

**CITY COMMISSION AGENDA MEMO**  
**August 12, 2021**

**FROM:** Chad Bunger, AICP, CFM, Assistant Director of  
Community Development  
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II

**MEETING:** August 17, 2021

**SUBJECT:** Dedicated Utility Fee for Floodplain Mitigation

**PRESENTER:** Chad Bunger, AICP, CFM, Assistant Director of  
Community Development  
Kris Smith, Community Economic Solutions for  
Flooding

**BACKGROUND**

The City of Manhattan has implemented several flood mitigation measures to lessen risk, such as more accurate flood mapping, floodplain regulations with higher standards, improved emergency response activities, flood mitigation of individual flood damaged properties, and through our Community Rating System (CRS) activities, achieved a 20% reduction in flood insurance premiums for properties located within the City. Additionally, the City conducted community engagement initiatives to create and adopt the Wildcat Creek Floodplain Management Plan, and the Big Blue and Kansas Rivers Floodplain Management Plan, which provide overarching policy guidance and implementation action plans.

Today, there are 767 structures located in the Federal Emergency Management Agency (FEMA) 1% Annual Chance Floodplain (100-year floodplain). This represents over \$87 million of property at risk from a significant flooding. These totals do not account for the hundreds of properties located just outside the 1% Annual Chance Floodplain or at risk of damage from urban flooding due to inadequate stormwater infrastructure. Community flood risk also includes the potential for loss of life, personal property, damage to public infrastructure, the costs and risks associated with emergency response and evacuation during a flood event, and the social and economic loss to the community after a flood.

*More Accurate Flood Mapping*

The City's efforts in improved mapping have created the future conditions flood model for the Wildcat Creek Watershed and Marlatt Ditch Watershed, which provides information

on what the extent of flooding could be, if Manhattan is fully developed according to the Future Land Use Map of the Comprehensive Plan. The future conditions flood model does not incorporate or predict what stormwater infrastructure (pipes, detention/retention, or levees) will be put in place to manage future stormwater and flood events. This flood model is shown on FEMA's flood insurance rate maps as Zone X (Future Conditions). The City's Floodplain Regulations reference this area as the Community Special Flood Hazard Area.

The City has also invested in a detailed HEC-RAS 2D flood model of the Wildcat Creek Watershed and less precise HEC-RAS 2D flood model of the Blue River and Kansas River. These models have been used for predicting and portraying potential flood events, based on various rainfall intensities, river levels, releases from Tuttle Creek Reservoir, and potential development impacts.

#### Higher-Standards Floodplain Regulations

The future conditions flood model described above is the basis for Manhattan's floodplain regulations (Article X of the Zoning Regulations), which are more stringent than the State of Kansas or FEMA. These higher-standards floodplain regulations were adopted in 2015 and require all new buildings to meet the Flood Protection Elevation. This is defined as *"the elevation to which all structures located within the Community Special Flood Hazard Area or FEMA Special Flood Hazard Area must be elevated or floodproofed, if non-residential. Where the Community Base Flood Elevation is provided, the elevation shall be that elevation plus one (1) foot of freeboard. Where the Community Base Flood Elevation is not provided, the Flood Protection Elevation shall be the FEMA Base Flood Elevation plus two (2) foot of freeboard."*

The result is a building that is in the Community Special Flood Hazard Area (Future Conditions areas) must be elevated or floodproofed two to three feet higher than the State standard of one foot of freeboard. Please note, that the future condition flood model was not created city-wide and is only present for the Wildcat Creek Watershed and Marlatt Ditch Watershed. For properties outside of these watersheds, located in a FEMA mapped 1% Annual Chance Floodplain, the elevation and floodproofing standard is two feet above the FEMA flood elevation.

Since 2015, less than 20 new buildings have been constructed in areas where these higher-standards regulations apply. The ones that have built are mostly within the Marlatt Ditch Watershed and have been constructed in areas that would be outside of a typical regulated floodplain, were it not for Manhattan's mapping efforts and higher standards. These homes were built about two to three feet higher than the natural grade, which means the residents, their personal belongings, and the home are better protected from a flood event along Marlatt Ditch or from a backwater from a significant Tuttle Creek Reservoir release.

The new floodplain regulations also require that any significant fill placed in a floodplain must be compensated for, to make sure that floodwater storage capacity is not lost within the floodplain. This compensatory storage requirement ensures that new development will

not raise the flood elevation, which would impact adjacent properties upstream and downstream of the development.

*Improved Emergency Response Activities*

Since 2007, when the first flood in recent years impacted properties along Wildcat Creek, the City, Riley County, and Riley County Police Department have put in several measures to better predict and inform residents of an imminent flood threat. These measures include placing three voice-modulated emergency sirens in the watershed and installing three National Weather Service (NWS) stream gauges (*Keats, Scenic Drive, Seth Child Road*). The stream gauge information is displayed on the NWS [Advanced Hydrologic Prediction Service](#) website and provides current stream height and a prediction of the stream crest during an event. Similar sirens and gauges have been present along the Blue and Kansas Rivers since 2004 to alert residents in those at-risk areas.

The local emergency response teams have improved internal planning and processes to be able to quickly deploy people and resources to inform impacted neighborhoods, collect needed information from potentially impacted residents related to evacuation response, address flooded areas, and help evacuate, if needed. As a response to the recent flooding, the Manhattan Fire Department has bolstered its swift water rescue team with more training and equipment, including two boats that can be deployed throughout the region for a variety of water rescue needs.

*Flood Mitigation of Individual Flood Damaged Properties*

The higher-standards regulations help to protect new buildings; however, as mentioned previously, there are over 700 buildings that were built before Manhattan had floodplain regulations or before our higher-standards regulations. These are typically the properties that are impacted by floods because they were built too close to the flood source, or not built to an appropriate elevation to protect against flooding.

Following the floods in 2011 and 2018, the City utilized funds from the existing Stormwater Utility Fee as our 25% local match to apply for hazard mitigation grants from the State and FEMA to buyout homes that have been significantly damaged by these flood events. To date, the City has leveraged \$735,000 from stormwater fees to receive \$2,170,000 of state and federal grant dollars to purchase and remove damaged homes (8 single-family, 12 townhomes), and return the land to permanent open space to eliminate the flood risk on those sites and better protect the surrounding area.

We are proud of the work accomplished thus far to reduce flood risk for Manhattanites and reduce the cost of obtaining flood insurance citywide. However, there is much more to be done. As discussed, over 700 homes and businesses are still threatened by flooding. To better protect these residents and businesses, a comprehensive mitigation approach is required along with a reliable, dedicated funding source.

## **DISCUSSION**

As will be described below, the Community Development Department has begun researching and collecting the initial building blocks to develop a comprehensive mitigation plan. However, developing such a plan of this magnitude will only be successful if the spectrum of funding options, including dedicated local funding sources, can be identified, and used.

### *Utilizing Data to Support the Establishment a Dedicated Floodplain Mitigation*

Through a partnership with FEMA, the Kansas Department of Agriculture – Division of Water Resources, and Stantec, a multi-faceted engineering and design firm, the groundwork for a comprehensive mitigation plan has been established. The partnership developed the Mitigation Benefit Estimator, which evaluated every property in Manhattan that is in a mapped floodplain to determine if an individual property or neighborhood would have a positive benefit from either elevation or buyout (two of the most common types of mitigation projects). This estimator incorporates project or construction dollars based on past projects or regional averages, to estimate the cost to elevate or buyout a home or business and compare it to benefits that the owner and community would realize from being better protected (eliminate or decrease damages, less expensive flood insurance, protection of life and property, etc.). The result is a basic, data driven analysis for all properties in a mapped flood zone. The Community Development Department will use this analysis to develop a comprehensive plan to address flood risks for these properties.

### *A Dedicated Utility Fee for Floodplain Mitigation*

As it is said, “*what is funded gets done*”. A comprehensive plan to mitigate the 700+ structures cannot be effectively implemented unless a reliable, adequate funding source is identified to complete the needed projects. Another important partnership has been initiated because of Manhattan’s proactive approach towards floodplain management and mitigation. Based on a recommendation from the Kansas Department of Agriculture – Division of Water Resources, the City has been working with Headwaters Economics and their Community Economic Solutions for Flooding (CEFS) program to research potential local dedicated funding sources that can support our mitigation planning efforts.

### *Introduction To Our Partner Headwaters Economics*

Headwaters Economics is an independent, nonprofit research group that works nationally to improve community development and land management. Headwaters Economics conducts economic research, translate data and research into information that people can use, and offer policy insights to advance community solutions. They work on the ground with communities across the country to identify and implement solutions that lead to a just society, a healthy environment, and prosperous communities. Collectively, their programs advance solutions for underserved populations, particularly in rural places and communities threatened by disasters.

The Headwaters Economics Community Economic Solutions for Flooding (CESF) program provides free technical assistance to decrease flood risk and strengthen communities by:

- 1) identifying mitigation options, land use planning solutions, and funding strategies,
- 2) building local capacity through workshops, trainings, and peer-to-peer learning, and
- 3) conducting economic research to answer community questions.

### What We've Found

Headwaters Economics researched what other communities are doing to support state and federal grants through local match or directly funding local projects to mitigate flood risk. The options have ranged from general fund sources, a dedicated sales tax for stormwater management, or using a dedicated utility fund. The reality is that only a few communities in Kansas and the surrounding states have established dedicated funding sources towards these efforts, even in the face of significant flood risk and repeated damage from floods.

Headwaters Economics has also researched the importance of mitigating flood prone properties and has produced an informative one-sheet document to highlight need to reduce flood risks in Manhattan through mitigation efforts and the benefits that the property owners and community can realize if we take a proactive approach.

Based on CEFS's research, their staff and City Administration have determined that the most viable funding option is to establish a flood mitigation enterprise fund, like that of the stormwater utility fee. These fees would be based on a Residential Equivalent Unit, identical to the how the stormwater utility fee is generated.

### How the Funds Would/Could Be Utilized.

The proposed flood mitigation enterprise fund would be for planning, design, construction, and maintaining projects that directly mitigate flood risk to a property or neighborhood, and/or makes the community more resilient to flooding. This fund would be different from the stormwater utility fee, in that it would not be used for stormwater infrastructure, such as underground storm sewers, detention/retention basins, or the levee system, which are too large for the scope of the flood mitigation funded projects.

The flood mitigation enterprise fund would be used for the local match requirement for state and federal grants for flood mitigation projects (which typically range from 10-25%). The fund could also pay for planning projects for mitigation or emergency response, funding equipment purchases (e.g., more early warning systems), service agreements for emergency response and mitigation, maintenance of existing stream gauges and sirens, maintenance of acquired open space properties from buyout projects, and informational and educational initiatives involving CRS and other activities.

The planning projects could also include additional modeling of flood risk, develop designs to regrade and plant acquired properties so that they are more beneficial to the floodplain and watershed ecosystems, or further develop flood disaster response plans.

As discussed, the comprehensive mitigation plan still needs to be developed, however, several projects and maintenance costs could be funded immediately. On [October 13, 2020](#), City Administration provided an outline of a mitigation policy that created a

hierarchy of properties throughout Manhattan that should be considered for mitigation as soon as possible. The hierarchy is:

1. Structures that have been substantially damaged by previous floods (1 site)
2. Structures in the Floodway (16 sites)
3. Structures that have been designated by FEMA as Severe Repetitive Loss Properties (0 sites)
4. Structures that have been designated by FEMA as Repetitive Loss Properties (3 sites)
5. Structures are contiguous to mitigated properties that would create a contiguous area (3 sites).

Currently there are 21 properties that meet these criteria. The total cost to mitigate these properties range from \$3,600,000 to \$4,900,000. If state or federal grants were obtained to assist in these mitigation grants, the City local match cost would be approximately \$915,000 to \$1,200,000. These mitigation projects would most likely not occur all at once due to availability of grant funding and staff resources.

This fund could immediately be used for the annual service agreement for the stream gauges on Wildcat Creek, Kansas River, and Blue River, which totals \$20,000. Also, the cost to mow the 9 mitigated properties could be paid for from this dedicated fund. It is estimated that the cost to mow these properties is \$10,000 a year.

If City Commission believes that this funding source should be established and dedicated toward flood mitigation, more research will need to be completed before a proposed rate amount is recommended. However, for discussion purposes, the table below shows four potential rates, their annual revenue, and the percent increase to the existing stormwater utility fee.

Possible Rate per Annual	Annual Revenue	Potential Stormwater Utility Rate per ERU
0.25 per ERU	\$120,000	9.46
0.50 per ERU	\$240,000	9.71
0.75 per ERU	\$360,000	9.96
1.00 per ERU	\$480,000	10.21
* See Staff Memorandum for proposed annual stormwater utility rate increases in the out-years		

## **FINANCING**

Not applicable.

## **ALTERNATIVE**

No formal action is required since this is a work session item. However, staff would appreciate the City Commission's comments on the proposal to establish a dedicated fund to support flood mitigation efforts.

## **RECOMMENDATION**

Provide comments and feedback on the proposal to establish a dedicated mitigation fund, as a utility fee like the City's Stormwater Utility Fee.

## **POSSIBLE MOTION**

As this is a discussion item, no motion is necessary.

Enclosure:

1. CEFS' Mitigation Makes Sense for Manhattan, Kansas information sheet