

5.0 Action Plan

This is the very heart of the floodplain management plan (FMP). The action plan is a blueprint for implementation of the FMP. This action plan is based on the recommendations developed throughout the FMP process, as presented in the earlier sections of this FMP. Possible strategies and tools of the action plan were evaluated for their relationship to the FMP's goals and objectives (Section 3.0) and their feasibility to be completed.

Riley County and City of Manhattan professional staff developed the following detailed action plan for the implementation of the community's selected measures, and their schedule for implementation. Of great importance is establishing a funding source that will allow the community to pay for the level of effort necessary to administer this floodplain management plan. Following the development of the Action Plan, discussion of how to fund these items through existing utility funds or through the capital improvement program must be done. Without a sustainable and dedicated funding source, the FMP will fail to achieve the identified goals and reduction of flood risk within the Wildcat Creek watershed will be less likely.

5.1 Action Items

An overview of FMP action items for the City and County are presented in this section. Detailed descriptions of the Action Items are found in Section 5.2.

Table 3, below, is a summary of the Action Items for the first two years.

5.2 Description of Action Items

This section provides detailed explanation of the FMP action items.

5.2.1 Adoption of the Wildcat Creek Floodplain Management Plan.

The Wildcat Creek Floodplain Management Plan is the culmination of over a year of participation and work by the Wildcat Creek Watershed Working Group, concerned citizens, City and County staff members and Federal and State partners. The FMP documents these efforts and creates an action plan to implement strategies and tools to promote mitigation of flooding along Wildcat Creek. To strengthen the resolve of this plan, a public approval process was conducted. The public participation process should ultimately conclude with both governing bodies amending the Manhattan Urban Area Comprehensive Plan and the Riley County Vision 2025 Comprehensive Plan to reference the document. The Floodplain Management Plan may also serve as the key guidance document for a watershed authority, as necessary per Kansas statutes. This would facilitate communication between the City, County, and the watershed authority, if pursued under a separate action item. This process should begin immediately and is anticipated to be completed within three (3) months.

5.2.2 Establish a City and County Development Coordination Process.

The Wildcat Creek watershed covers over 99 square miles of Riley County. Development within the watershed can affect both City and rural County residents and business owners alike. Professional staff members from both entities, and possibly Fort Riley Military Base, when applicable, should form an informal technical working group to discuss development plans occurring within the watershed and how the development may impact the dynamics of the floodplain. This group is informal in nature and is in no way intended to replace the work of the respective Planning Boards or Governing Bodies, but rather have planning and engineering employees who can comment on issues and work in a coordinated effort to address them. Staff members who would be included in these informal discussions would be planners, floodplain managers, city and county engineers and stormwater engineers. The process to create the coordination of reviewing development within the watershed should begin immediately and is anticipated to be completed within three (3) months; however once created, it should be a permanent avenue promoting communication and coordination.

TABLE 9. ACTION ITEMS, GOALS, AND RECOMMENDATIONS.

Action Item	Goal: Collaborative Approach			Goal: Manage & Reduce Flood Risks		Goal: Protect & Preserve Riparian Corridor		Goal: Balance Development Needs & Floodplain Function		Goal: Improve Public Understanding of Flood Risks		City	County	Timeline
Adopt the Wildcat Creek Floodplain Management Plan (FMP)	X											X	X	3 months
Create a City/County Development Coordination Process	X			X	X			X				X	X	3 months
Amend the Multi-Jurisdictional Hazard Mitigation Plan to include the FMP	X			X				X					X	6 - 12 months
Research and, if acceptable, form a Wildcat Creek Watershed District	X			X	X			X					X	2+ years
Develop a comprehensive flood hazard mitigation plan	X			X	X			X				X	X	2+ years
Adopt Future Conditions model and Flood Insurance Rate Maps				X	X			X				X	X	1 year
Research and adopt higher standard floodplain regulations				X	X			X				X	X	1 year
Develop a Wildcat Creek recreation plan	X			X	X					X		X	X	12 - 18 months
Develop a comprehensive public outreach plan	X			X						X		X	X	12 months
Research and update, where needed development policies and regulations				X	X							X	X	12 months
Adopt stormwater detention/retention policies													X	12 - 18 months
Join the Community Rating System				X	X							X	X	12 - 18 months
Maintain and expand the existing flood warning systems				X								X	X	On-going

5.2.3 Amend the Riley County Multi-Jurisdictional Hazard Mitigation Plan to include the Wildcat Creek Floodplain Management Plan.

The Board of County Commissioners may incorporate amendments to the Riley County Multi-Jurisdictional Hazard Mitigation Plan during the yearly plan review. Section 5.0 of that plan, which covers the mitigation strategies, should be updated to reference the Wildcat Creek Floodplain Management Plan.

Also, the Riley County Multi-Jurisdictional Hazard Mitigation Plan, Section 4.4.2, provides Jurisdiction Profiles for the community. The flood hazard profiles developed by AMEC in 2012 should be added to enhance the understanding of flood risks. These types of updates will be creditable actions in the FEMA Community Rating System and/or contribute to eligibility for FEMA's Hazard Mitigation Grant Program funding. Because of the timing of the annual review, which is typically the ideal time to amend the plan, this action item is anticipated to be completed in six (6) to twelve (12) months.

5.2.4 Research and, if Acceptable to a Majority of the Residents Within the Proposed District's Boundaries, Form a Wildcat Creek Drainage District or Watershed District.

A sub-committee of the Wildcat Creek Working Group was the Detention and Watershed Committee. This committee focused their efforts on the practicalities of creating a watershed district or drainage district for the Wildcat Creek watershed to help address the current and future flooding issues. Both district types offer extensive powers to manage flooding and water quality issues that are overseen by an elected Board of Directors. These powers include the ability to levy property taxes, issue bonds, condemn land for purposes of the district and construct infrastructure to prevent and mitigate flood damages on properties within the district, and sue and be sued for damages.

One distinction between a drainage district and watershed district is the set boundaries of the two. A drainage district is a defined boundary that is described by the petition filed with the Board of County Commissioners during its creation. A watershed district's boundary is defined as "all of the area within the state draining towards a selected point on any watercourse, stream, lake or depression." (Holeman, 11-17-11). Additional general information regarding drainage districts and watershed districts can be found in a document presented to the Riley County Board of County Commissioners and the Wildcat Creek Watershed Working Group by Clancy Holeman, Riley County Counselor (see Appendix 5.1).

The mechanism for creation of a drainage district generally involves action by the Board of County Commissioners, following a petition to the Board of County Commissioners by residents within the proposed district or, exclusively for a watershed district, creation by the Chief Engineer of the State of Kansas following a petition from residents within the watershed desiring the watershed district. Although the final decision to form a drainage district lies with the Board of County Commissioners, either type of district's actions will likely affect all residents within the Wildcat Creek watershed. If a majority of the residents within the boundaries of any proposed drainage or watershed district are unwilling to tax themselves, through their elected board of directors, that district will be unable to fund major projects.

Because of this, the topic needs to be well-researched and discussed with a majority of the residents of any proposed district. Although Riley County may lawfully create a watershed district by resolution, without a petition from proposed district residents, county staff has recommended to the WCWWG that no such district be created without first obtaining consensus from a majority of the residents within such proposed district. This action item may take longer than two (2) years.

5.2.5 Develop a Comprehensive Flood Hazard Mitigation Plan.

A wide variety of structural solutions are available to Riley County and the City of Manhattan to reduce the risk of flooding along Wildcat Creek. The range of structural solutions includes:

- Detention basins located in the upper reaches of tributaries to Wildcat Creek to the west of the City.
- Added or enlarged stormwater infrastructure, such as stormwater sewers, culverts and swales to divert stormwater runoff.

- Flood-proofing of existing structures to reduce damages from flooding.
- Purchasing and removing structures that are at high risk of repetitive flooding to create additional open space that should improve the stream's functionality.
- Stream bank improvements to minimize or prevent significant erosion.
- Stream channel restoration to improve river functions.

To adequately address the flooding problems of Wildcat Creek through structural improvements, a joint, comprehensive approach with the City and County should be made. The plan would be determined on a watershed and sub-watershed basis to develop a mitigation plan through structural improvements with priorities and identify funding sources. By evaluating and implementing improvements to the stormwater sewer system in urban and rural areas, reduction of flood risks may be realized.

There are recent examples of cooperation between the two entities to address flooding in Wildcat Creek and in other watersheds around the City. These include maintenance and improvements to existing ditches along Scenic Drive leading to Wildcat Creek, improvements to the stormwater sewer system in the Tecumseh/Quivera Tributary and improvements to the Eureka Valley Tributary associated with the Kansas Department of Transportation project along K-18.

Because of the complexity, this action item could take two (2) or more years to complete.

5.2.6 Adopt the Wildcat Creek Future Conditions Flood Model and Flood Insurance Rate Maps.

As explained in Section 4.2.2, the City of Manhattan contracted with AMEC Environment & Infrastructure to develop a flood model based on the Wildcat Creek watershed being completely built out based on the Manhattan Urban Area Comprehensive Plan's Future Land Use Map. This information will be valuable to residents, developers, lenders and public officials by more accurately depicting what flooding could be in the future (10 – 15 years from now) and how new development and redeveloped areas should be designed to protect against flood dangers and to reduce future risks.

The AMEC floodplain model will also be valuable in developing regulations based on the future 1% annual chance flood. Regulating new and redeveloped properties with the future conditions floodplain and base flood elevations will decrease the level of risk of flooding that the property owners will face. The description of adopting higher standard floodplain regulations is further discussed in 5.2.7.

It is anticipated that adoption of the future conditions flood model and FIRMs will be done sometime in 2014 in conjunction with the adoption of the updated FEMA mapping products created by the Kansas Division of Water Resources and AMEC.

5.2.7 Research and Adopt Higher Standard Floodplain Regulations.

Section 4.1.1 lists a number of broad higher standard floodplain regulation concepts that can be considered and adopted that would allow development within floodplains under certain conditions, while providing for lower risk of flooding and reduce or eliminate the impacts on adjacent properties up or downstream of the development.

The City of Manhattan and Riley County should consider creating and adopting these regulations jointly to establish a uniform development pattern with seamless regulations in the floodplains. This will reduce confusion for property owners and developers and would avoid nonconforming issues for any structures on property being annexed into the City of Manhattan. Ideally, these regulations would be adopted with the new Riley County Flood Insurance Study, Flood Insurance Rate Maps and the AMEC Future Conditions study, which is anticipated to occur in 2014.

5.2.8 Develop a Wildcat Creek Recreation Plan.

As described in Section 4.3.4., by expanding upon existing facilities, opportunities are available to develop a recreation corridor along Wildcat Creek that could protect the riparian corridor, help maintain the floodway and floodplain as open space, improve quality of life in Riley County and possibly create educational programs and products.

The City of Manhattan and Riley County should jointly develop a recreation plan to create such a corridor. Because of the complexity of such a master plan, the anticipated time line is at least two (2) or more years.

5.2.9 Develop a Comprehensive Public Outreach Plan.

There is an extensive amount of information that property owners and tenants in or near a floodplain should know before, during and after a flood event. The City and County can be a valuable clearing house for this information. Through traditional public information channels and newer channels, such as social media and mobile applications, the following information should be disseminated:

- National Flood Insurance Program (NFIP) information and requirements.
- Local Floodplain Regulations.
- Information and guidelines for developing in the floodplain.
- General flood risks for the community.
- Specific flood risks for areas of the City.
- Emergency preparedness information.
- Emergency evacuation information.
- Post-flood disaster recovery information.

Through a comprehensive public outreach plan, these topics can be better disseminated to the public. A comprehensive public outreach plan can also earn Community Rating System credits, which may decrease NFIP premiums. The action item should be created within twelve (12) months, then continually maintained, reviewed and refined to provide residents and property owners with information about flood risks.

5.2.10 Research and Update, Where Needed, Development Policies and Regulations.

The City of Manhattan and Riley County have a number of stormwater policies in place to reduce the risk of flooding. These policies should continually be reviewed and researched to ensure that the policies are meeting the community's objectives to reduce flood risks and manage stormwater.

One such rule that may benefit both the City and County is to create a fee-in-lieu payment policy for developments in the floodplain that would otherwise require stormwater detention. Strategy 4.4.1.a explains the logic behind not requiring detention facilities in areas in or in proximity to the floodplain and the benefits of a fee-in-lieu policy.

Other policies worth reviewing and researching are stormwater runoff prevention, sediment and erosion control, water quality, wetland protection and green infrastructure (open space requirements), and stormwater harvesting. Both entities should review and research existing and new policies. Because of the breadth of this topic, this action item may take up to two (2) years to complete.

5.2.11 Adopt Stormwater Detention/Retention Policies.

Strategy 4.4.1 details the current City of Manhattan stormwater detention policy. In summary, for new and redevelopment projects over 0.5 acres in area, stormwater detention facilities are required to be installed to reduce the rate of runoff that is equal to or less than before the development project. Although the amount of stormwater generally increases with the addition of new buildings and other impervious surfaces, it is released slowly over time, reducing the peak flow of stormwater runoff.

Since a majority of the Wildcat Creek watershed is in rural Riley County and is upstream of the major urban center of Manhattan, County officials should consider a similar policy and requirements for residential, commercial and industrial developments in this area.

5.2.12 Join the Community Rating System.

The Community Rating System (CRS) is outlined in Strategy 4.2.3.a. The City of Manhattan has been accepted into CRS. Formal acceptance into the program was in May, 2013. The City has initially reached a Class 8, which equates to a 10% reduction in flood insurance premiums for property owners in the floodplain. The City should continue its participation in the program and work to earn more activity credits through higher regulatory standards, more public outreach and expanding the flood warning system.

Riley County is also actively pursuing an application for participation in the CRS program. If accepted, Riley County could earn enough credit points to enter the program and provide a 5% reduction in flood insurance premiums. The typical application process takes twelve to eighteen (12 - 18) months.

5.2.13 Maintain and Expand the Existing Flood Warning Systems.

Riley County and Manhattan have put into place a number of flood warning systems to alert residents of impending flooding, both for Wildcat Creek and the community at large, such as IRIS and existing flood warning signs. Strategy 4.1.2 outlines a number of current systems in place to alert residents of flood warnings and other natural disaster warnings.

New and innovative ways to inform and alert residents of flooding and other emergencies should be considered. The use of media that are different than the traditional sirens and warning lights, such as social media outlets and mobile applications should be researched and considered, particularly given the high percentage of young, transient residents in the area associated with Fort Riley and Kansas State University.

Both entities should continue their support for established emergency warning systems and look for ways to expand the system to alert as many residents as possible to flooding and other emergencies. This action item should be ongoing.

5.3 Monitor, Evaluation and Changes to the Floodplain Management Plan.

The City of Manhattan Community Development Department, in partnership with the Riley County Planning and Development Department will initiate an annual review of the Wildcat Creek Floodplain Management Plan with technical staff members who will monitor and evaluate activities related to the master plan's action plan.

The annual review will discuss effectiveness of the following items and provide any recommendations or changes:

- Adopted policies and regulations.
- Public outreach projects conducted and what products were produced.
- Infrastructure improvements completed.

An annual report, outlining discussion and identifying issues by technical staff members, will be made to the respective Planning Boards and, if necessary, to the governing bodies.

Substantial changes to the action plan or other parts of the Floodplain Management Plan will be made through a formal public hearing process, similar to amending the Comprehensive Plan for the City or County.

Every five (5) years following the initial adoption of the Wildcat Creek Floodplain Management Plan, a formal review and update will be conducted to include changes in the watershed, risk assessment and needed updates to the strategies, tools and action plan.

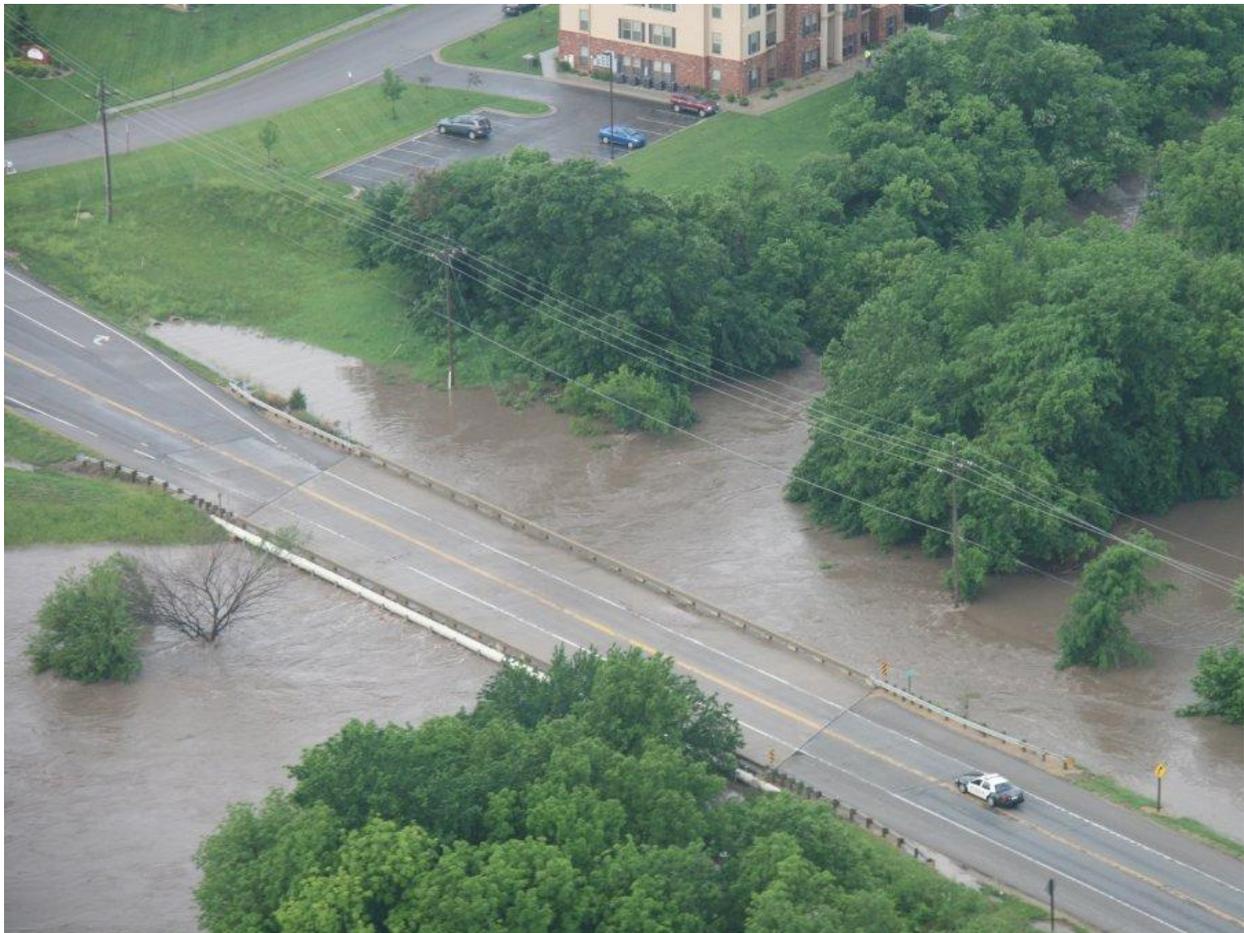


FIGURE 35. JUNE 16, 2010 FLOOD AT SCENIC DRIVE BRIDGE.