
City Of Madison Annex

Community Profile

The City of Madison is located in the center of Dane County. The city completely surrounds the smaller Town of Madison and the City of Monona, as well as the villages of Maple Bluff and Shorewood Hills. Madison shares borders with its largest suburb, Sun Prairie, and three other communities, Middleton, McFarland, and Fitchburg. Downtown Madison is located on an isthmus between Lakes Mendota and Monona. The city is sometimes described as *The City of Four Lakes*, comprising the four successive lakes of the Yahara River: Lake Mendota ("Fourth Lake"), Lake Monona ("Third Lake"), Lake Waubesa ("Second Lake") and Lake Kegonsa ("First Lake"), although Waubesa and Kegonsa are not actually in Madison, but rather just south of it. A fifth smaller lake, Lake Wingra, is within the city as well, but not on the Yahara River chain. The Yahara flows into the Rock River, which in turn, flows into the Mississippi River. The city's trademark of "Lake, City, Lake" reflects this geography. Land use is dominated by the State Capital, University, Lakes, residential, industrial, and commercial.

According to the United States Census Bureau, the City of Madison a total area of 84.7 square miles, 68.7 square miles of it is land and 16 square miles is water. The total area is 18.91% water.

The U.S. Census Bureau's American Community Survey 2007 1-year survey, estimated that there were 222,725 people, 88,656 households, and 42,399 families residing in the City of Madison. The population density was 3,242 people per square mile. There are 103,285 housing units at an average density of 1,503.42 per square mile.

There are 88,656 households out of which 22.2% have children under the age of 18 living with them, 39.0% of all households are made up of individuals and 7.8% have someone living alone who is 65 years of age or older. The average household size is 2.41 and the average family size is 3.18.

In the City of Madison, the population is spread out with 18.80% under the age of 18, 20.6% from ages 18 to 24, 30.4% ages 25 to 44, 21.0% ages 45 to 64, and 9.2% who are 65 years of age or older. The median age is 30.6 years. 15.8% of the population speaks a language other than English at home and 10.0% of the population (above the age of 5) is disabled.

Based on 2007 data, the median income for a household in the City of Madison is \$50,991 and the median income for a family is \$73,049. The per capita income for the City of Madison is \$27,728. 18.5% of the population and 9.2% of families are below the poverty line. Out of the total people living in poverty, 19.9% are under the age of 18 and 7.3% are 65 or older. 93.9% of the population has at least a high school degree, while 50.4% of the population holds at least a bachelor's level degree.

Hazard Identification and Risk Assessment

A hazard identification and vulnerability analysis was completed for the City of Madison using the same methodology in the base plan. The information to support the hazard identification and risk assessment for this Annex was collected through a Data Collection Guide, which was distributed to each participating municipality to complete.

The first step in a hazard analysis is to identify which hazards the community is vulnerable to. Table 1 outlines the hazard identification for the City of Madison based on the Data Collection Guide issued in 2008. The Data Collection Guide listed all of the hazards that could impact anywhere in Dane County. The purpose of this worksheet was to identify and rank the hazards and vulnerabilities specific to the jurisdiction. The City of Madison planning team members were asked to complete the matrix by ranking each category on a scale of 0 to 3 based on the experience and perspective of each planning team member. A ranking of 0 indicated "no concern" while a ranking of 3 indicated "highest concern". This matrix appears as Table 1. This matrix reflects the significance of the hazards relative to one another.

This matrix reflects that the City of Madison is most vulnerable to flood, windstorm, and tornado. The City of Madison has a medium vulnerability to extreme heat and cold, fog, hail storm, lightning, and winter storms, and a lower vulnerability to dam/levee failures, drought, erosion, landslides, lightning, subsidence, and wildfire. The vulnerability established here is a qualitative assumption based on the impacts, geographic extent, probability of future occurrence, and magnitude/severity. On the county level, these vulnerabilities were calculated with quantitative data as well.

Table 1 Vulnerability Assessment Matrix for the City of Madison

Hazard	Hazard Attributes (1-2-3)			Impact Attributes (0-1-2-3)						Total	
	Area of Impact	Past History, Probability of Future Occurrence	Short Term Time Factors	Primary Impact (Short Term – Life and Property)			Secondary Impact (Long Term- Community Impacts)				
				Impact on General Structures	Impact on Critical Facilities	Impact on At-Risk Populations	Social Impact	Economic Impact	Severity of other associated secondary hazards		
Dam failure	1	1	1	1	0	1	1	1	1	1	8
Extreme Cold	2	2	1	1	1	2	1	2	1	1	12
Extreme Heat	2	2	1	1	1	3	3	2	1	1	16
Drought	1	1	1	1	1	1	1	1	1	1	9
Erosion	1	1	1	0	0	0	0	0	0	0	3
Flood	2	3	2	2	2	2	2	2	2	2	19
Fog	3	2	1	1	1	1	1	2	1	1	13
Hail Storm	3	2	1	1	1	1	1	2	1	1	13
Landslide	1	1	1	0	0	0	0	0	0	0	3
Lightning	1	2	1	1	1	1	2	1	1	1	11
Tornado	1	2	1	2	2	2	3	3	1	1	17
Wildfire	1	1	1	1	1	1	1	1	0	0	8
Windstorm	3	2	1	2	2	2	2	3	1	1	18
Winter Storm	3	3	2	1	1	1	1	2	1	1	15
Subsidence	0	0	0	1	1	1	0	1	0	0	4
Other:											

Data Source: City of Madison Data Collection Guide

Previous Hazard Events

Through the Data Collection Guide, the City of Madison noted specific historic hazard events to include in the community profile. These events have been incorporated into the appropriate hazard chapters in the base plan. These events had a particular impact on the community beyond the impacts and events recorded in the Dane County Hazard Mitigation Plan. This is not a comprehensive summary of past incidents, as the hazard profiles collected in the main Mitigation Plan include other events that may have historically impacted the jurisdiction. The events noted by this jurisdiction in the Data Collection Guide include:

FLOODING EVENTS – 1993, 1997, 2000, 2004, 2006 and 2008

During the summers of the above years the City of Madison and surrounding areas experienced significant rain events when considered independently and collectively. Independently these events caused limited flooding in local low points throughout the City of Madison as would be expected when a storm event exceeds the capacity of the local storm sewer.

Cumulatively however these events resulted in high local groundwater and significant infiltration into the sanitary sewer system and into the basements of local residences. The affects of these events have decreased over the years due to improvements made to the sanitary sewer and storm sewer systems in problem areas throughout the City. However, these problems cannot ever be fully eliminated just reduced in magnitude due to the nature of how Madison was developed adjacent to and in wetland areas.

A special event occurred during the summer of 2007, causing flash flooding in the City of Madison to occur in enclosed depression areas that flood routinely during intense short rain events. During this event a highly intense thunderstorm cell that moved through the downtown area during the summer of 2007 caused severe flooding in areas of the isthmus of the City of Madison including portions of the University of Wisconsin. Specifically, flooding occurred throughout several buildings at the University of Wisconsin, Camp Randall, and the surrounding urban areas. This event caused classes to be cancelled. Additionally, many power outages were reported throughout the City as well, as circuit boards were flooded out and roads had to be closed due to flooding.

During the first 2 weeks of June, 2008 more than 10" of rain fell on Madison. Three heavy rainfall events – 2.23" on June 7th , 4.11" on June 8th , and 2.57" on June 12th – accounted for nearly 80% of this rainfall. The heavy rainfall produced flash flooding problems throughout Madison and flooding along the Yahara River chain. The City of Madison received FEMA funds to help recover from this event.

Lightning Strike: August 2007

A lightning strike caused a power line to fall into a puddle of water located at a bus stop as people were getting on a bus. Three people died during this incident. Another incident of a lightning strike occurred during this month at a golf course in the City of Madison. One person died.

Winter Storm: February 5-6 2008

Record snow fall affected the entire City of Madison during early February of 2008. There were no reports of injuries, deaths, property, crop or infrastructure damage, and impacts on business and the economy were unavailable. The snow resulted in delays and closures along roadways, and in schools and businesses. The City of Madison received FEMA funds to help cover the expenses of salt/sand, labor and maintenance of vehicles used to remove the snow.

Extreme Cold: Various

Extreme cold occurs during the winter that results in school closings and at times water main breaks in the City and at buildings. School closings have been reported throughout various years.

Asset Inventory

In general, these assets include the population and the property aspects within the City of Madison that are exposed to hazards in general. Inventories of property, essential infrastructure, and natural, cultural or historic resources help provide a comprehensive picture of the community and provide a method of assessing exposure to hazards by establishing the improved and total values, capacities and populations for these assets. It also forms the basis for estimating potential losses, where possible.

Population

Table 2 Vulnerable Population Summary

Disability Status from the 2000 Census	Number	Percent
Total Population ages 5 or less	13,574	6.1%
Total population ages 5 to 19	40,763	18.2%
Total population over 65 years old	20,469	9.2%
Total Population with any Disability	20,771	10.0%
Families Below Poverty Level	3,901	9.2%
Individuals Below Poverty Level	41,204	18.5%
Total Population who Speak English less than "very well"	13,241	6.3%
Total Population	222,725	-

Data Source: 2000 US Census

General Property

Table 3 Property Exposure Summary

Property Type	Total Parcel Count	Improved Parcel Count	Improved Values (\$)	Content (\$)	Total Value (\$)
Residential	54,303	49,910	10,613,352,400	5,306,676,200	15,920,028,600
Agriculture	392	22	2,282,600	2,282,600	4,565,200
Commercial	4,982	3,632	5,229,311,700	5,229,311,700	10,458,623,400

Property Type	Total Parcel Count	Improved Parcel Count	Improved Values (\$)	Content (\$)	Total Value (\$)
Manufacturing	168	165	213,957,400	320,936,100	534,893,500
Institutional/Government ¹	n/a ²	n/a ²	4,416,610,744	4,416,610,744	8,833,221,488
Total	59,845	53,729	\$ 20,475,514,844	\$ 15,275,817,344	\$ 35,751,332,188

¹Need County of Dane parcel counts and values; not included in values listed.

²Institutional parcel counts are included in categories above.

Critical Facilities

AMEC, the consultant hired by Dane County, The City of Madison and/or EMAC have identified the following properties, infrastructures, capabilities or response mechanisms that impact the City of Madison's ability to respond to a disaster. These are collected in Table 4. Table 4 is based on GIS data inventories from Dane County, City of Madison Assessor and City of Madison Risk Management. Please note that this is not an all-inclusive list. Rather, its purpose is to provide examples of the types of facilities included in each category.

Table 4 Critical Facility Summary/Essential Infrastructures

Facility	Type*	No. of Facilities	Replacement Value (\$)
Airport	EI	1	16,200,000
Bridges	EI	111	63,600,000
Communications Towers	EI	64	90,759,100
Correctional Center	EI	10	17,969,600
Dams, Locks & Levees	EI	2	1,100,000*
Electric Substation	EI	22	1,855,600
Emergency Shelter	EI	8	119,600
FCC Tower	EI	53	92,241,500
Fire Station/EMS	EI	12	43,900,000
Food Pantry	EI	26	4,198,800
Hospital	EI	3	?
Jail	EI	2	?
Landfill Remediation Facilities	EI	5	5,000,000
Media Outlet	EI	22	26,567,200
Municipal Hall	EI	2	49,950,000**
National Guard	EI	1	?
Police Facilities	EI	9	22,861,000
Power plant	EI	3	1,500,000,000
Public Works Operations Facilities	EI	8	53,000,000
Sheriff Precinct	EI	1	?
Stormwater Pump Stations	EI	1	1,500,000
Wastewater Conveyance & Treatment Facilities	EI	46	526,000,000

Facility	Type*	No. of Facilities	Replacement Value (\$)
Water Supply Facilities	EI	38	99,000,000
Extremely Hazardous Substances	HM	86	187,302,200
Hazardous Chemicals	HM	157	258,354,300
Adult Day Care	VF	4	2,767,000
Adult Family Home	VF	23	3,256,400
Child Care	VF	244	67,554,400
Clinic	VF	2	?
Community Based Residential	VF	39	38,546,900
Community Center	VF	16	3,689,100
Federally Assisted Rental	VF	67	24,380,000
Historic Site	VF	174	104,026,200
Manufactured Home	VF	753	?
Nursing Home	VF	9	10,987,500
Private School	VF	14	?
Public School	VF	44	?
Residential Care Apart Complex	VF	7	4,896,000
Senior Center	VF	4	14,501,000
Serving People w/ Disabilities	VF	1	?
Single Room Occupancy	VF	28	5,656,900
Subsidized Housing	VF	14	6,554,000
Supportive Permanent Housing	VF	16	214,700
Transitional Housing	VF	21	2,070,700
TOTAL		2,079	2,498,688,900

*EI: Essential Infrastructure; VF: Vulnerable Facilities; HM: Hazardous Materials Facilities

Data Source: Dane County GIS, City of Madison, Madison Metropolitan Sewerage District

* Value is for Wingra Dam only; need to add Tenney Locks

** Includes Value of MMB and City improvements only in CCB

Other Assets

Other assets help define a community beyond the current composition of the City of Madison. These assets may provide economic benefit to the community, in addition to preserving the heritage and diversity of the community and may include natural, cultural and historic assets or economic assets such as major employers. It may also include more specific detail on critical facilities.

The City of Madison has many assets which are major employers and/or play a significant role in the stabilization or recovery from a major incident. The following list is intended to provide examples of the business or services important to the city. It is not intended as an all inclusive list:

- University of Wisconsin
- State of Wisconsin

- Meriter hospital
- St. Mary's Hospital
- Alliant Energy
- Madison gas and Electric
- American Family Insurance
- CUNA
- General Casualty
- Oscar Mayer
- Spectrum Brands
- Netconcepts
- TDS
- TomoTherapy
- Broadjam
- Sonic Foundry
- Woodman's
- Copp's
- Findorff Construction
- InterCon Construction
- Stevens Construction
- Home Depot
- Menard's

Vulnerability to Specific Hazards

This section details vulnerability to specific hazards, where quantifiable, and where it differs from that of the overall County. The previous inventory tables quantify what is exposed to the various hazards within City of Madison. Table 5 cross-references the hazards with the various tables where exposure or vulnerability specifics are found. The intent of Table 5 is to quantify, where possible, future impacts of each hazard on the jurisdiction. In many cases it is difficult to estimate potential losses, so the overall exposure of populations, structures, and critical facilities is referenced.

Table 5 Hazard Vulnerability Specifics

Hazard	Populations	Structures	Critical Facilities	Future Damage Potential
Dam Failure				
Wingra Dam	No residences, buildings, or campgrounds would be inundated by the dam failure flood.	Two bridges are within the hydraulic shadow; the McCaffery Drive bridge and the Fish Hatchery Road bridge.	No critical facilities are located within the hydraulic shadow.	Minimal
Tenney Locks located in Madison but owned and operated by Dane County	Need Info from Dane County	Need Info from Dane County	Need Info from Dane County	See hazard profile in County Plan
Drought	Minimal	None	Water Supply Facilities	See hazard profile in County Plan
Flooding	See section below	See section below	See section below	See section below

Hazard	Populations	Structures	Critical Facilities	Future Damage Potential
Fog	Minimal	None	None	See hazard profile in County Plan
Hailstorm	Minimal	All	See Critical Facility Inventory Table(s)	See hazard profile in County Plan
Landslide/ Sinkholes? Erosion	Unlikely	Unlikely	Unlikely	See hazard profile in County Plan
Lightning	General Population	All	See Critical Facility Inventory Table(s)	See hazard profile in County Plan
Severe Cold	General Population	All	See Critical Facility Inventory Table(s)	See hazard profile in County Plan
Severe Heat	General Population	Low	Minimal	See hazard profile in County Plan
Severe Winter Storm	General Population	Low	See Critical Facility Inventory Table(s)	See hazard profile in County Plan
Tornado		Moderate	See Critical Facility Inventory Table(s)	See section below
Wildfire	Minimal	Minimal	Minimal	See hazard profile in County Plan
Windstorm	See Table 2 Population	See Table 3 Property Exposure	See Critical Facility Inventory Table(s)	See hazard profile in County Plan

Flood

Parcels in the Floodplain

Some assets are specifically vulnerable to floods, due to their location. Parcels with any portion located within the 100 year floodplain are included in Table 6. The City of Madison Engineering Division is presently refining this data to identify which of these parcels has structures located within the floodplain. Refer to the flood profile in the mitigation plan for a description of the methodology used to identify potentially flood-prone properties.

Table 6 Potentially Flooded Property Summary and Loss Estimate (DFIRM 100 – year)

Property Type	Total Parcel Count	Improved Parcel Count	Improved Values (\$)	Content (\$)	Total Value (\$)
Residential	949	641	\$218,224,500	\$109,122,250	\$327,366,750
Commercial	198	83	\$150,150,600	\$150,150,600	\$300,301,200
Manufacturing	9	2	\$191,000	\$191,000	\$392,000
Agriculture	8	0	\$0	\$0	\$0
Total	1,164	0			

Data Source: City of Madison GIS, 2008 DFIRM

Table 7 summarizes City of Madison parcels with any portion located in the floodway. City of Madison Engineering will be refining this data by identifying which of these parcels has any portion of a structure located within the floodway.

Table 7 Floodway Property Summary and Loss Estimate (DFIRM 100 –year)

Property Type	Parcel Count	Improved Parcel Count	Improved Values	Contents	Total Values (Content & Imp.)	Estimated Loss
Residential	153	58	\$29,182,800	\$14,591,400	\$43,774,200	TBD
Commercial	86	24	\$40,571,100	\$40,571,100	\$81,142,200	TBD
Manufacturing	5	0	\$0	\$0	\$0	TBD
Agricultural	1	0	\$0	\$0	\$0	TBD
Total	245	82	\$32,186,400	\$69,753,900	\$124,916,400	TBD

Data Source: City of Madison GIS, 2008 DFIRM
 TBD – to be determined

Based on the average household size in Dane County and the count of residential parcels with any portion located in the floodplain, approximately 1,404 people reside in locations where at least a portion of the parcel is potentially at risk to the 100 year flood and 1,156 additional to the 500 year flood (2,560 total) within the jurisdiction. The City of Madison Engineering Division is presently refining this data to identify which of these parcels has structures located within the floodplain. Loss estimates will be calculated based on parcels with any portion of structures located within the floodway.

Repetitive Loss Properties and Flood Insurance Policies

A “repetitive loss” property is one that has received two or more flood insurance claim payments for at least \$1,000 each in any 10 year period since 1978. Flood insurance records indicate 1 repetitive loss property within the City of Madison. That property is located on Carver Street, which has amounted in losses of \$27,170. The general location of this property is shown in the map in the flood hazard profile in the base plan.

As of 1/28/2009 the community has 194 flood insurance policies, with a total coverage amount of \$42,338,300. There have been 32 claims and \$72,777 in losses paid in flood insurance claims since 1978.

Critical Facilities

Developed by AMEC using Dane County GIS data, Table 8 displays a result of an analysis of critical facilities located within either the FEMA DFIRM 100-year, 500-year, or HAZUS 100-year floodplains. Additional detail on the facilities is shown in Table 9. The location of these facilities is shown in Figure 2.

Table 8 Potentially Flooded Critical Facility Summary

Facility Type	No. of Facilities	DFIRM 100-yr	DFIRM 500-yr	HAZUS Only
Affordable Rental Housing	2	1		
Airport	1			1
Bridge	1	1		
Child Care	1			1

Electric	3	1		2
FCC Tower	7	6	1	
Fire Station	2			2
Historic Site	2	2		
Mobile Home	5		5	
FCC Tower	7	6	1	
Fire Station	1			1
Historic Site	2	2		
Mobile Home	5		5	
Mobile Home Park	2		2	
Power plant	1			1
HAZMAT Reporting	9	1	1	7
Sewage	3		1	2
Tower	8	6	1	1
Transmission Substation	3	2		1
Well	1			1
Total	50	20	11	19

Data Source: Dane County GIS, 2008 DFIRM

Table 9 Potentially Flooded Critical Facility Detail

Facility Type	Facility Name	DFIRM Flood Zone	HAZUS Flood Zone	HAZUS & DFIRM	HAZUS Flood Depth
Affordable Rental Housing	Ithaka Homes	AE	Y		3.99
Affordable Rental Housing	Sherman Glen	X	Y		
Airport	Truax Field	X	Y		
Bridge		AE			
Child Care	La Petite Academy Crossroads	X	Y		2.83
Electric		X	Y		5.73
Electric		AE	Y		3.10
Electric		X	Y		3.13
FCC Tower	A00445	AE	Y	Y	2.98
FCC Tower		AE	Y	Y	
FCC Tower	A00445	AE	Y	Y	6.56
FCC Tower	A00412	X500			6.56
FCC Tower	A02210	A	Y	Y	6.56
Fire Station		X	Y		0.06
Convention Center	Monona Terrace	AE			2.78
Historic Site – Essential Infrastructure	Tenney Park Locks	AE	Y	Y	
Mobile Home		X500			
Power Plant	Sycamore	X	Y		5.73
HAZMAT Reporting	Temperature Systems, Inc.	X	Y		5.73

Facility Type	Facility Name	DFIRM Flood Zone	HAZUS Flood Zone	HAZUS & DFIRM	HAZUS Flood Depth
HAZMAT Reporting	Franklin Fueling Systems	X	Y		1.03
HAZMAT Reporting	SBC Wisconsin	X500			
HAZMAT Reporting	Sycamore Station	X	Y		3.92
HAZMAT Reporting	Stearns Packaging Corp	AE			
HAZMAT Reporting	Federal Express MSNR	X	Y		1.00
HAZMAT Reporting	Federal Aviation Admin - MSN	X	Y		0.09
HAZMAT Reporting	American Eagle Airlines, Inc.	X	Y		1.05
HAZMAT Reporting	Dane Co Regional Airport	X	Y		1.05
Sewage	ID#9	X500	Y		
Sewage	ID#18	X	Y		
Sewage	AD#8	X	Y		
Tower	124	AE	Y		
Tower	123	AE	Y		2.98
Tower	122	AE	Y		3.94
Tower	121	AE	Y		7.17
Tower	120	AE	Y		5.58
Tower	119	AE	Y		4.69
Tower	159	X500			5.31
Tower	129	X	Y		6.56
Transmission Substation	Femrite	A			0.86
Transmission Substation	Commercial Ave Riser	AE	Y	Y	6.77
Transmission Substation	Sycamore	X	Y		
Well	MD-04P31	X	Y		3.13

Data Source: Dane County GIS, 2008 DFIRM

Figure 1 Flood Hazards and Future Land Use Map

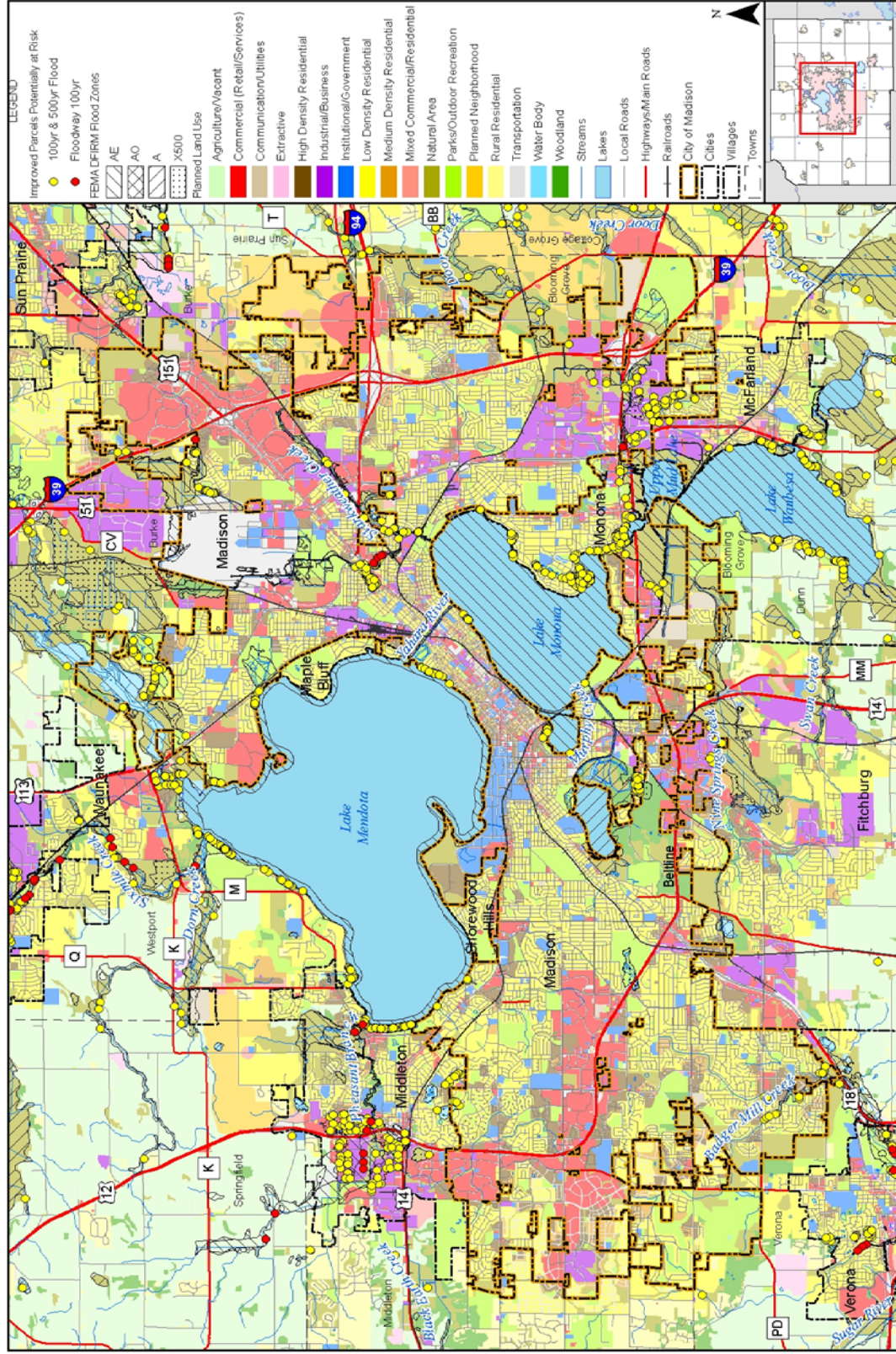


Figure 2 Flood Hazards and Future Land Use Map - Central

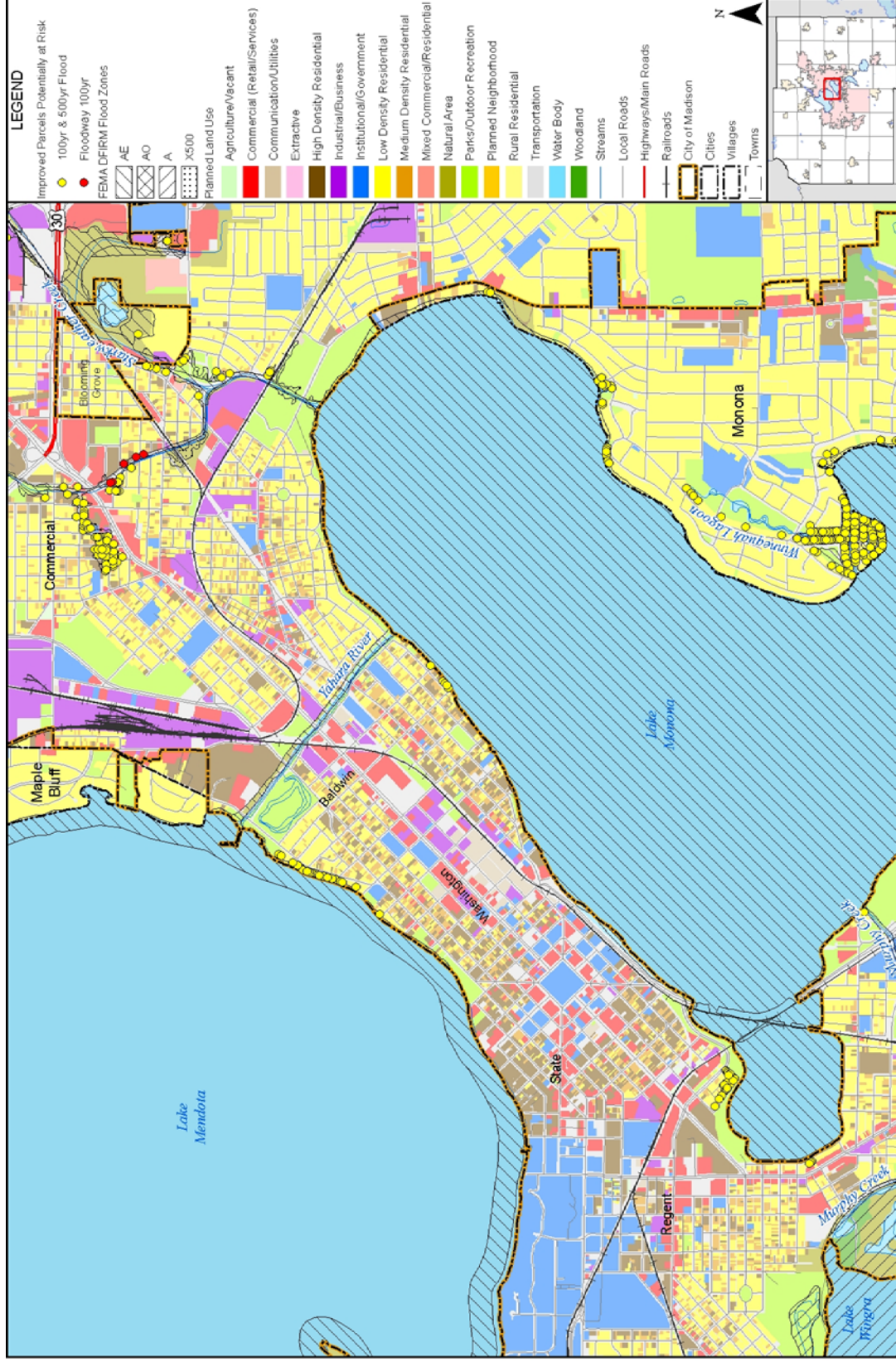
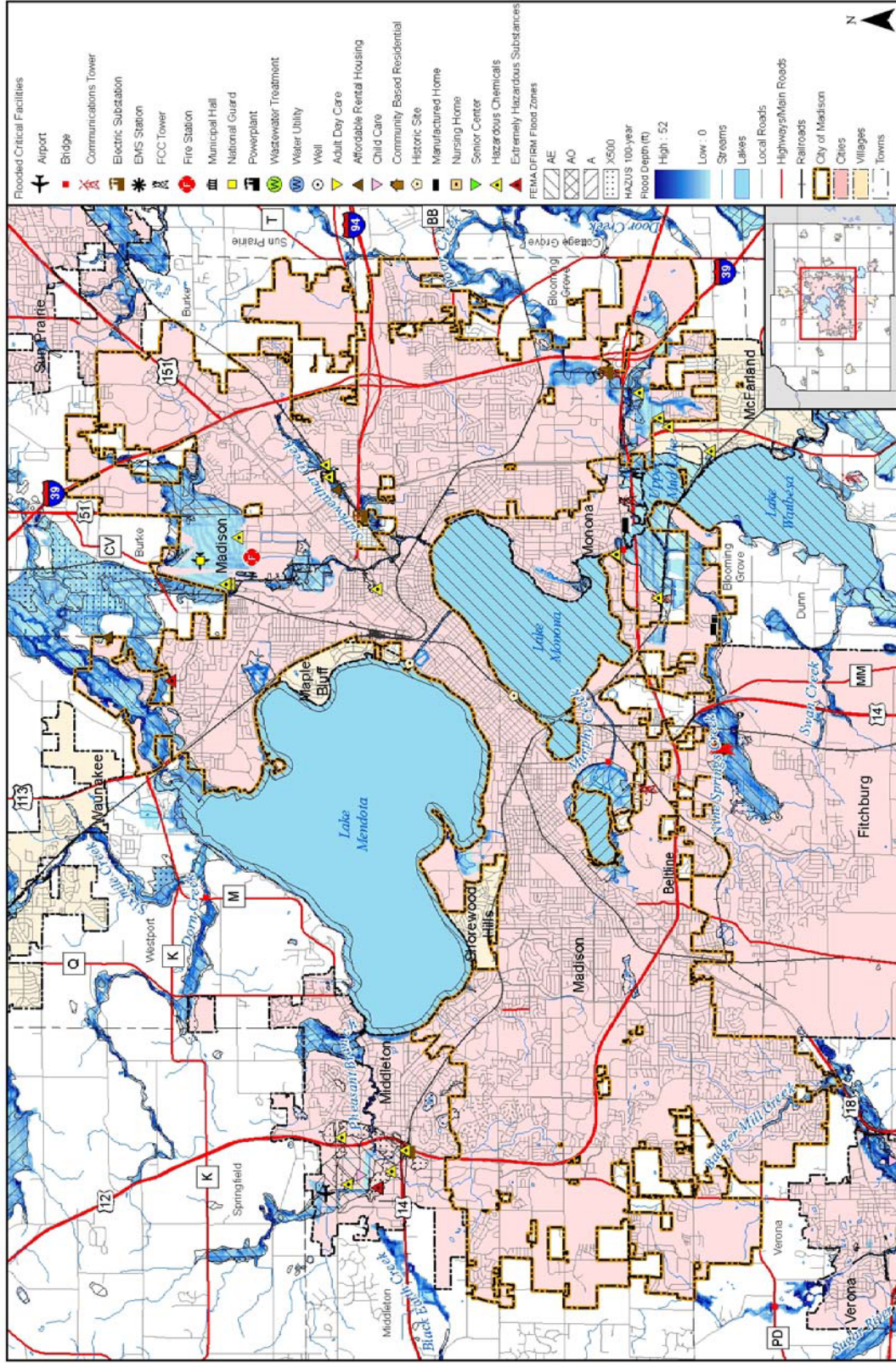
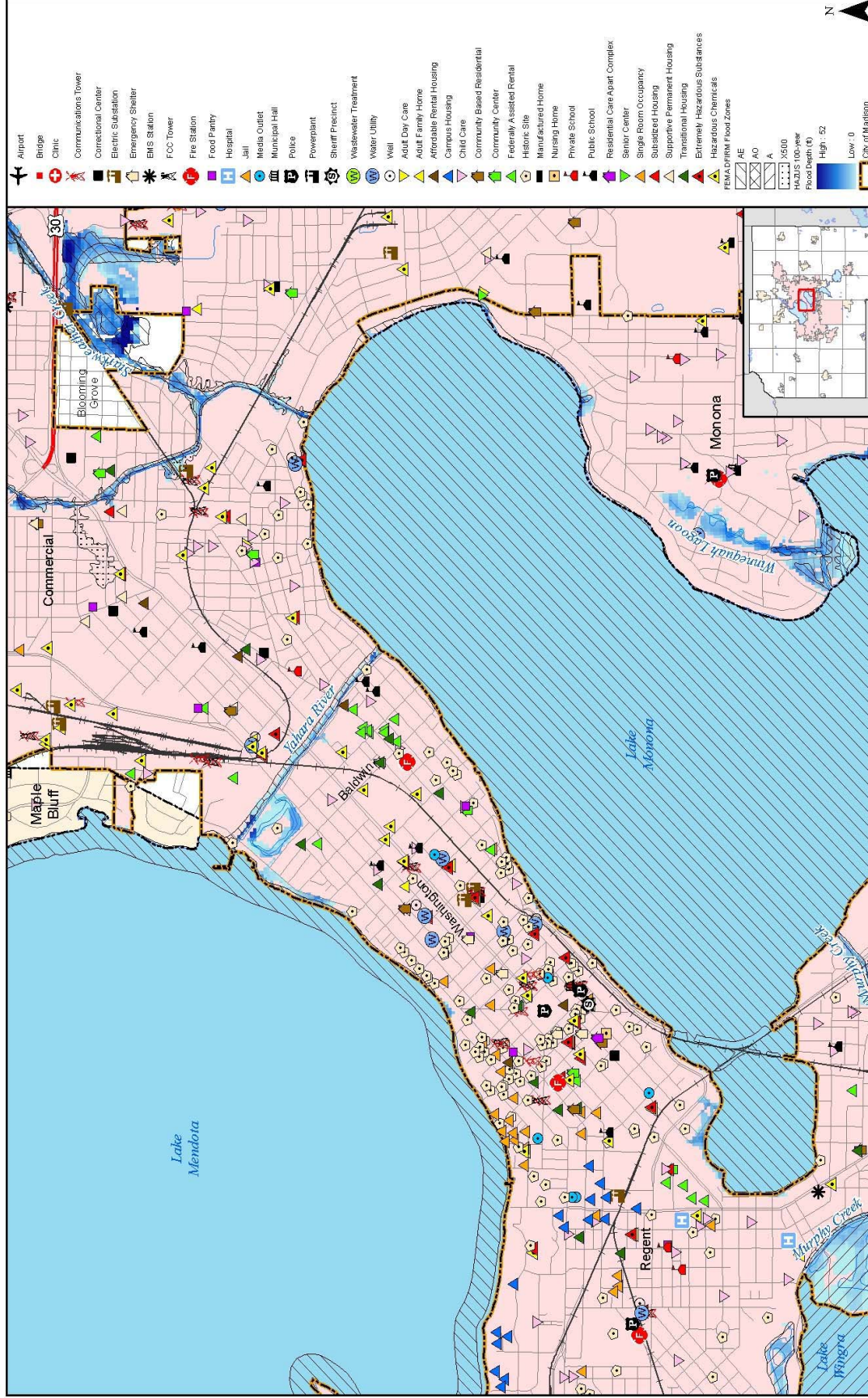


Figure 3 Flood Hazards and Critical Facilities Map



Map compiled 6/2009; intended for planning purposes only.
 Data Source: Dane County, FEMA 2008 DFIRM, HAZUS-MH MR3

Figure 4 Flood Hazards and Critical Facilities Map



Map compiled 6/2009; intended for planning purposes only.
Data Source: Dane County, FEMA 2008 DFIRM, HAZUS-MH MR3

0 0.5 1 Miles



Tornado

While it is difficult to estimate specific losses to a tornado due to the random nature of the event, a methodology was developed that was applied to each jurisdiction during the 2009 update. The table below estimates the percent area of the jurisdiction that could be impacted based on the average sized tornado (F2) in Dane County. High value exposure is based on 100% loss, medium 50% loss, and low is 25% loss to the property potentially impacted. The loss ratio, which is the ratio of the damaged building value to total exposed building value, is a measure of the impact to the jurisdiction as a whole. Communities with loss ratios 10% or more may have difficulty recovering from a disaster. Refer to the tornado hazard profile in the main mitigation plan for more details on this methodology.

Table 10 Tornado Loss Estimate

% area impact	Improved Parcel Count	Affected Structure Estimate	Total Exposed Value	Estimated Loss \$ (High Damage Range)	Estimated Loss \$ (Moderate Damage Range)	Estimated Loss \$ (Low Damage Range)	Loss Ratio for Moderate Damage Range
1.09%	53,596	585	\$ 35,751,332,188	391,011,818	195,505,909	48,876,476	0.5%

Data Source: Analysis Based on Dane County Land Information Office's data

Growth and Development Trends

Planned land use is shown in Figure 1, in relation to the flood hazard. Table 11 illustrates how the City of Madison has grown in terms of population and number of housing units between 2000 and 2007. Table 12, drawn from the Comprehensive Plan for the City of Madison, shows population projections through 2025.

2010 data was taken from the City plan.

Table 11 City of Madison Change in Population and Housing Units, 2000-2007

2000 Population	2007 Population	Percent Change (%) 2000-2007	2000 # of Housing Units	2007 # of Housing Units	Percent Change (%) 2000-2007
208,054	225,725	7.0%	89,019	103,285	14.3%

Data Source: Dane County, City of Madison Comprehensive Plan, and US Census Bureau.

Table 12 City of Madison Population Projections, 2005-2025 KC

Population Projection	2005	2010	2015	2020	2025
City of Madison	219,242	228,154	236,094	245,079	255,391

Data Source: City of Madison Comprehensive Plan.

Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. This capabilities assessment

summarizes regulatory mitigation capabilities, administrative and technical mitigation capabilities, and fiscal mitigation capabilities for the City of Madison.

Mitigation Capabilities Summary

Table 13 lists planning and land management tools typically used by local jurisdictions to implement hazard mitigation activities, or by themselves contribute to reducing hazard losses. The table also indicates which of these tools are currently utilized in the City of Madison.

Table 13 City of Madison Regulatory Mitigation Capabilities

Regulatory Tool (ordinances, codes, plans)	Yes/No	Comments
General or Comprehensive plan	Yes	http://www.cityofmadison.com/planning/comp/
Zoning ordinance	Yes	Chapter 28, Online - City of Madison http://www.municode.com/resources/gateway.asp?pid=50000&sid=49
Subdivision ordinance	Yes	Chapter 16, Online - City of Madison
Growth management ordinance	No	Neighborhood Planning Process addresses this issue
Floodplain ordinance	Yes	Part of Zoning Ordinance – See above
Other special purpose ordinance (stormwater, steep slope, wildfire)	Yes	Stormwater (Chapter 37), Steep slope, Environmental corridors
Building code	Yes	Chapter 29, Online - City of Madison http://www.municode.com/resources/gateway.asp?pid=50000&sid=49 Commercial Code not online
Fire department ISO rating	Yes	ISO rating – 3
Erosion or sediment control program	Yes	Chapter 29 and 37, Online - City of Madison http://www.municode.com/resources/gateway.asp?pid=50000&sid=49 Commercial Code not online
Stormwater management program	Yes	Chapter 37, Online - City of Madison http://www.municode.com/resources/gateway.asp?pid=50000&sid=49
Site plan review requirements	Yes	
Capital improvements plan	Yes	Part of the adopted annual budget
Economic development plan	Yes	Process of approval
Local emergency operations plan	Yes	Fire department website that lists the emergency and contacts. http://www.cityofmadison.com/ems/
Flood insurance study or other engineering study for streams	Yes	Handled through FEMA – City of Madison adopted. Routine hydraulic studies with all new developments
Elevation certificates (for floodplain development)	No	Do not issue. Property owner responsible to hire contractor. City provides information and guidance as requested.

Data Source: City of Madison Data Collection Guide

Table 14 identifies the personnel responsible for mitigation and loss prevention activities as well as related data and systems in the City of Madison.

Table 14 Responsible Personnel and Departments for the City of Madison

Personnel Resources	Yes/No	Department/Position	Comments
Planner/engineer with knowledge of land development/land management practices	Yes	Planning & Development/Planning Unit Director Engineering/Deputy City Engineer Engineering/Engineer IV	Brad Murphy Rob Phillips Janet Dailey
Engineer/professional trained in construction practices related to buildings and/or infrastructure	Yes	Building Inspection/Director Engineering/Deputy City Engineer	George Hank Rob Phillips
Planner/engineer/scientist with an understanding of natural hazards	Yes	Engineering/Deputy City Engineer	Rob Phillips
Personnel skilled in GIS	Yes	Engineering/GIS Manager	Dave Davis (608) 266-4097
Full-time Building Official	Yes	Building Inspectors	George Hank
Floodplain Manager	Yes	Planning & Development – Zoning Administrator	Matt Tucker –
Emergency Manager	Yes	Fire Department/Fire Marshall	Ed Ruckriegel
Grant Writer	Yes	Fire Department/Various	
Public Information Officers to provide information of the hazard as it comes in and gets it out to the people	Yes	Fire/PIO Water/PIO Police?PIO	
Public Works Operations		Engineering/Operation Manager Streets/Operations Managers Traffic/Engineering Operations Manager Water/Operations Managers Water/Supply Manager Parks/Maintenance Manager Parks/City Forester	Kathy Cryan Chris Kelley Lynn Christoff Dan Rodefled Joe Demorret Jim Weinstock Marla Eddy
Evacuation support		Madison Metro Transit	Ann Gullickson
		IT Department (1 to 2 people)	Rich Beadles
		Traffic Control Management – Madison Police, Traffic Engineering, Madison Metro	
		Inside property dwellings Outside property	George Hank
GIS Data Resources – (land use, building footprints, etc.)	Yes	Wetlands, water, storm, sewer, floodplain maps	Dave Davis (608) 266-4097
Warning systems/services (Reverse 9-11, cable override, outdoor warning signals)	No	Use County System, Listservs, text messaging, etc	

Data Source: City of Madison Data Collection Guide

Table 15 identifies financial tools or resources that the City of Madison could potentially use to help fund mitigation activities.

Table 15 Financial Resources for the City of Madison

Financial Resources	Accessible/Eligible to Use (Yes/No)	Comments
Community Development Block Grants	Yes	CDBG Department – Bill Clingan

Capital improvements project funding	Yes	Capital Budget - Annual
Authority to levy taxes for specific purposes	Yes	Dean Brasser, City Comptroller
Fees for water, sewer, gas, or electric services	Yes	Only for water, storm, and sewer. Gas and electric are through MG&E.
Impact fees for new development	Yes	
Incur debt through general obligation bonds	Yes	Dean Brasser, City Comptroller
Incur debt through special tax bonds	Yes	Dean Brasser, City Comptroller
Incur debt through private activities	No	

Data Source: City of Madison Data Collection Guide

Additional Capabilities

The City of Madison has implemented a number of programs regarding educational programs including but not limited to, fire safety, environmental education, household preparedness, etc. Each City agency has funded positions for training websites.

National Flood Insurance Program Participation

The City of Madison participates in the National Flood Insurance Program. Refer to information provided in Table 16 below.

Table 16 Floodplain Regulatory Program Status as of 1/2009

Floodplain Regulation Program Status as of 1/2009	Floodplain Ordinance	Comments	Dane County FIRM Panels	NFIP Participation	Init FHBM Identified	Init FIRM Identified	Curr Eff Map Date	Reg-Emer Date
MADISON	Yes		Numerous – See index	Yes	3/8/1974	9/30/1980	1/2/2009	9/30/1980

Data Source: Dane County

The City of Madison is currently evaluating storm and sanitary weaknesses after a major event to identify potential areas where flooding could occur. Additionally, the City has developed an Emergency Staff Plan.

Public Involvement Activities

During the 2009 update, the community assisted with the public involvement activities referenced in the base plan. The Madison adoption process for the plan will include review and comment by citizen and elected official boards and committees. Meeting are posted and noticed. The adoption process includes the opportunity for public comment.

Once the plan is finalized, the city will make the plan available through the city website. The plan will be available on the website throughout the adoption process.

Mitigation Actions

Objective #1: Purchase ant-icing equipment to fit on existing vehicles to mitigate the effects of ice storms and snow storms.

Steps:

- 1) Funding approval through the legislative process.
- 2) Prepare specifications on anti-icing tanks and spraybars.
- 3) Prepare routes and procedures for implementation.
- 4) Operator training.

Lead Implementing Agency: City of Madison – Street Division

Supporting Agencies:

- City Engineering
- Fleet Services

Possible Funding and Technical Assistance: G.O. borrowing.

Timeline: Fiscal year 2010; winter seasons of 2010-2011.

Priority: Moderate.

Estimated Costs: \$24,000 for 2 units; 1 for East and 1 for West.

Objective #2: Eliminate residential basement backups attributable to overloaded sanitary sewers during rain events.

This program will provide assistance to residential property owners who have experienced sewer backups and basement flooding during rain events. This would include the removal of foundation drains, roof drains and/or the installation of backflow prevention devices on the sanitary lateral. Reduction of inflow and infiltration into the sanitary sewer system is critical. Clean water intrusion into the sanitary sewer system creates potential sewer flooding problems and increases the City's operational costs at the Wastewater Treatment Plant.

Steps:

- 1) Establish eligibility zones based on DFIRM data and basement backup history.
- 2) Survey property owners in defined eligibility zones to determine which properties have had a basement back up during a wet weather event.
- 3) Conduct inspections of properties which experienced basement back ups during wet weather event to determine if the property is equipped with a sewer backflow prevention

device (BFD), assess BFD condition and identify cross-connections contributing to overloaded sanitary sewer during rain events.

- 4) Provide property owner with a written report detailing recommended actions to be taken to prevent basement back ups (i.e. install back flow prevention device) as well as code violations and cross-connections that must be remedied.
- 5) Provide 50% rebate of property owner's costs of implementing recommended actions.

Lead Implementing Agency: City of Madison Engineering

Supporting Agencies: City of Madison Building Inspection

Possible Funding and Technical Assistance:

- Madison Sewer Utility
- FEMA Pre-Disaster Mitigation Grant Program

Timeline: The City anticipates this being a multi-year project taking approximately 10 years.

Priority: High

Estimated Costs: \$5,000,000

Objective #3: Reduce inflow and infiltration into sanitary sewer collection system.

Inflow and infiltration or I & I are terms used to describe the ways that groundwater and storm water enter into sanitary sewer systems. Wet weather magnifies existing inflow and infiltration sources. As a rain or snow melt event begins the inflow and infiltration sources start filling the sanitary sewer systems with clear water, eventually overloading the sanitary sewer system. Wastewater will then flow backwards through the sanitary sewer system flooding basements or households and causing manholes to pop open releasing wastewater onto the street.

Overflow occurrences put public health at risk and violate state and federal environmental regulations. Sanitary sewer overflows release wastewater and potential pathogens onto streets, into waterways, and basements increasing potential health risks.

The City of Madison has identified specific areas where severe wet weather events can create system overloads. These include, but are not limited to, Waunona Way; the Lake Edge neighborhood and areas along Starkweather Creek, This program is designed to identify and eliminate sources of inflow and infiltration (I&I) into the City's sanitary sewer system.

Steps:

- 1) Identify and prioritize sanitary basins subject to significant inflow and infiltration;

-
- 2) Perform CCTV inspection of sanitary mains and access structures to identify specific I & I issues;
 - 3) Identify most cost-effective and efficient remediation measures (i.e. replacement, lining, relocation, etc.)
 - 4) Design, let bid and construct identified remediation measures.

Lead Implementing Agency: City of Madison Engineering

Supporting Agencies:

Possible Funding and Technical Assistance:

- Madison Sewer Utility
- FEMA Pre-Disaster Mitigation Grant Program

Timeline: 2010-2020

Priority: High

Estimated Costs: \$7,500,000

Objective #4: Provide emergency back-up power generators to critical municipal facilities. During severe weather and power interruptions, it is imperative that essential City facilities have back-up power generators to ensure that essential services and communications are maintained without interruption.

Steps:

- 1) Develop a prioritized list of City facilities based on criticality of need for emergency back-up power during severe weather and power interruptions.
- 2) Conduct site visits to develop a comprehensive inventory of existing emergency back-up power generators, map circuits and functional areas served by existing equipment and assess current condition.
- 3) Meet with facility users to evaluate their specific requirements.
- 4) Inventory and assess the power use of existing equipment, complete a power generator load study to determine the most economical, reliable and efficient solution for each facility.
- 5) Develop plans and specifications for required systems.
- 6) Advertise, receive bids and award contract(s).
- 7) Schedule, organize, supervise and ensure system installation meets all standards and specifications.
- 8) Train facilities maintenance personnel on proper operation and maintenance

Lead Implementing Agency: City of Madison Engineering

Supporting Agencies: Building Inspection, Fire, Police, Streets, Water, Parks

Possible Funding and Technical Assistance:

- Madison Sewer Utility
- FEMA Pre-Disaster Mitigation Grant Program

Timeline: 2010-2015

Priority: High

Estimated Costs: Unknown at this time

Objective #5: Create a hydrologic and hydrodynamic model of the Yahara chain of lakes. This model will be used to assist in the forecasting of lake response to different rain events and management techniques. It will have the ability to link to water quality models and ground water models and could be used to estimate in lake responses to changes in pollutant inputs.

Steps:

- 1) Complete a hydraulic and hydrologic model for Lake Monona – 90% complete.
- 2) Initiate an agreement with the University of Wisconsin College of Engineering to work with staff at City of Madison on a modeling project to complete the remaining lakes in the Yahara Chain.
- 3) Install lake level gauging equipment on Lake Mendota and Cherokee to allow the model of Lake Mendota to be calibrated.
- 4) Complete a hydraulic and hydrologic model for Lake Mendota – 0 % complete
- 5) Install gauging equipment on key hydraulic locations in the lower lakes to allow the next phase of the model to be calibrated.
- 6) Complete a hydraulic and hydrologic model for Lakes Waubesa and Kegonsa – 0% complete.
- 7) Link the three (3) models taking into account the dams and other restrictions in the systems (bridges, channels, etc.).

Lead Implementing Agency: City Engineering

Supporting Agencies:

- Dane County Public Works
- WDNR
- University of Wisconsin College of Engineering

Possible Funding and Technical Assistance:

- City of Madison Stormwater Utility
- WDNR (Lake Management Grants)
- UW College of Engineering

Timeline: This project was conceptually begun in 2006 as City Engineering Staff had questions about the functioning of Monona Bay during storm events and no models were available to assist in answering this question. These simple questions became the basis for a Masters Thesis by City Engineering Staff at the UW Madison. During this work the Yahara Lakes Legacy Project began and it became clear that there was significant interest in pursuing a complete and cohesive approach to modeling the chain of lakes. This has resulted in a commitment by the City of Madison to complete the following:

Task	Start Date	Finish Date
Lake Mendota Model (Planning Grant deadline 2/1/09)	May-2009	Apr-2010
Tributary Measurements (Six Mile, Pheasant Branch, Outlet)	May-2009	Nov-2009
Water and Energy Budgets in Mendota	May-2009	Jul-2009
Lake Mendota Model	Jun-2009	Dec-2009
Integrate model to web interface	Aug-2009	Dec-2009
Output Presentation	Dec-2009	Dec-2009
Prepare Report	Nov-2009	Apr-2010
Lake Monona and Lake Mendota Model	Nov-2009	Aug-2010
Integrate Lake Mendota and Lake Monona models together	Nov-2009	Apr-2010
Update web interface	Apr-2010	May-2010
Output Presentation	May-2010	May-2010
Prepare Report	Mar-2010	Aug-2010
Lake Waubesa & Upper Mud Lake Model	May-2010	Apr-2011
Tributary Measurements (Penitto, Nine Springs, Swan, Murphy's)	May-2010	Nov-2010
Water and Energy Budgets in Waubesa	May-2010	Jul-2010
Lake Waubesa & Upper Mud Lake Model	Jun-2010	Nov-2010
Output Presentation	Nov-2010	Dec-2010
Prepare Report	Nov-2010	Apr-2011
Lake Waubesa, Upper Mud Lake, Lake Monona, & Lake Mendota Model	Nov-2010	Aug-2011
Integrate 3 models together	Nov-2010	Apr-2011
Update web interface	Apr-2011	May-2011
Output Presentation	May-2011	May-2011
Prepare Report	Mar-2011	Aug-2011
Lake Kegonsa Model	May-2011	Apr-2012
Tributary Measurements (Door Creek)	May-2011	Nov-2011
Water and Energy Budgets in Kegonsa	May-2011	Jul-2011
Lake Kegonsa Model	Jun-2011	Nov-2011
Output Presentation	Nov-2011	Dec-2011
Prepare Report	Oct-2011	Apr-2012
INFOS Yahara Waters	Jul-2011	Aug-2012
Prepare grant application	Jul-2011	Jul-2011
Integrate all models together	Nov-2011	Mar-2012
Update web interface	Apr-2012	May-2012
Output Presentation	Apr-2012	May-2012
Prepare Report	Mar-2012	Aug-2012

Priority: High / Ongoing

Estimated Costs:

YEAR	ITEM	QUANTITY	UNIT	UNIT COST	TOTAL COST
YEAR 2009	City of Madison Staff Time	1140	Hours	\$28.00	\$31,920.00
	Field Maintenance Assistant	500	Hours	\$13.00	\$6,500.00
	Coop. Agreement with UW-Madison	1	Sum	\$18,751.00	\$18,751.00
	Permitting Expenses	1	Sum	\$1,000.00	\$1,000.00
	Pressure Transducer	4	Each	\$1,000.00	\$4,000.00
	Wireless Buoy Platform & Software	1	Each	\$10,000.00	\$10,000.00
	Bathymetric Mapping	1	Lump Sum	\$3,000.00	\$3,000.00
	Accessories (cables, hardware)	1	Sum	\$500.00	\$500.00
	Buoy & Navigation Light	4	Each	\$1,000.00	\$4,000.00
	Video Imaging	1	Each	\$3,000.00	\$3,000.00
	Printing Services (# of Reports)	1	Each	\$500.00	\$500.00
2009 Subtotal					\$83,171.00
YEAR 2010	City of Madison Staff Time	2275	Hours	\$30.00	\$68,250.00
	Field Maintenance Assistant	800	Hours	\$15.00	\$12,000.00
	Coop. Agreement with UW-Madison	1	Lump Sum	\$19,688.50	\$19,688.50
	Permitting Expenses	1	Lump Sum	\$1,000.00	\$1,000.00
	Pressure Transducer	2	Each	\$1,000.00	\$2,000.00
	Thermistor Chain	4	Each	\$1,500.00	\$6,000.00
	Acoustic Doppler Current Profiler	1	Each	\$7,500.00	\$7,500.00
	Wireless Buoy Platform & Software	2	Each	\$10,000.00	\$20,000.00
	Bathymetric Mapping	1	Lump Sum	\$7,000.00	\$7,000.00
	Buoy & Navigation Light	3	Each	\$1,000.00	\$3,000.00
	Video Imaging	1	Each	\$3,000.00	\$3,000.00
	Printing Services (# of Reports)	2	Each	\$500.00	\$1,000.00
2010 Subtotal					\$150,438.50
YEAR 2011	City of Madison Staff Time	2275	Hours	\$32.00	\$72,800.00
	Field Maintenance Assistant	800	Hours	\$17.00	\$13,600.00
	Coop. Agreement with UW-Madison	1	Lump Sum	\$20,672.93	\$20,672.93
	Permitting Expenses	1	Lump Sum	\$1,000.00	\$1,000.00
	Pressure Transducer	2	Each	\$1,000.00	\$2,000.00
	Thermistor Chain	4	Each	\$1,500.00	\$6,000.00
	Acoustic Doppler Current Profiler	2	Each	\$7,500.00	\$15,000.00
	Wireless Buoy Platform & Software	2	Each	\$10,000.00	\$20,000.00
	Bathymetric Mapping	1	Lump Sum	\$7,000.00	\$7,000.00
	Buoy & Navigation Light	3	Each	\$1,000.00	\$3,000.00
	Video Imaging	1	Each	\$3,000.00	\$3,000.00
	Printing Services (# of Reports)	2	Each	\$500.00	\$1,000.00
2011 Subtotal					\$165,072.93
YEAR 2012	City of Madison Staff Time	1140	Hours	\$34.00	\$38,760.00
	Field Maintenance Assistant	400	Hours	\$19.00	\$7,600.00
	Permitting Expenses	1	Lump Sum	\$1,000.00	\$1,000.00
	Pressure Transducer	2	Each	\$1,000.00	\$2,000.00
	Thermistor Chain	2	Each	\$1,500.00	\$3,000.00
	Wireless Buoy Platform & Software	2	Each	\$10,000.00	\$20,000.00
	Bathymetric Mapping	1	Lump Sum	\$4,000.00	\$4,000.00
	Buoy & Navigation Light	3	Each	\$1,000.00	\$3,000.00
	Video Imaging	1	Each	\$3,000.00	\$3,000.00
	Printing Services (# of Reports)	2	Each	\$500.00	\$1,000.00
	2012 Subtotal				
Project Subtotal					\$482,042.43
City of Madison in-kind staff time					\$211,730.00
Total Required Funds					\$270,312.43

Objective #6: Reduce flooding of the Midvale/University Ave. intersection and associated areas along the University Ave. corridor.

Steps:

- 1) Complete a hydraulic and hydrologic analysis of the watershed – done
- 2) Complete a preliminary design to increase the pipe capacity to Willow Creek – done
- 3) Complete a detailed plan to implement incremental improvements to allow an eventual complete upgrade of this corridor from a flooding perspective – done
- 4) Begin detailed design and construction of the storm sewer upgrades as budgets and projects allow:
- 5) Willow Creek across Campus Drive – done
- 6) Midvale Blvd. to Shorewood Blvd. on University – ongoing
- 7) Campus Drive to Highland Ave – construction 2011
- 8) Willow Creek to University Bay Dr. – unscheduled
- 9) University Bay Dr. to Shorewood Blvd. - unscheduled

Lead Implementing Agency: City Engineering

Supporting Agencies:

- WDOT
- Dane County Transit Authority (pending)

Possible Funding and Technical Assistance:

- WDOT
- City of Madison Stormwater Utility
- Dane County Transit Authority (pending)

Timeline: This project was conceptually begun circa 2000 with the preliminary work discussed in 1 & 2 above. Full design and construction work has also been completed for 4.a) in 2006. Phase 4.b) is currently being designed (summer 2009) for construction in 2010. Phase 4.c) is proposed with the reconstruction of University Avenue in 2011. Phases 4.d) and e) will require intervention by the WDOT and a possible RTA and upgrade of the railroad tracks to accommodate light rail or commuter rail.

Priority: Medium

Estimated Costs: Phase 4.b) is roughly estimated to cost 1,750,000.00, Phase 4.c) is estimated to cost 1,000,000.00. Both of these estimates are for storm sewer work only and do not include the associated necessary road reconstruction.

Objective #7: The goal of the EMERGENCY WARNING SIREN PROGRAM is to provide advanced warning through overlapping coverage of all City of Madison residential, parks, and open spaces.

Steps:

- 1) Install new sirens as needed to cover the ongoing expansion of city residential and open lands.
- 2) Replace existing (older/smaller) sirens through upgrades and relocations to provide expanded coverage and overlap for existing residential and open spaces.
- 3) Replace or upgrade siren technology as needed.
- 4) Provide a maintenance program for sirens and their components.

Lead Implementing Agency: City Engineering

Supporting Agencies: Dane County Emergency Management (DCEM)

Possible Funding and Technical Assistance:

- Technical assistance is provided by DCEM. City owned sirens are activated by the DCEM siren activation and reporting system, therefore all technological upgrades must be kept in-sync with DCEM.
- New siren installations, siren replacements, and siren system upgrades are part of the annual Capital Budget, which is funded through the Stormwater Utility Reserves.
- Maintenance, repair/replacement of components, and the third year battery replacement program are funded through the Stormwater Utility Operating Budget.
- Grant money if available.

Timeline: The siren program is ongoing. The annual goal is to install or upgrade between 3 and 5 sirens. Currently the City of Madison needs approximately 25 new/upgrades/replacements to cover the existing city limits.

Priority: Moderate

Estimated Costs: In 2005 a new siren installation cost \$17,000, under the 2009 Warning Siren contract a new siren installation was \$27,000. Currently the annual operating expenses averages about \$5,000, however this cost will grow as additional city owned sirens come on line through maintenance, electrical consumption and the third year battery replacement program.

Objective #8: Purchase and install chlorine gas monitoring/alarm equipment at all of the Water Utility facilities that store and use chlorine gas (23 well sites.)

Steps:

- 1) Continue to purchase monitoring and alarm equipment for each site.

-
- 2) Continue to install systems at sites.
 - 3) Maintain, calibrate, and test equipment on a routine basis.
 - 4) Replace or upgrade equipment as needed.
 - 5) Incorporate monitoring/alarm system at each site into new SCADA system as it comes on-line.

Lead Implementing Agency: Madison Water Utility

Supporting Agencies:

- Madison Fire Department
- Wisconsin Emergency Management
- Dane County Emergency Management

Possible Funding and Technical Assistance:

- System installation, operation, and maintenance work performed by Water Utility personnel.
- The monitoring Equipment and installation costs are part of the annual Capital Budget.
- Maintenance, repair, and replacement of components are part of the Water Utility's Operating Budget.
- Grant money if available.

Timeline: Began installing monitoring/alarm units at well facilities in March of 2009. Approximately 16 more months to complete if done in-house.

Priority: High

Estimated Costs: \$ 74,000 Hardware costs, \$ 22,000 Labor Costs

Objective #9: Procure a Cell On Wheels – a complete trailerable base station site for emergency radio coverage. This system includes a crank up tower, generator, and housing for base stations.

Steps:

Lead Implementing Agency: DOT/Communications

Supporting Agencies:

- T.E. Electrical Shop
- Fleet services

Possible Funding and Technical Assistance:

Timeline: 6-10 months.

Priority: High.

Estimated Costs: \$250,000.

Objective #10: Procure a 35 kilowatt, single phase, trailer mounted generator with emergency connection outlet at each of six tower sites.

Steps:

Lead Implementing Agency: DOT/Communications

Supporting Agencies:

- T.E. Electrical Shop
- Fleet services

Possible Funding and Technical Assistance:

Timeline: 3-6 months.

Priority: Medium.

Estimated Costs: \$25,000.

Objective #11: Procure two 25 kilowatt, single phase standby generators and transfer switches. These will be used at the Spaanem tower and Holiday Heights tower, which currently have no emergency backup power.

Steps:

Lead Implementing Agency: DOT/Communications

Supporting Agencies:

- T.E. Electrical Shop
- Fleet services

Possible Funding and Technical Assistance:

Timeline: 3-6 months.

Priority: Moderate.

Estimated Costs: \$10,000.

Objective #12: Procure an 85 kilowatt, three phase generator to replace old generator at the U.W. shared tower. Present generator is unrepairable should it malfunction.

Steps:

Lead Implementing Agency: DOT/Communications

Supporting Agencies:

- T.E. Electrical Shop
- Fleet services

Possible Funding and Technical Assistance:

Timeline: 3-6 months.

Priority: Moderate.

Estimated Costs: \$15,000.

Objective #13: Procure 40 portable radios to be held in reserve in a secure location for volunteers and emergency aid workers after a disaster.

Steps:

Lead Implementing Agency: DOT/Communications

Supporting Agencies:

Possible Funding and Technical Assistance:

Timeline: 2 months.

Priority: High.

Estimated Costs: \$87,000.

Objective #14: Continue to implement sound floodplain management practices through continued compliance with the National Flood Insurance Program, to include floodplain ordinance enforcement and periodic review, promoting the benefits of flood insurance, and continued staff training and development in floodplain management.

Steps:

- 1) Evaluate through the existing staff, County planning staff, and additional DNR staff if necessary, the regulatory deficiencies and enforcement shortcomings in flood-related ordinances and programs (see related County objective);
- 2) Periodically update ordinances as necessary
- 3) Ensure that stop work orders and other means of compliance are being used as authorized by each ordinance;
- 4) Suggest changes to improve enforcement of and compliance with regulations and programs;

-
- 5) Encourage floodplain management staff to become Certified Floodplain Managers (CFM) or maintain their CFM status.
 - 6) Participate in Flood Insurance Rate Map updates by adopting new maps or amendments to maps
 - 7) Utilize recently completed Digital Flood Insurance Rate maps in conjunction with GIS to improve floodplain management, such as improved risk assessment and tracking of floodplain permits.
 - 8) Promote and disperse information on the benefits of flood insurance, with assistance from partners such as the County, WDNR, or ASFPM.

Lead Implementing Agency: City Engineering and City Planning

Supporting Agencies:

- Dane County Planning and Development
- Lakes and Watershed Commission
- Land Conservation Department
- Association of State Floodplain Managers
- Wisconsin Department of Natural Resources

Possible Funding and Technical Assistance:

- Staff Time

Timeline: On going

Priority: High

Estimated Costs: Low; can be accomplished with existing staff and within existing department budget.