton Expressway on the right bank of the Arkansas River. There is an evident need to reduce the incidence of flood damages along May Branch with additional channel capacity or some other type of flood reduction measures. This was know prior to the 1951 construction of the Fort Smith Levee/Floodwall with its four drainage structures and two pumping stations that is operated and maintained by the City of Fort Smith.

Flooding in the May Branch basin is flashy and of short duration. Runoff from the 5.3-square mile drainage area of May Branch often exceeds the capacity of the P Street storm sewer. Average annual flood damages amount to an estimated $1.5 million. Inadequately sized storm sewer inlets cause localized ponding problems, with this ponded water remaining in the streets until the storm sewer can accommodate the water. Several major streets cross the floodplain, and these streets are subject to flooding by the 100-year event. Runoff from a storm event with a recurrence interval of approximately ten years will exceed the storm sewer capacity. However, there are significant flood damages in the upper three reaches of May Branch with a 5-year recurrence interval.

Description of Affected Environment

Fort Smith is the county seat and largest city in Sebastian County in addition to being the second largest city in Arkansas. The Year 2000 census reported a population of approximately 80,268 persons. Economic and social opportunities in Fort Smith have attracted new residents for many years, including numerous ethnic minorities. Fort Smith has been a home to well-established Native American and African American communities since frontier days. More recent immigrants to the area have included refugees from Southeast Asia in 1975, refugees from Cuba in 1980-82, and Hispanic peoples from Mexico and Latin America who began arriving in numbers in about 1985.

The project area is 100 percent urbanized and has an extensive infrastructure associated with areas of high-density housing, low-density housing, commercial areas, and industrial areas. Several railroad tracks, serving the Missouri Pacific, Union Pacific, Arkansas-Missouri, Kansas City Southern, and Fort Smith railroads, are in current operation and traverse the project area. Most of the project area is located within a FEMA 100-year floodplain although there are only six acres of wetlands as regulated by the Corps under Section 404 of the Clean Water Act in the project area. Most wetlands that were present prior to development have been destroyed, reduced in size, or highly impacted.

Water samples have been analyzed for contaminants, which could have originated from area industries. Those analyses showed that suspected contamination exists locally. For the proposed route C1/D1, however, contamination is minimal. The Fort Smith area is in compliance with all EPA ambient air quality standards. Only ozone concentrations occasionally approach the limit of the standard. Noise includes locomotive traffic from the rail lines and vehicular traffic on the several major street arteries that cross the area.

The entire project area is a highly urbanized environment, and many parcels of land within the area are characterized by little or no maintenance and have vegetation cover dominated by weedy species. Less disturbed sites support vegetation cover dominated by woody species, many of which are introduced or weedy species.

The project area supports relatively minor wildlife populations. Species known from the area include Eastern cottontail, Virginia opossum, raccoon, striped skunk, and other small rodents. Beaver are known from impounded areas close to the Arkansas River. Eastern white-tailed deer frequent the woods along the levees, although the carrying capacity of those habitats is low. Fishery habitat is of very low quality in the lowermost portion of May Branch.

There are no federally listed threatened or endangered species having a potential for project impacts.

There are no prime farmlands within the project area.

No recorded archeological sites and no sites or properties currently listed on the National Register are known to occur within the proposed project corridor.

Discussion of 12 Alternative Alignments

A total of six downstream and two upstream alignments were developed, and comparative route costs were determined (individual route cost shown in parenthesis). The six downstream alternative alignments were A1 ($10,990,000), A2 ($10,950,000), B1 ($11,430,000), B2 ($10,290,000), C1 ($10,090,000), and C2 ($14,220,000). The two upstream alternative alignments were D1 ($2,520,000) and D2 ($2,680,000). The upstream and downstream alignments were combined to make 12 alternatives. All 12 alternatives were assumed to have the same flow capacity characteristics and channel bottom widths. Costs were estimated for those quantities that would be different for each alignment. All 12 alignments would result in reestablishment of a channel that would equally alleviate flooding problems and also provide some minor increase in environmental quality. All of these alignments have few environmental impacts, most of which are either minor or temporary over the no action alternative.

No Action Alternative

With implementation of the no active alternative, frequent flooding will continue to cause considerable damage along May Branch. Street intersections will continue to function as detention basins after curb and drop inlets have reached capacity, and excess runoff will flow between buildings and across low-lying terrain along North P Street. A storm event greater than a 10-year event will exceed the capacity of the storm sewer system, while the Fort Smith Levee/Floodwall system, together with the P Street pump station, will protect lower portions of the basin from high stages on the Arkansas River. When the pump station's capacity is exceeded by runoff, the excess can overflow the limited capacity of the sump area located in the vicinity of the City's sewage treatment facility.

Proposed Action Alternative

Route C1/D1 was selected as the preferred alternative alignment because it had the lowest cost, the least number of relocations, and the fewest environmental impacts. The C1/D1 alignment extends from the Arkansas River to Clayton Expressway through the Fort Smith Levee and then passes north and east to 13th Street by roughly paralleling North P Street. From 13th Street, it continues to the east along the north side of Martin Luther King Park, crossing May Avenue and continuing along the north side of the Arkhola plant until turning south. From that point, it crosses North O Street and continues southward along the existing storm sewer alignment to Park Avenue.

The Proposed Action Plan has a channel that would extend for 2.25 miles from the Arkansas River upstream to Grand Avenue. An extension of the channel would add 0.5 miles to Park Street. From O Street to the Fort Smith Levee, the channel would augment the flow capacity of the P Street Storm Sewer. There would be culverts at road and railroad crossings and a gated structure through the levee. The bottom width varies from

24 feet in the downstream portion to 4 feet for the upstream most 0.5 miles. The channel would be mainly trapezoidal with three horizontal to one vertical (3H:1V) side slopes. The slopes would be riprapped except for a vertical concrete wall behind the Arkhola plant and a 1,500-foot length downstream of Grand Avenue where the channel has a 2H:1V side slope and is concrete lined to avoid area buildings.

Finding of No Significant Impact (FONSI)

The FONSI for the May Branch project includes a consideration of the environmental effects disclosed in the Environmental Assessment (EA), and shows that the effects are not significant. The list of 10 criteria that must be evaluated in making a FONSI determination are provided below with a brief discussion of each as it relates to the May Branch project:

1. **The degree to which the action results in both beneficial and adverse effects. A significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial.** The EA indicates that the Proposed Action would have beneficial effects such as reduction in flood damages and a minimal increase in environmental quality as compared to the No Action alternative that would have no impacts. Some impacts will result from project implementation, but these will be minor in intensity and construction related only. The Proposed Action will require a total of 15 building relocations, while the remaining 11 Alternative alignments combinations have building relocations ranging from 17 to 25.

2. **The degree to which the action affects public health or safety.** The Proposed Action will protect public health by alleviating flooding problems through construction of a channel. No adverse effects to public health or safety will result from the Proposed Action. Under existing conditions, no hazardous materials have been identified on the project site.

3. **The degree to which the action affects unique characteristics of the potentially affected area, such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.** No such unique characteristics or resources have been identified in the project area of the Proposed Action. Alternative Routes A1 and A2 would disturb up to 6 acres of wetlands. Alternative Routes B1, B2, C1, C2, D1, and D2 would disturb no acres of wetlands.

4. **The degree to which effects on the quality of the human environment are likely to be highly controversial.** The project will be highly beneficial to the general public; therefore, the Little Rock District, Corps of Engineers does not regard this activity as controversial, and the public response to the EA was favorable.

5. **The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.** The Proposed Action has a low degree of uncertainty involving the impacts of this action. Reestablishment of an open channel will result in short-term impacts related to construction, but the long-

term values include alleviation of flood damages and minimal improvement of biological processes within the channel.

6. **The degree to which the action may establish a precedent for future actions with significant impacts.** The action is highly unlikely to cause future actions with significant impacts. The flood plain is considered to be fully developed and open areas created with relocation of flooded properties preclude development not compatible as an open area.

7. **Whether the action is related to other actions with individually insignificant but cumulatively significant impacts.** The Proposed Action would not result in any cumulative impacts concerning any reasonably foreseeable action in the project area. Cumulative effects on disturbed soils and habitat related to construction activities under the Proposed Action are discussed in the EA.

8. **The degree to which the action may adversely affect items listed or eligible for listing in the National Register of Historic Places, or other significant scientific, cultural or historic resources.** No impacts would occur with the Proposed Action or any of the other Alternatives.

9. **The degree to which the action may adversely affect an endangered or threatened species or its critical habitat.** No endangered or threatened species or habitat for any listed species is located within the project area.

10. **Whether the action threatens a violation of Federal, State or local law or requirements imposed for the protection of the environment.** No such violations will occur. Permits from other jurisdictional agencies such as NPDES permits from the Arkansas Department of Environmental Quality are necessary and will be obtained prior to any construction activities. Continued coordination with regulatory agencies will be ongoing to ensure compliance with all Federal, State, regional, and local regulations and guidelines

Project Cost and Economic Justification

The LPP, reaches 1 through 4, has an estimated cost of $25,403,000 and the reaches 5 & 6 channel extension is estimated to cost $5,082,200, which is a total non-Federal cost. The estimated annual OMRR&R cost is $55,500. The Federal portion of the estimated cost is $14,831,300 and the estimated cost to the city of Fort Smith, Arkansas, the non-Federal sponsor, is $15,653,900 for a total project cost of $30,485,200 at an October 2005 price level.

The LPP meets the needs of the local community. At little extra cost ($1,410, 600) over the National Economic Development (NED) plan (NED cost, $19,725,800), the LPP plan provides greater flood reduction benefits and removes the maximum number of structures out of the 100-yr floodplain, (127 structures versus the 87 structures for the NED plan). The LPP is economically justified without significant adverse impact to the environment. It has a benefit to cost ratio of 1.09 to 1 at a 5.125% interest rate, $115,500 in excess benefits over costs with average annual benefits of $1,468,100 and average annual costs of $1,352,600.