

**Eight-Step Planning Process for Floodplains and Wetlands  
90th East Avenue Drainage Project, Bixby, OK**

<p><b>Step 1:</b> Determine whether the Proposed Action is located in a wetland and/or the 100-year floodplain (500-year floodplain for critical actions), and whether it has the potential to affect or be affected by a floodplain or wetland.</p>	<p><b>Project Analysis:</b> The project area is located entirely within a shaded Zone AE, which is within the 100-year floodplain (FEMA Community Panel Numbers 40143C0369K and 40143C0432K, revised August 3, 2009). According to National Wetlands Inventory Maps, the proposed project site contains no wetlands.</p>
<p><b>Step 2:</b> Notify public at earliest possible time of the intent to carry out an action in a floodplain or wetland, and involve the affected and interested public in the decision-making process.</p>	<p><b>Project Analysis:</b> The City of Bixby will notify the public of the availability of the draft EA and the intent to carry out an action in the floodplain through publication of a public notice in a local newspaper when the draft EA is made available for public review.</p>
<p><b>Step 3:</b> Identify and evaluate practicable alternatives to locating the Proposed Action in a floodplain or wetland.</p>	<p><b>Project Analysis:</b> The City of Bixby considered the following alternatives in selecting the proposed action:</p> <p><i>No Action Alternative:</i> Under the No Action Alternative, the City of Bixby would not construct the proposed project. The City would continue close off access to 90th East Avenue and activate emergency services during heavy precipitation events. Flooding would continue to create logistical problems for the City and residents because the flood waters degrade and damage utilities and cause dangerous and life-threatening situations for residents and commuters. The City invests substantial costs for emergency personnel and equipment dispatched to this area during flood events.</p> <p><i>90th East Avenue Drainage Project (Proposed Action):</i> Under the Proposed Action Alternative, the City of Bixby proposes to use FEMA funding, in conjunction with City funding to:</p> <ul style="list-style-type: none"> <li>• Construct a 1.6-acre water detention facility adjacent to 90th East Avenue.</li> <li>• Create a 0.11-acre energy dissipation area by widening the channel overbank at the East 113th Street culvert outflow.</li> <li>• Elevate 90th East Avenue and portions of both 89th East Avenue and East 113th Street above the 100-year flood event.</li> <li>• Replace an existing 36-inch RCP culvert with a triple 8-foot x 6-foot RCB culvert at the basin outlet on the East 113th Street bridge.</li> <li>• Replace an existing 42-inch RCP culvert with a triple 8-foot x 6-foot RCB culvert at the basin inlet on the 89th East Avenue bridge.</li> <li>• Replace/upgrade sanitary sewer lines and create seven sanitary sewer encasements/drop structures.</li> </ul>

	<ul style="list-style-type: none"> <li>• Stabilize approximately 175 total linear feet of stream bank within the sewer line right-of-way between all sanitary sewer drop structures.</li> <li>• Acquire and demolish residences at 11270 90th East Avenue and 11310 91st East Avenue remove any associated landscaping or paving.</li> </ul> <p>Fry Creek flows through the center of the project area. The proposed 1.6-acre detention facility will require the demolition of an existing residence that will be acquired by the City of Bixby. All material excavated for the construction of the detention facility will be used to raise the surrounding roadways above the 100-year flood level. A second residence to be acquired by the City of Bixby will be cleared for construction of a proposed 0.11-acre energy dissipation area downstream of the upgraded 113th Street culvert. Existing RCPs will be removed at 89th East Avenue (42-inch RCP) and East 113th Street (36-inch RCP). Seven sewer line encasements/drop structure and related stream bank stabilization locations are proposed along with the removal and replacement of 5 existing driveway aprons and segments of driveways along the east side of south 90th East Avenue. No other alternatives exist outside of the floodplain.</p>
<p><b>Step 4:</b> Identify the full range of potential direct or indirect impacts associated with the occupancy or modification of floodplains and wetlands, and the potential direct and indirect support of floodplain and wetland development that could result from the Proposed Action.</p>	<p><b>Project Analysis:</b> The entire project area is located within the 100-year floodplain; therefore, under the Proposed Action Alternative, impacts to the floodplain would occur. The proposed project would excavate 1.71 acres of the floodplain for construction of the detention basin and energy dissipation area and would remove two houses from the floodplain. Impacts on the floodplain would not be adverse. Construction of the detention facility would store floodwaters and allow them to dissipate more slowly. The project would reduce the risk of flooding for the project area by demolishing pre-FIRM structures and raising roadways above the 100-year floodplain. Excess fill removed during culvert replacement and stream bank restoration activities would be used to raise the roadway above the Base Flood Elevation. The Proposed Action Alternative would not encourage development within the floodplain, but would remove existing structures in the floodplain and prevent further development of the area.</p> <p>No wetland impacts are anticipated, although NWP #14 would be required to authorize work in Fry Creek (a WOUS).</p>
<p><b>Step 5:</b> Minimize the potential adverse impacts from work within floodplains and wetlands (identified under Step 4), restore and preserve the</p>	<p><b>Project Analysis:</b> The City would follow all applicable local floodplain ordinances and FEMA requirements as stated in 44 CFR 60.3. An engineering analysis estimating impacts would be prepared, and a no-rise</p>

<p>natural and beneficial values served by wetlands.</p>	<p>certification Letter of Map Revision would be prepared.</p> <p>The City of Bixby must coordinate with the local floodplain administrator and obtain required permits prior to initiating work. All coordination pertaining to these activities and applicant compliance with any conditions should be documented and copies forwarded to the state and FEMA for inclusion in the permanent project files.</p>
<p><b>Step 6:</b> Reevaluate the Proposed Action to determine: 1) if it is still practicable in light of its exposure to flood hazards; 2) the extent to which it will aggravate the hazards to others; 3) its potential to disrupt floodplain and wetland values.</p>	<p><b>Project Analysis:</b> The Proposed Action remains practicable because it would elevate roadways out of the 100-year floodplain and reduce flood hazards in the project area. The project will not aggravate hazards to others and will not disrupt floodplain and wetland values. There will be no conversion of floodplain to non-floodplain areas. The project will aid in the preservation of the floodplain while reducing flooding in the project area.</p>
<p><b>Step 7:</b> If the agency decides to take an action in a floodplain or wetland, prepare and provide the public with a finding and explanation of any final decision that the floodplain or wetland is the only practicable alternative. The explanation should include any relevant factors considered in the decision-making process.</p>	<p><b>Project Analysis:</b> A public notice will be published informing the public of FEMA’s decision to proceed with the project. This notice will include a rationale for floodplain impacts; a description of all significant facts considered in making the determination; a list of the alternatives considered; a statement indicating whether the action conforms to State and local floodplain protection standards; a statement indicating how the action affects the floodplain; and a statement of how mitigation will be achieved. The City of Bixby must prepare and provide Public Notice issued 15 days prior to the start of construction</p>
<p><b>Step 8:</b> Review the implementation and post-implementation phases of the Proposed Action to ensure that the requirements of the EOs are fully implemented. Oversight responsibility shall be integrated into existing processes.</p>	<p><b>Project Analysis:</b> This step is integrated into the NEPA process and FEMA project management.</p>