

# **SUMMARY NOTES OF THE MAY 9, 2019 MEETING OF THE CITY OF MILWAUKEE HAZARD MITIGATION PLAN LOCAL PLANNING TEAM**

## **INTRODUCTION**

The May 9, 2019 meeting of the City of Milwaukee Hazard Mitigation Plan Local Planning Team was convened at the Frank P. Zeidler Municipal Building at 1:05 p.m. The meeting was called to order by Kurt Sprangers, Stormwater Manager, City of Milwaukee Department of Public Works. Attendance was taken by circulating a sign-in sheet.

In attendance at the meeting were the following individuals:

### Local Planning Team Members

Kurt Sprangers, Chair	Stormwater Manager, City of Milwaukee Department of Public Works
Joseph E. Boxhorn, Secretary	Principal Planner, Southeastern Wisconsin Regional Planning Commission
Jeffrey Cross	Planner, Southeastern Wisconsin Regional Planning Commission
Laura Herrick	Chief Environmental Engineer, Southeastern Wisconsin Regional Planning Commission
Leah Redding	Emergency Management Coordinator, Milwaukee County Office of Emergency Management
Ed Richardson	Principal Planner, City of Milwaukee Department of Community Development
Michael Schaefer	Water Security Manager, Milwaukee Water Works
Julie Schneider	Director of Safety and Risk, Milwaukee County Transit System
Erick Shambarger	Director of Environmental Sustainability, City of Milwaukee Environmental Collaboration Office
Tim Thur	Infrastructure Administration Manager, City of Milwaukee Department of Public Works
Nadia Vogt	Senior Project Manager, Milwaukee Metropolitan Sewerage District

Mr. Sprangers welcomed all attendees to the meeting. He stated that this was the fourth meeting of the Local Planning Team for the second update to the original plan. He informed attendees that the purpose of the meeting was to review Chapters V and VI of the draft plan.

## **CONSIDERATION OF SUMMARY NOTES OF JUNE 28, 2019, LOCAL PLANNING TEAM MEETING**

Mr. Sprangers introduced Joseph Boxhorn, Principal Planner, Southeastern Wisconsin Regional Planning Commission (SEWRPC). At Mr. Spranger's request, Mr. Boxhorn reviewed the summary notes from the June 28, 2018, meeting of the Local Planning Team. He asked whether the Team had any questions or comments on the summary notes. None were offered.

## **CONSIDERATION OF CHAPTER V, "HAZARD MITIGATION STRATEGIES," OF SEWRPC COMMUNITY ASSISTANCE PLANNING REPORT NO. 282 (3RD EDITION), CITY OF MILWAUKEE ALL HAZARD MITIGATION PLAN UPDATE**

At Mr. Spranger's request, Mr. Boxhorn reviewed the preliminary draft of Chapter V of the plan report. Mr. Boxhorn indicated that he would display parts of the tables from Chapter V on the projection screen in the meeting room during discussion of the chapter.

[Secretary's Note: A copy of Mr. Boxhorn's presentation is attached herein as Exhibit A.]

Mr. Boxhorn stated that Chapter V does three things: 1) it presents alternative and recommended mitigation strategies for the hazards profiled in Chapter III, 2) it presents a comparison of relative risks associated with each hazard based on normalized impacts for use in prioritizing mitigation strategies for implementation, and 3) it presents estimates of costs and benefits of recommended measures, where such estimates are available. He noted that material in the draft chapters that is either new or revised has been highlighted blue in the text. He explained that this was done to assist readers in reviewing the chapter. He indicated that the highlighting will be removed prior to publication of the final report.

Mr. Boxhorn reviewed the section of the draft chapter on flooding and associated stormwater drainage problems. In reference to the subsection on the City of Milwaukee Flooding Study Task Force, Mr. Shambarger inquired about the status of the implementation of the recommendations made by the Task Force to the City. He suggested that discussion be added to the plan related to any progress made in implementing the recommendations. Mr. Boxhorn replied that the status of the implementation of the Task Force's recommendations will be assessed, and that any findings will be added to the report.

[Secretary's Note: The following paragraph was added after the last bullet point on page 4 of Chapter V:

"As of 2019, some of the recommendations made in the Task Force's report have been implemented. One example includes completion of a Private Property Inflow and Infiltration Demonstration Project (see the section below on basement backup problems). Other recommendations reflect activities that are in progress or ongoing."]

In reference to the discussion on the floodplain management plan for the Milwaukee River watershed, Mr. Sprangers noted that the removal of the Estabrook Dam was not discussed in the text. He asked that documentation of the Estabrook Dam removal be added to the recent actions for the Milwaukee River. Mr. Boxhorn replied that a paragraph documenting the removal of the Estabrook Park Dam will be added to this subsection.

[Secretary's Note: The following paragraph was added after the second paragraph on page 14 of Chapter V:

"MMSD removed Estabrook Dam during spring of 2018. As part of this project, the streambank immediately adjacent to the dam was restored. The dam removal resulted in a lowering of water levels upstream from the dam. This removed about 50 structures from the floodplain. As a result, it is anticipated that the floodplain map will need to be revised."]

In relation to the discussion on stormwater-related planning, Mr. Shambarger stated that the City of Milwaukee is developing a green infrastructure plan and that a framework document for the plan is available.

[Secretary's Note: The following section was added after the section on the City of Milwaukee Baseline Green Infrastructure Inventory on page 18:

#### "City of Milwaukee Green Infrastructure Plan

In October 2017, the Milwaukee Common Council directed the City's Environmental Collaboration Office (ECO) to develop a comprehensive green infrastructure plan for Milwaukee's Combined Sewer Area. After extensive consultation with the Milwaukee Metropolitan Sewerage District, Departments of Public Works and City Development, and community stakeholders, ECO proposed a Green Infrastructure Plan Framework.<sup>18</sup> This Framework will serve to guide development of the City's green infrastructure plan. The Framework was unanimously approved by the Common Council in September 2018. The Green Infrastructure Plan is currently in development and is scheduled to be finalized in June 2019.

"A companion Common Council resolution revised City ordinances to require green infrastructure on all large developments and redevelopments and explicitly outlines green infrastructure as a climate adaptation strategy in Chapter 120 of the City of Milwaukee Code of Ordinances.

<sup>18</sup>City of Milwaukee, Framework for Green Infrastructure Plan, September 2018."

The subsequent footnotes were renumbered.]

In regard to the discussion on stormwater-related City regulations, Mr. Shambarger noted that Chapter 120 of the City of Milwaukee's municipal code was revised. He added that this revision added additional purposes to the list of goals in the ordinance.

[Secretary's Note: The first sentence of the second paragraph on page 19 of Chapter V was revised to read (text in bold is included here, and in similar subsequent Secretary's Notes, to indicate language changed or added onto the text. Text will not be bold in the report):

"The City, through Chapter 120 of the municipal code, seek to 1) promote public health, safety, and general welfare; 2) establish procedures to control the adverse impacts associated with stormwater runoff; 3) assist in the attainment and maintenance of water quality standards; 4) reduce the effects of development and redevelopment on land and stream channel erosion; 5) minimize damage to public and private property; 6) reduce nonpoint source water pollution by minimizing impervious cover on development sites; **7) promote the co-benefits of visible green infrastructure, including reduction of urban heat island effects, benefits to human health, City beautification, and protection of coastal areas; and 8) help the City adapt to climate change and become more resilient to climate threats.**"

The second sentence of the last paragraph on page 17 of Chapter II was revised to read:

"The stated purposes of that chapter include the following: 1) the promotion of the public health, safety, and general welfare; 2) the establishment of procedures to control the adverse impacts associated with stormwater runoff; 3) assistance in the attainment and maintenance of water quality standards; 4) reduction of the effects of development and redevelopment on land and stream channel erosion; 5) minimization of damage to public and private property; 6) reduction of nonpoint source water pollution by minimizing impervious cover on development sites; **7) promotion of the co-benefits of visible green infrastructure, including reduction of urban heat island effects, benefits to human health, City beautification, and protection of coastal areas; and 8) helping the City adapt to climate change and become more resilient to climate threats.**"

Regarding the discussion on the City of Milwaukee BaseTern Feasibility Study, Mr. Shambarger asked that the references to the City of Milwaukee Office of Environmental Sustainability be changed to read the City of Milwaukee Office of Environmental Collaboration to reflect the organization's current name.

[Secretary's Note: References to the City's "Office of Sustainability" were changed to the "Office of Environmental Collaboration" at the following locations in Chapter V:

The second sentence of the last paragraph on page 2, the first sentence of the first full paragraph on page 17, the first sentence of the first paragraph on page 19, and footnote 19.]

Concerning the discussion on the Milwaukee Metropolitan Sewerage District's (MMSD) stormwater-related regulations, Mr. Sprangers commented that MMSD updated its Chapter 13 Surface Water and Stormwater Rules (Rules). He stated that changes to the Rules were adopted in March 2019 and became effective April 1, 2019, and that the municipalities served by MMSD have been given one year to update their municipal codes to reflect the revisions.

[Secretary's Note: The following sentences were added to the end of the second full paragraph on page 5 of Chapter V:

"MMSD repealed and recreated Chapter 13 on March 25, 2019. The provisions of the revised chapter became effective on April 1, 2019. The District gave the municipalities it serves one year to revise their municipal codes to reflect the provisions of the revised chapter."]

In reference to the discussion on public participation activities and coordination with other agencies and units of government, Mr. Thur noted that there is an advisory group for the Menomonee River watershed. He asked that this advisory group be included in the discussion on public participation.

[Secretary's Note: The following paragraph was added after the first partial paragraph on page 23 of Chapter V:

"MMSD has also established an advisory group for watercourse management planning in the Menomonee River watershed."]

In relation to the discussion on public education activities, Ms. Redding noted that the Milwaukee County Office of Emergency Management (Office of Emergency Management) is no longer part of the Milwaukee County Sheriff's Department (Sheriff's Department). She asked that reference to the Sheriff's Department be removed from references to the Office of Emergency Management.

[Secretary's Note: References to the Milwaukee County Office of Emergency Management were changed throughout the draft text to reflect the Department's change in status.]

Mr. Sprangers noted that the City of Milwaukee's comprehensive stormwater management plan will need updating as a result of reissuance of the Menomonee River group permit.

[Secretary's Note: The following paragraph was added after the fifth full paragraph on page 15 of Chapter V:

"The City of Milwaukee is part of the Menomonee River watershed based municipal separate storm sewer (MS4) permit issued by the WDNR. As of 2019, the existing MS4 permit has expired and is being enforced through an extension of the previous permit. A new permit is currently being drafted and reviewed by the WDNR and participating communities. It is anticipated that the new permit will include a requirement that participating municipalities update their stormwater management plans. The City of Milwaukee expects that an update will require a three-year process."]

In relation to the discussion on basement backup problems, Mr. Thur stated that the City of Milwaukee has completed other inflow and infiltration (I/I) and lateral lining projects in addition to the Cooper Park Sewer Lateral Demonstration Project. He indicated that he would provide information on these projects.

[Secretary's Note: Messrs. Thur and Sprangers provided information on several I/I projects via email. Their email included additional information regarding the Cooper Park Sewer Lateral Demonstration Project.

The second full paragraph on page 26 of Chapter V was revised to read:

“From 2011 through **2012**, MMSD and the City of Milwaukee completed the Cooper Park Sewer Lateral Demonstration Project. The project was intended to reduce the likelihood of sewage backups causing basement flooding in the Cooper Park neighborhood during heavy rainfalls. As part of this project, private property owners allowed inspections and rehabilitation or repair of sewer laterals, and City contractors lined 446 private sewer laterals at homes. The City had previously lined the municipal sanitary sewers serving this area. **In 2015, the City completed a related project in the Cooper Park neighborhood. Foundation drains were disconnected from sewers at 33 properties in a portion of the neighborhood.** Flow monitoring was conducted as part of **these projects**, and the City reported reductions in peak flows **in sewers during heavy rains of about 42 percent in the portion of the project area in which foundation drains were disconnected and 39 percent for the overall area.**”

The following paragraphs were added to Chapter V after the second full paragraph on page 26:

“From 2012 through 2014, MMSD and the City of Milwaukee completed the Clemens School Sewer Lateral Demonstration Project. This project was intended to reduce the likelihood of sewage backups causing basement flooding in the area during heavy rainfalls. As part of this project, private property owners allowed inspection and rehabilitation or repair of sewer laterals, and City contractors lined private sewer laterals at 359 homes. The City had previously lined the municipal sanitary sewers serving the area. Flow monitoring was conducted as part of this project, and the City reported reductions in peak flows of about 38 percent in sewers in the neighborhood during heavy rains.

From 2016 through 2017, MMSD and the City of Milwaukee completed a pilot project in an area bounded by W. Layton Avenue to W. Edgerton Avenue from S. 20th Street to S. 27th Street. A major goal of this project was to reduce the amount of I/I in the sanitary sewer system, and reduce the likelihood of sewage backups causing basement flooding in the area during heavy rainfalls. As part of this project, private property owners allowed inspections and rehabilitation or repair of their sewer laterals. The City contractor rehabilitated 354 private sewer laterals, using a trenchless cured-in-place pipe (CIPP) method. The City had previously lined the municipal sanitary sewers serving this area, and flow monitoring equipment was installed in order to measure the reduction in flow within the sanitary sewer system once the project is completed and sufficient data is collected post construction.

As of 2019, the City of Milwaukee is planning a pilot project in an area bounded by W. Harrison Avenue to W. Kinnickinnic River Parkway from S. 60th Street to S. 72nd Street. This project will include inspection and rehabilitation of sanitary sewer laterals, as well as disconnection of foundation drains from the sanitary sewer, and installation of sump pumps and backflow preventers. Major goals of this project are to reduce the amount of I/I in the sanitary sewer system and to reduce the likelihood of sewage backups causing basement flooding in the area during heavy rainfalls. The City previously lined the municipal sanitary sewers serving this area, and flow monitoring equipment was installed in order to measure the reduction in flow within the sanitary sewer system once the project is completed.”]

Mr. Boxhorn reviewed the section of the draft chapter on thunderstorm, high-wind, hail, and lightning hazards. He noted that in this update of the plan, the discussion of mitigation measures for high winds, hail, and lightning has been consolidated into a single subsection. No questions or comments were offered on this section.

Mr. Boxhorn reviewed the section of the draft chapter on tornadoes. No questions or comments were offered on this section.

Mr. Boxhorn reviewed the section of the draft chapter on extreme temperatures. Mr. Sprangers indicated that he would ask staff from the City of Milwaukee Health Department to review this section and provide any relevant comments.

[Secretary's Note: Mr. Sprangers requested that Health Department staff provide comments on this section of Chapter V by May 24, 2019. As of May 29, 2019, no comments had been submitted.]

Mr. Boxhorn reviewed the section of the draft chapter on Lake Michigan coastal hazards. Ms. Vogt suggested adding findings from Southeast Wisconsin Coastal Resilience Project to the discussion. Ms. Herrick replied that findings from this project will not be available in time to add them to this plan.

[Secretary's Note: The following paragraph was added after the third paragraph on page 46 of Chapter V:

“In 2017, a project team consisting of the WCMP, the University of Wisconsin Sea Grant Institute, the University of Wisconsin-Madison Department of Civil and Environmental Engineering, and SEWRPC began work on the Southeast Wisconsin Coastal Resilience Project. This project will provide resources and assistance to communities in Kenosha, Milwaukee, Ozaukee, and Racine Counties to plan and prepare for coastal hazards. The project team is evaluating and mapping shoreline recession rates through analysis of historical aerial photographs and assessing scenarios of potential shoreline recession under Lake level extremes and high-energy storm conditions. The project will also develop educational and outreach materials for best bluff management practices, bluff slope vegetation practices that can improve bluff stability, nature-based shoreline protection specifically for Great Lakes shorelines, and resilient beach restoration practices that increase resistance to erosion. This project is funded through a Coastal Resilience Grant from the National Oceanic and Atmospheric Administration.”

The last sentence of the last paragraph on page 46 was deleted.]

Mr. Boxhorn reviewed the section of the draft chapter on winter storms. No questions or comments were offered on this section.

Mr. Boxhorn reviewed the section of the draft chapter on contamination and loss of water supply. No questions or comments were offered on this section.

Mr. Boxhorn reviewed the section of the draft chapter on hazardous material incidents. No questions or comments were offered on this section.

Mr. Boxhorn reviewed the section of the draft chapter on public health emergencies. Mr. Sprangers indicated that he would ask staff from the City of Milwaukee Health Department to review this section and provide any relevant comments.

[Secretary's Note: Mr. Sprangers requested that Health Department staff provide comments on this section of Chapter V by May 24, 2019. As of May 29, 2019, no comments had been submitted.]

Mr. Boxhorn reviewed the section of the draft chapter on terrorism incidents. In reference to the subsection on identification of alternative mitigation strategies, Ms. Schneider commented that the City of Milwaukee is no

longer eligible to participate in the Urban Area Security Initiative (UASI). Mr. Boxhorn replied that references to the City of Milwaukee's participation in the UASI will be removed from the plan.

[Secretary's Note: The fifth bullet point on page 71 of Chapter V was rewritten to read:

“Continue to participate in Federal programs, such as the Law Enforcement Terrorism Prevention Program.”

The second bullet point on page 75 of Chapter V was rewritten to read:

“Continue to participate in Federal programs, such as the Law Enforcement Terrorism Prevention Program.”

The second mitigation measure for terrorism listed in Table V-9 on page 115 of Chapter V was revised to read:

“Continue to participate in Federal programs such as LETPP”

The second mitigation measure for terrorism listed in Table VI-1 on page 20 of Chapter VI was revised to read:

“Continue to participate in Federal programs such as LETPP”

Reference to funding program No. 13 was removed from the funding sources for mitigation measures related to terrorism in Table VI-1 on page 20 of Chapter VI.

Program No. 13 was removed from Table F-1 on page 5 of Appendix F.

Contact information for the Urban Area Security Initiative grants was removed from page 16 of Appendix G.]

Mr. Boxhorn reviewed the section of the draft chapter on major fire and emergency medical incidents. No questions or comments were offered on this section. Mr. Sprangers indicated that he would ask staff from the Milwaukee Fire Department to review this section and provide any relevant comments.

[Secretary's Note: Mr. Sprangers requested that Fire Department staff provide comments on this section of Chapter V by May 24, 2019. As of May 29, 2019, no comments had been submitted.]

Mr. Boxhorn reviewed the section of the draft chapter on hazard risk analysis and prioritization. He discussed Tables V-7 and V-8 which present rankings of the hazards addressed in the plan based upon mortality and injury versus property damage, respectively. He added that these rankings were made to assist City staff in prioritizing mitigation measures for implementation. Ms. Vogt asked what method was used by Local Planning Team members to establish the perception rankings listed in the tables. Mr. Boxhorn replied that the Local Planning Team members completed a hazard and vulnerability assessment (HVA) tool at the beginning of the planning effort and that the perceived rankings shown in the tables were derived from their responses.

In reference to the section on terrorism incidents, Mr. Shambarger questioned why cyber security hazards are not addressed in the plan. Mr. Boxhorn replied that the Local Planning Team considered addressing cyber security threats in the plan, and ultimately concluded that hazards related to cyber security would be better addressed in a separate planning effort from the hazard mitigation plan.

## **CONSIDERATION OF CHAPTER VI, “PLAN ADOPTION, IMPLEMENTATION, MAINTENANCE, AND REVISION,” OF SEWRPC COMMUNITY ASSISTANCE PLANNING REPORT NO. 282 (3RD EDITION) *CITY OF MILWAUKEE ALL HAZARD MITIGATION PLAN UPDATE***

At Mr. Boxhorn’s request, Mr. Cross reviewed the preliminary draft of Chapter VI of the plan report. Mr. Cross stated that Chapter VI does four things: 1) it briefly discusses the process by which the plan is updated and adopted, 2) it presents plan implementation strategies, 3) it presents a list of potential funding sources for mitigation projects and activities, and 4) it discusses plan monitoring and reevaluation strategies.

Mr. Cross reviewed the section of the draft chapter on plan refinement, review, and adoption. No questions or comments were offered on this section.

Mr. Cross reviewed the section of the draft chapter on plan implementation strategies. No questions or comments were offered on this section.

Mr. Cross reviewed the section of the draft chapter on hazard mitigation funding sources. No questions or comments were offered on this section.

Mr. Cross reviewed the section of the draft chapter on plan monitoring and reevaluation strategies. No questions or comments were offered on this section.

## **DISCUSSION OF UPCOMING PUBLIC MEETING**

Mr. Boxhorn informed the Local Planning Team that FEMA requires that at least two public meetings be held during the planning process to give the public an opportunity to comment on the plan. With the first of these public meetings having taken place, Mr. Boxhorn stated that the second public meeting will be held on Thursday, May 23, 2019 at 4:00 pm at the City of Milwaukee Department of Public Works Field Headquarters. He explained that he anticipates that this meeting would cover the purpose and scope of the plan updating effort, review progress to date, and provide members of the public with an opportunity to ask questions and offer comments about the plan. He noted that members of the Local Planning Team are welcome to attend the meeting, but their attendance is not required. He indicated that comments on the draft plan update will be accepted through May 31, 2019.

## **ADJOURNMENT**

There being no further business, the meeting was adjourned by unanimous consent at 2:30 p.m.

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500-1118  
LKH/JEB/JAC  
05/10/19, 5/31/19, 06/04/19

Exhibit A: Docs # 248185



## Exhibit A



## Chapter V Overview

- Presents alternative and recommended mitigation strategies for the hazards profiled in Chapter III
- Presents a comparison of relative risks associated with each hazard based on normalized impacts for use in prioritization
- Estimates costs and benefits of recommended measures

## Mitigation Strategy Sections

- Most sections follow a similar format
  - Identification of alternative mitigation strategies
  - Review of current programs
    - Federal and State
    - Local
  - Evaluation of alternatives
  - Recommended priority mitigation measures

Stream	Plan Components	Estimated Capital Cost <sup>a</sup>
<b>Kinnickinnic River</b>	1. Channel and floodplain improvements	
	a. Stabilize and enhance 300 feet of channel upstream of S. 43rd Street	\$ 1,158,000
	b. Dredge and reconstruct 2,800 feet of channel through Jackson Park with associated drop structure	\$ 6,482,000
	c. Remove a 200 feet of concrete lining and expand concrete storage between Jackson Park and S. 27th Street	\$ 7,198,000
	d. Remove 10,500 feet of concrete lining, naturalize channel, and expand wetlands storage from S. 27th Street to S. 4th Street	\$ 7,758,000
	2. Bridge and Culvert Improvements	
	a. S. 43rd Street - increase capacity to full-bay bridge span or equivalent (new 40m existing 22-foot bridge span)	\$ 1,477,000
	b. Remove 700 feet of culvert that erodes upstream to Jackson Park	\$ 354,000
	c. Kinnickinnic River Parkway bridge by S. 20th Street - increase capacity with expanded channel capacity and raised bridge deck	\$ 3,208,000
	d. Remove abandoned railroad alignments by S. 18th Street	\$ 45,000
	e. Carpenter Avenue - improve approach capacity below existing bridge deck to provide an additional 230 square feet of hydraulic opening area	\$ 752,000
	f. Pulaski Park pedestrian bridge - increase span from existing 66 feet to 120 feet	\$ 484,000
	g. S. 16th Street - increase bridge span from existing 62 feet to 120 feet for 8.0 percent increase in hydraulic opening or equivalent capacity	\$ 256,000
	h. S. 15th Street pedestrian bridge - increase span from existing 62 feet to 84 feet to accommodate the water channel	\$ 693,000
	i. S. 13th Street - increase span from existing 62 feet to 122 feet for an 14.0 percent increase in hydraulic opening or equivalent capacity	\$ 3,857,000
	j. S. 11th Street - increase span from existing 62 feet to 122 feet for an 14.0 percent increase in hydraulic opening or equivalent capacity	\$ 3,857,000

[illegible]

# Exhibit A

Table V-7  
PRIORITY RANKING OF NATURAL AND OTHER HAZARDS AFFECTING THE CITY OF MILWAUKEE BASED UPON MORTALITY AND INJURY

Order Based on Steering Committee Perception <sup>a</sup>	Natural and Other Hazards	Period of Record	Number of Incidents per Year (Average)	Average Number of Mortalities per Year	Average Number of Injuries per Year	Sum of Average Mortalities and Injuries per Year	Priority Ranking Based on Analysis
1	Medical/health risks (chronic diseases and parasites)	2000-2019	---	200.00	---	200.00	1
2	Temperature extremes	1994-2019	0.01	0.03	10.70	10.73	2
3	Major fire and Emergency incidents	2000-2019	0.01 (Fire)	0.00 (Fire)	---	0.00	3
4	Hazardous materials incidents	1971-2019	20.00 <sup>b</sup>	---	2.00 <sup>c</sup>	22.00 <sup>d</sup>	4
5	Tornadoes	1950-2019	0.03	0.00	0.00	0.00	5
6	Winter storms	1981-2019	0.00	0.00	0.00	0.00	6
7	Thunderstorms, high wind, hail, and lightning	1993-2019	12.00	0.10	0.00	0.10	7
8	Flooding	1990-2019	0.00	0.00	0.00	0.00	8
9	Coastal erosion	1975-1995	Less than one foot per year	0.00	0.00	0.00	9
10	Contamination or loss of water supply	1993-2019	0.00	---	---	---	---
11	Terrorism incidents	2000-2019	0.00	---	---	---	---

<sup>a</sup>These numbers reflect the ranked order of the hazards assigned by the City of Milwaukee Hazard Mitigation [Local Planning Team](#). For more details see Hazard identification section and Table 01-3 in Chapter 01 in this report.

<sup>b</sup>Refers to gas and liquid hazardous materials pipeline [and transportation](#) incidents within the City of Milwaukee 1971 to 2019.

<sup>c</sup>Information on mortalities and injuries is based on one event in 1983 related to a parasitic contamination of the water supply. According to the Wisconsin Division of Health, the estimated number of mortalities was about 60 and approximately 4,400 people were hospitalized. As the water treatment facilities have been upgraded to avoid such contamination, the number of mortalities and injuries are not being considered in the current ranking.

<sup>d</sup>Source: National Climatic Data Center; U.S. Department of Transportation; Office of Pipeline Safety; National Consortium for the Study of Terrorism, Wisconsin and IDPHW.

Table V-8  
PRIORITY RANKING OF NATURAL AND OTHER HAZARDS AFFECTING THE CITY OF MILWAUKEE BASED UPON PROPERTY DAMAGE

Order Based on Steering Committee Perception <sup>a</sup>	Natural and Other Hazards	Period of Record	Number of Incidents per Year (Average)	Total Property Damage per Year (Average) <sup>b</sup>	Priority Ranking Based on Analysis
1	Major fire and emergency incidents	2000-2019	0.01 (Fire)	\$17,800,300 (Fire)	1
2	Flooding	1990-2019	0.00	\$15,000,000	2
3	Thunderstorms, high wind, hail, and lightning	1993-2019	10.00	\$1,200,000	3
4	Hazardous materials incidents	1971-2019	20.00 <sup>c</sup>	\$1,075,000	4
5	Tornadoes	1950-2019	0.03	\$1,010,000	5
6	Winter storms	1981-2019	0.00	\$1,000,000	6
7	Temperature extremes	1994-2019	0.01	\$1,000,000	7
8	Coastal erosion	1975-1995	Less than one foot per year	---	---
9	Terrorism incidents	2000-2019	0.00	---	---
10	Contamination or loss of water supply	1993-2019	0.00	---	---
11	Medical/health risks	2000-2019	---	---	---

<sup>a</sup>These numbers reflect the ranked order of the hazards assigned by the City of Milwaukee Hazard Mitigation [Local Planning Team](#). For more details see Hazard identification section and Table 01-3 in Chapter 01 in this report.

<sup>b</sup>Dollar values are adjusted to year 2019 by using the average annual Consumer Price Index (CPI) values from the U.S. Department of Labor, Bureau of Labor Statistics.

<sup>c</sup>Refers to gas and liquid hazardous materials pipeline [and transportation](#) incidents within the City of Milwaukee 1971 to 2019.

<sup>d</sup>Data are not known.

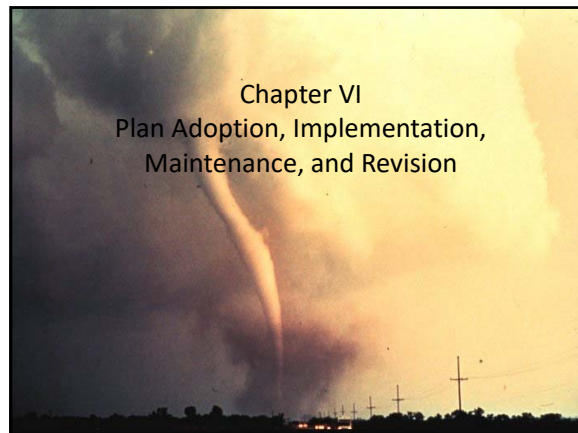
<sup>e</sup>Source: National Climatic Data Center; U.S. Department of Transportation; Office of Pipeline Safety; National Consortium for the Study of Terrorism, Wisconsin and IDPHW.

Table V-9  
COST-BENEFIT ANALYSIS SUMMARY OF MEASURES INCLUDED IN THE CITY OF MILWAUKEE ALL-HAZARDS MITIGATION PLAN

Hazard	Mitigation Measure	Cost of Implementation <sup>a</sup>				Benefits					
		Estimated Costs in Dollars (Thousands)	Low	Medium	High	Estimated benefits to a single person (Estimated)	Estimated Potential Reduction	Reduced Property Damage	Reduced Injuries	Reduced Mortality	Unfunded Benefit <sup>b</sup>
Floods and Pests: Riverine/Coastal Damage Problems	Proactive and Reactive Environmental Remediation and Restoration Efforts	---	---	---	---	---	---	---	---	---	---
	Proactive and Reactive Environmental Remediation and Restoration Efforts	---	---	---	---	---	---	---	---	---	---
	Proactive and Reactive Environmental Remediation and Restoration Efforts	---	---	---	---	---	---	---	---	---	---
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	Proactive and Reactive Environmental Remediation and Restoration Efforts	---	---	---	---	---	---	---	---	---	---
	Proactive and Reactive Environmental Remediation and Restoration Efforts	---	---	---	---	---	---	---	---	---	---
Microclimate River Watershed/ Milwaukee River	Microclimate River Watershed/ Milwaukee River	---	---	---	---	---	---	---	---	---	---
	Microclimate River Watershed/ Milwaukee River	---	---	---	---	---	---	---	---	---	---
	Microclimate River Watershed/ Milwaukee River	---	---	---	---	---	---	---	---	---	---
	Microclimate River Watershed/ Milwaukee River	---	---	---	---	---	---	---	---	---	---
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	Microclimate River Watershed/ Milwaukee River	---	---	---	---	---	---	---	---	---	---
Microclimate River Watershed/ Milwaukee River	Microclimate River Watershed/ Milwaukee River	---	---	---	---	---	---	---	---	---	---
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Microclimate River Watershed/ Milwaukee River	Microclimate River Watershed/ Milwaukee River	---	---	---	---	---	---	---	---	---	---
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	Microclimate River Watershed/ Milwaukee River	---	---	---	---	---	---	---	---	---	---
	Microclimate River Watershed/ Milwaukee River	---	---	---	---	---	---	---	---	---	---
	Microclimate River Watershed/ Milwaukee River	---	---	---	---	---	---	---	---	---	---
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	Microclimate River Watershed/ Milwaukee River	---	---	---	---	---	---	---	---	---	---

<sup>a</sup>Cost of Implementation is based on the estimated cost of implementation of the measures included in the City of Milwaukee All-Hazards Mitigation Plan.

<sup>b</sup>Unfunded Benefit is the difference between the total benefits and the total costs of implementation.



## Chapter VI Plan Adoption, Implementation, Maintenance, and Revision

### Chapter VI Overview

- Plan refinement, review, and adoption
- Plan implementation strategies
- Funding sources
- Plan monitoring and reevaluation strategies
  - Annual review
  - Post-disaster review

Table V-10

CITY OF MILWAUKEE ALL-HAZARDS MITIGATION PLAN SUMMARY AND IMPLEMENTATION PLAN

Hazard	Mitigation Measure	Cost of Implementation <sup>a</sup> (\$/Year)	Estimated Benefits to a Person Annual Probability Percent/Year (\$/Year)	Managing Agency	Plan Implementation Schedule	Implementation Status Notes	Potential Funding Programs (see Appendix 1)
Floods and Pests: Riverine/Coastal Damage Problems	Proactive and Reactive Environmental Remediation and Restoration Efforts	---	---	UNEP/WHO	In place and ongoing	---	1, 2, 3, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
	Economically sensitive area and open space area preservation	---	---	UNEP/WHO, MC, CO, MWD and other organizations or NGOs	In place and ongoing	---	1, 2, 3, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
	Proactive Management Plan Element <sup>b</sup> Economic loss estimates	\$100,000	1, 2, 3, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100	UNEP/WHO, MWD	Ongoing	Partially implemented	1, 2, 3, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
	UNEP/WHO/WHO	\$100,000	1, 2, 3, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100	UNEP/WHO, MWD	Ongoing	Partially implemented	1, 2, 3, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
	UNEP/WHO/WHO	\$100,000	1, 2, 3, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100	UNEP/WHO, MWD	Ongoing	Partially implemented	1, 2, 3, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
	UNEP/WHO/WHO	\$100,000	1, 2, 3, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100	UNEP/WHO, MWD	Ongoing	Partially implemented	1, 2, 3, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
	UNEP/WHO/WHO	\$100,000	1, 2, 3, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100	UNEP/WHO, MWD	Ongoing	Partially implemented	1, 2, 3, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
	UNEP/WHO/WHO	\$100,000	1, 2, 3, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100	UNEP/WHO, MWD	Ongoing	Partially implemented	1, 2, 3, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
	UNEP/WHO/WHO	\$100,000	1, 2, 3, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100	UNEP/WHO, MWD	Ongoing	Partially implemented	1, 2, 3, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
	UNEP/WHO/WHO	\$100,000	1, 2, 3, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100	UNEP/WHO, MWD	Ongoing	Partially implemented	1, 2, 3, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
Microclimate River Watershed/ Milwaukee River	Microclimate River Watershed/ Milwaukee River	---	---	UNEP/WHO, MC, MWD	In place and ongoing	---	1, 2, 3, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
	Greenway Cores	---	---	UNEP/WHO, MC, MWD	2008	implemented	1, 2, 3, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
	Little Milwaukee River	---	---	UNEP/WHO, MC, MWD	2008	implemented	1, 2, 3, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
	UNEP/WHO/WHO	\$100,000	1, 2, 3, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100	UNEP/WHO, MC, MWD	Ongoing	Partially implemented	1, 2, 3, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
	UNEP/WHO/WHO	\$100,000	1, 2, 3, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100	UNEP/WHO, MC, MWD	Ongoing	Partially implemented	1, 2, 3, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
	UNEP/WHO/WHO	\$100,000	1, 2, 3, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100	UNEP/WHO, MC, MWD	Ongoing	Partially implemented	1, 2, 3, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
	UNEP/WHO/WHO	\$100,000	1, 2, 3, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100	UNEP/WHO, MC, MWD	Ongoing	Partially implemented	1, 2, 3, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
	UNEP/WHO/WHO	\$100,000	1, 2, 3, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100	UNEP/WHO, MC, MWD	Ongoing	Partially implemented	1, 2, 3, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 5

## Exhibit A

[illegible][illegible]

FUNDING PROGRAMS CONTACT INFORMATION <sup>a</sup>				
Administrator of Grant Program	Name of Grant Program	Address	Phone Number	Internet Web Address
U.S. Department of Homeland Security Domestic Emergency Management Agency (DEMA)	Project Integration Grant Program Disaster Mitigation Program Disaster Mitigation Assistance Program	American Emergency Management Agency 200 E. Main Street, 4th Floor Chicago, IL 60602	(312) 424-0000	<a href="http://www.aemag.org/americanemergencymanagement/">www.aemag.org/americanemergencymanagement/</a>
FEHA	Public Assistance Program	U.S. Department of Homeland Security Federal Emergency Management Agency Public Assistance Division 500 C Street Washington, DC 20472	(202) 254-1514	<a href="http://www.fema.gov/pa/pa-program-overview.cfm">www.fema.gov/pa/pa-program-overview.cfm</a>
FEHA	National Training and Education Division	U.S. Department of Homeland Security Federal Emergency Management Agency National Training and Education Division 4001 West 12th Avenue Denver, CO 80202	(202) 254-1515	<a href="http://www.fema.gov/nationaltrainingandeducation.cfm">www.fema.gov/nationaltrainingandeducation.cfm</a>
FEHA	Homeland Security Preparedness National Assistance Program	U.S. Department of Homeland Security Federal Emergency Management Agency National Assistance Program 500 C Street Washington, DC 20472	(202) 254-0005	<a href="http://www.fema.gov/nationalassistance.cfm">www.fema.gov/nationalassistance.cfm</a>
FEHA	Assistance for Firefighting Grants Staffing for Hazardous Site and Emergency Response Grants Fire Assistance and Safety Grants Fire Management Assistance Grants	U.S. Department of Homeland Security Federal Emergency Management Agency Fire Management Assistance Grants 500 C Street Washington, DC 20472	(202) 254-1516	<a href="http://www.fema.gov/firemanagementassistance.cfm">www.fema.gov/firemanagementassistance.cfm</a>

- ## Public Meeting on Hazard Mitigation Plan

- May 23, 2019
  - 4:00 pm
  - City of Milwaukee Department of Public Works Field Headquarters – 3850 N. 35th Street
- Review the plan update
- Seek public input
  - Answer questions
  - Mitigation measures and projects
  - Comments on draft plan

- ## Remaining Effort on Plan Update
- Public Meeting
  - Review by the Wisconsin Division of Emergency Management
    - Any necessary revisions
  - Review by the Federal Emergency Management Agency
    - Any necessary revisions
  - Formal adoption by the Common Council

## Project Web Site