

Appendix G
Alternative Mitigation Measures
Exercise

Alternative Mitigation Measures Exercise 2015 Tuscaloosa Floodplain Management Plan

Summary of Results from Five Responses

- If no respondents suggested the measure should be eliminated from further consideration, it is not highlighted.
- If only one respondent suggested the measure should be eliminated from further consideration, it is highlighted in yellow.
- If two respondents suggested the measure should be eliminated from further consideration, it is highlighted in pink.
- If three or more respondents suggested the measure should be eliminated from further consideration, it is highlighted in red.
- *Respondent comments are noted in italics and underlined.*

Instructions. The purpose of this exercise is to narrow down the mitigation measures to be considered for the City's Five Year Action Plan component of the 2015 Floodplain Management Plan. Take into consideration the City's capabilities to carry out flood hazard mitigation measures (see appendix D) and the STAPLEE approach (Social, Technical, Administrative, Political, Legal, Economic, and Environmental considerations discussed in chapter 5). Given these considerations, please review the alternative mitigation measures described in this exercise. These measures have been grouped according to six categories that match the plan's goals.

Please eliminate those measures that are not appropriate and should not be further considered for the Five-Year Action Plan, by marking through them. At this step in the planning process, we are paring down the alternatives. The final selection of measures to be included in the Action Plan will be the next step. These activities have been identified in the CRS Coordinator's Manual, but the Action Plan can also consider activities that are not creditable under the CRS Program. Provide any comments or other suggested activities you might have in the space provided at the end of this exercise.

1. **Preventive activities** keep flood problems from getting worse through planning, permitting, and regulatory tools.

Activity 310 Elevation Certificates

- Maintain FEMA elevation certificates for all existing buildings in the floodplain, including all "post-FIRM" buildings constructed since the City entered the NFIP in 1973 and pre-FIRM buildings prior to 1973.
- Maintain FEMA elevation certificates for all "pre-FIRM" (prior to 1973) buildings constructed in the floodplain.

Comment: Continue to maintain elevation certificates on all new construction.

Activity 410 Floodplain Mapping

- Develop new flood elevations, floodway delineations, and other regulatory flood hazard data for areas not mapped in detail by the most recent NFIP Flood Insurance Study (FIS).
- Develop studies and maps that apply higher standards than the FEMA criteria.
- Establish a higher floodway standard.

Comment: Continue to update inaccurate/outdated flood mapping.

Activity 430 Higher Regulatory Standards

- Require additional freeboard than one foot for minimum building elevation and flood proofing
- Prohibit flood proofing and require flood protection by elevation only.
- Prohibit fill in the floodway.
- Prohibit septic tanks in the flood plain.
- Require foundations to be designed by a licensed engineer.

Comment: In floodplain?

- Lower the threshold for substantial improvements to less than 50% of the building value requires full compliance with floodplain management ordinance.
- Require that improvements, modifications, and additions to existing buildings are counted cumulatively for at least 10 years.
- Protect critical facilities (police, fire, public utilities, schools, medical, etc.) to the 500 year flood elevation.
- Require compensatory storage for fill.
- Prohibit outdoor storage of materials in the floodplain.
- Require elevation of hazardous materials storage indoors.
- Maintain Certified Floodplain Managers (CFM) on staff for ordinance administration.

Activity 440 Flood Data Maintenance

- Maintain elevation reference marks.

Comment: Possibly.

Activity 450 Stormwater Management

- Increase stormwater management standards (design storm and size of development) for the regulation of new development to ensure that post-development peak runoff is no worse than pre-development conditions.

Comment: Current requirement.

- Enact regulations to require the implementation of low impact development (LID) techniques to minimize the need for more traditional stormwater management controls (pipes, channels, and detention).

- Regulate new construction to protect or improve water quality.
2. **Property protection** activities are measures taken to permanently protect property from flood damage on a building-by-building basis.

Activity 520 Acquisition and Relocation

- Acquire and demolish flood-prone buildings and maintain the property as permanent open space
- Relocate flood-prone buildings so that they are out of the floodplain.

Comment: Encourage.

Activity 530 Flood Protection

- Retrofit existing non-residential flood-prone buildings by flood proofing.
- Protect existing flood-prone buildings by elevation above flood levels.

Activity 370 Flood Insurance Promotion

- Perform a flood insurance coverage assessment of the City's current level of coverage and identify shortcomings.
- Prepare and implement a coverage improvement plan under the direction of a committee of local lenders and insurance agents.

3. **Public information** activities advise people about the flood hazard, encourage the purchase of flood insurance, and provide information about ways to reduce flood damage. These activities also generate data needed by insurance agents for accurate flood insurance rating. They generally serve all members of the community.

Activity 320 Map Information Service

- Provide Flood Insurance Rate Map (FIRM) information to people who inquire, and publicize this service.

Comment: Continue to provide.

Activity 330 Outreach Projects

- Send information about the flood hazard, flood insurance, flood protection measures, and/or the natural and beneficial functions of floodplains to residents.

Activity 340 Hazard Disclosure

- Encourage real estate agents to advise potential purchasers of flood-prone property about the flood hazard.

Activity 350 Flood Protection Information

- Maintain publications and reference materials at public libraries.

- Create a community's website to disseminate flood protection information to the public.

Activity 360 Flood Protection Assistance

- Give inquiring property owners technical advice on how to protect their buildings from flooding, and publicize this service.

4. **Natural resource protection** activities preserve or restore natural areas or the natural functions of floodplain and watershed areas. They are implemented by a variety of agencies, primarily parks, recreation, or conservation agencies or organizations.

Activity 420 Open Space Preservation

- Preserve City-owned floodplain lands as permanent open space, kept free from development through deed restrictions.
- To the extent possible, maintain or restore City-owned flood plains to their natural condition.
- Provide zoning and subdivision incentives for to set aside flood plains as permanent open space in new developments. Consider provisions for clustering and conservation subdivisions.
- Restrict subdivision of flood plain lands to 5 or more acres.

5. **Structural projects** provided flood damage protection through activities designed to maintain drainage systems, retrofitting existing building to prevent flood damage, and structural flood control and drainage projects.

Activity 540 Drainage System Maintenance

- Conduct regular inspections and maintenance of all channels and conveyance facilities and remove debris as needed.
- Regularly inspect all detention and retention facilities constructed pursuant to the City's stormwater management regulations and all city-owned facilities to ensure proper functioning.

Comment: The City should maintain and charge residents on their water bill.

- Maintain a comprehensive GIS inventory of the conveyance system and storage basins. .
- Establish an annual capital improvements programming process for drainage system improvements.
- Enact and publicize no stream dumping regulations.

Activity 530 Flood Protection

- Continue to perform engineering studies that evaluate the feasibility of structural flood controls.
- Protect existing floodplain development by structural projects, where deemed feasible.

6. **Emergency services** measures protect life and property during a flood, through flood warning and response programs during an emergency to minimize its impact. These measures are usually the responsibility of local emergency management staff and the owners or operators of critical facilities.

Activity 610 Flood Warning and Response

- Establish an automated flood threat recognition and forecasting system to identify impending floods.
- Establish methods for early flood warnings to the public.

Comment: Is this possible/realistic?

- Develop a detailed flood response operations plan keyed to flood forecasts for City Council adoption.

Comment: Work w/FRS.

- Coordinate flood warning and response activities with critical facilities operators.

Comments: These items (all of activity 610 measures) appear achievable but are dependent upon: (a) cost involved for monitoring of reporting system and (b) how elaborate are the requirements for each. Need to seek help from N.W.C.

Comments and Other Suggested Measures to be Considered: