
Village of Shorewood Hills Annex

Community Profile

The Village of Shorewood Hills is located in the center of the County, just south of Lake Mendota and surrounded on all sides by the City of Madison. Land use is dominated by agriculture and woodlands, and dispersed one, two and multi-family homes. According to the United States Census Bureau, the Village of Shorewood Hills has a total area of .81 square miles, all of it land.

As of the 2010 Census, there were 1,565 people, 620 households, and 478 families residing in the Village of Shorewood Hills. The population density is 1,951 per square mile. There are 660 housing units at an average density of 822.9 per square mile. The municipality population distributed by the Wisconsin Department of Administration indicates that the 2015 population for Village of Shorewood Hills was 1,928 people. Table 1 shows the population profile by age for the Village of Shorewood Hills according to the 2010 Census.

Table 1 Population Profile for the Village of Shorewood Hills

Category	Number	Percent
Total population	1,565	100.0
Under 5 years	74	4.7
5 to 9 years	107	6.8
10 to 14 years	129	8.2
15 to 19 years	113	7.2
20 to 24 years	27	1.7
25 to 29 years	37	2.4
30 to 34 years	31	2.0
35 to 39 years	76	4.9
40 to 44 years	106	6.8
45 to 49 years	125	8.0
50 to 54 years	131	8.4
55 to 59 years	166	10.6
60 to 64 years	132	8.4
65 to 69 years	99	6.3
70 to 74 years	72	4.6
75 to 79 years	49	3.1
80 to 84 years	58	3.7
85 years and over	33	2.1

Data Source: 2010 U.S. Census

American Community Survey estimates for 2014 indicate that the median income for a household in the Village of Shorewood Hills is \$143,906 and the median income for a family is \$166,875. The per capita

income for the Village is \$68,248. 99.3% of the population has at least a high school degree, while 87.2% 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 Village of Shorewood Hills 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 2 outlines the hazard identification for the Village of Shorewood Hills based on the Data Collection Guide issued in 2015. 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 Village of Shorewood Hills's planning team members were asked to complete the matrix by ranking each category on a scale of 0 to 5 based on the experience and perspective of each planning team member. A ranking of 0 indicated "no concern" while a ranking of 5 indicated "highest concern."

This matrix reflects that the Village of Shorewood Hills is most vulnerable to tornadoes, windstorms and winter storms. The vulnerability established here is a qualitative assumption based on the impacts, geographic extent, probability of future occurrence, and magnitude/severity.

Table 2 Vulnerability Assessment Matrix for the Village of Shorewood Hills

Hazard	Hazard Attributes			Impact Attributes						Total
				Primary Impact (Short Term - Life and Property)			Secondary Impact (Long Term – Community Impacts)			
	Area of Impact	Past History, Probability of Future Occurrence	Short Term Time Factors	Impact on General Structures	Impact on Critical Facilities	Impact on At-Risk Populations	Social Impact	Economic Impact	Severity Of Other Associated Secondary Hazards	
	(1-5)	(1-5)	(1-5)	(0-5)	(0-5)	(0-5)	(0-5)	(0-5)	(0-5)	
Dam Failure	1	1	1	1	0	1	0	1	1	7
Extreme Cold	2	1	1	2	2	3	1	2	2	16
Extreme Heat	2	1	1	1	1	3	1	2	2	14
Drought	2	2	1	0	0	0	1	2	2	10
Expansive soils	0	0	0	0	0	0	0	0	0	0
Flood	3	2	2	2	2	1	1	2	2	17
Fog	1	1	1	0	0	0	0	0	0	3
Hail Storm	2	1	1	1	1	1	1	1	1	10
Landslide	2	1	1	2	1	1	1	2	2	13
Lightning	4	2	2	2	2	2	1	2	3	20
Tornado	4	2	2	3	3	3	3	4	4	28
Wildfire	1	1	1	0	0	0	0	0	0	3
Windstorm	4	2	2	2	2	2	2	3	3	22
Winter Storm	5	3	1	2	2	2	2	3	3	23

Village of Shorewood Hills Data Collection Guide

Previous Hazard Events

Through the Data Collection Guide, the Village of Shorewood Hills noted specific historic hazard events to include in the community profile. These events have been incorporated into the appropriate hazard chapters in the main mitigation 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:

Blizzard, December 20, 2012

Over 16 inches of heavy snow fell on the Village, causing power outages and blocking streets for several hours. Nearly all businesses in the community closed due to the storm. Park trees were damaged. The large storm did not affect area schools as it occurred over winter break.

Flooding, June 26, 2013

A heavy rainfall overloaded the storm sewer system and caused the discharge of sediment and debris. The main area hit was the high traffic area of University Avenue from University Bay Drive to Midvale Boulevard. Traffic was re-routed for several hours and several businesses suffered minor damage.

Asset Inventory

Assets include the people, property, and critical facilities within the Village of Shorewood Hills 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 3. Vulnerable Population Summary

Disability Status from the 2014 American Community Survey	Number	Percent of Group with Disability
Population Under 5 years old with a Disability	0	0%
Population 5-17 years old with a Disability	0	0
Population 18-64 with a Disability	54	5.7
Population Over 65 years old with a Disability	71	18.4
Total Population with Disability	125	7.0

Other Vulnerable Populations	Estimate	Percentage
Families Below Poverty Level	17	3.2
Individuals Below Poverty Level	71	4.0
Of those poverty: Individuals Under 18	14	3.1
Of those poverty: Individuals Over 65	14	3.6
Total Population Over 5 who Speak English less than "very well"	31	1.8
2014 ACS Total Population Estimate	1783	100%

Source: 2010 US Census, 2014 ACS

General Property

Table 4 Property Exposure Summary

Property Type	Total Parcel Count	Improved Parcel Count	Improved Values (\$)	Content (\$)	Total Value (\$)
Totals	726	647	249,269,027	124,634,514	373,903,541
Agriculture	0	0	0	0	0
Commercial	27	19	39,517,096	19,758,548	59,275,644
Utilities	0	0	0	0	0
Industrial	0	0	0	0	0
Institutional/ Governmental	13	0	0	0	0
Other	25	1	447,200	223,600	670,800
Residential	661	627	209,304,731	104,652,366	313,957,097

Source: Dane County Land Information Office

Critical Facilities

The Village of Shorewood Hills has identified the following critical facilities important to protect from disaster impacts. These are collected in Table 5. Table 5 is based on the Village of Shorewood Hills Data Collection Guide

Table 5 Critical Facility Summary/Essential Infrastructure

Name of Asset	Type*	Replacement value	Occupancy/capacity
University Avenue	EI	\$3-4M	
SH Police Dept**	EI	\$1M	6/20
SH Village Hall**	EI	\$1M	Varies/125+
SH Public Works	EI	\$2M	10/75+
Sanitary Sewer Lift Stations	EI	\$800K	

Name of Asset	Type*	Replacement value	Occupancy/capacity
Water System Pumps	EI	\$1M	
SH Community Center***	VF	\$1.5M	Varies/246
SH Swimming Pool***	VF	\$1.5M	Seasonal/250
Meeting House Nursery School	VF		100+/100+
SH Elementary School	VF		450+/450+
University Station Clinics	VF		
Blackhawk Country Club Maintenance Bldg (fertilizer)	HM		
SH Pool (chemical storage)	HM		
** Note: Assets occupy the same building			
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Source: Village of Shorewood Hills Data Collection Guide, 2015.

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

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 within the Village of Shorewood Hills. Table 6 cross-references the hazards with the various tables where exposure or vulnerability specifics are found. Hazard specific vulnerabilities are noted, where known.

Table 6 Hazard Vulnerability Specifics

Hazard	Populations	Structures	Critical Facilities	Future Damage Potential
Dam Failure	None	None	None	Specifics unknown; See hazard profile in County Plan
Drought	Minimal	None	Minimal	Specifics unknown; See hazard profile in County Plan
Flooding	See section below	See section below	See section below	See section below
Fog	Minimal	None	None	Specifics unknown; See hazard profile in County Plan
Hailstorm	Minimal	See Property Exposure table 3	See Critical Facility Inventory Table(s)	Specifics unknown; See hazard profile in County Plan
Landslide/ Sinkholes/ Erosion	Minimal	Minimal	Minimal	Specifics unknown; See hazard profile in County Plan

Hazard	Populations	Structures	Critical Facilities	Future Damage Potential
Lightning	See Table 2 Population	See Table 3 Property Exposure	See Critical Facility Inventory Table(s)	Specifics unknown; See hazard profile in County Plan
Severe Cold	See Table 2 Population	See Table 3 Property Exposure	See Critical Facility Inventory Table(s)	Specifics unknown; See hazard profile in County Plan
Severe Heat	See Table 2 Population	None	Minimal	Specifics unknown; See hazard profile in County Plan
Severe Winter Storm	See Table 2 Population	See Table 3 Property Exposure	See Critical Facility Inventory Table(s)	Specifics unknown; See hazard profile in County Plan
Tornado	See Table 2 Population	See section below	See Critical Facility Inventory Table(s)	See section below
Wildfire	Minimal	Minimal	Minimal	Specifics unknown; See hazard profile in County Plan
Windstorm	See Table 2 Population	See Table 3 Property Exposure	See Critical Facility Inventory Table(s)	Specifics unknown; See hazard profile in County Plan

Flood

Structures and Properties in the Floodplain

Refer to the flood profile in the mitigation plan for a description of the methodology used to identify potentially flood-prone properties. Figure 1 shows mapped floodplains, future growth areas, and critical or vulnerable facilities. Tables 7 and 8 outline the primary structures and properties with primary structures on them within the Village of Shorewood Hills. Potential number of individuals at risk figures are based on primary residential structures and the average household size within Dane County.

Table 7 Primary Structures in the Floodplain

Total Floodway Structures	Floodway Residential Structures	Total Structures in 100 year Floodplain	Residential Structures in 100 year Floodplain	Potential Number of Individuals at Risk in 100 year Flood	Total Structures in 500 year Floodplain	Residential Structures in 500 year Floodplain	Potential Number of Individuals at Risk in 500 year Flood
0	0	1	1	2.33	0	0	0

Source: Analysis based on Dane County Land Information Office Data

Table 8 Properties with Primary Structures in the Floodplain

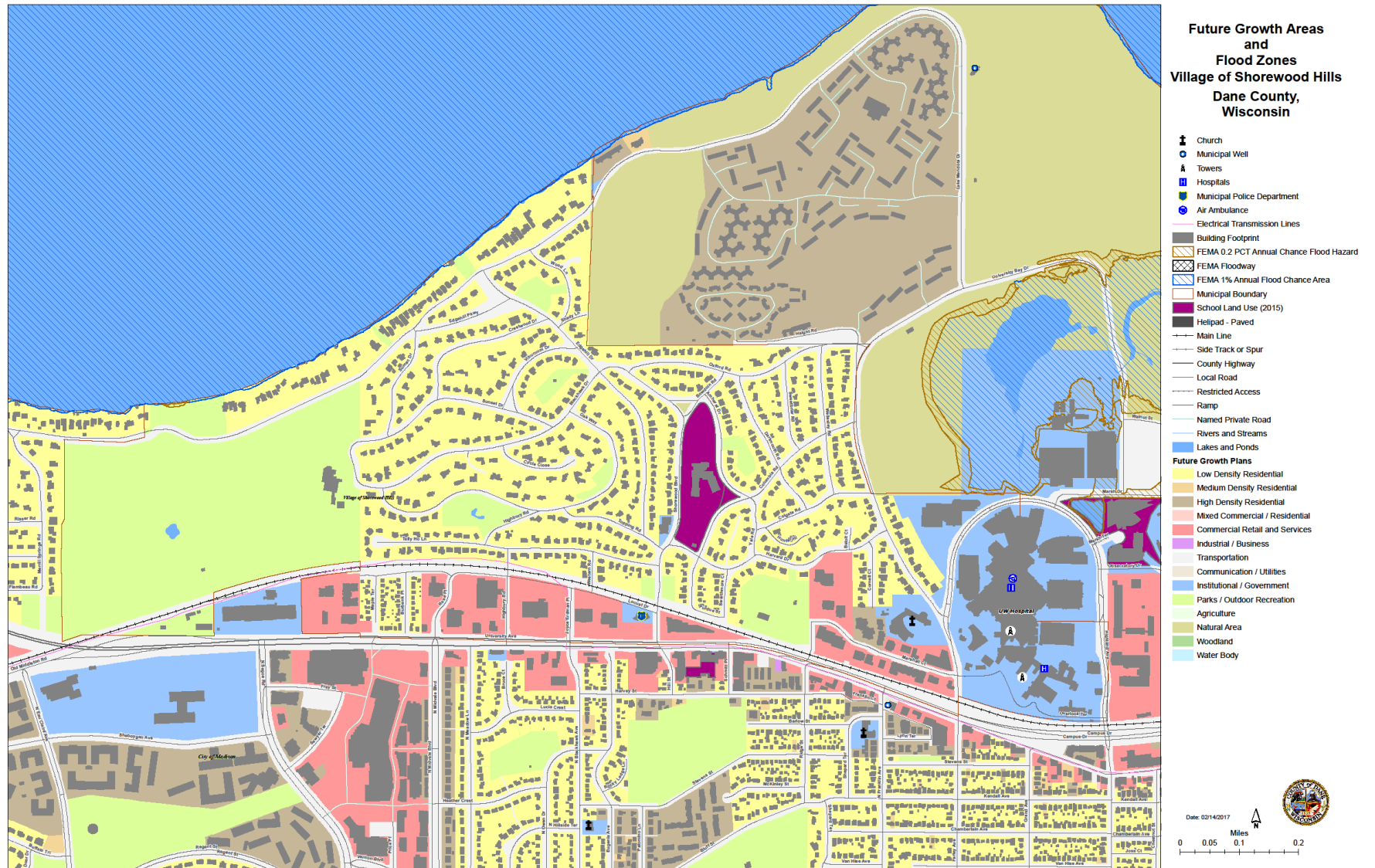
Total Floodway Properties	Floodway Improved Values	Floodway Residential Properties	Total Properties in 100 year Floodplain	Total Improved Value of Properties in 100 year Floodplain	Residential Properties in 100 year Floodplain	Total Properties in 500 year Floodplain	Total Improved Value of Properties in 500 year Floodplain	Residential Properties in 500 year Floodplain
0	\$0	0	1	\$0	1	0	\$0	0

Source: Analysis based on Dane County Land Information Office Data

Repetitive Loss Properties and Flood Insurance Policies

No repetitive losses have been reported. The Village of Shorewood Hills does not have any flood insurance policies or flood damage loss claims.

Figure 1 Flood Hazards and Future Land Use Map



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 2015 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 9. Tornado Loss Estimate

% Area of 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
100.00%	698	698	\$518,249,375	\$518,249,375	\$259,124,687.25	\$129,562,343.63	50.0%

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 10 illustrates how the Village of Shorewood Hills has grown in terms of population and number of housing units between 2010 and 2014-15. Housing data is to 2014 due to data availability. Table 11, drawn from the Demographics Services Center at the Wisconsin Department of Administration, shows population projections through 2035.

Table 10. Village of Shorewood Hills Change in Population and Housing Units, 2000-2014/15

2010 Population	2015 Population	Percent Change (%) 2010-2015	2010 # of Housing Units	2014 # of Housing Units	Percent Change (%) 2010- 2014
1,565	1,928	23.1	660	689	4.3

Data Source: Dane County and the Village of Shorewood Hills

Table 11. Village of Shorewood Hills Population Projections 2015-2035

Population Change	5 year Growth %	2015	2020	2025	2030	2035
Increase by same percentage each year	4.26%	1928	2339	2837	3441	4174

Problems or Additional Vulnerability Issues

Three new apartment buildings have been built in the community's commercial district since 2013. Four to five additional mixed use apartment buildings could be built in the next three years. The population density in these areas has and will continue to increase.

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 Village of Shorewood Hills.

Mitigation Capabilities Summary

Table 12 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 Village of Shorewood Hills.

Table 12 Village of Shorewood Hills Regulatory Mitigation Capabilities.

Regulatory Tool (ordinances, codes, plans)	Yes/No	Comments
General or Comprehensive plan	Yes	On-line at www.shorewood-hills.org
Zoning ordinance	Yes	On-line at www.shorewood-hills.org
Subdivision ordinance	No	
Growth management ordinance	Yes	On-line at www.shorewood-hills.org (included in the Comprehensive Plan)
Floodplain ordinance	Yes	On-line at www.shorewood-hills.org
Other special purpose ordinance (stormwater, steep slope, wildfire)	Yes	Stormwater ordinance on-line at www.shorewood-hills.org
Building code	No	State UDC
Fire department ISO rating	No	Contract w/City of Madison for fire and ambulance service October 1, 2013
Erosion or sediment control program	Yes	
Stormwater management program	Yes	
Site plan review requirements	Yes	Plan Commission / Administrator / Madison Fire
Capital improvement plan	Yes	On-line at www.shorewood-hills.org
Economic development plan	No	
Local emergency operations plan	No	Development / update in progress
Flood insurance study or other engineering study for streams	No	

Data Source: Village of Shorewood Hills Data Collection Guide, 2015

Table 13 identifies the personnel responsible for mitigation and loss prevention activities as well as related data and systems in the Village of Shorewood Hills.

Table 13 Responsible Personnel and Departments for the Village of Shorewood Hills

Personnel Resources	Yes/No	Department/Position	Comments
Planner/engineer with knowledge of land development/land management practices	Yes	Contracted Engineer	Town & Country Engineers
Engineer/professional trained in construction practices related to buildings and/or infrastructure	Yes	Contracted Engineer, Contracted Building Inspector	Town & Country Engineers, Carl Anderson
Planner/engineer/scientist with an understanding of natural hazards	Yes	Contracted Planner, Contracted Engineer	Vierbicher, Town & Country Engineers
Personnel skilled in GIS	Yes	Contracted Engineer, Village Forester	Town & Country Engineers, Corey George
Full time building official	No	Part-Time Building Inspector	Carl Anderson
Floodplain manager	Yes	Contracted Engineer, Village Administrator	Town & Country Engineers, Karl Frantz
Emergency manager	Yes	Emergency Services Coordinator, Police Chief, Contracted Fire Chief	David Sykes, Aaron Chapin, Madison Fire
Grant writer	No		
GIS Data Resources (Hazard areas, critical facilities, land use, building footprints, etc.)	Yes	Contracted Engineer	Town & Country Engineers
Warning Systems/Services (Reverse 9-11, cable override, outdoor warning signals)	No	Dane County Emergency Management	

Data Source: Village of Shorewood Hills Data Collection Guide, 2015

Table 14 identifies financial tools or resources that the Village of Shorewood Hills could potentially use to help fund mitigation activities.

Table 14 Financial Resources for the Village of Shorewood Hills

Financial Resources	Accessible/Eligible to Use (Yes/No)	Comments
Community Development Block Grants	Yes	Available as a sub-governmental unit to Dane County
Capital improvements project funding	Yes	Tax Increment District funds
Authority to levy taxes for specific purposes	Yes	Possible resource but haven't done so to date
Fees for water, stormwater, sewer, gas, or electric services	Yes	Water, stormwater, sewer only
Impact fees for new development	No	
Incur debt through general obligation bonds	Yes	
Incur debt through special tax bonds	No	
Incur debt through private activities	Yes	Possible but rarely utilized

Financial Resources	Accessible/Eligible to Use (Yes/No)	Comments
Withhold spending in hazard prone areas	No	

Data Source: Village of Shorewood Hills Data Collection Guide, 2015

Additional Capabilities

- Periodic information articles in the Village’s monthly newsletter available on-line.
- Additional information available on the Village’s website.
- The Village of Shorewood Hills has a full-time Forester who is instrumental in environmental education.

National Flood Insurance Program Participation

The Village is currently sanctioned by the NFIP.

Table 15 NFIP Participation for the Village of Shorewood Hills

Floodplain Ordinance	Comments	Dane County FIRM Panels	NFIP Participation	Init FHBM Identified	Init FIRM Identified	Curr Eff Map Date	Reg-Emer Date
No	Sanctioned by NFIP	404,408	No	1/31/1975	6/17/2003	9/17/2014	1/31/1976

Source: FEMA Community Status Book Report

Public Involvement Activities

The Village of Shorewood Hills community participated in the County public outreach process. This was a series of public workshops held around the County in which an overview of natural hazard mitigation was given and the County plan was discussed. Residents were then given the opportunity to give their input on mitigation actions that could be taken, and filled out informational surveys that assessed the level of risk the perceived within their own community. More information on these meetings can be found in the County base plan.

Mitigation Actions

Completed Mitigation Actions

The Village of Shorewood Hills has taken action towards becoming more resilient to natural hazards. The actions thus far include:

- Reconstruction of University Avenue west of Shorewood Boulevard included a stormwater culvert which alleviated most of the flooding problems along that section of University Avenue.
- Preliminary plans have been made to reconstruct University Avenue east of Shorewood Boulevard within the next 5 year which would further improve the transport of stormwater from the southwest part of Madison to Lake Mendota without causing surface flooding problems.

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- Residents educated on the benefits of participating in the NFIP.
 - Floodplain zoning ordinance approved in July 2009.

Proposed Mitigation Actions

Objective 1: Continue sound floodplain management practices, utilizing the floodplain zoning ordinance to control development and ensure detrimental effects on the community are mitigated.

Steps:

- 1) Ensure floodplain ordinance compliance.
- 2) Continued creation and maintenance of existing rain gardens, swales and other stormwater management features can mitigate this problem. Identify areas where new stormwater control features can be installed.

Lead Implementing Agencies:

- Village of Shorewood Hills Administration
- Village of Shorewood Hills Planning Commission
- Village of Shorewood Hills Board of Trustees

Possible Funding and Technical Assistance:

- Stormwater Utility Fund

Timeline: Continual

Priority: Low

Estimated Costs: Minimal – Staff Time

Objective 2: Standing water accumulates on University Avenue east of Shorewood Boulevard after heavy rains. Reconstruction of University Avenue east of Shorewood Boulevard is in the planning stages and could be completed within the next 5 years. Increasing the stormwater transit pipe(s) to mitigate the standing water problem on University Avenue is included in the plan. The mitigation action is to continue this process.

Lead Implementing Agencies:

- Village of Shorewood Hills Administration
- Village of Shorewood Hills Public Works
- Village of Shorewood Hills Board of Trustees
- City of Madison
- Dane County

Estimated Costs: \$4,000,000

Possible Funding and Technical Assistance:

Cost share with City of Madison, Dane County, grant funds, Village TID Funds

Timeline: Completion in next five years

Priority: High