

THE GRAND STRATEGY

A HOLISTIC APPROACH TO BUILDING ECONOMIC, ENVIRONMENTAL, AND SOCIAL RESILIENCE IN THE GRAND RIVER WATERSHED

SIDE A

THE NATIONAL DISASTER RESILIENCE COMPETITION

Kent County communities, in partnership with the State of Michigan, are among 40 finalists nationwide competing for \$800 million in federal funds dedicated to help communities recover from past disasters while improving their capacity to prepare for, withstand, and bounce back rapidly from future extreme events. The competition is sponsored by the U.S. Department of Housing and Urban Development in collaboration with the Rockefeller Foundation.

THE GRAND RIVER

Michigan's longest river and a major tributary to Lake Michigan, the sixth largest freshwater lake in the world.

THE GRAND STRATEGY

An innovative blueprint for action to protect and enhance vulnerable communities along a 40-mile stretch of the Grand River as it flows through the heart of Michigan's second largest population center. The Grand Strategy will decrease the costly risks of extreme flooding and maximize the river's value as a distinct economic, ecological and social asset. The Strategy also will demonstrate a new nature-based flood management approach and serve as a replicable model for waterfront communities across Michigan, the Great Lakes and beyond.

A REGIONAL RESILIENCY INITIATIVE

The Strategy aligns with the following community plans:

- Master Plans & Zoning Ordinances in the Cities of Grand Rapids, Grandville, Lowell, Walker and Wyoming; Plainfield Charter Township, and the Townships of Ada, Cascade and Lowell
- TIF Development Plan for Monroe North
- GR Forward Strategic Plan
- Grand Rapids Sustainability Plan
- Green Grand Rapids Plan
- Grand Rapids Climate Resiliency Strategy
- Grand Rapids Parks & Recreation Plan
- Grand Rapids Vital Streets Investment Plan
- Grand Rapids Stormwater Asset Management Plan
- Grand Rapids Water & Sewer Capital Improvement Plan
- Kent County Capital Improvement Plan
- Kent County Parks Master Plan
- Kent County/Grand Rapids Emergency Action Guidelines
- Kent County/Grand Rapids Hazard Mitigation Plan
- Lower Grand River Watershed Management Plan
- TIF Development Plan for Downtown Grand Rapids
- Michigan Street Corridor Plan
- Kent County Soil Erosion and Sedimentation Control Ordinance

ENRPT v0

KEY OBJECTIVES

Transform 1 urban waterfront

Protect 22,000+ vulnerable floodplain residents

Enhance flood retention on 1,544 acres of land

Build 160 miles of "green" streets

Remove 5 obsolete dams

Restore 92 acres of wetland

Rehab 25 miles of streams and drains

OUTCOMES

Sustain One of America's Fastest Growing Economies

Stronger Regional Collaboration & Resilience

Improved Recreational Opportunities

New Job & Housing Opportunity

Accelerate Urban Revitalization

Nature-Based Flood Protection

Restored Fish Habitat and Passage

Healthier Ecosystem

People Reconnected To Their Waterway

Catalyze Economic Development

Lower Base Flood Elevation

Higher Quality Water

Reduced Sediment Load

Improve Public Safety

Improved Public Health

Reduced Flood Risk

ACTIVITIES

Deploy Green Infrastructure to Slow Down Stormwater Runoff

Expand Wetlands

Protect Critical Electric Systems

Landscape Restoration

Develop Parks and Greenways

Improve Floodplain Storage

Protect Energy Facility

Rehab Streams and Drains

Improved Watershed Mapping and Monitoring

Integrate Climate and Resilience Education

Demonstrate Nature-Based Flood Management

Demolish and Remove Dangerous Low-Head Dams

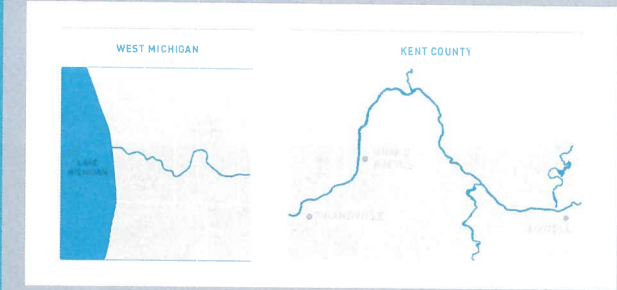
Expand Public Access to the River

Protect Wastewater Treatment Plant

Reestablish and Expand Riparian Habitat

Acquire Flood-Prone Land

Rehab Healthy Homes



WEST MICHIGAN'S URBAN CORE

WATERFRONT CITY REVITALIZATION AND RESILIENCE

SIDE B

THE REGION'S HUB

Kent County anchors a region of 1.5 million people and one of America's fastest growing economies. The City of Grand Rapids is the county seat. Downtown Grand Rapids was founded on the Grand River, which flows approximately 7 miles thru the urban core.

THE THREAT

Average annual rainfall in the area has increased 16 percent in the last 40 years. The trend is expected to continue or possibly accelerate, as climate change projections predict more frequent flash downpours, rising extreme precipitation events and higher flood levels. FEMA now deems the existing urban flood protection system deficient. Meanwhile central city population continues to increase – 15 percent in the past 10 years.

THE OPPORTUNITY

The Grand Strategy includes forward-looking community investments to transform the gray industrial urban waterfront into a series of connected green and blue infrastructure assets that significantly improve flood protection and deliver far-reaching environmental, social, recreational and economic benefits. These investments will protect the urban core from a 500-year flood event and ensure the city achieves "sound reach" designation by FEMA.

Key Grand River Modifications & Flood Events

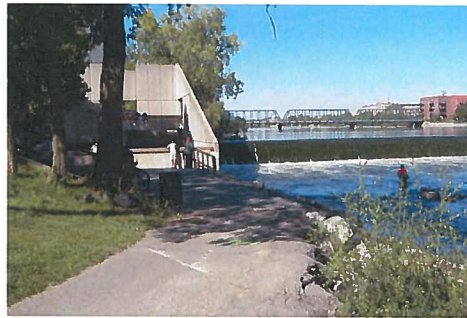
(Flood Stage is 18 ft)

1835	Power canals cut in to riverbanks
1866	Downtown dam installed for power generation
1904	"The Great Flood" crests at 19.5, submerging 2,500 homes and 14,000 residents, shuts down 50 factories putting 8,000 employees out of work.
1905	Ninth highest crest to date [18.6 ft]
1911	City of Grand Rapids completes flood wall construction
1927	Four low-rise dams installed to manage water levels Downtown.
1934	Flood Wall system expanded
1936	Flood wall system expanded
1960	Seventh highest crest to date [19.29 ft]
1974	Fifth highest crest to date [19.29 ft]
1982	Eighth highest crest to date [18.83 ft]
1985	Second highest crest to date [19.64 ft]
1986	Sixth highest crest to date [19.25 ft]
1997	Tenth highest crest to date [17.87 ft]
2004	Third highest crest to date [19.54 ft]
2013	Highest crest in community's history at 21.85 ft causes tens of millions of dollars in damage to public and private property. This was not even a 25-year flood event.

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WHITewater RESTORATION

The City of Grand Rapids now prepares to remove several obsolete dams and restore the Grand River's historic whitewater rapids. The project will reduce the river's base flood elevation, enhance the natural ecology, catalyze redevelopment at the water's edge and increase river access and recreational amenities in the urban core. Whitewater restoration alone is conservatively estimated to annually generate \$15-\$19 million in new economic activity. The project was designated an Urban Waters Federal Partnership Pilot Program priority in 2013.



BEFORE



AFTER

RIVERFRONT OPPORTUNITY SITES

Some two dozen sites in the urban core will evolve from a gray to green flood protection system connected by an urban trail. The plan is to remove rigid floodwalls at strategic locations and install more nature-based, multipurpose infrastructure. The reimagined sites will feature wetland terraces and tiered landscapes that improve storm water management and significantly strengthen the city's ability to absorb and endure major flood events. The innovative design will reinforce the whitewater restoration initiative, spark new development, support healthier habitat, establish new open space and greatly expand public access to the river.



BEFORE



AFTER

CONNECTING PEOPLE TO THEIR RIVER

The fully restored Grand River corridor in the urban core – which includes whitewater rapids, the riverfront trail and reimagined opportunity sites – will function as a unified and regionally connected park system that will serve as a tremendous quality of life asset for Grand Rapids and the West Michigan. As the corridor primarily runs north/south through the urban core, a series of east/west green corridors will connect residents to their Grand River so the entire community can use and enjoy the restored waterway.



BEFORE



AFTER