Building off the feedback from the public process, a series of priorities were developed that frame and expand upon the idea that certain spaces can be prioritized as they relate to: the possible scale and location of the program, the expansion of program into all four seasons, activation of places, and the inclusion of art. From this process, 15 priority riverfront opportunity sites were identified based upon their ownership status, their need for flood protection infrastructure improvements, and the potential use of these sites as construction staging areas for the GRWW initiative. Each of these sites has one of four types of open spaces that help to create the new park system: Public Development Sites, Public/Private Partnerships, New Parks and Renovated Park. The detailed descriptions and elaboration on those types can be found in the main report under Goal 1. The illustrative content in this document portrays the intent of the GR Forward masterplan. The exhibits are conceptual in nature and serve as a resource and the basis of further coordination, technical recommendations, and potential implementation.
APPENDIX 1

OPPORTUNITY SITES
1  201 Market
2  Fulton + Market
3  Lyon Street
4  MSU / KC / City
5  6th Street
6  Canal Street
7  Coldbrook
8  Adventure Park
9  Baker Furniture
10 KCRC River Edge
11 Grandview Park
12 Rapids View Park and Interchange Park
13 Ah Nab Awen Park
14 Public Museum
15 GVSU
FIG A1.1: Birds-eye view of the Grand River looking north
FIG A1.2: Birds-eye view of the Grand River looking north
FIG A1.3: Birds-eye view of the Grand River looking north
FIG A1.4: Birds-eye view of the Grand River
201 Market Street

FIG A1.5: 201 Market Street opportunities and constraints
Utility Constraints:
- Major sewer line with easement, one minor sewer line, 2 stormwater lines, 48” lake line

The goals of 201 Market are:
- Create a destination, and large scale programmable open space
- Manage flooding through the design of the landscape
- Provide an ecological edge that manages on site stormwater and provides river habitat
- Provide river access including boat access
- Provide a continuous multi-use trail connection and a connection north
- Ensure there are active uses facing both Market Street and the River
- Buffer 131 and the rail line from the open space
- Create safe intersections along Market Street
- Establish a gateway at Cherry Street
- Establish new housing and supporting uses to active the River
- Visually extend “Downtown” south along the River

Flood Management Method
- Wetland terracing to berm and trail

FIG A1.6: 201 Market Street concept design
FIG A1.7: Proposed 201 Market Street site plan

FIG A1.8: Proposed 201 Market Street water access

FIG A1.9: 201 Market Street flood considerations

FIG A1.10: Proposed 201 Market Street land program
FIG A1.11: Proposed 201 Market Street aerial view
FIG A1.12: Proposed 201 Market Street site sections
FIG A1.13: Proposed 201 Market Street aerial rendering
FIG A1.14: Fulton + Market opportunities and constraints
Utility Constraints:
> 1 major sewer line with easement, 1 stormwater line

The goals of Fulton + Market are:
> Manage flooding through the design of the landscape
> Provide a sloped/terraces landscape that allows the public to experience the river
> Provide a continuous multi-use trail connection
> Provide outdoor spaces to support ground floor uses
> Bring the idea of water into the site, celebrate site stormwater management as a feature
> Ensure there are active uses facing Market Street, Fulton Street and the River
> Buffer 131 from the open space
> Establish a prominent gateway at Market and Fulton intersection
> Establish new housing and supporting uses to active the River
> Provide new parking for the development and to serve Downtown day-time uses
> Visually extend “Downtown” south along the River

Flood Management Method
> Land slopes up as beach and amphitheater to FEMA level and trail
FIG A1.16: Proposed Fulton + Market site plan

FIG A1.17: Proposed Fulton + Market water access

FIG A1.18: Fulton + Market flood considerations

FIG A1.19: Proposed Fulton + Market land program
FIG A1.20: Proposed Fulton + Market site sections
FIG A1.21: Proposed Fulton + Market site sections
FIG A1.22: Proposed Fulton + Market site sections
FIG A1.23: Proposed Fulton + Market aerial view
FIG A1.24: Proposed Lyon Square aerial rendering
FIG A1.25: Lyon Square Amphitheater opportunities and constraints

>> Lyon Square Amphitheater
Utility Constraints:
> 1 stormwater line, ramp, and loading dock ingress/egress

The goals of Lyon Square Amphitheater are:
> Create a public/private development opportunity that includes 2600 sqft of events space and 1300 sqft (100 tables) of dining area
> Manage flooding by raising grade to freeboard deficient, then provide additional flood protection via emergency measures
> Provide access to the lower river walkway
> Demonstrate ecological capacity along the River’s edge in an urban location
> Provide a continuous multi-use trail connection and a connection north
> Create an events plaza in Lyon Square Amphitheater by removing curbs and resurfacing the street, while providing parking flow at non-event times

Flood Management Method
> Emergency closure point implemented

FIG A1.26: Lyon Square Amphitheater concept design
FIG A1.27: Proposed Lyon Square Amphitheater site plan

FIG A1.28: Proposed Lyon Square Amphitheater water access

FIG A1.29: Lyon Square Amphitheater flood considerations

FIG A1.30: Proposed Lyon Square Amphitheater land program
FIG A1.31: Proposed Lyon Square Amphitheater aerial view
FIG A1.32: Proposed Lyon Square Amphitheater site sections
FIG A1.33: Proposed Lyon Square Amphitheater site sections
FIG A1.34: Proposed Lyon Square Amphitheater site sections
FIG A1.35: Proposed Lyon Square Amphitheater site sections
FIG A1.36: MSU / City / KC opportunities and constraints
Utility Constraints:
> 3 stormwater lines, 1 power station, I-196, Post Office building

The goals of MSU / City / KC are:
> Manage flooding/stormwater through the design of the landscape
> Create a developable river edge
> Provide a continuous multi-use trail connection
> Activate the river with programming
> Link development and open space
> Make a connection from Downtown to Monroe North
> Create an active edge that creates opportunities to watch river events
> Provide connection(s) to the river island
> Allow for public views to the river

Flood Management Method
> Land slopes up as beach and wetland terraces to FEMA level and trail

FIG A1.37: MSU / City / KC concept design
FIG A1.38: Proposed MSU / City / KC site plan

FIG A1.39: Proposed MSU / City / KC water access

FIG A1.40: Proposed MSU / City / KC land program

FIG A1.41: MSU / City / KC flood considerations
FIG A1.42: Proposed MSU / City / KC site plan - Alternate 1

FIG A1.43: Proposed MSU / City / KC site plan - Alternate 2

FIG A1.44: Proposed MSU / City / KC site plan - Alternate 3

FIG A1.45: Proposed MSU / City / KC site plan - Alternate 4
FIG A1.46: Proposed MSU / City / KC aerial view
FIG A1.47: Proposed MSU / City / KC aerial site sections
FIG A1.48: Proposed MSU / City / KC aerial site sections
FIG A1.49: 6th Street Park opportunities and constraints
Utility Constraints:
> Power station

The goals of 6th Street Park are:
> Manage flooding/stormwater through the design of the landscape
> Provide/Maintain river access including boat access
> Provide a continuous multi-use trail connection
> Activate the River with programming
> Create habitat and increase opportunities to manage stormwater
> Renovate and upgrade existing park to blend with river corridor park system
> Create an active edge that creates opportunities to watch River events
> Allow for public views to the river

Flood Management Method
> Existing floodwall and berm

**FIG A1.50:** 6th Street Park concept design
FIG A1.51: Proposed 6th Street Park site plan

FIG A1.52: Proposed 6th Street Park water access

FIG A1.53: 6th Street Park flood considerations

FIG A1.54: Proposed 6th Street Park land program
FIG A1.55: Proposed 6th Street Park aerial view
FIG A1.56: Proposed 6th Street Park site sections
FIG A1.57: Proposed 6th Street Park site sections
FIG A1.58: Canal Street Park opportunities and constraints
Utility Constraints:
> 1 stormwater line

The goals of Canal Street Park are:
> Manage flooding/stormwater through the design of the trail landscape
> Provide/maintain river access including boat access
> Provide a continuous multi-use trail connection
> Create habitat and increase opportunities to manage stormwater
> Renovate and upgrade existing park to blend with river corridor park system
> Create an active edge that creates opportunities to watch River events
> Allow for public views and access to the river

Flood Management Method
> Existing floodwall, wetland terraces, and sloped land to berm and trail

**FIG A1.59:** Canal Street Park concept design
FIG A1.60: Proposed Canal Street Park site plan

FIG A1.61: Proposed Canal Street Park water access

FIG A1.62: Canal Street Park flood considerations

FIG A1.63: Proposed Canal Street Park land program
FIG A1.64: Proposed Canal Street Park aerial view
FIG A1.65: Proposed Canal Street site sections
FIG A1.66: Proposed Canal Street site sections
FIG A1.67: Proposed Canal Street site sections
FIG A1.68: Coldbrook opportunities and constraints
Utility Constraints:
> Power lines

The goals of Coldbrook are:
> Manage flooding/stormwater through the design of the trail landscape
> Create pedestrian access to The Ledge
> Provide a continuous multi-use trail connection
> Create habitat and increase opportunities to manage stormwater
> Create a demonstration of how the trail will look and feel
> Allow for the future expansion of the site as a development both on site and across the street
> Create a connection to the exiting trail north of Leonard

Flood Management Methods:
> existing floodwall, wetland terraces to berm and trail

FIG A1.69: Coldbrook concept design
FIG A1.70: Proposed Coldbrook site plan

FIG A1.71: Proposed Coldbrook water access

FIG A1.72: Proposed Coldbrook land program

FIG A1.73: Coldbrook flood considerations
FIG A1.74: Proposed Coldbrook aerial view
FIG A1.75: Proposed Coldbrook site sections
FIG A1.76: Proposed Coldbrook site sections
FIG A1.77: Proposed Coldbrook aerial rendering
Adventure Park

FIG A1.78: Adventure Park opportunities and constraints
Utility Constraints:
- Raw water conduit

The goals of Adventure Park are:
- Create an adventure landscape that allows for people to experience the ecology while participating in extreme and active program
- Manage flooding/stormwater through the design of the trail landscape
- Create pedestrian access to river and provide access to fish bypass and controls for dynamic barrier
- Provide a continuous multi-use trail connection
- Create habitat and increase opportunities to manage stormwater
- Allow for the expansion of the site as a development both on site and across the street
- Create a connection to the exiting trail north of Leonard

Flood Management Method
- existing conditions accomplish elevation goals

FIG A1.79: Adventure Park concept design
FIG A1.80: Proposed Adventure Park site plan

FIG A1.81: Proposed Adventure Park water access

FIG A1.82: Adventure Park flood considerations

FIG A1.83: Proposed Adventure Park land program
FIG A1.84: Proposed Adventure Park aerial view
FIG A1.85: Proposed Adventure Park site sections
FIG A1.86: Proposed Adventure Park site sections
FIG A1.87: Proposed Adventure Park aerial rendering
FIG A1.88: Baker Furniture opportunities and constraints
Utility Constraints:
> Stormwater pipe

The goals of Baker Furniture are:
> Create a public private partnership that increases program opportunities by moving flood infrastructure onto private land
> Manage flooding/stormwater through the design of the trail landscape
> Create pedestrian access to river and development
> Provide a continuous multi-use trail connection
> Create habitat and increase opportunities to manage stormwater

Flood Management Methods:
> Wetland terracing
> Sloped land to FEMA level

FIG A1.89: Baker Furniture concept design
FIG A1.90: Proposed Baker Furniture site plan

FIG A1.91: Proposed Baker Furniture water access

FIG A1.92: Baker Furniture flood considerations

FIG A1.93: Proposed Baker Furniture land program
FIG A1.94: Proposed Baker Furniture aerial view
FIG A1.95: Proposed Baker Furniture site sections
FIG A1.96: Proposed Baker Furniture site sections
FIG A1.97: Proposed Baker Furniture site sections
FIG A1.98: Proposed Baker Furniture site sections
FIG A1.99: KCRC River Edge opportunities and constraints
Utility Constraints:
> 3 stormwater pipes

The goals of KCRC River Edge are:
> Manage flooding/stormwater through the design of the trail landscape
> Create pedestrian access to river and development
> Provide a continuous multi-use trail connection
> Create habitat and increase opportunities to manage stormwater
> Create active recreation
> Create a demonstration project that improves the water quality of the Indian Mill Creek
> Create opportunities for the development of high loft and office space

Flood Management Method
> Wetland terracing to FEMA level

FIG A1.100: KCRC River Edge concept design
FIG A1.101: Proposed KCRC River Edge site plan

FIG A1.102: Proposed KCRC River Edge water access

FIG A1.103: KCRC River Edge flood considerations

FIG A1.104: Proposed KCRC River Edge land program
FIG A1.105: Proposed KCRC River Edge aerial view
FIG A1.106: Proposed KCRC River Edge site sections
FIG A1.107: Proposed KCRC River Edge site sections
FIG A1.108: Proposed KCRC River Edge site sections
FIG A1.109: Grand View Place opportunities and constraints
Utility Constraints:
- 2 stormwater lines

The goals of Grand View Place are:
- Create a public private partnership that increases program opportunities by moving flood infrastructure onto private land allowing for more program space
- Manage flooding/stormwater through the design of the trail landscape
- Create pedestrian access to river and development
- Provide a continuous multi-use trail connection
- Create habitat and increase opportunities to manage stormwater

Flood Management Method
- Existing floodwall
- Wetland terracing to FEMA level

FIG A1.110: Grand View Place concept design
FIG A1.111: Proposed Grandview Place site plan

FIG A1.112: Proposed Grandview Place water access

FIG A1.113: Grandview Place flood considerations

FIG A1.114: Proposed Grandview Place land program

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FIG A1.115: Proposed Grandview Place aerial view
FIG A1.116: Proposed Grandview Place site sections
FIG A1.117: Proposed Grandview Place site sections
Rapids View and Interchange Park

FIG A1.118: Rapids View and Interchange Park opportunities and constraints
Utility Constraints:
> stormwater line through pump station

The goals of Rapids View and Interchange Park are:
> Create a public space in the River for the general public to experience the River and activities
> Allow for viewing of the most exciting part of the rapids
> Create pedestrian access to River
> Provide a continuous multi-use trail connection
> Create a link to the interchange Park
> Create a large scale demonstration of stormwater technology
> Create gateways to the City that celebrates water

Flood Management Methods:
> Beach
> Amphitheater terracing to FEMA level

**FIG A1.119:** Rapids View and Interchange Park concept design
FIG A1.120: Proposed Rapids View and Interchange Park site plan

FIG A1.121: Proposed Rapids View and Interchange Park water access

FIG A1.122: Rapids View and Interchange Park flood considerations

FIG A1.123: Proposed Rapids View and Interchange Park land program
FIG A1.124: Proposed Rapids View and Interchange Park aerial view
FIG A1.125: Proposed Rapids View and Interchange site sections
FIG A1.126: Proposed Rapids View and Interchange site sections
FIG A1.127: Proposed Rapids View and Interchange Park aerial rendering
FIG A1.128: Ah Nab Awen Park opportunities and constraints
Utility Constraints:
> sewer line, water main, stormwater line

The goals of Ah Nab–Awen Park are:
> Manage flooding/stormwater through the design of the trail landscape
> Maintain existing program opportunities
> Provide a continuous multi-use trail connection
> Create habitat and increase opportunities to manage stormwater
> Maintain character and increase access to the river

Flood Management Method
> Berm at Pearl St. and green wall along Scribner Ave.

**FIG A1.129: Ah Nab Awen Park concept design**
FIG A1.130: Proposed Ah Nab Awen Park site plan

FIG A1.131: Proposed Ah Nab Awen Park water access

FIG A1.132: Ah Nab Awen Park flood considerations

FIG A1.133: Proposed Ah Nab Awen Park land program
FIG A1.134: Proposed Ah Nab Awen Park aerial view
FIG A1.135: Proposed Ah Nab Awen Park site sections
FIG A1.136: Proposed Ah Nab Awen Park site sections
Public Museum

FIG A1.137: Public Museum opportunities and constraints
Utility Constraints:
> 3 stormwater lines

The goals of Public Museum are:
> Create a world class exhibit about the Grand River that expands opportunities for the museum to grow in its mission to support a healthy river
> Expand public open space access on the Westside
> Create access to the river
> Create pedestrian access to river provide a continuous multi-use trail
> Create habitat and allow for a unique river experience in the city

Flood Management Method
> Wetland terracing to sloped lawn to FEMA level
FIG A1.139: Proposed Public Museum site plan

FIG A1.140: Proposed Public Museum water access

FIG A1.141: Public Museum flood considerations

FIG A1.142: Proposed Public Museum land program
FIG A1.143: Proposed Public Museum aerial view
FIG A1.144: Proposed Public Museum site sections
FIG A1.145: Proposed Public Museum site sections
FIG A1.146: Proposed GVSU aerial rendering
FIG A1.147: GVSU Seidman opportunities and constraints
The goals of GVSU Seldman are:

- Allow for the creation of a new edge to GVSU
- Expand public openspace access on the Westside
- Create unique views to the river
- Create pedestrian access to river provide a continuous multi-use
- Create an upper and lower trail for varied experience and view of the river

Flood Management Method
- Green wall along Winter Ave rail

FIG A1.148: GVSU Seldman concept design
FIG A1.149: Proposed GVSU Seidman site plan

FIG A1.150: Proposed GVSU Seidman water access

FIG A1.151: GVSU Seidman flood considerations

FIG A1.152: Proposed GVSU Seidman land program
FIG A1.153: Proposed GVSU Seidman aerial view
FIG A1.154: Proposed GVSU Seidman site sections

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FIG A1.155: Proposed GVSU Seidman site sections
FIG A1.156: Proposed GVSU Seidman site sections
FIG A1.157: Proposed GVSU Seidman site sections
**FIG A1.158:** Proposed GVSU aerial rendering
FIG A1.159: Potential phase 2 development sites

1. Market St. Marina
2. Punk Island Urban Campground
3. City Island Plaza
4. Middle River Islands
5. Post Office
6. The Ledge
7. Bridge Park
8. Riverside Park Lagoon
9. Walker Waterfront Park
10. Westside Park
11. Indian Mill Creek Greenway
12. Storm Park
13. Tech Park
MARKET ST. MARINA

FIG A1.160: Proposed Market Street Marina site plan
Punk Island Campground

**FIG A1.161:** Proposed Punk Island Urban Campground site plan
City Island Plaza

FIG A1.162: Proposed City Island Plaza site plan
FIG A1.163: Proposed Middle River Islands site plan
FIG A1.164: Proposed Post Office site plan
**FIG A1.165:** Proposed The Ledge site plan
FIG A1.166: Proposed Bridge Park site plan

Bridge Park
> Riverside Park Lagoon

**FIG A1.167:** Proposed Riverside Park Lagoon site plan
Walker Waterfront Park

FIG A1.168: Proposed Walker Waterfront Park site plan
FIG A1.169: Proposed Westside Park site plan
FIG A1.170: Proposed Indian Mill Creek Greenway site plan
FIG A1.171: Proposed Storm Park site plan
Indian Mill Greenway

FIG A1.172: Proposed Tech Park site plan
Supplemental Site Analysis

Appendix 1
BMPs CONNECTIVE HYDROLOGY SYSTEMS
CITY EFFORTS

GRAND RAPIDS COMBINED SEWER OVERFLOW HISTORY

Source: City of Grand Rapids, Environment Services

2009 CSO DISCHARGE TO THE GRAND RIVER (% OF VOLUME)

Source: City of Grand Rapids, Environment Services
CLIMATE CHANGE - RAINFALL

The annual average rainfall in Grand Rapids has grown by 16% in the last 60 years.
DRAINAGE MAP
EDGE DESIGN – ACCESS + RECREATION
EDGE DESIGN – ACCESS + RECREATION
EDGE DESIGN - FLOOD MANAGEMENT
EDGE DESIGN - STORMWATER MANAGEMENT
FISH MIGRATION

Lake Michigan / Grand Haven

Grand Rapids

Ionia

Lansing

Jackson

Lake Sturgeon
Longnose Sucker
Sea Lamprey
Coho Salmon
Chinook Salmon
Lake Trout
Brown Trout
Steelhead

YEAR 1
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sept
Oct
Nov
Dec

YEAR 2

YEAR 3

Dies after Spawning

Source: Draft Grand River Assessment
FLOOD WALLS + PLAIN + PUMPS + STORMWATER + OUTFALLS
FLOOD WALLS + PLAIN + PUMPS + STORMWATER
New Themes
WHICH CATEGORIES HAD THE MOST VALUABLE QUESTIONS?
How can we safely accommodate increased ped + bike activity along riverwalks avoiding conflicts with each other and with motorized vehicles at street crossings?

How can we be more inclusive?

How do we preserve and celebrate our past?

How do we teach the community about how their actions affect the river?

What types of development would add the most value for the community?

What is the priority for incorporating bike/walking paths along the river?

How does this project improve the water quality of the river?

How do you address flooding without building more walls?

How do we create interesting places for people to enjoy?
Grand Rapardy ➔ Themes
GRAND RIVER – FLOW VOLUME
GRAND RIVER – RIVER SEGMENTS
HOW THE RIVER FORMED
HYBRIDIZED HYDROLOGY
LAND COVER

GRAND RAPIDS 1816
Source: Natural System Atlas by Green Grand Rapids

GRAND RAPIDS 2008
Source: Urban Forest Ecological Services Assessment by City of Grand Rapids

- **Trees**
- **Savannah / Grass**
- **Swamp / Marsh**
- **Bodies of Water**
TIMELINE OF MASTER PLANS

Neighborhood Pattern Work Book

Downtown Streetscape Design Guidelines

Monroe North Area Specific Plan

Grand River Whitewater Park Preferred Alternative

Grand Rapids Restoration Opportunities and Constraints

Green Grand Rapids

Framing the Future: DDA 2011 Plan

Transit Master Plan Final Report

Arena South Visioning Plan

Grand River Restoration Stakeholder Group Final Report
GRAND RAPIDS MODE OF TRANSPORTATION SPLIT

* 2012 ACS, ** 2006-2010 CTPP

32% WALK, BIKE, OTHER
3% WALK, BIKE, OTHER
2% WALK, BIKE, OTHER

- SINGLE OCCUPANCY VEHICLE
- HIGH OCCUPANCY VEHICLE
- PUBLIC TRANSIT
- WALK, BIKE OR OTHER
- WORK AT HOME

LIVING DOWNTOWN*
COMMUTING TO DOWNTOWN**
ALL OF KENT COUNTY**
NEW HYDROLOGY – STORMWATER POLISHING

Grand River    Levee    Detention Ponds & Pathways
ONE VALLEY
PREVAILING WINDS

1. The North American Jetstream creates prevailing Westerly winds, which carry storms across the country.

2. The Grand River's catchment runs predominantly west to east; the same direction as storms blown across Michigan. This means that rainfall can be heavy across the entire catchment, and flood the river.
PROGRAM

URBAN AGRICULTURE

S

BED

10’

= 600 SF

= 100 SF

EVENTS

YOGA

16 People

= 1,200 SF

PLAY SPACE

MOUNDS

= 1,800 SF

SWIMMING POOL

PORTABLE POOL

= 300 SF

M

PLOT

20’

= 2,400 SF

= 600 SF

WEDDING

100 People

= 1,800 SF

DANCING

30 DANCERS

= 2,800 SF

2 LANE POOL

= 4,500 SF

L

ORCHARD

110’

= 20,300 SF

= 300 SF Mature Apple Tree

LARGE PERFORMANCE

= 7,200 SF

SOCCER

= 55,000 SF

OLYMPIC POOL

= 13,500 SF
PROPOSED EDGE CONDITIONS – LEVEE + SEATING
APPENDIX 1

WHITETWATER - RIVER RESTORATION
MASTER PLAN

IMPROVE THE ROWING POOL
Created habitat pool with boulders
Existing floodwall w/ placed educational signage
Constructed boulder islands
Whitewater wave feature
Augmented river cobble/gravel bottom

Grand Rapids Restoration
Boat Passage Section
Re-aligned bike path
Constructed terraced amphitheater/boulder wall
Proposed fish passage channel
Modified dock wall
Exposed bed rock shelf
Wading pools
Bailed limestone block/eddy boulder channel marker
Placed woody debris and boulder habitat
Connected deep bedrock canyon channel
Existing Transportation Department

Grand Rapids Restoration
Fish Passage Section