

Municipal Flooding

Racine, WI

Consequences of 2008 Flood Event

- Street closures
- Parks & golf course flooded
- Pedestrian bridge access unsafe
- Damage to streets, bridges, utilities & storm water infrastructure
- Basement flooding
- Structural damage to municipal and residential properties
- Loss of personal property (cars, household goods, etc.)
- Increased public health risk due to contaminated water
- Unfunded/unanticipated overtime and capital expenditures

Street Closures & Sandbagging of Residences



Island Park Flooding

Liberty Street Pedestrian Bridge



Island Park Pavilion



Lincoln Park Flooding

Lincoln Park Footbridge



Lincoln Park



Structural Damage/Personal Property Loss



2008 costs due to Municipal Asset Losses and Staff Overtime

*Does not account
for personal
property losses*

DIVISION	AMOUNT	USAGE
Equipment Maintenance Department		
Review of vehicles and equipment damaged by flooding		
E. Public Buildings and Related Equipment	\$ 26,100.00	Parks Dept Equipment
Total Estimated Cost:	\$ 26,100.00	
Building Complex Department		
Review of all buildings in the flood plain area or damaged due to flooding		
E. Public Buildings and Related Equipment	\$ 126,000.00	Parks and Other Building Facilities
G. Other	\$ 61,000.00	Electrical and Fencing
Total Estimated Cost:	\$ 187,000.00	
Street Maintenance Department		
The following is labor, equipment and materials used in response to the flooding and is not 100% complete to date		
	\$ 17,231.19	Overtime Labor
	\$ 6,632.47	Equipment Usage Costs
	\$ 6,900.00	Sand Bag Materials
	\$ 2,913.93	Landfill Costs
Total Estimated Cost:	\$ 33,677.59	
Engineering Department		
Review of all roadway, bridge and sewer areas including electrical work for lighting and traffic signals		
C. Road Systems	\$ 2,800.00	Sidewalk and Bridge Areas
F. Public Utility Systems	\$ 56,000.00	Sewer and Manhole Damage
G. Other	\$ 13,200.00	Electrical and Fencing
Total Estimated Cost:	\$ 72,000.00	
TOTAL OF ABOVE	\$ 318,777.59	

Consequences Proportional to Flood Stage

Table 1 – Summary of NWS-AHPS Information

Stage (ft)	Condition Description
2.0	Zero flow*
6.0	Action Stage:
7.0	Flood Stage:
7.5	Moderate Flood Stage:
8.0	Major Flood Stage:
5.9	This level is about a 2 year flood.
6.0	There is minor lowland flooding.
6.8	This level is about a 5 year flood.
7.0	There is flooding in Lincoln Park and Horlick Park in Racine.
7.5	This level is about a 10 year flood.
8.0	There is basement flooding to around 250 homes in Racine.
8.1	This level is about a 25 year flood.
Historical Crests	
Stage (ft)	Date
11.29	6/9/2009
8.54	3/5/1974
8.13	2/12/1966
7.88	4/22/1973
7.50	4/4/1983

2009 saw flood stages >11.0 ft.

Predicted Areas of Structural Damage at 11ft Flood Stage



Repeated Flood Events also Lead to Erosion, Soil Loss, and Riverbank Failure



Future Flood Events Could Impact Riverfront Development – Planning is Key!

