



2 2011 PLAN UPDATE

Requirements §201.6(d)(3): A local jurisdiction must review and revise its plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities, and resubmit it for approval within 5 years in order to continue to be eligible for mitigation project grant funding.

The 2006 Bossier City Local Hazard Mitigation Plan (LHMP) contained a risk assessment of identified hazards for the planning area and a mitigation strategy to address the risk and vulnerability from these hazards. Since 2006, much progress has been made by Bossier City on implementation of the mitigation strategy. This section of the plan provides an overview of the approach to this plan update, identifies new analyses and information included in this plan update.

2.1 What's New in the Plan Update

During the review by the HMPC, it was determined that every section of the plan required updating and revision to meet FEMA's plan update guidance or to change information that was no longer current. Also to be noted, this plan update incorporates the following key requirements (also listed in Section 7.0 Implementation and Maintenance):

- Consider changes in vulnerability due to action implementation;
- Document success stories where mitigation efforts have proven effective;
- Document areas where mitigation actions were not effective;
- Document any new hazards that may arise or were previously overlooked;
- Incorporate new data or studies on hazards and risks;
- Incorporate new capabilities or changes in capabilities;
- Incorporate growth and development-related changes to inventories; and
- Incorporate new action recommendations or changes in action prioritization.

Each section of the plan was reviewed and analyzed to reflect changes that occurred since the previous plan was approved (2006). New information and analyses contained in this plan update includes the following:

- A new assessment of hazards affecting the Bossier City Planning Area was completed resulting in the inclusion of three additional hazards: dam/levee failure, earthquake, and soil hazards
- An entire rework of the risk assessment for each identified hazard. This included reworking the hazard profile and adding new hazard event occurrences; redoing the entire vulnerability analysis to add items identified below and updating the vulnerability assessment based on more recent hazard data as well as using the most current census block – level inventory data.

- An expansion of the flood hazard analysis to include a profile and analysis of the 1 percent and 0.2 percent annual chance flood, the flash/localized flood, and riverine flooding affecting the planning area.
- An enhanced vulnerability assessment which added an analysis of populations vulnerable to the 1 percent and 0.2 percent annual chance flood events
- Also, as required by the 2008 planning guidance, an analysis of the planning areas' ongoing and continued compliance with the NFIP, and the CRS program.

2.2 2006 LHMP Mitigation Strategy Status

Bossier City has been successful in implementing actions identified in the 2006 LHMP Mitigation Strategy, thus, working diligently towards meeting their 2006 goals of:

- Identify and Pursue Preventative Measures that will Reduce Future Damages from Hazards
- Enhance Public Awareness and Understanding of Disaster Preparedness
- Reduce Repetitive Flood Losses in the City
- Facilitate Sound Development in the City so as to Reduce or Eliminate the Potential Impact of Hazards.

Where possible, Bossier City used existing plans and programs to implement the 2006 mitigation strategy. The 2006 mitigation strategy contained 23 separate mitigation actions (10 from the hazard mitigation plan, and 13 from the flood mitigation plan) benefiting one or more communities within the Bossier City Planning Area. Of these 23 actions, 16 have been completed or are ongoing. Two have not yet been started due to a variety of reasons such as changes in priorities, lack of funding, or changes to the projects themselves. 11 projects from the 2006 Hazard Mitigation Plan and the 2001 Flood Plan have been identified for inclusion in this plan update. Another 12 were determined not to be viable projects due to a variety of reasons resulting in a lack of priority. Table 2.1 provides a status summary of the mitigation action projects from the 2006 LHMP. Following the table is a detailed description of the status of each project.

By way of example, Bossier City's 16 Mitigation accomplishments have been significant since the 2006 Hazard Mitigation Plan and the 2001 Flood Plan. A summary of these mitigation accomplishments are detailed below. This provides an assessment of the success of Bossier City in evaluating, monitoring and implementing the mitigation strategy outlined in the initial plans.

Table 2.1 City of Bossier City 2006 HMP: Mitigation Action Status Summary

Action	Jurisdiction/Hazard/Action	Complete	Ongoing	Not yet Started	Project in Plan Update
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Action	Jurisdiction/Hazard/Action	Complete	Ongoing	Not yet Started	Project in Plan Update
1	Improve drainageways by enlarging any inferior culverts along the major drainage laterals at Benoist Bayou, Red Chute Bayou, the Flat River, and the other tributaires to the Red River.		X		X
2	Develop a master drainage plan which would evaluate the Drainage District to Determine best method of increasing drainage capacity including the elimination of cross connections and infiltration of storm water into sanitary sewer. Implement recommended projects resulting from drainage plan.		X		X
3	Harden the City/Parish EOC by adding backup generators, installing shatterproof glass, and floodproofing. Also add storm shutters and backup power supply/generators at the Municipal Complex, the Public Service Complex, the Centurytel Center, the Bossier Police Training Center, and the Northeast Sewerage Plan, which could benefit from the installation of a floodwall.		X		X
4	Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).		X		
5	Increase public awareness of hazards and hazardous areas. Distribute public awareness information regarding flood hazards, SFHA's, and potential mitigation measures using the local newspaper, utility bill inserts, inserts in the phone book, and parish hazards awareness website, and an education program for school age children or "how to" classes in retrofitting by local merchants. Integrate "Disaster Resistance Education" into the public school curriculum. Provide public education on the importance on maintaining ditches.		X		
6	Sponsor a "Multi-Hazard Awareness Week" to educate the public on winter storms and tornadoes (sheltering in place, evacuation, emergency preparedness, and structural retrofitting), flooding (evacuation, emergency preparedness, retrofitting, and flood insurance), and thunderstorms/lightning/high winds (emergency preparedness).			X	
7	Investigate and implement a localized interior drainage project in each repetitive loss area include the downtown at Hwy 79 & 71, in the Benoist Bayou area, Tall Timbers subdivision, Northland Estates, Cakhill Estates, and Lucky Estates in order to reduce its flood potential.				X

Action	Jurisdiction/Hazard/Action	Complete	Ongoing	Not yet Started	Project in Plan Update
8	Pursue elevation/acquisition/floodproofing project and structural solutions to flooding by pursuing funding opportunities for the 28 repetitive loss structures.		X		X
9	Review the existing floodplain ordinance and evaluate ways to improve the City's Community Rating System (CRS) rating to reduce the flood insurance premium. Choose from the variety of methods and projects available that can be implemented to improve the CRS rating.				X
10	Develop additional subdivision guidelines that would help reduce flooding, such as requiring proper drainage with adequate sloping; stormwater retention ponds; dikes; levees and floodwalls if appropriate, and requiring freeboard above the Base Flood Elevation (BFE) in flood prone areas. Encourage new subdivision developments to install underground utilities, which would help reduce the chances of power outage.		X		
From Flood Plan					
11	Identify Repetitive Loss Structures within Bossier Parish and the City of Bossier City	X			
12	Establish a Property Flood Mitigation Priority Program		X		
13	Identify Project Structures		X		X
14	Determine Mitigation Measure for Each Repetitive Loss Structure				X
15	Mitigate Flood Disaster Potential for Repetitive Loss Structures				X
16	Reduce Flood Potential in each Repetitive Loss Area				X
17	Conduct Annual Review of the Action Plan within the Flood Hazard Mitigation Plan		X		
18	Increase Public Awareness of Flood Hazards and Flood Hazard Areas		X		
19	Promote the Purchase of Flood Insurance		X		
20	Educate Insurance Agents, Home Realtors, Lenders, Builders, Developers, and Engineering Firms Regarding Flood Insurance and the NFIP		X		
21	Improve Community Rating System (CRS) Rating			X	
22	Flood Mitigation of Critical Facilities		X		X
23	Enforce the Local Floodplain Ordinance		X		

Action Updates

- 1. Improve drainage ways by enlarging any inferior culverts along the major drainage laterals at Benoist Bayou, Red Chute Bayou, the Flat River, and the other tributaries to the Red River.**
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Progress to date: In coordination with the Bossier Levee District, the City of Bossier City has embarked on a project to paving the Bossier City Ditch. The Bossier City Ditch in Central Bossier City suffers from instability and unchecked erosion of channel embankments. Bossier City, the City Engineering Office, Louisiana Department of Transportation and Development, and the Bossier Levee District jointly designed the project. This project is ongoing.

Were any significant barriers or problems encountered? No.

What aspects made the action effective or successful? The action has reduced flooding and its impacts.

Should the task be changed or revised? What further actions are planned (if any)? This action has been carried over to the current Mitigation Strategy (see Chapter 5, Action #12).

If the action has not been completed, should it be included in the updated plan? If yes, how could it be improved? The action is included in the updated plan. The action has been performed to Bossier Ditch, but the major drainage laterals at Benoist Bayou, Red Chute Bayou, the Flat River and other tributaries to the Red River need more attention.

- 2. Develop a master drainage plan which would evaluate the Drainage District to determine best method of increasing drainage capacity including the elimination of cross connections and infiltration of storm water into sanitary sewer. Implement recommended projects resulting from drainage plan.**
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Progress to date: The City Utility Department has an ongoing inflow/infiltration elimination program in place.

Were any significant barriers or problems encountered? N/A

What aspects made the action effective or successful? The inflow/infiltration program is a step/action toward developing a drainage plan approach for Bossier City.

Should the task be changed or revised? What further actions are planned (if any)? The updated action is simplified; it is listed as completing the Master Drainage Plan, without mention of related and subsequent projects.

If the action has not been completed, should it be included in the updated plan? If yes, how could it be improved? Master Drainage Plan has been included in the updated plan (Mitigation Action #10) as a Flood Mitigation Action, to be lead by the Engineering and Environmental Control Departments.

3. Harden the City/Parish EOC by adding backup generators, installing shatterproof glass, and floodproofing. Also add storm shutters and backup power supply/generators at the Municipal Complex, the Public Service Complex, the Centurytel Center, the Bossier Police Training Center, and the Northeast Sewage Plant, which could benefit from the installation of a floodwall.

Progress to date: Back-up generators have been installed at the Municipal Complex, the Centurytel Center, Police/Fire Stations and Water/Sewer Plants.

Were any significant barriers or problems encountered? The task is certainly ongoing, but has encountered funding and staffing barriers, making it difficult to complete.

What aspects made the action effective or successful? N/A

Should the task be changed or revised? What further actions are planned (if any)? Mitigation Action #18 in this Plan Update addresses hardening the EOC and other facilities, making it more of an obtainable action.

If the action has not been completed, should it be included in the updated plan? If yes, how could it be improved? This action has been included in the updated plan as a Flood Mitigation Action, to be lead by the Engineering Department.

4. Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).

Progress to date: Project is ongoing.

Were any significant barriers or problems encountered? There were not any barriers or problems encountered.

What aspects made the action effective or successful? The City of Bossier City publishes and distributes a pamphlet for property owners in Special Flood Hazard Areas and Flood Prone Areas.

Should the task be changed or revised? What further actions are planned (if any)? This action is related to updated Action #22 Maintain CRS Rating, but is not included as a separate action in the updated plan.

If the action has not been completed, should it be included in the updated plan? If yes, how could it be improved? N/A

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- 5. Increase public awareness of hazards and hazardous areas. Distribute public awareness information regarding flood hazards, SFHA's, and potential mitigation measures using the local newspaper, utility bill inserts, inserts in the phone book, and parish hazards awareness website, and an education program for school age children or "how to" classes in retrofitting by local merchants. Integrate "Disaster Resistance Education" into the public school curriculum. Provide public education on the importance on maintaining ditches.**
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Progress to date: Bossier City has an announcement in the Tri-Parish phone book.

Were any significant barriers or problems encountered? None

What aspects made the action effective or successful? Don Crista (Bossier City Engineering Department) sends out a brochure to residents that live in an area subject to flooding. The brochure is called 'Flood Protection for You and Your Property', and covers issues of past severe floods, flood risk and protection, flood insurance, and recommends ways to take precautions and to reduce flooding in Bossier City.

Should the task be changed or revised? What further actions are planned (if any)? The action has not been included in the updated plan, but is related to other actions (i.e. Action # 22 Maintain CRS Rating).

If the action has not been completed, should it be included in the updated plan? If yes, how could it be improved? N/A

- 6. Sponsor a "Multi-Hazard Awareness Week" to educate the public on winter storms and tornadoes (sheltering in place, evacuation, emergency preparedness, and structural retrofitting), flooding (evacuation, emergency preparedness, retrofitting, and flood insurance), and thunderstorms/lightning/high winds (emergency preparedness).**
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Progress to date: Bossier City has no plans to sponsor a "Multi-Hazard Awareness Week".

Were any significant barriers or problems encountered? Planning, funding and willingness to participate were issues.

What aspects made the action effective or successful? N/A

Should the task be changed or revised? What further actions are planned (if any)? The HMPC expressed disinterest in performing this action.

If the action has not been completed, should it be included in the updated plan? If yes, how could it be improved? No, HMPC is unwilling to commit to a "Multi-Hazard Awareness Week".

7. Investigate and implement a localized interior drainage project in each repetitive loss area include the downtown at Hwy 79 & 71, in the Benoist Bayou area, Tall Timbers subdivision, Northland Estates, Cakhill Estates, and Lucky Estates in order to reduce its flood potential.

Progress to date: None.

Were any significant barriers or problems encountered? The most significant barrier is availability of funding.

What aspects made the action effective or successful? N/A

Should the task be changed or revised? What further actions are planned (if any)? HMPC requested that the action not be specific to the repetitive loss areas listed in this action, that the action should be all-encompassing to include other repetitive loss areas.

If the action has not been completed, should it be included in the updated plan? If yes, how could it be improved? This action has been included in the updated plan as a Flood Mitigation Action (Actions # 11 & #17), to be lead by the Engineering Department.

Additional comments or information: N/A

8. Pursue elevation/acquisition/floodproofing project and structural solutions to flooding by pursuing funding opportunities for the 28 repetitive loss structures.

Progress to date: Five structures have been acquired and demolished.

Were any significant barriers or problems encountered? No.

What aspects made the action effective or successful? Lack of funding makes this project restrictive.

Should the task be changed or revised? What further actions are planned (if any)? N/A

If the action has not been completed, should it be included in the updated plan? If yes, how could it be improved? Repetitive (& Potential) Loss Properties and areas for Acquisition/Elevation/Floodproofing has been included in the updated plan as a Flood Mitigation Action (#17), to be lead by the Building Permit and Engineering Departments. The HMPC commented that Bossier City will apply for funding as it becomes available.

9. Review the existing floodplain ordinance and evaluate ways to improve the City's Community Rating System (CRS) rating to reduce the flood insurance premium. Choose from the variety of methods and projects available that can be implemented to improve the CRS rating.

Progress to date: Bossier City updated its floodplain ordinance in 2008.

Were any significant barriers or problems encountered? N/A

What aspects made the action effective or successful? The updated Floodplain Ordinance (2008) helped the City move to the next CRS rating.

Should the task be changed or revised? What further actions are planned (if any)? The action has been changed from ‘improve’ Bossier City’s CRS rating to ‘maintain’ its CRS rating.

If the action has not been completed, should it be included in the updated plan? If yes, how could it be improved? Maintain CRS rating is included in the updated plan as a Flood Mitigation Action (#22), to be led by the Engineering Department.

10. Develop additional subdivision guidelines that would help reduce flooding, such as requiring proper drainage with adequate sloping; stormwater retention ponds; dikes; levees and floodwalls if appropriate, and requiring freeboard above the Base Flood Elevation (BFE) in flood prone areas. Encourage new subdivision developments to install underground utilities, which would help reduce the chances of power outage.

Progress to date: The project has been reported as on-going, subdivisions need to each be wary of its own mitigation needs. Ditches have been paved within subdivisions; 10-15 subdivisions have been worked on each year.

Were any significant barriers or problems encountered? Electrical utilities need to be below ground.

What aspects made the action effective or successful?

Should the task be changed or revised? What further actions are planned (if any)? The action should be simplified.

If the action has not been completed, should it be included in the updated plan? If yes, how could it be improved? The HMPC decided not to include this action in the updated plan.

Flood Plan Actions

11. Identify Repetitive Loss Structures within Bossier Parish and the City of Bossier City.

Progress to date: Repetitive Loss Structures within Bossier City have been identified; there are 16 of them to date.

Were any significant barriers or problems encountered? No

What aspects made the action effective or successful? FEMA sends the Bossier City Engineering Department an updated list of Repetitive Loss Structures every year.

Should the task be changed or revised? What further actions are planned (if any)? The action is continued in the updated plan as Repetitive (& Potential) Loss Properties and areas for Acquisition/Elevation/floodproofing (Action #17).

If the action has not been completed, should it be included in the updated plan? If yes, how could it be improved? N/A

12. Establish a Property Flood Mitigation Priority Program.

Progress to date: Bossier City prioritizes its flood mitigation implementation. The Actions listed in Table 5.1 of this plan update show priority actions, according to the HMPC.

Were any significant barriers or problems encountered? Barriers encountered include funding and staff availability.

What aspects made the action effective or successful? The HMPC and planning process surrounding this plan update makes this action successful.

Should the task be changed or revised? What further actions are planned (if any)? N/A

If the action has not been completed, should it be included in the updated plan? If yes, how could it be improved? N/A

13. Identify Project Structures.

Progress to date: Identifying project structures is an ongoing task for Bossier City.

Were any significant barriers or problems encountered? N/A

What aspects made the action effective or successful? N/A

Should the task be changed or revised? What further actions are planned (if any)? The task has been revised to be included in the updated plan. This task is dispersed into several different actions in the updated plan.

If the action has not been completed, should it be included in the updated plan? If yes, how could it be improved? The action is included in the updated plan as drainage improvements (#11), a Willow Chute Bayou Berm (#13), raising a levee (#14), harden critical facilities (#18), sewage plant floodwall (#21).

14. Determine Mitigation Measure for Each Repetitive Loss Structure.

Progress to date: Options considered include buying and/or destroying structures, as funding becomes available.

Were any significant barriers or problems encountered? The most significant barrier is funding.

What aspects made the action effective or successful?

Should the task be changed or revised? What further actions are planned (if any)? The task has been revised and exists in the updated plan as drainage improvements for repetitive loss structures (#11) and repetitive loss properties and areas for acquisition/elevation/floodproofing (#17).

If the action has not been completed, should it be included in the updated plan? If yes, how could it be improved? The action has been included in the updated plan, as Actions #11 and #17.

15. Mitigate Flood Disaster Potential for Repetitive Loss Structures.

Progress to date: Options considered include buying and/or destroying structures, as funding becomes available.

Were any significant barriers or problems encountered? The most significant barrier is funding.

What aspects made the action effective or successful? N/A

Should the task be changed or revised? What further actions are planned (if any)? The task has been revised and exists in the updated plan as drainage improvements for repetitive loss structures (#11) and repetitive loss properties and areas for acquisition/elevation/floodproofing (#17).

If the action has not been completed, should it be included in the updated plan? If yes, how could it be improved? The action has been included in the updated plan, as Actions #11 and #17.

16. Reduce Flood Potential in each Repetitive Loss Area.

Progress to date: A large section of Bossier Ditch has been improved, and more is proposed to be paved.

Were any significant barriers or problems encountered? Funding is the largest barrier.

What aspects made the action effective or successful? N/A

Should the task be changed or revised? What further actions are planned (if any)? The task has been revised and exists in the updated plan as drainage improvements for repetitive loss structures (#11) and repetitive loss properties and areas for acquisition/elevation/floodproofing (#17).

If the action has not been completed, should it be included in the updated plan? If yes, how could it be improved? The action has been included in the updated plan, as Actions #11 and #17.

17. Conduct Annual Review of the Action Plan within the Flood Hazard Plan.

Progress to date: The HMPC is working on reviewing the Action Plan with as much frequency as annually.

Were any significant barriers or problems encountered? Time(money) and coordination have been the barriers.

What aspects made the action effective or successful? N/A

Should the task be changed or revised? What further actions are planned (if any)? Tasks from the Flood Hazard Plan's Action Plan have been pulled and addressed in the planning process for this plan update.

If the action has not been completed, should it be included in the updated plan? If yes, how could it be improved? The action will not be included in this update.

18. Increase Public Awareness of Flood Hazards and Flood Hazard Areas.

Progress to date: This action is ongoing. Don Crista (Bossier City Engineering Department) sends out a brochure to residents that live in an area subject to flooding. The brochure is called 'Flood Protection for You and Your Property', and covers issues of past severe floods, flood risk and protection, flood insurance, and recommends ways to take precautions and to reduce flooding in Bossier City.

Were any significant barriers or problems encountered? No.

What aspects made the action effective or successful? The pamphlet and information have been well-received, and have both increased public awareness and promoted the purchase of flood insurance.

Should the task be changed or revised? What further actions are planned (if any)? N/A

If the action has not been completed, should it be included in the updated plan? If yes, how could it be improved? The HMPC decided not to include this action in the updated plan, but will continue to keep the public aware of flood hazards and flood hazard areas.

19. Promote the Purchase of Flood Insurance.

Progress to date: This action is ongoing. Don Crista (Bossier City Engineering Department) sends out a brochure to residents that live in an area subject to flooding. The brochure is called ‘Flood Protection for You and Your Property’, and covers issues of past severe floods, flood risk and protection, flood insurance, and recommends ways to take precautions and to reduce flooding in Bossier City.

Were any significant barriers or problems encountered? No.

What aspects made the action effective or successful? The pamphlet and information have been well-received, and have both increased public awareness and promoted the purchase of flood insurance.

Should the task be changed or revised? What further actions are planned (if any)? N/A

If the action has not been completed, should it be included in the updated plan? If yes, how could it be improved? The HMPC decided not to include this action in the updated plan, but will continue to keep the public aware of flood hazards and flood hazard areas.

20. Educate Insurance Agents, Home Realtors, Lenders, Builders, Developers, and Engineering Firms Regarding Flood Insurance and the NFIP.

Progress to date: Don Crista (Bossier City Engineering Department) sends out a brochure to residents that live in an area subject to flooding. The brochure is called ‘Flood Protection for You and Your Property’, and covers issues of past severe floods, flood risk and protection, flood insurance, and recommends ways to take precautions and to reduce flooding in Bossier City.

Were any significant barriers or problems encountered? No.

What aspects made the action effective or successful? N/A

Should the task be changed or revised? What further actions are planned (if any)? The task will be carried through the updated plan and mitigation strategy via Maintain CRS Rating (Action #22).

If the action has not been completed, should it be included in the updated plan? If yes, how could it be improved? The HMPC decided not to include this action in the updated plan.

21. Improve Community Rating System (CRS) Rating.

Progress to date: Bossier City has decided to stay at Class 8 and has no plans to upgrade its CRS rating.

Were any significant barriers or problems encountered? Barriers to improve CRS rating include staffing and time constraints.

What aspects made the action effective or successful? N/A

Should the task be changed or revised? What further actions are planned (if any)? The task has been revised to read: Maintain CRS Rating (Action #22).

If the action has not been completed, should it be included in the updated plan? If yes, how could it be improved? The HMPC has decided to include it in the updated plan as ‘maintenance’, rather than ‘improvement’.

22. Flood Mitigation of Critical Facilities.

Progress to date: Mitigation of critical facilities is ongoing in Bossier City.

Were any significant barriers or problems encountered? Funding is always the barrier to mitigation.

What aspects made the action effective or successful? N/A

Should the task be changed or revised? What further actions are planned (if any)? The task has been revised by created more specific actions in the updated plan.

If the action has not been completed, should it be included in the updated plan? If yes, how could it be improved? The task has been improved and included in the updated plan as Harden EOC and other facilities: flood-proofing, back-up generators (Action #18), Northeast Sewage Plant Floodwall / Elevate key structures – levees, controls, equipment (Action #21).

23. Enforce the Local Floodplain Ordinance.

Progress to date: Local Floodplain Ordinance is being enforced by City Engineer/Permits/Zoning.

Were any significant barriers or problems encountered? Barriers include time constraints and coordination among involved staff.

What aspects made the action effective or successful? The action was successful by employing the floodplain ordinance that was enforced, and therefore reducing risk to the people and property at risk to the floodplain.

Should the task be changed or revised? What further actions are planned (if any)? Maintain CRS Rating (Action #22) is a continuation of this task.

If the action has not been completed, should it be included in the updated plan? If yes, how could it be improved? The action has been included in the updated plan as Maintain CRS Rating (Action #22). All of the flood-related actions listed in Table 5.1 are a continuation of this task.