

Steps in Mitigating Floodplain or Wetland Impact

Note: The locality **MUST** keep written documentation indicating that all the steps in this process are carried out.

8-STEP DECISION-MAKING PROCESS EXAMPLE

Case Study Example - Anytown, USA

Paul Peavler-Jensen Homes (Project No. WA90-T00-1287)

Decision Process for E.O. 11988 as Provided by 24 CFR §55.20

Step 1: Determine whether the action is located in a 100-year floodplain (or a 500-year floodplain for critical actions) or wetland.

This action is located in a 100-year floodplain and a wetland. One building on the proposed project site is located within AE Zone (area of special flood hazard with water surface elevations determined) and the other two buildings are partially located in an A Zone (area of special flood hazard without water surface elevations determined), as indicated on Flood Insurance Rate Map (FIRM) Panel 16 of 70 no. 5301260026R, revised September 27, 2008. The FIRM is attached to this document. The wetland was not originally mapped on the Fish and Wildlife Service- National Wetlands Inventory (NWI) but was observed during a site inspection. NWI staff delineated the wetland and found there to be an acre of wetlands that are not subject to Section 404 of the Clean Water but are wetlands for E.O. 11990 purposes. A site plan with the delineation of the wetlands and the NWI map are attached.

This project is (a) acquisition of property, (b) demolition, and (c) new construction of affordable multifamily housing of greater than four units and, for these reasons, E.O. 11988- Floodplain Management and E.O. 11990- Wetlands Protection apply. This project does not meet any of the exceptions at 24 CFR 55.12 and therefore requires an 8-step analysis of the direct and indirect impacts associated with the construction, occupancy, and modification of the floodplain and wetland.

The proposed project, Paul Peavler-Jensen Homes, includes acquisition of two parcels and construction of three buildings. Each building would consist of five units located between 3201 and 3401 Pipkin Street. The project will provide vital shelter for area homeless families. There has been an increase in homeless families in Anytown of 35% in the last three years. The Upper American River system has been a natural floodplain for many years. Therefore, this analysis will consider impacts to the floodway along with concerns for loss of life and property.

Step 2: Notify the public for early review of the proposal and involve the affected and interested public in the decision making process.

A public notice describing the project was published in the Anytown Tribune, the local and regional paper, on September 22, 2013. The ad targeted local residents, including those in the floodplain. The notice was also sent to interested Federal, State, local agencies, and non-profit groups such as the state floodplain manager, environmental protection groups, neighbors, and a group of individuals known by Anytown to be interested in such notices. A list of specific agencies and individuals and a copy of the published notification is kept in the project's environmental review record and attached to this document. A copy was also posted on the Anytown website and at the local libraries. The required 15 calendar days were allowed for public comment. As required by regulation, the notice also included the name, proposed location and description of the activity, total number of floodplain and wetland acres involved, and the responsible entity contact for information (insert HUD official under Part 50) as well as a website and the location and hours of the office at which a full description of the proposed action can be viewed.

Comments from the public stated both support and opposition to the project. Supporters said the housing was necessary while opponents were concerned with property values and public services. Anytown agrees that additional affordable housing is necessary.

In regards to the comments of opponents, a preliminary analysis of services indicated that public services, such as police, fire protection, sanitation, and water, are adequate to handle 15 units of housing. Property values were considered in Step 3 during the consideration of economic factors, but were not significantly different nor impacted in a meaningful way among the various sites. One commenter also worried about debris coming from the buildings in the event of a flood. This concern will be addressed through engineering and site planning to minimize any such risk.

FEMA and city engineers were contacted concerning mitigation requirements of the National Flood Insurance Program (NFIP) as well as local ordinances that must be implemented as part of NFIP.

Step 3: Identify and evaluate practicable alternatives.

The Anytown Housing and Redevelopment Agency (AHRA) project site selection criteria are:

- (a) The project can not cause current residents to become displaced;
- (b) The project must be within city limits in order for bond proceeds to be used by the AHRA;
- (c) The project must contain at least twelve units in order to meet community needs;
- (d) The project must be within ½ mile of public transportation; and
- (e) Land costs less than \$500,000

Anytown considered several alternative sites and actions believed to satisfy these requirements:

A. Locate the Project Within the Floodplain and/or Wetland

1. Locate the project between 3201 and 3401 Pipkin Street

The project site has three abandoned homes that are considered blighted properties. This site meets the requirements of the city's bond and does not displace residents. The project also meets the community's needs of 12 units. However, the project as originally proposed would cause damage to the floodplain and its natural functions by paving areas and obstructing flood zones. Additionally, constructing in an AE Zone would present challenges in building at a foot above the base flood elevation (BFE) and would endanger human life as well as local and federal investment. The cost of elevation and maintaining flood insurance for the building in AE Zone are impracticable. This plan fills .75 acres of wetland.

This site is convenient for metro bus and light rail service (less than ¼ mile), which is seen as an extremely attractive asset for the potential occupants. There are also elementary and high schools within walking distance.

2. Modify the project between 3201 and 3401 Pipkin Street and Alternative Method Avoiding New Construction in Wetlands

The proposal above can be modified to include two, seven-unit buildings with one building moved completely out of special flood hazard areas and a second building partially in the A Zone but elevated in order to minimize adverse impacts to the floodplain, public safety, and public investment. This site redesign serves the same purposes without expanding the development outside of the development footprint of the three houses that are to be demolished. Additionally, this alternative serves the same objective as the original proposal. Any development in the unmarked A Zone requires that an expert, using FEMA approved standards, makes a determination and acquires an elevation certificate which states the necessary base flood elevation. This site modification also avoids development in a wetland and preserves natural and beneficial functions while preserving habitat.

3. Obtain a Letter of Map Amendment (LOMA) or Letter of Map Revision (LOMR)

The city also considered applying for a LOMA but the elevation information certified by a Licensed Land Surveyor/Registered Professional Engineer

indicated that the lowest adjacent grade (the lowest ground touching the structure) was not at or above the BFE, so the site was not eligible.

A LOMR-F request was also considered but rejected due to a local policy forbidding fill in the floodplain due to the impact it may have on other property owners.

B. Locate the Project Outside of the Floodplain and Wetland

1. Locate the project at the North Poythress Avenue site

The city had considered an alternative site at 1500 North Poythress Avenue. An engineering report concluded that the site had unstable soils and slopes as well as a significant amount of wetlands. The cost of the mitigating measures for these environmental impacts, as well as endangered species habitat, made the site prohibitively expensive to develop. The amount of fill and soil stabilization required would nearly double development cost to \$XXXXXXXXXX.

2. Locate the project at 3405 Berman Road

The city proposed developing this site six years ago but met stiff resistance from the community because of the site's use as a park and greenspace. Another site was then chosen for development. Last year the site was again reviewed. Stiff opposition again resurfaced. These factors made the site more expensive to develop. These costs combined with the social cost in the form of aesthetics and community recreational use eliminated this option.

3. Other sites considered not meeting the initial site selection conditions

Other sites were also considered within the city limits. The sites are located at 456 Bien Street, 1249 Prybyla Lane, 4257 and 4261 Bennett Street, and 878 Groberg Road. All of the sites would have either displaced residents who were unwilling to sell within the acquisition budget or would have placed the project on sites encumbered by wetlands, steep slopes, soil contamination, or other more significant development costs. A market analysis was performed and concluded no other sites were feasible for development. The market analysis is attached to this document consistent with 24 CFR 55.27(a)(1).

C. No Action or Alternative Actions that Serve the Same Purpose

A no action alternative was considered and rejected because of a recent city study that found the area in dire need of affordable housing. It showed an increase in homeless families of 35% over the past three years with a concurrent increase in the number of families using homeless shelters more than once a year. The

current level of services and facilities in Anytown does not equip the city to help the homeless seeking assistance.

The emergency shelters currently housing families are for emergency use and not designed to meet the needs of homeless families with children. They are intended only for overnight use and do not provide the stability required for a family to function or the specialized services to help bring about independent family living.

The proposed project would provide the housing needed along with space for supportive services with the goal of enabling the families to become independent within a 24 month period.

Step 4: Identify Potential Direct and Indirect Impacts of Associated with Floodplain Development.

Locating the project at Pipkin Street per the modified proposal will have minimum impacts to the floodplain because the structures will be elevated a minimum of three feet above the BFE and have a footprint designed to minimize these impacts. The design will also minimize potential damage to the property as a result of the flooding. The area has experienced some flooding in the past but never above the proposed elevation. No structures or improvements will be located in the floodway. The wetland impacts will also be avoided with this option.

The highest priority of this review is to prevent the loss of life. FEMA estimates that it would take a warning time of between five and seven hours to safely evacuate people from the area. The site will be elevated well above the BFE in order to protect life from potential flash floods. The additional elevation will also help to protect the financial investment.

The city of Anytown is a member of the National Flood Insurance Program and structures located in the flood zone must comply with the local flood ordinance. HUD requires projects located in the floodplain to maintain flood insurance for the life of the property. Even though only one of the buildings is required to have flood insurance, the city will maintain flood insurance for both buildings in order to mitigate any effects of flooding.

In addition to concerns for life and property, the city considered the natural and beneficial values of the floodplain. The natural resources of the floodplain include water, biological, and societal resources.

By elevating the buildings and disallowing impervious surfaces in and around the floodplain, the construction will have minimal effects on water resources. Hydrologists and engineers were consulted in order to design the building and the site plan in such a way that natural flood and erosion control, water quality, and groundwater recharge are preserved. In addition to the prohibition on impervious surfaces in and directly around the floodplain, the floodplain was preserved through elevation and positioning of the building.

The Fish and Wildlife Service has determined that the construction of the buildings will have

no quantifiable impact on plant and animal life. Only native plants are to be used in the floodplain and on the site. By avoiding the wetland, there will be reduced cost because fill and compensatory mitigation are no longer required.

Societal resources were also considered during the design process. The designs are meant to complement the natural features of the area and to offer an aesthetically pleasing structure. The site will not have an effect on agricultural lands and efforts have been made to preserve existing trees on the site. The site will also maintain an open space for recreational opportunities. An easement will be made to the city to allow for construction of a bike path that will serve transportation purposes. The city will also allow the site to be accessible for archaeological, historic, environmental, biological, and other scientific studies should an individual or an organization express interest.

Step 5: Where practicable, design or modify the proposed action to minimize the potential adverse impacts to lives, property, and natural values within the floodplain and to restore, and preserve the values of the floodplain.

- (a) Preserving Lives: In order to preserve lives, local law enforcement and the emergency broadcast system will implement an early warning system should flooding conditions arise. In addition to the warning system, law enforcement has an emergency evacuation and relocation plan. The new structures will also be marked with identification marks of past and estimated flooding and the interior common areas will display an evacuation plan. All residents will also be briefed on the location of the flood hazard area and evacuation plans upon placement. The building will also be elevated to three feet above BFE to protect any flood survivors who may be stranded during a flood event.
- (b) Preserving Property: In order to preserve property, flood insurance will also be acquired and maintained in order to mitigate possible flood damage. The structures will be elevated at three feet above the BFE to save on flood insurance cost and to enhance the structures ability to withstand floods. All construction will be elevated consistent with FEMA's Lowest Floor Guide (<http://www.fema.gov/pdf/nfip/manual200605/07lfg.pdf>) and use flood resistant materials consistent with FEMA bulletins (see <https://www.fema.gov/media-library/assets/documents/2655?id=1580>).
- (c) Preserving Natural Values and Minimizing Impacts: The site design chosen as an alternative at Step 3 reduced floodplain impacts and prevented new construction from occurring in the floodplain. By elevating the buildings, constructing a green roof with provisions for draining and stormwater reuse, and using pervious surfaces throughout the site, the construction will have minimal effects on water resources. Impacts to the floodplain will also be limited due to construction occurring within the previously developed site. In addition to the prohibition on impervious surfaces in and directly around the floodplain, the floodplain was preserved through elevation and positioning of the building. Swales will be introduced using native vegetation to address drainage

impacts and will be placed by biologists and hydrologists in consultation with the U.S. Fish and Wildlife Service (FWS). The FWS will also advise Anytown on preservation of flora (plants) and fauna (animals). Conservation easement agreements through the United States Department of Agriculture's Natural Resource Conservation Service will also be entered for nearby wetlands owned by the city. These actions will serve to both restore habitat off and on site while also preserving non-impacted areas to minimize effects. Additionally, the city has implemented a policy of "no net loss" for all wetlands impacts through a restoration and compensatory mitigation program. All appliances and fixtures will be EPA Energy Star and WaterSense certified.

Step 6: *Reevaluate the Alternatives.*

Although the Pipkin Street site is in a floodplain, the project has been adapted in order to minimize effects on floodplain values. Additionally, steps were taken in order to minimize risks to human life and property via evacuation plans, construction methods, flood insurance, etc. The estimated annual cost of flood insurance is \$XXXXXX and the costs of elevating the structure is \$XXXXX. The additional three feet of freeboard above the BFE will save \$XXXX annually on flood insurance compared to building at the BFE. This means the additional elevation cost will pay for itself in 4 years due to decreased mandatory flood insurance premiums. The city will help the developer with costs, while the developer, due to a contractual obligation with the city, alone will bear the costs of maintaining the statutorily required flood insurance premiums for the life of the structure in accordance with the Flood Disaster Protection Act of 1973.

The rejected Pipkin Street plan would result in increased costs from wetlands fill and compensatory mitigation as well as increased flood insurance costs for additional buildings in the floodplain. The additional building would result in estimated flood insurance cost \$XXXX annually and fill would cost \$XXXXXX.

The Berman Road site is problematic due to storm-water runoff and social concerns. The storm-water runoff costs here are worse than those of Pipkin Street. Additionally, there is a complete lack of public support to make this a feasible site for the project. The estimated value of the area as an open space is estimated to exceed the cost of minimization for the modified Pipkin Street site. The value to the public of the site in its current form is estimated to be \$XXXXXX. When this value is added to the \$XXXXXX in development costs, the Berman Road site is not practicable.

The city had considered an alternative site at 1500 North Poythress Avenue. An engineering report concluded that the site had unstable soils and slopes as well as a significant amount of wetlands. The cost of the mitigating measures for these environmental impacts, as well as endangered species habitat, made the site prohibitively expensive to develop. The amount of fill and soil stabilization required would nearly double development cost to \$XXXXXXXXXX, which greatly exceeds the cost of the Pipkin site.

As documented in the market analysis, construction outside of the floodplain at the 456 Bien Street, 1249 Prybyla Lane, 4257 and 4261 Bennett Street, and 878 Groberg Road sites is not viable because the sites do not meet one or more of the selection criteria :

- (a) The project cannot cause current residents to become displaced;
- (b) The project must be within city limits in order for bond proceeds to be used by the AHRA;
- (c) The project must contain at least twelve units in order to meet community needs;
- (d) The project must be within ½ mile of public transportation; and
- (e) Land costs less than \$500,000.

Due to contamination, slope, wetland, financial costs, and other concerns, as well as the requirement that the project be constructed within city limits due to bond issues, the Pipkin Street site is the only location that satisfies these needs and concerns without displacing residents. The savings on elevation and flood insurance costs also do not offset the benefits of public transportation and school access when compared to the Pipkin Street sites modified plan to minimize impacts.

The no action alternative is also impracticable because it will not satisfy the need to provide assistance to local homeless families.

Step 7: Determination of No Practicable Alternative

It is the City of Anytown's determination that there is no practicable alternative for partially locating the project in the flood zone. This is due to: 1) the need to provide housing and services to homeless families; 2) the bond requirements to construct within city limits; 3) the desire to not displace residents; 4) the need to construct an economically feasible project; 5) the site's access to public transportation and schools; and 6) the ability to mitigate and minimize impacts on human health, public property, and floodplain values.

A final notice was published and posted consistent with the prior notice. The notice explains the reasons why the modified project must be located in the floodplain, offers a list of alternatives considered at Steps 3 and 6, and describes all mitigation measures at Step 5 taken to minimize adverse impacts and preserve natural and beneficial floodplain values. The notice is attached to this document. No concerns were expressed by the public concerning this notice.

Step 8: Implement the Proposed Action

The city will assure that this plan, as modified and described above, is executed and necessary language will be included in all agreements with participating parties. The city will also take an active role in monitoring the construction process to ensure no unnecessary impacts occur nor unnecessary risks are taken. The flood insurance requirement for the life of the property will be monitored by Anytown by listing the agency as an interested party on the 2nd mortgagee/other box of the flood insurance application and by placing a covenant on the property that lasts for the useful life of the structure.