

S A S A K I

City of CEDAR RAPIDS  
FRAMEWORK PLAN  
for REINVESTMENT and REVITALIZATION

December 2008



JLG Architects | Stanley Consultants | JMS Communications & Research | Conservation Design Forum | Parsons Brinckerhoff | ARUP | Anderson-Bogert



# ACKNOWLEDGEMENTS

---

## City of Cedar Rapids

Kay Halloran, Mayor  
Brian Fagan, City Council  
Tom Podzimek, City Council  
Pat Shey, City Council  
Kris Gulick, City Council  
Monica Vernon, City Council  
Jerry McGrane, City Council  
Chuck Wieneke, City Council  
Justin Shields, City Council  
Jim Prosser, City Manager

## City Departments

Community Development  
Public Works  
Utilities (Water Department and  
Water Pollution Control)  
Parks + Recreation  
Finance  
Police Department  
Fire Department  
Code Enforcement Division  
Cedar Rapids Public Library  
CR Transit

## With input from:

### Recovery and Reinvestment Coordinating Team

Linn County Board  
Cedar Rapids Community  
School District  
Cedar Rapids Area  
Chamber of Commerce  
Corridor Recovery  
Hawkeye Labor Council  
Four Oaks  
CR Neighborhoods  
Cedar Rapids Downtown  
District  
United Way

### Coordinating Groups, Committees, and Organizations

OPN Architects  
CDM  
Cedar Rapids SSMID Board  
PLAY  
15 in 5 Development Group  
Infill Committee  
Environmentally Sensitive  
Areas Committee  
Historic Preservation  
Committee  
Replacement Housing  
Task Force  
Next Generation Council/  
Access Iowa  
Visual Arts Committee

### Other Government Agencies

Vision Iowa Board and  
Administrators  
Office of Senator Harkin  
Office of Senator Grassley  
State Legislators  
US Army Corps of  
Engineers, Rock Island  
District  
United States General  
Services Administration

### Arts + Culture

Czech + Slovak National  
Museum + Library  
African American Historical  
Museum + Cultural Center  
Science Station  
Theater Cedar Rapids  
Cedar Rapids Symphony  
Cedar Rapids Museum of Art  
Mother Mosque of America

### Medical

St. Luke's Hospital  
Mercy Hospital  
Physician's Clinic of Iowa

### Railroads

Union Pacific Railroad  
Cedar Rapids and Iowa City  
Railway Company  
Iowa Northern Railroad  
Canadian National Railroad

### Industrial Stakeholders

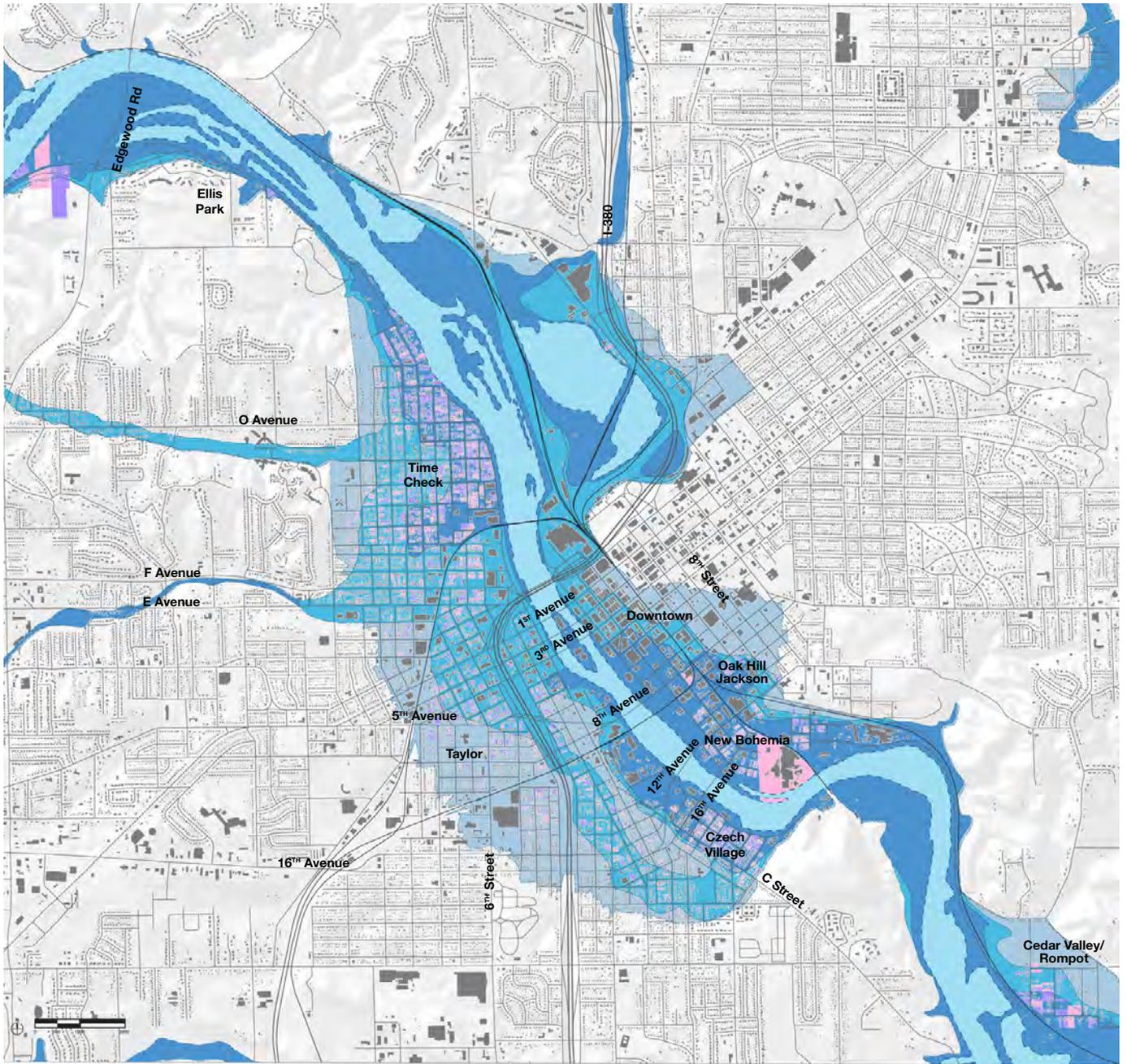
Cargill  
Diamond V  
Weyerhaeuser  
Quaker Oats  
Penford  
Alliant Energy



# TABLE OF CONTENTS

---

<b>Introduction</b>	<b>1</b>
The City's Challenge and Vision	1
<b>Overview</b>	<b>3</b>
Purpose + Goals	3
Chronology + Process	5
<b>Framework for Reinvestment &amp; Revitalization</b>	<b>7</b>
Framework Plan	7
<b>Flood Management Strategy</b>	<b>9</b>
Flood Management	9
Riverfront Park	11
<b>Connectivity</b>	<b>13</b>
Circulation Framework	13
<b>Sustainable Neighborhoods</b>	<b>15</b>
Neighborhoods	15
North Area	16
Central Area	18
South Area	20
Housing	22
<b>Next Steps</b>	<b>24</b>
Timeline	24
<b>Appendices</b>	<b>25</b>



## Flood Impacts

# INTRODUCTION



Cedar Rapids crowned 2008 as the “Year of the River,” a title meant to reinforce the connection between the city and the river, and to recognize the 100th anniversary of the city’s purchase of May’s Island. This name became more significant following an extreme flood in June 2008 that inundated the river-edge neighborhoods and a large part of downtown with a record breaking 31.5 feet of water. The “Flood of 2008” was 11.5 feet higher than any previous flood, forced many evacuations, and caused billions of dollars in damage.

This report summarizes the process and conclusions of a four-month long planning effort by the City of Cedar Rapids and the Sasaki consultant team to develop a Framework Plan for Reinvestment and Revitalization following the flood.

## The City’s Challenge

- Continue to ensure people are safe;
- Provide improved flood protection;
- Restore affordable workforce housing;
- Ensure vibrant neighborhoods;
- Restore business and downtown vitality, retaining and attracting jobs, and
- Restore community vitality.

## Our Vision

Cedar Rapids must not only recover from the flood and be better, but greater. We must move towards our vision—“Cedar Rapids, a vibrant urban hometown—a beacon for people and businesses invested in building a greater community for the next generation.”



# OVERVIEW

## Purpose + Goals



The flood's devastating impact to thousands of residents and many businesses necessitated the immediate transformation of the project scope to meet broader ecological, social and infrastructure challenges. Sasaki had been selected before the flood as a consultant for a Riverfront Park Master Plan. Following the flood, the City Council expanded the consultant team's scope of work to emphasize reinvestment in the affected river corridor neighborhoods, with a focus on the replacement of workforce housing, measures to enhance flood protection, and development options. Sasaki worked closely for the following months with the project team, City representatives, and the community to develop options that would address the City's questions, shown below and in the open house boards (in the appendix).

The planning process responded to these questions:

- What are the flood protection/mitigation options and what impact do they have on the City?
- What is the long-term framework for business reinvestment and revitalization of Cedar Rapids?
- How can the flood mitigation process be used to improve the city's connectivity, sustainability, and overall well-being?
- What new housing options can be made available for people who will not be able to return to their homes and neighborhoods?



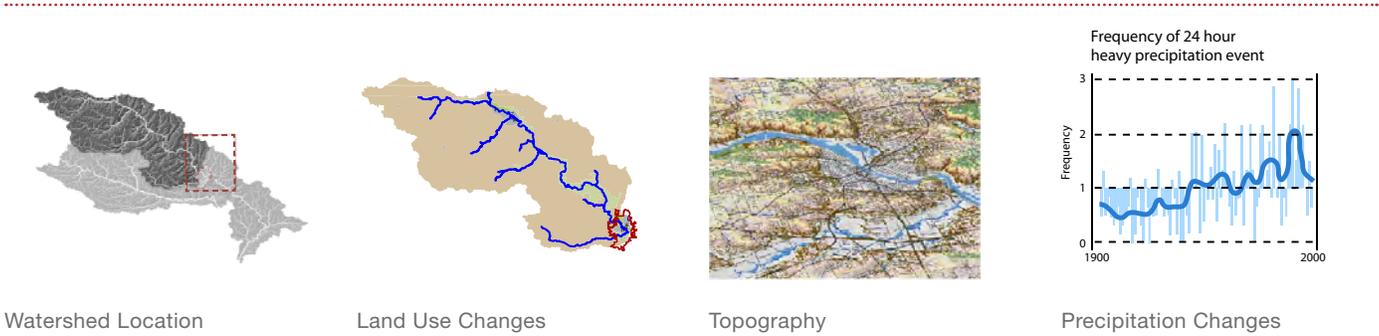
The goals of the process are:

- Rebuild high quality and affordable workforce housing and neighborhoods.
- Improve flood protection to better protect homes and businesses.
- Restore full business vitality.
- Preserve our arts and cultural assets.
- Maintain our historic heritage.
- Assure that we can retain and attract the next generation workforce.
- Help our community become more sustainable.

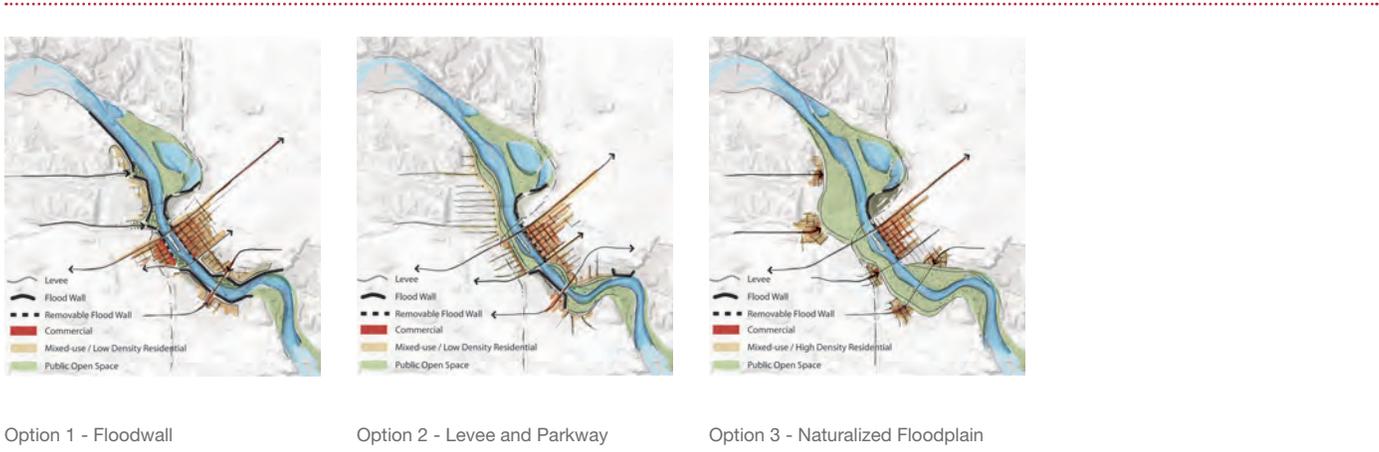


Flood Impacts

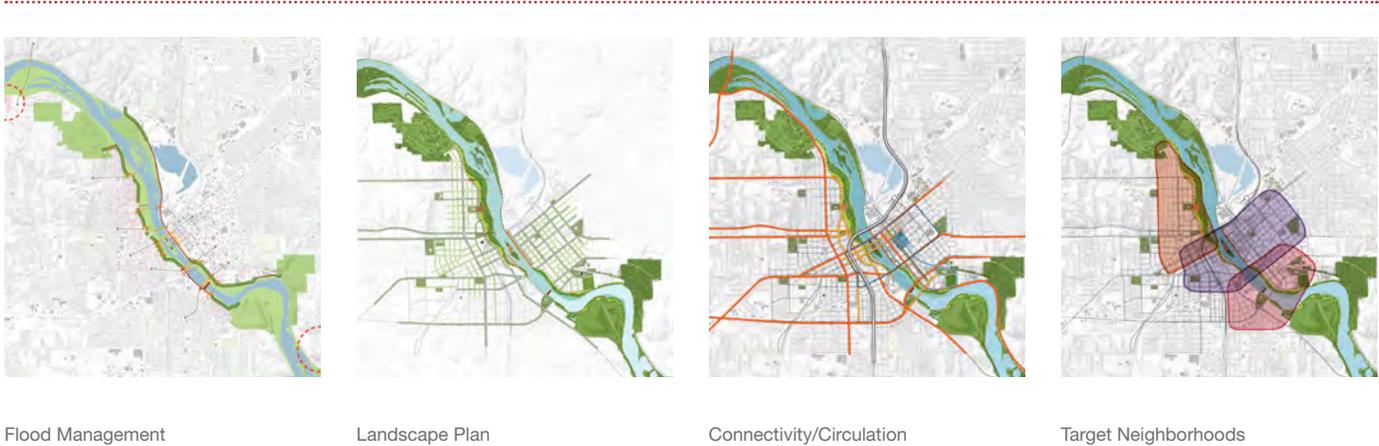
Open House 1: Analysis (July 29, 2008)



Open House 2: Flood Management Options (September 11, 2008)



Open House 3: Framework for Reinvestment and Revitalization (October 16, 2008)



# OVERVIEW

## Chronology + Process



Open House 1



Open House 3



Open House 3

Developing the strategy required the participation of city representatives, Federal Agencies, and the Cedar Rapids community at three open houses between June and October 2008.

These open houses allowed the public to view options for housing, flood management, and community revitalization, and to provide valuable feedback to form a collective vision to steer the revitalization efforts in a positive direction. The comments received at these meetings shaped the formation of three strategies for flood management and revitalization (“Floodwall,” “Levee and Parkway,” and “Naturalized Floodplain,” on the previous page) and later the solidification of a framework plan that combined many of the ideas from each.

### Post-Flood Timeline

**June 17, 2008** - The City Council expands Sasaki/JLG scope of work to include the expanded flood-impacted area, and directs them to provide a plan for reinvestment in river corridor neighborhoods including replacement of workforce housing, measures to enhance flood protection, and neighborhood and development options.

**July 29, 2008** - City holds the first in a set of three open houses for the River Corridor Redevelopment Plan to receive feedback from residents on the preliminary community analysis.

**September 11, 2008** - City holds second of set of three open houses for the River Corridor Redevelopment Plan to receive public feedback on three flood management options, housing, neighborhoods, transportation, arts and culture, open space and recreation, and public facilities.

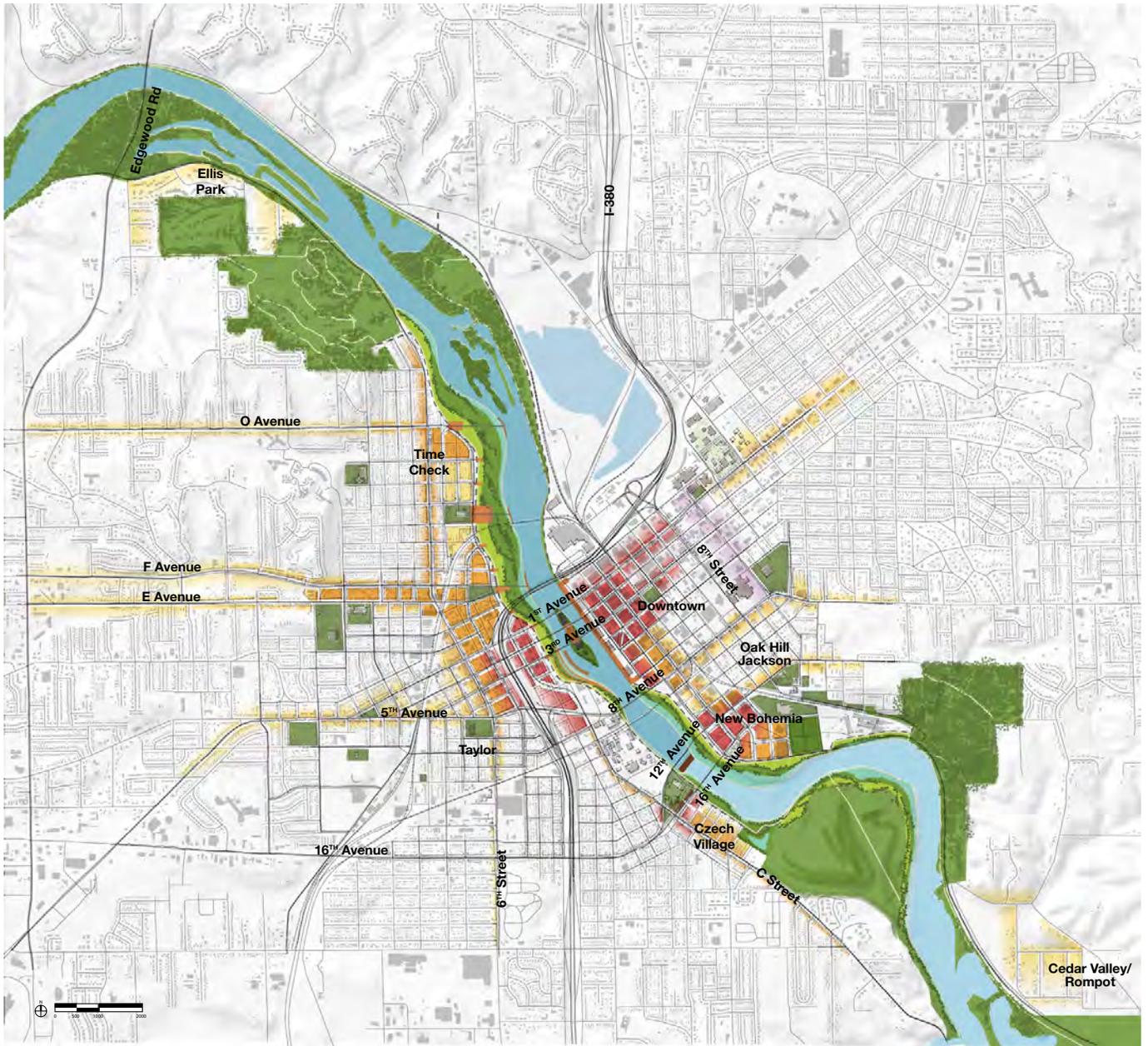
**September 24, 2008** - City Council holds four-hour work session on flood management strategy and River Corridor Plan.

**October 1, 2008** - City Council selects preferred flood management strategy option for public comment and review.

**October 2008** - Developers Skogman and Sherman Associates/MetroPlains, and Hatch Development Group plan for first replacement housing units to begin land development process.

**October 16, 2008** - City holds third open house for the River Corridor Redevelopment Plan to present the Framework Plan.

**November 12, 2008** - City Council approves the Framework Plan.



Framework Plan

# FRAMEWORK FOR REINVESTMENT & REVITALIZATION

## Framework Plan



Environment



Societal

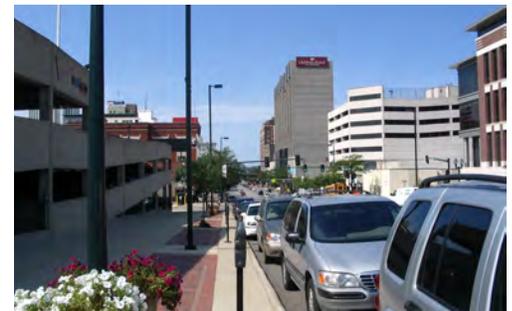


Natural Resources

At the core of the Framework Plan for Reinvestment and Revitalization are the fundamentals of sustainability: environment, resources, society, and economics. The Framework Plan's objective was not only to plan for flood recovery, but also to move towards a greater vision of "Cedar Rapids, [as] a vibrant urban hometown—a beacon for people and businesses invested in building a greater community for the next generation."

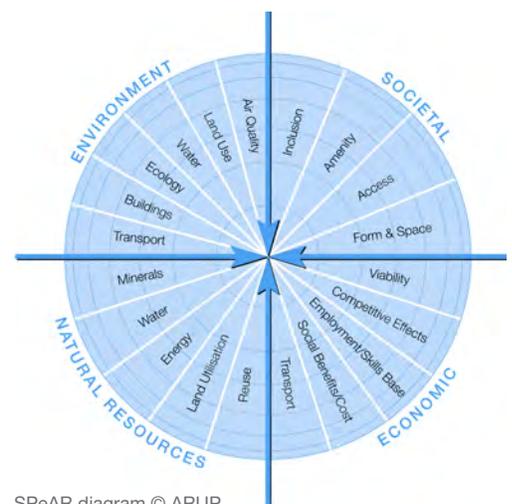
The framework integrates the plan elements into three main themes expressed categorically as:

- Flood Management Strategy—Illustrates the tactics used to provide increased protection against future floods and to leverage the flood management strategy to create a Great Riverfront Park for Cedar Rapids.
- Connectivity—Knits together the City and its neighborhoods via improvements to public transit, trail systems, the street grid system, rail operations and specific streetscapes.
- Sustainable Neighborhoods—Targets affected areas within the City to realize opportunities for reinvestment and revitalization that would provide housing, strengthen neighborhoods, enhance the downtown business and arts communities, and improve public facilities.



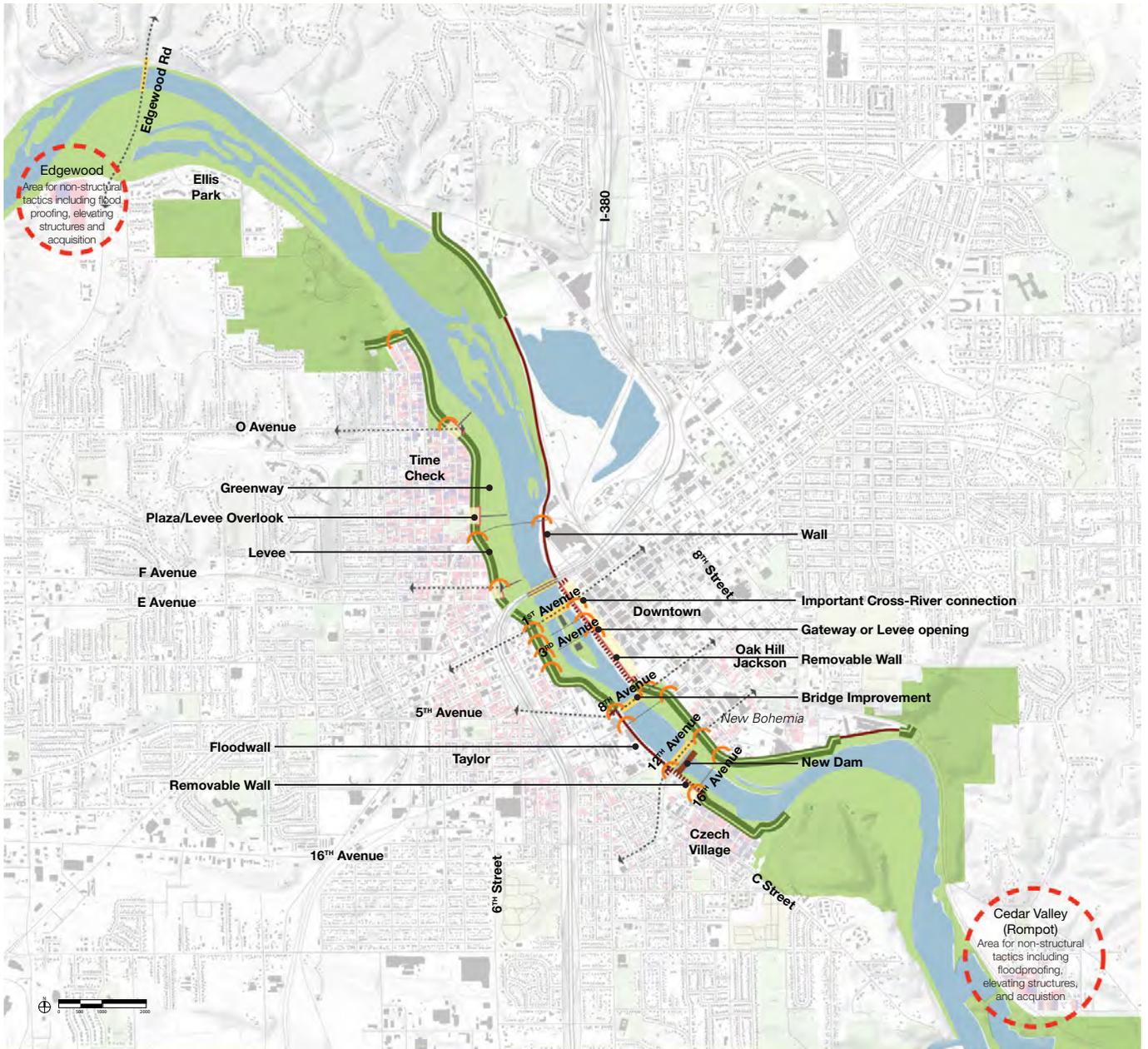
Economic

Sustainability is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. To ensure a sustainable revitalization process, decisions were evaluated based on the SPeAR framework at left to capture and prioritize actions.



SPeAR diagram © ARUP

If all the aspects on the chart on the right (the "labeled pie wedges") are made more sustainable, then the entire project benefits. For example, if land utilization prioritizes concentration of new development on brownfield sites, it contributes to the overall project sustainability.



- Greenway
- Levee
- Important Cross-River connection
- Plaza/Levee Overlook
- Gate or Levee opening
- Removable Wall
- Floodwall
- Future study: Area of non-structural flood tactics
- New Dam
- Bridge Improvement

### Flood Management

# FLOOD MANAGEMENT STRATEGY

## Flood Management



River Level Control for Water Activities Downtown



A flood management strategy is critical to the success of the reinvestment and revitalization of Cedar Rapids. The flood management planning process initiated by the City identified the outstanding causes of flood events in Cedar Rapids with regard to location within the watershed, topography, land use changes, and frequency of precipitation events. Multiple flood management tactics were evaluated to compare how well they increased conveyance of the water while reducing runoff into the river and minimizing damage to the City's infrastructure, neighborhoods, and businesses.

### Flood Management Priorities from Public Feedback

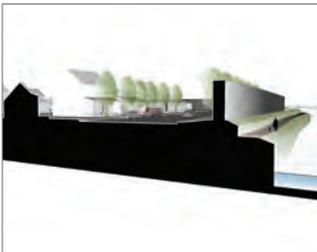
- Use levees (as shown in Options 2 and 3 previously) more often than vertical floodwalls (as shown in Option 1)
- Maximize open space (as shown in Options 2 and 3 previously) while preserving existing neighborhoods (as shown in Option 2) as much as possible
- Preserve critical cultural and economic assets, including Czech Village/New Bohemia, Downtown, Quaker, Cargill, and Penford
- Address non-structural issues such as flood warning systems, watershed management, and land use/zoning practices
- Prioritize maintaining evacuation capability via bridge(s) in case of floods

The flood management strategy balances the priorities of the community—to provide better protection, preserve neighborhoods and assets, and maximize open space—by combining the following tactics:

- Removable floodwall at downtown and Czech Village
- Permanent floodwall at Penford, Quaker, Cargill and the North Rail Yards
- Wall openings for neighborhood connections
- Levee park or greenway between flood control structures and river



Removable Floodwall at Downtown and Czech Village



Permanent Floodwall at Penford

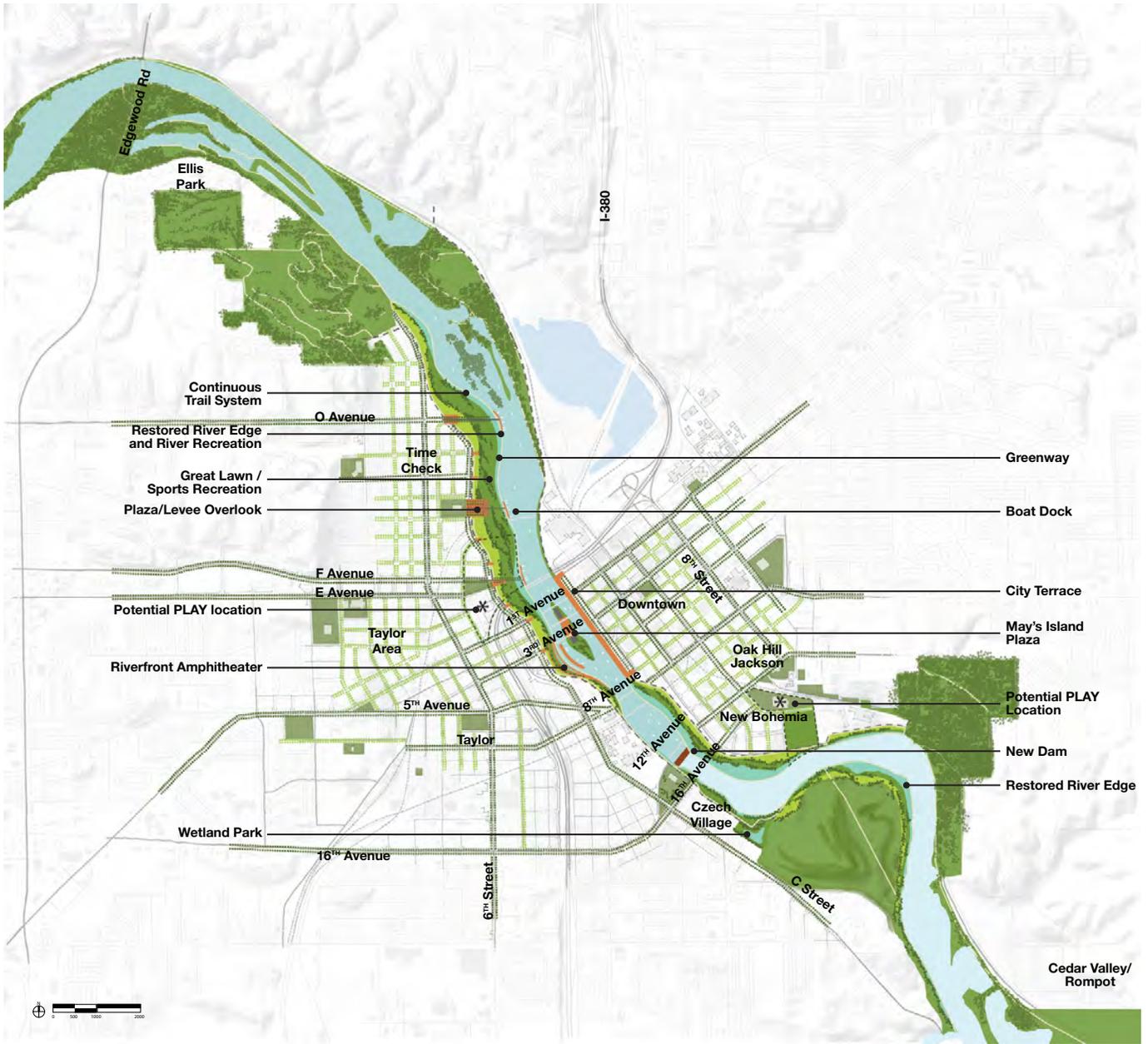


Wall Openings for Neighborhood Connections

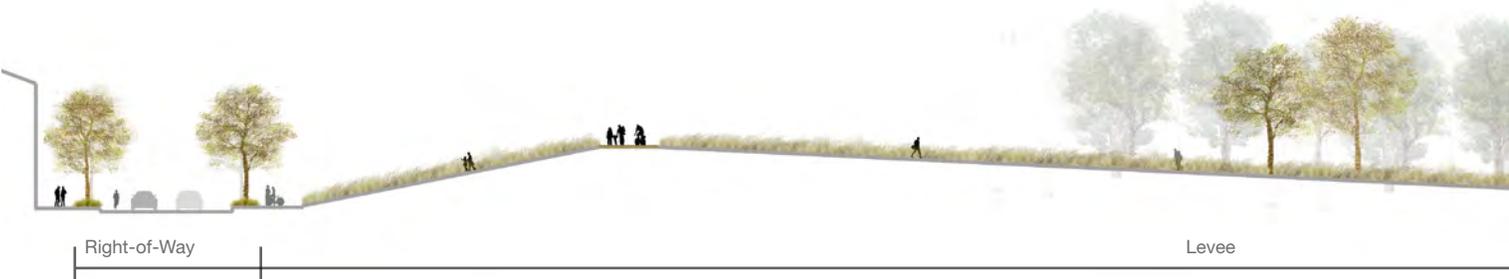


Levee Park / Greenway





## Riverfront Park



Typical section of riverfront with extended parkland

# FLOOD MANAGEMENT STRATEGY

## Riverfront Park



Restored river bank and recreational opportunities



The flood management strategy creates better protection while also creating a Great Riverfront Park for the City. The park within the floodplain maximizes open space and keeps the riverfront open to the public.

The river edge is restored along the majority of its course through Cedar Rapids, creating a natural, soft riparian edge with native plants and additional capacity to absorb water. The river banks will also provide access for water recreation activities such as canoeing, kayaking, water skiing and sailing.



Sports recreation



### Open Space Priorities from Public Feedback

- Leverage flood management measures to maximize open space
- Keep the riverfront open to the public
- Develop pedestrian and bike trails along greenway corridor connecting downtown to the neighborhoods
- Use the riverfront for parks, high-quality mixed-use development, or public uses
- Implement desired greenway program including an expanded farmer's market, trails, a dog park, gardens, an amphitheater, wetlands and interpretive flood education
- Maintain views to the river



City terrace / May's Island plaza



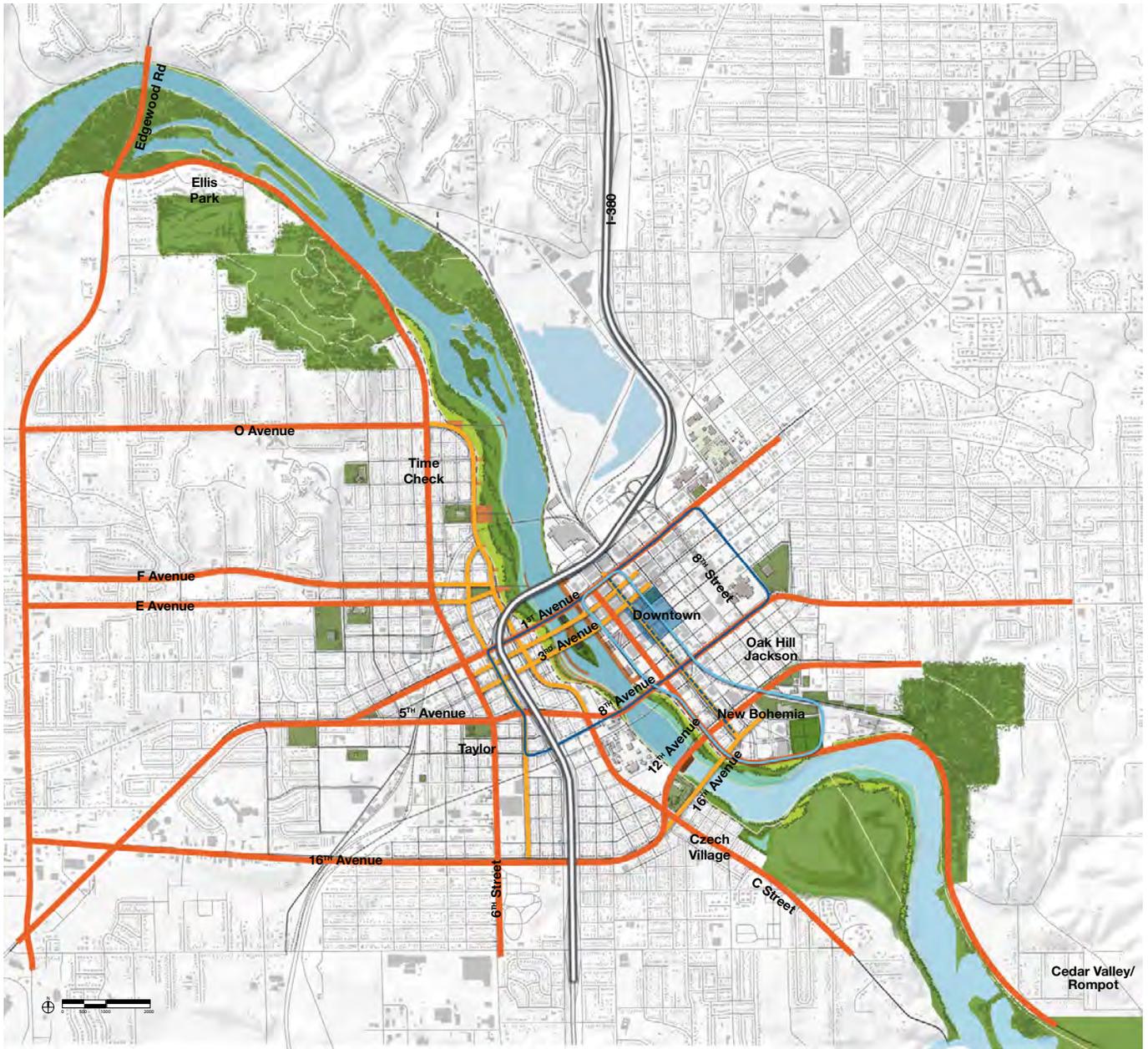
Riverfront amphitheater



Continuous trail system along river



Images by various artists used with permission under creative commons licence, attribution available upon request.



### Circulation Framework

# CONNECTIVITY

## Circulation Framework



Pedestrian Mall, Boulder, Colorado



Multi-modal Transfer Station, Geneva IL



Bike/ Bus Lane, St. Louis, MO



Walkable Streets, Bethlehem, PA



Bus Mall, Portland, OR

The goal of the connectivity framework is to knit together the City and its neighborhoods via improvements to public transit, trail systems, the street grid, rail operations, and the sidewalk/streetscape.

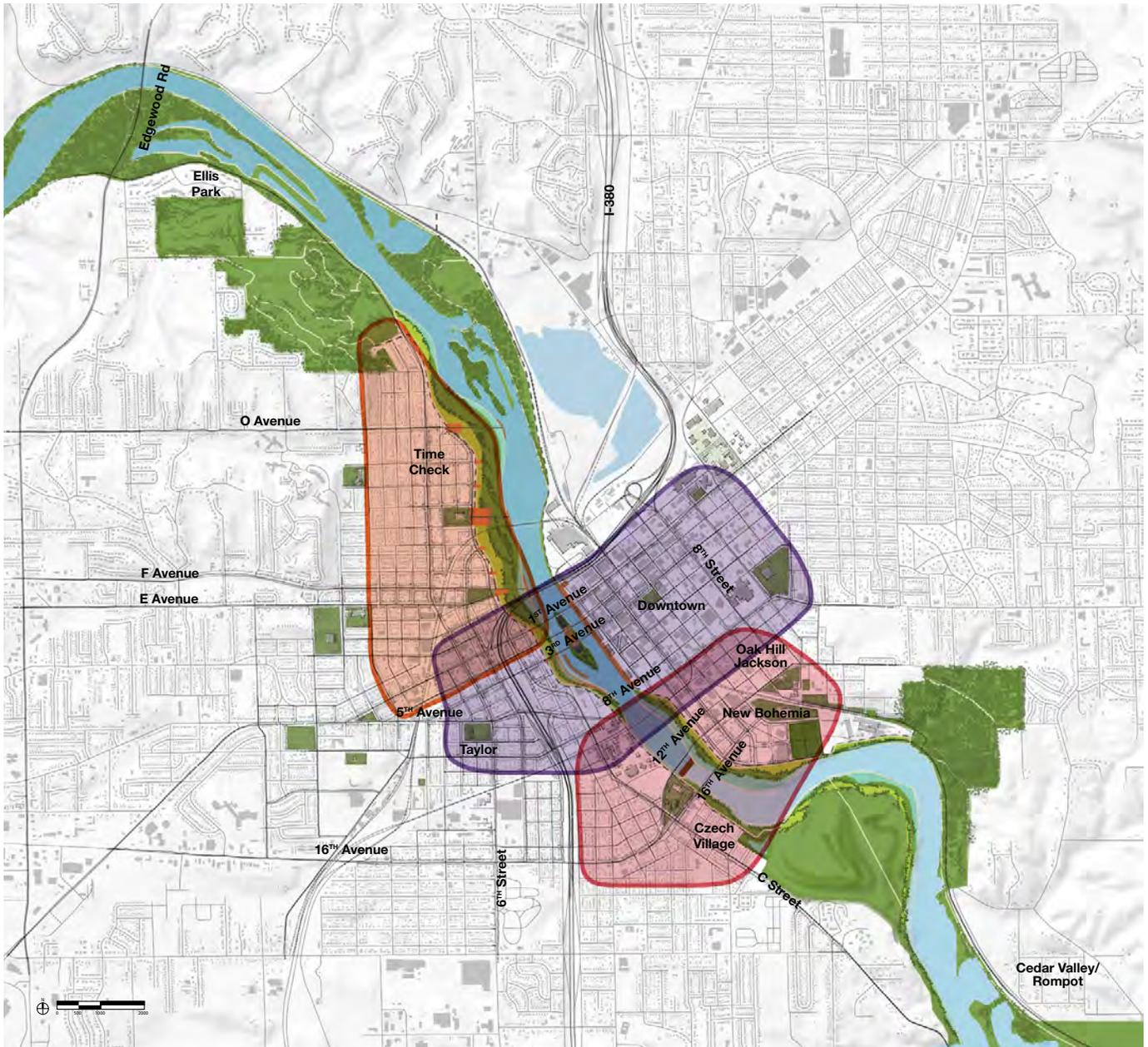
### Circulation Priorities from Public Feedback

- Develop better connectivity and sense of community via community centers, mixed housing and sidewalks
- Bus or light rail commuter connection to nearby cities
- Encourage non-vehicular modes to/from and through downtown
- Expand/extend bus and connect to bicycle and parking facilities
- Improve pedestrian environments
- Convert 4th street rail to pedestrian or transit corridor
- Support development of inter-modal transfer station and transit infrastructure improvements
- Connect to and complement adjacent areas with the Sinclair area development
- Prioritize maintaining evacuation capability via bridge(s) in case of floods

The framework's strategy is to strengthen connections at multiple levels to re-establish regional identity, create strong north-south and east-west corridors, and support neighborhoods.

### Connectivity Opportunities:

- Improve highway interchanges to reconnect with regional neighbors
- Use north-south corridors to create a stronger sense of connection to Cedar Rapids's north and south neighborhoods
- East-west corridors, create vibrant downtown character inclusive of both river banks
- "Neighborhood connector" streets provide focus for improvements and strengthen neighborhood identities
- Explore reuse of Fourth Street Rail Corridor as a pedestrian and/or transit corridor
- First Avenue Signature Street with strong retail and pedestrian activity
- Pursue phased opportunities to establish transit infrastructure
- Develop street hierarchy consistent with adjacent land uses
- Resolve conflict zones between rail, vehicles, and pedestrians



■ North Area (Ellis Park and Time Check)

■ South Area (Czech Village, Oak Hill Jackson, New Bohemia, and Cedar Valley/Rompot)

■ Central Area (Taylor, Downtown, and Medical District)

## Neighborhoods

# SUSTAINABLE NEIGHBORHOODS

## Neighborhoods

### 10 Principles for Livable, Sustainable Communities



Design on a Human scale:  
A walkable pedestrian environment  
(Charleston, SC)



Vary transportation options:  
Dedicated bike lane  
(Minneapolis, MN)



Provide choices:  
A farmer's market supports the  
local economy



Create neighborhood identity:  
Active neighborhood center  
(Washington Square, New York City)



Encourage mixed-use development:  
Ground floor retail creates an active  
street (Boston, MA)



Design matters: Well-designed space  
makes a successful community  
(Millenium Park, Chicago, IL)



Preserve urban centers:  
Rehabilitation and preservation of  
storefronts (Galena, IL)



Conserve landscapes: Preserved  
wetland paired with recreation area  
(Bay Trail, San Francisco, CA)



Protect environmental resources:  
New compact developments  
(South Dunn, Bloomington, IN)



Vibrant public centers: Create active  
plazas and park areas near downtown  
(Millenium Park, Chicago IL)

The framework plan targets areas within the City as priorities for reinvestment and redevelopment to provide housing, strengthen neighborhoods, enhance the downtown business and arts communities, and improve public facilities.

The neighborhoods targeted in the Framework Plan are:

- North Area (Ellis Park, Time Check)
- Central Area (Taylor, Downtown, Medical District)
- South Area (Czech Village, Oak Hill Jackson, New Bohemia, and Cedar Valley/Rompot)

Sustainable housing will be purposefully located within walking distance of important services and will also, where possible, incorporate sustainable design and construction strategies. New neighborhood centers will bring residents together for shopping and entertainment, and encourage interaction. These small “nodes” of higher-density development (likely including mixed-use buildings) will foster a strong sense of place by focusing on and recognizing each neighborhood’s unique identity.

### Priorities from Public Feedback

- Encourage sustainable, walkable, mixed-use communities
- Build the necessary mix of market and affordable housing units
- Improve downtown utility service
- Explore more sustainable energy supply and storm water management
- Protect larger industrial community partners
- Restore historic buildings wherever possible
- Save and/or build on current artistic and cultural facilities within neighborhoods and downtown where possible, including support for churches and other religious communities
- Relocate important cultural resources, if necessary, to protected areas, memorialize their original location where appropriate
- Appropriately locate public/shared facilities

# SUSTAINABLE NEIGHBORHOODS

## North Area (Time Check and Ellis Park)

Revitalize this historic neighborhood by celebrating cultural and community assets, improving connectivity, and working with residents to strengthen neighborhood character by re-establishing traditional workforce housing stock.

### Priorities from Public Feedback

- Diversify Ellis Park area profile with small-scale business and entertainment in addition to existing housing
- Balance the desire for acquisition with the need to preserve neighborhoods such as Time Check
- Maintain neighborhood character and identity in redeveloping impacted areas
- Provide incentives for homeowners to rebuild, rehab, or relocate in or near existing neighborhoods



View from the greenway at Time Check looking toward Downtown

# SUSTAINABLE NEIGHBORHOODS

## North Area (Time Check and Ellis Park)



Mixed-use Commercial - Residential, Kentlands, MD



Local Connector, Frostburg MD



Workforce Housing, Dundee & Geneva, IL



Townhomes and Single Family Mix, Stapleton, CO



Walkable Streets, Cincinnati, OH



Mixed-use Retail - Residential, Hudson, OH

### North Area Neighborhood Development Opportunities

- Incentivize and encourage returning residents to re-establish neighborhood housing stock
- Work with neighborhood organizations to catalyze investment in the local business community
- Link to downtown by reconnecting the urban fabric in southeast Time Check and strengthening the Ellis Boulevard NW corridor, and F & E Avenues
- Explore refurbishment of existing or siting of new community resource/ recreation facilities
- Connect riverfront greenway to residential areas

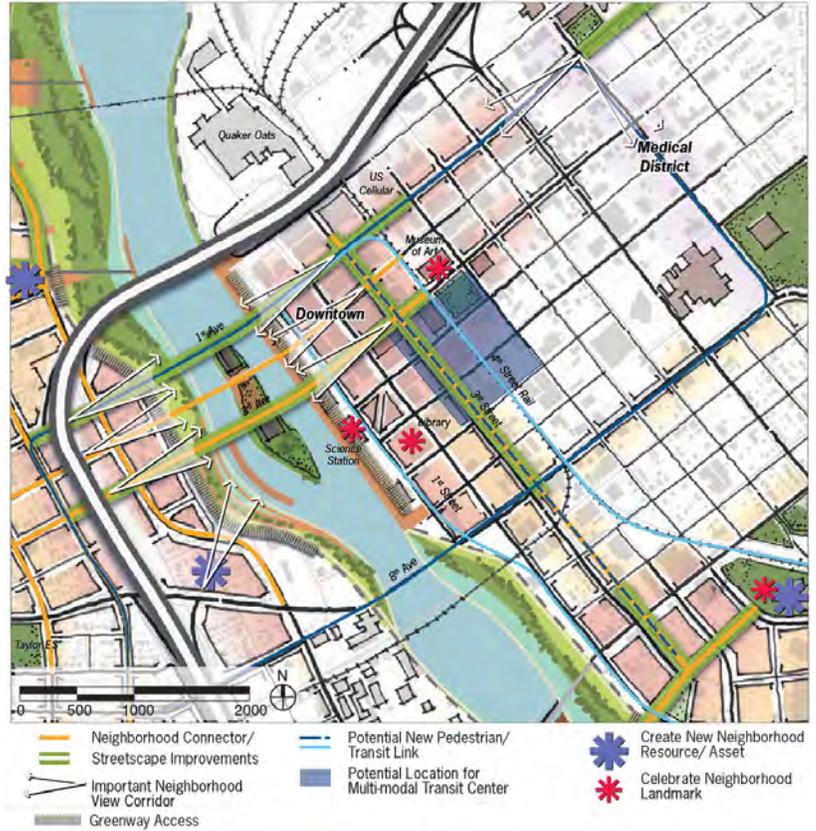
# SUSTAINABLE NEIGHBORHOODS

## Central Area (Taylor, Downtown, and Medical District)

Create a vibrant cohesive downtown character that diversifies the urban fabric, reconnects east and west, and accommodates key civic, business, and cultural resources.

### Priorities from Public Feedback

- Diversify downtown commercial profile
- Density medical district
- Improve pedestrian connections
- Convert 4th street to pedestrian or transit corridor
- Invest in a “signature street” along 1st Avenue
- Support farmer’s market expansion
- Reinvest in library as an important civic resource
- Support local businesses with rebuilding and reinvestment
- Replace relocated civic facilities downtown within a vibrant dynamic commercial environment
- Invest in cultural/arts corridor along 3rd Street



View along the city terrace Downtown looking toward May's Island

# SUSTAINABLE NEIGHBORHOODS

## Central Area (Taylor, Downtown, and Medical District)



Civic Center - Canal Walk, Indianapolis, IN



Findlay Farmers Market, Cincinnati, OH



Mixed-use Retail - Entertainment, Newport, KY



Mixed Use Residential - Retail, Chicago, IL



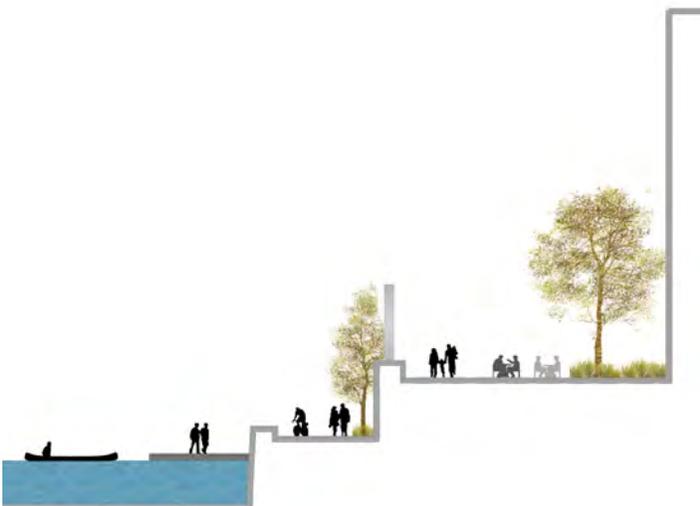
Walkable Development, Burlington, VT



King Farm Arts/Education Center, Kentland, MD

### Downtown Development Opportunities

- Locate and develop multi-modal transit hub in conjunction with phased development of transit infrastructure
- Activate riverfront park with vibrant local market place for regular farmer’s market, as well as periodic artisan and cultural fairs and festivals
- Develop a vibrant mixed-use district around a new civic center that consolidates civic services
- Create a “Downtown U” that fosters community gathering and learning
- Diversify retail-commercial profile of the business district to activate street edges and create a vibrant “destination downtown”
- Create signature street along 1st Avenue
- Maintain and support existing cultural facilities on 3rd Avenue and connect to cultural arts corridor along 3rd Street
- Develop street hierarchy consistent with adjacent land uses to locate appropriate parking resources, improve streetscape, and create a more walkable downtown
- Improve pedestrian infrastructure and streetscapes
- Add urban housing options to promote 24/7 activity
- Densify medical district to create vibrancy



Typical section of riverfront at Downtown

# SUSTAINABLE NEIGHBORHOODS

## South Area (Czech Village, Oak Hill Jackson, New Bohemia, and Cedar Valley/Rompot)

The goal for the South River Area is to knit together the Czech Village, Oak Hill Jackson, New Bohemia, and Cedar Valley/Rompot neighborhoods in a way that leverages community assets and investment for mutual benefit, supports diversity, and celebrates individual character.

### Priorities from Public Feedback

- Diversify Czech Village with mixed use retail/commercial with residential on upper floors
- Connect to and complement adjacent areas with the Sinclair area development
- Maintain neighborhood character and identity in redeveloping impacted areas
- Provide incentives for homeowners to rebuild, rehab or relocate near existing neighborhood



View along 14th Avenue looking toward St. Wenceslaus Church

# SUSTAINABLE NEIGHBORHOODS

## South Area (Czech Village, Oak Hill Jackson, New Bohemia, and Cedar Valley/Rompot)



Mixed Use Development, Covington, KY



Mixed Use Development, Galena, IL



Streetscape Improvements, University City, MO



Neighborhood Connector, Galena, IL

### South Area Neighborhood Development Opportunities

- Re-establish neighborhood cultural institutions like the National Czech and Slovak Museum and Library, and the African American Historical Museum
- Celebrate significant neighborhood landmarks, like Saint Wenceslaus Church and the clocktower
- Streetscape improvements along neighborhood connectors link New Bohemia and Czech Village to new Sinclair residential district
- Create new neighborhood assets to catalyze development, like a community/ recreation center or civic open space/plaza.
- Connect riverfront greenway to residential areas



Neighborhood Connector, Charlevoix, MI

Images by various artists used with permission under creative commons licence, attribution available upon request.

# SUSTAINABLE NEIGHBORHOODS

## Housing

### Housing Priorities From Public Feedback

- Protect housing from future flooding
- Ensure high-quality replacement houses are built quickly
- Provide affordable housing options
- Retain character of pre-flood communities
- Support sustainable neighborhoods where residents can walk to schools, parks and services

### Goals for Sustainable Housing

- Rehabilitate existing housing where financially feasible
- Ensure high-quality replacement housing is built quickly
- Provide mixed-income neighborhoods
- Target scattered sites and infill opportunities
- Build on character of pre-flood communities
- Connect to schools, parks and services
- Preserve existing historical character of buildings where possible

RENTAL HOUSING NEED	
TYPE	UNITS REQUIRED
Market Rate	150
Affordable	230
Subsidized	86
Totals	466

OWNER-OCCUPIED HOUSING NEED	
TYPE	UNITS REQUIRED
Market Rate	210
Affordable	210
Subsidized	0
Totals	420

Source: Maxfield Research (August 2008)

## Single-family Housing

- In-fill and new construction
- 800-1200 square feet per unit
- Traditional neighborhood feel



Sketch provided by Skogman Homes



## Condominiums and Townhomes

- Neighborhoods with retail/office space
- Retail and office on ground floor
- Walkable and sustainable urban living



Sketch provided by Sherman Associates



## Townhomes and Apartments

- In-fill and new construction
- 700-1350 square feet per unit
- Two to four-story apartment buildings
- 1-3 bedroom units



Sketch provided by Sherman Associates



# NEXT STEPS

## Timeline

### Framework Plan

October 16, 2008 - City holds third open house for the River Corridor Redevelopment Plan to present the Framework Plan to the public

October 2008 – Developer Skogman begins new housing construction, with housing available starting in 2009

November 12, 2008 – City Council takes action on River Corridor Redevelopment Plan Framework for Reinvestment & Revitalization

### Detailed Plan

Winter-Spring 2008/2009 – Neighborhood Planning Process starts, and will run until Summer 2009; Planning teams will meet with neighborhoods to develop plans for each neighborhood

- November: City Council/Neighborhood Groups formalize Neighborhood Planning Process
- December: Focus Groups from each neighborhood meet to identify needs
- January: Neighborhood Planning Process begins with kick-off and overview, followed by area meetings and open house work sessions every 6 weeks
- March: Preliminary neighborhood plan alternatives
- April: Preferred neighborhood plans and action plans
- May: City Council action

Late 2008 – Army Corps of Engineers begins its Flood Management Strategy feasibility analysis, projected to take 18 to 24 months, likely to conclude in 2011

Winter 2008/2009 – Plans and specifications are prepared for initial project

2009 – Planning and development of City/Community facilities begins

### Construction

Spring 2009 – Construction begins on prioritized projects

2009 – Kickoff of feasibility determination for first downtown projects – cornerstone of downtown reinvestment and revitalization

2009 – Kickoff of multi-family housing construction

2010-2015 – Community facilities construction

2012 – Flood management system construction begins

# APPENDICES

## Appendix 1:

Open House 1 Boards

## Appendix 2:

Open House 2 Boards

## Appendix 3:

Open House 3 Boards

## Appendix 4:

Technical Memorandum on Flood Management (Stanley Consultants)

## Appendix 5:

Technical Memorandum on Transportation (Parsons Brinckerhoff)

## Appendix 6:

Facilities Master Plan (JLG Architects)



# What is the overall framework we are following and how will your feedback be used?

## Feedback along the process

Conducting an inventory helps us identify which unique characteristics to assess within the flood damage.

Assessing flood impacts helps highlight opportunities and challenges for redevelopment options.

Exploring multiple options aids in developing a balanced range of strategies.

Development of a range of strategies directs both the short and long term directives of the framework plan.



### Understanding Cedar Rapids

Understand the unique character of Cedar Rapids so that we can protect assets and improve on challenges in the framework plan.

### Assessing Flood Impacts

Reflect on the people and places that were impacted by the flood so that we can provide relief to those who need it most and redevelop in a resilient manner.

### Redevelopment Options and Framework Evaluation

- Explore alternative redevelopment options for flood management, neighborhood redevelopment and downtown reinvestment that are appropriate for Cedar Rapids.
- Establish a framework and evaluation criteria for ensuring a high quality of life and a sustainable city directive in the framework plan.

### Framework Plan

- Develop a package of redevelopment strategies that respond to the diverse and dynamic needs of Cedar Rapids.
- Draft a framework plan that functions at multiple scales (watershed, city and neighborhood) to provide both short and long term benefits.

### Framework Plan Implementation

- Implement the framework plan by enacting policy changes and funding redevelopment and re-investment opportunities that provide immediate relief as well as long term growth.

## Tuesday, July 29 **Open House 1**

To receive feedback on how well we have captured the unique characteristics of your community and the impacts it incurred from the floods.

## Purpose of each open house

## Tuesday, Sept 9 **Open House 2**

To receive feedback on housing, flood control, and community redevelopment options you would like to see incorporated into the framework plan and which options you would like more information on.

## Tuesday, Oct 14 **Open House 3**

To receive feedback on the draft framework plan, the range of redevelopment options, and how they meet your expectations.

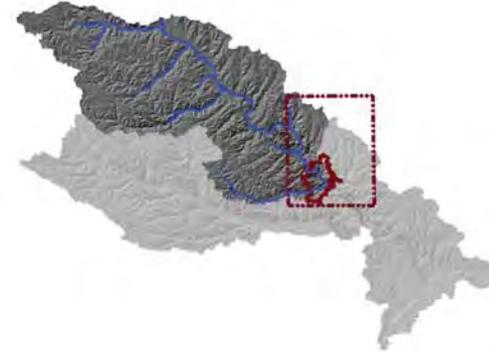


# How do regional systems influence the environmental conditions we see today?



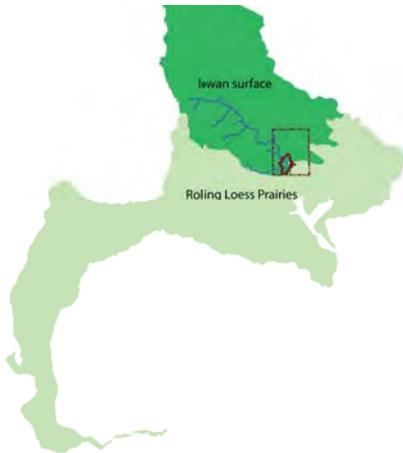
## Geology

- Cedar Rapids sits along some of the most productive soils in the country. This characteristic lends to its agricultural context.
- Under the Cedar River runs a high quality drinking water within alluvial aquifers. The aquifer's slow moving waters are difficult to clean up if contaminated.
- Cedar Rapids lies within a shallow bowl surrounded by gently rolling slopes.



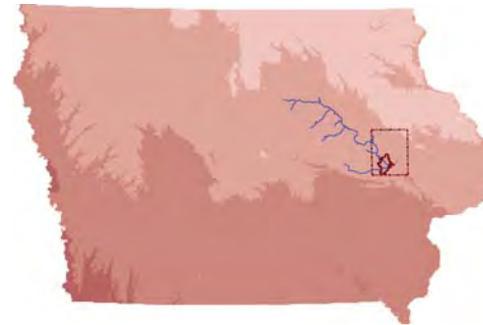
## Hydrology

- Cedar Rapids sits at the bottom of the Middle Cedar subwatershed receiving upland water from the entire watershed.
- The narrow Cedar River channel through downtown does not accommodate high volumes of water
- Development patterns upland can increase runoff impacting both the quantity and quality of the river's waters within the city.



## Biology

- Cedar Rapids sits at the junction of Iowa's rolling prairies and hilly oak woodlands.
- Wetlands alongside the Cedar River once served as an important habitat and corridor for a diversity of species.
- Much of the natural vegetation within the City has been altered due to development and agricultural use.

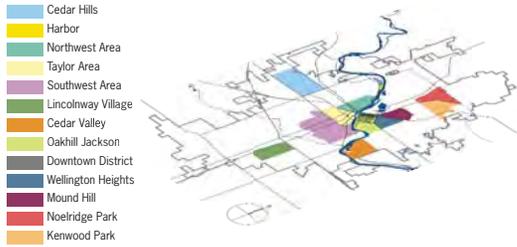


## Climatology

- Cedar Rapids has hot summers and snowy winters.
- Climatic trends in the Midwest vary considerably from year to year, making long term trends difficult to track.
- The largest climatic concerns over the next 50 years are projected to be:
  - (1) increase in heat spells,
  - (2) increase in the growing season
  - (3) increase in the frequency of the 24 hour precipitation events.



# What attributes describe the communities of Cedar Rapids?



## Neighborhood Associations

There are 14 neighborhood associations in addition to the many smaller community groups in Cedar Rapids. These associations serve as advocates and organizers within a community that address issues and needs. They help to define the boundaries of communities more organically than political lines.

## Schools, Churches, Libraries, and Parks

Schools, churches, libraries, and parks are places that serve to enrich the urban experience for the entire community. In Cedar Rapids these public amenities are spread throughout the City for the use of people from all neighborhoods.

## Employers

Several of the City's largest employers are still located in the traditional downtown location along the banks of the Cedar River. However, many large employers are now located outside of the City, impacting commuting patterns of residents.

## Historic Inventory

The primary historic districts in Cedar Rapids are located in the northeast portion of the central city. Additional historic sites are scattered throughout other neighborhoods.

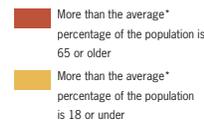


\* Data from the 2000 US Census.

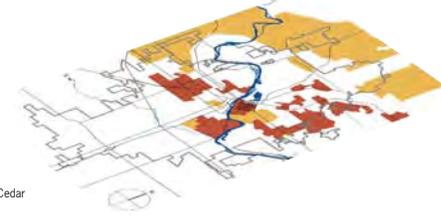


## Residential Density

As in many American cities, the residential density is highest just outside the downtown area and drops down at the City periphery. There is very limited residential development in the downtown area.

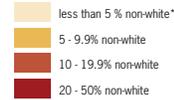


\*The average refers to the average for Cedar Rapids according to the US Census.

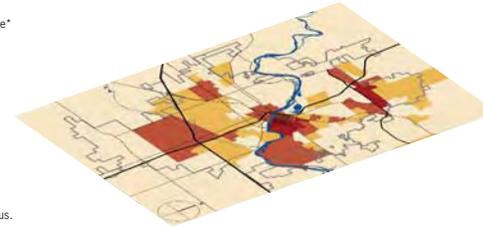


## Age

In Cedar Rapids the largest representation of the aging community tends to be in and around the inner neighborhoods by downtown and directly to the southeast. In the outer reaches of the city there tends to be a higher percentages of the younger population, especially to the northwest.

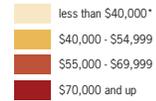


\* Data from the 2000 US Census.

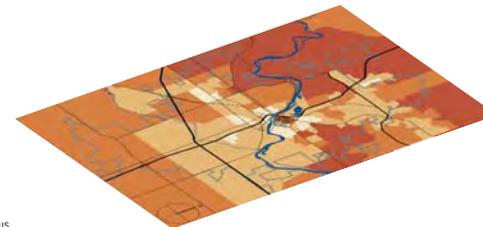


## Diversity

Today diverse areas that represent a wide array of national and cultural heritages are located in several different areas of the city. Cedar Rapids has a history of supporting diversity, dedicating the first Mosque in the western hemisphere and attracting an early Czech settlement.



\* Data from the 2000 US Census.



## Income

Cedar Rapids represents people with a diversity of incomes. Households with higher incomes tend to locate further from the center of the city and in the northwest areas.



# What are the River neighborhoods in Cedar Rapids? What is unique about each one?



Time Check / Northwest Area

The Northwest area, or Time Check, is a predominantly residential area that houses a workforce community. A substantial percentage of its residents own their own homes. Mother Mosque serves as significant heritage sites for the neighborhood, while Ellis Park, Harrison Elementary School, and the Time Check Rec Center function as important neighborhood amenities.



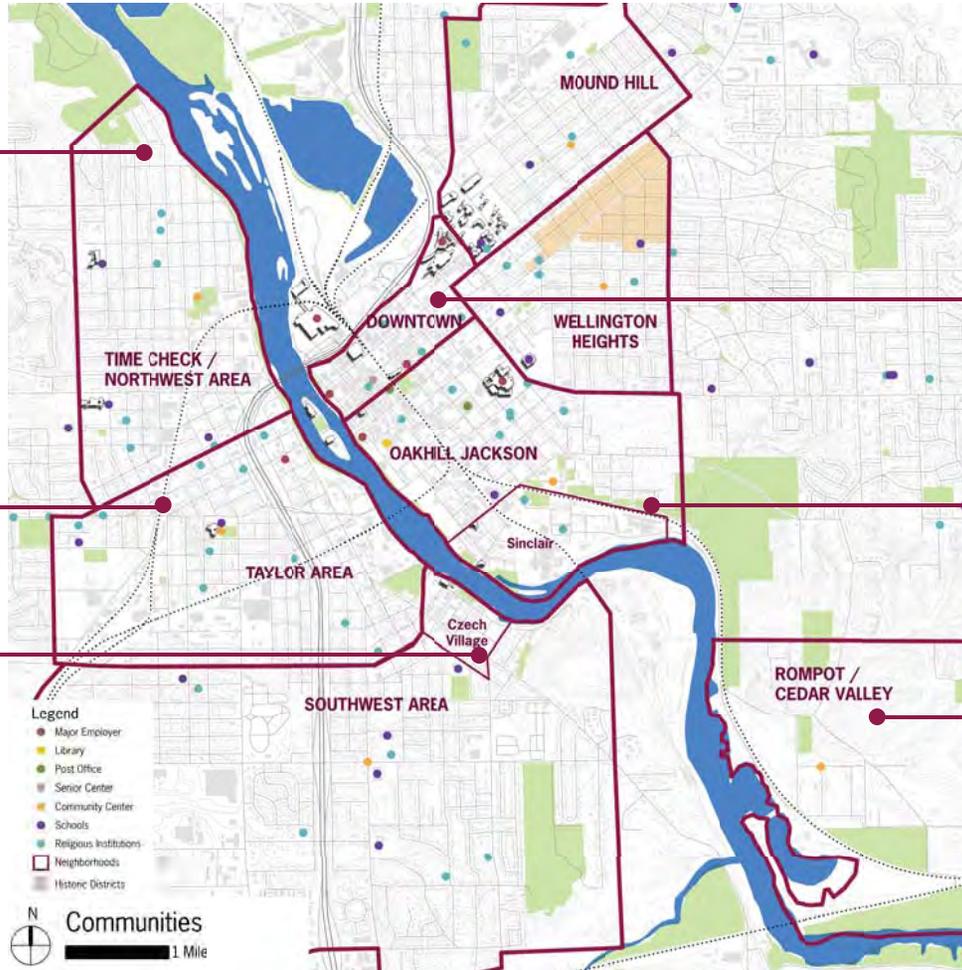
Taylor Area

Taylor Area Neighborhood Association is an active group which provides services to the Taylor Elementary School and Resource Center, such as Kids' Club, a vibrant before and after school program.



Czech Village

The Czech Village is a small, compact area within the Southwest neighborhood. The area is known for a variety of unique and authentic Czech businesses. Czech Village houses residents of all ages and many families own their homes.



Downtown District

The Downtown area functions as a center of business activity but lacks the vitality of a neighborhood with many residents. There are several pockets of high density housing that accommodate smaller households who move frequently. Residents of this neighborhood are more likely to have college degrees.



Oakhill Jackson

Oakhill Jackson is a historically industrial company town settled by Czech immigrants. It has undergone considerable changes as factories and plants have moved or closed over the years, yet its character remains predominantly single-family residential with a mix of small commercial uses. It is home to a diverse population.



Rompot / Cedar Valley

Cedar Valley, or Rompot, is an almost entirely residential area with scattered agricultural land and no commercial uses. Similar to other places adjacent to the river, it has lower residential densities. Its residents are diverse and, on average, have relatively higher incomes. They are also more likely to have college degrees.



# What are some of the housing characteristics in Cedar Rapids?



Square Footage

Identifying the relative square footage of the existing housing stock in different neighborhoods around the city helps us to understand the domestic needs of the inhabitants of both the existing and the proposed dwellings when planning for new developments. In general, the larger dwellings occur in the outer rings of the city to the north of the Cedar River.



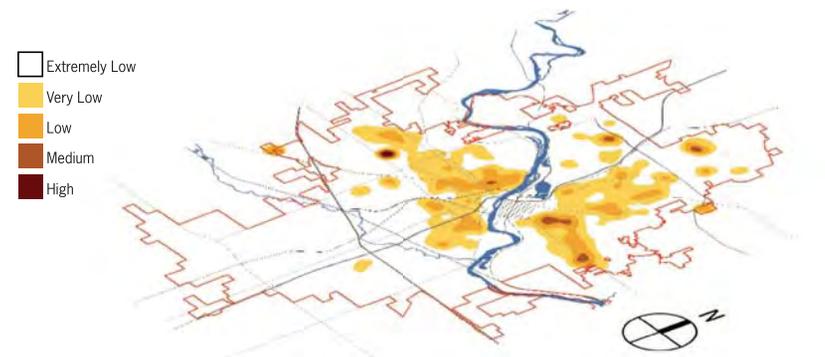
Year Built

The relative age of a neighborhood is important in order to provide clues about historical growth patterns and to help inform future developments. The overall structure of the city shows a radial growth pattern from the downtown outward.



Vacancies

The areas shaded in green are residential parcels within neighborhoods that are not currently occupied by people - which may or may not have a structure on them. These parcels may indicate future development opportunities. There are large tracts of vacant land outside the center of downtown.



Density

The number of houses per square mile varies according to neighborhood-use and character. It is important to consider existing neighborhood densities while formulating plans for the desired growth pattern in a reconstruction effort. This would allow the city to both take advantage of vibrant clusters and to ensure overall equitable urban growth. The highest densities tend to spread in an east-west fashion from the center, while the center itself has a much lower overall density.



# Where are the institutions and infrastructure of Cedar Rapids?

- Institutional
- Education

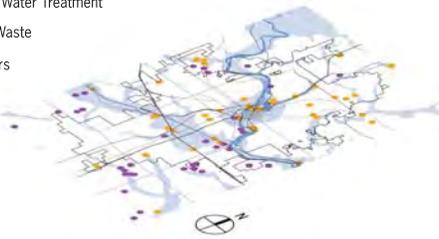


## Institutional Uses

Institutional parcels generally include schools, universities, government agencies and services.

The large parcel on the southwest corner of the city corresponds to the municipal airport, those along the northern bend in the river are the parcels for the City Rapids Golf Course. Further down the River is the municipal waste facility. Overall there are almost 100,000 acres of institutional land within the City boundary, but the average parcel size is only about 8 acres. Over 5,000 acres of those parcels are vacant and could indicate opportunities for infill.

- Waste Water Treatment
- Solid Waste
- Aquifers



## Utilities

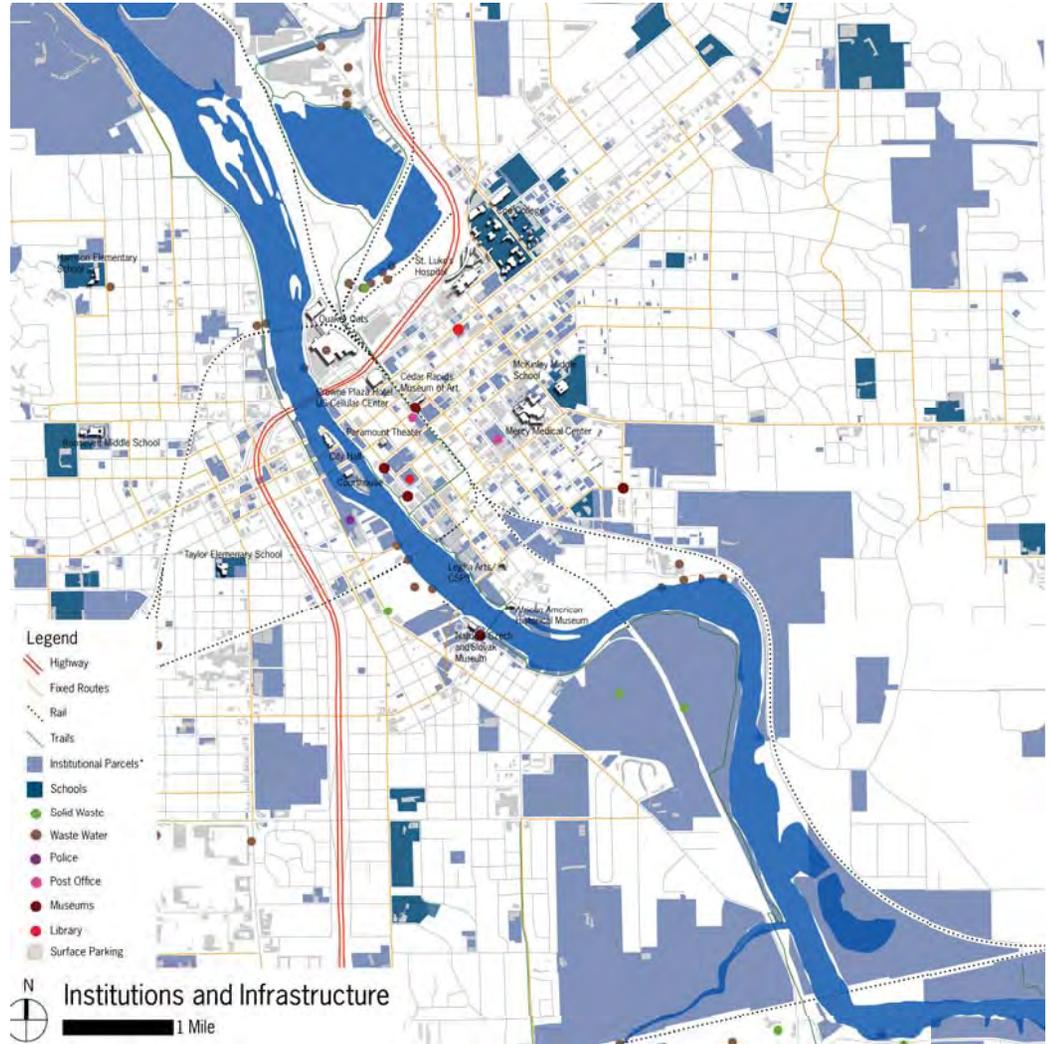
A number of waste treatment facilities are currently located at the center of the city due to a heavy industrial presence. Many of the waste treatment facilities lay over sensitive groundwater aquifers.

- Rail
- Highways
- Fixed Routes
- Trails



## Transportation

The City of Cedar Rapids is striving to integrate a multi-modal transportation system. Currently the system maintains 715 miles of roads including Interstate 380 which serves as a major employment corridor. The City provides bus transportation options to its residents with 82 miles of fixed routes and non-motorized travel with 5 miles of trails along the Cedar River. The City also houses 77 miles of rail lines moving freight through to regional industries. Also, the municipal airport has daily flights to major US cities.



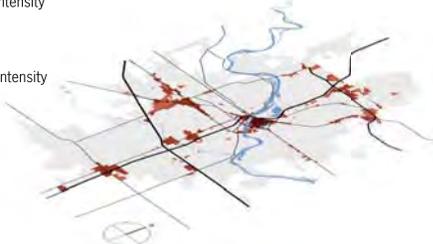
*Institutional parcels refer to lands that are exempt for tax purposes.*



# Where are the commercial and industrial uses in Cedar Rapids?

## Commercial Zoning

- C-1 Lower Intensity
- C-2
- C-3
- C-4 Higher Intensity



## Commercial Zoning

Commercial zoning directs and restricts future commercial development. Higher classifications, such as C-4, indicate the ability to build more square feet of space. Commercial land is primarily concentrated in the downtown and along 1st Avenue and Collins Avenue.

## Commercial Uses

- Commercial Parcels
- Centers
- Corridors



## Existing Corridors and Centers

Commercial uses exist in corridors along major thoroughfares like 1st Avenue, 6th Street, and Collins Avenue. At other locations, such as Lindale Mall and Westdale Mall, commercial areas are concentrated in centers.

## Industrial Zoning

- I-1 Lower Intensity
- I-2 Higher Intensity



## Industrial Zoning

Industrial zoning directs and restricts future industrial growth. Higher classifications reflect larger allowable buildings and lower standards for emissions of pollutants. The bulk of parcels zoned for industrial uses are located along Highway 30.

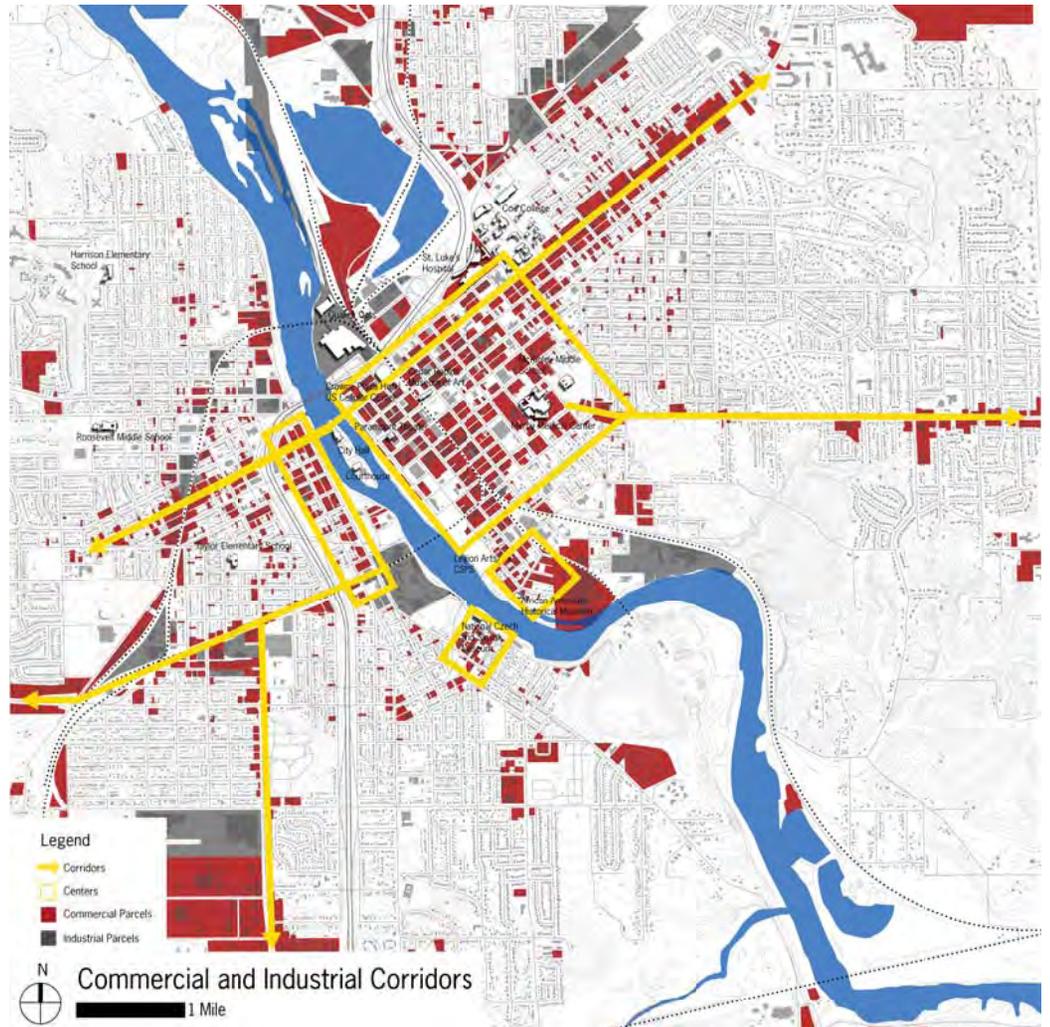
## Industrial Uses

- Industrial parcels
- Centers
- Corridors

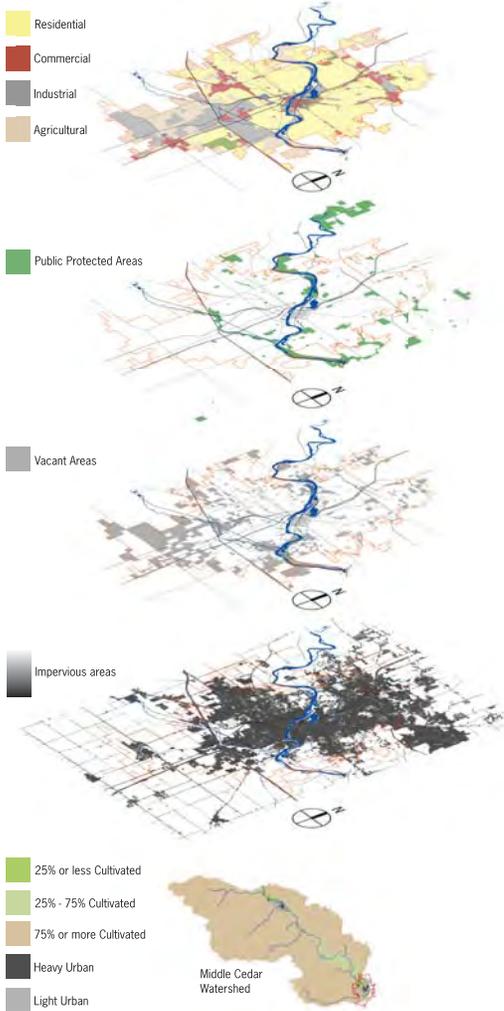


## Existing Corridors and Centers

There is a major industrial corridor along the Highway 30 with centers located near its intersection with Highway 380. Industrial uses such as Quaker Oats and Penford form an industrial presence along the river.



# How does land use influence the conditions we see today?



## Zoning Districts

The majority of Cedar Rapids is zoned residential, with higher densities found in the neighborhoods surrounding the downtown, but little within the downtown core. Historically commercial and industrial zones areas are concentrated in the downtown area. Within the southwest quadrant of the City there is a strong presence of newer and larger commercial and industrial lands.

## Protected Open Space

Cedar Rapids has an abundant park network including almost 2,000 acres of parkland of which more than 50% of which are comprised of golf courses. There are over 50 small neighborhood and pocket parks that serve the community of Cedar Rapids.

## Vacant Lands

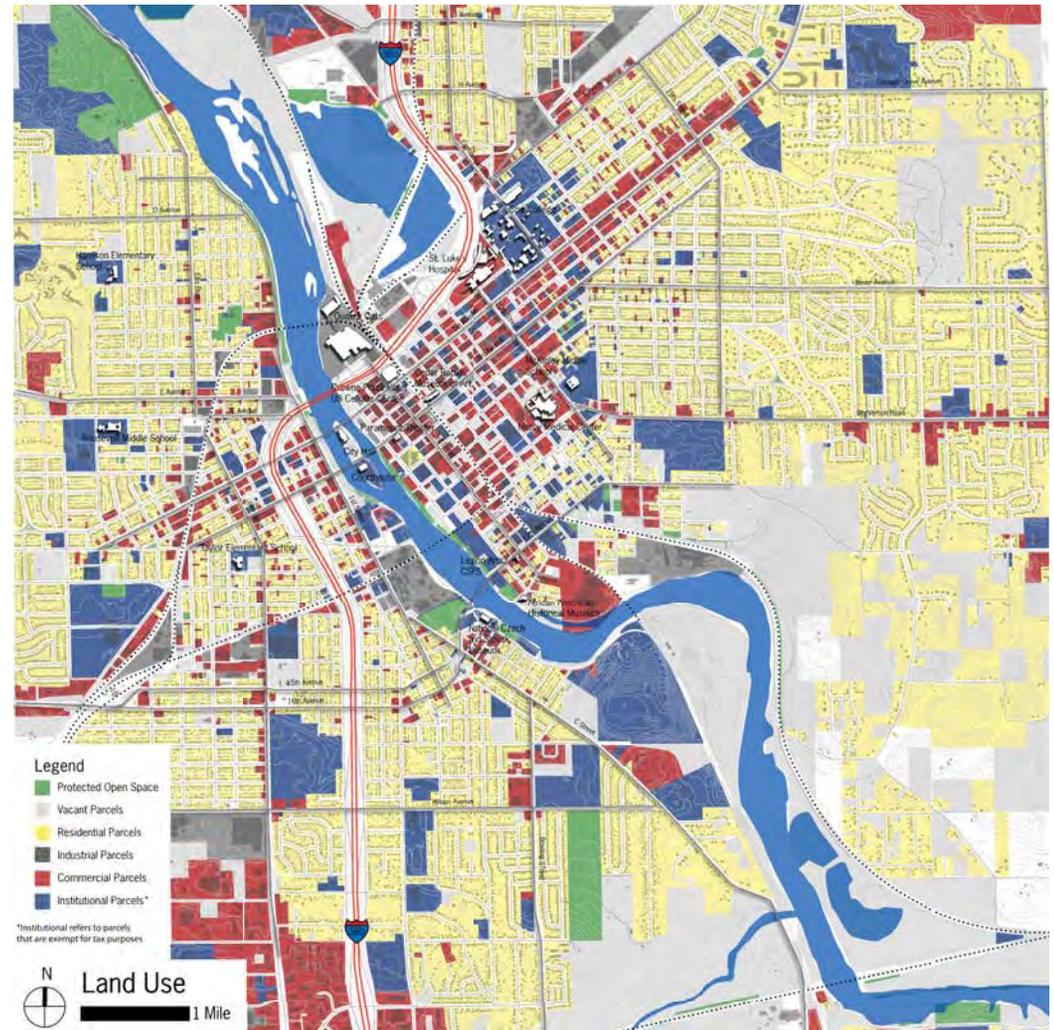
Vacant lands represent parcels in the city that are not currently in use and may pose opportunities for future development. There are more scattered vacant parcels in the downtown and much larger tracts of vacant residential land further outside the center of downtown.

## Impervious Surfaces

Impervious surfaces generally reflect developments including roads, buildings and parking lots. The pattern for this area is very strong, with very little natural land cover within the City boundary and a high percentage of vegetation (mostly cropland) around the periphery.

## Agricultural Lands

The vast majority of Iowa is dominated by more tracts of land that are more than 75% cultivated. The same pattern is true within the Middle Cedar Watershed, where only the southern tip is urbanized. Agricultural land, while not completely impervious, can dramatically alter soil characteristics influencing water flows as well as water quality. Further, in the past as the price of crops drops, agricultural lands have served as land banks for new development.



## Open House 1 To receive feedback on how well we have captured the unique characteristics of your community and the impacts it incurred from the floods.

Understanding  
Cedar Rapids

Assessing Flood  
Impacts

Redevelopment Options  
and Framework Evaluation

### Station 1

To showcase the unique characteristics of Cedar Rapids and receive feedback on what we are missing so that we can ensure that the framework plan will incorporate what you value about your city and neighborhoods.

### Feedback Questions

- Are the most important characteristics of your community reflected here? If not, what are they and why are they important?
- When we redevelop neighborhoods, which characteristics should we try to preserve?
- Are there relevant infrastructure and institutions within the city that we are missing?
- How well did the infrastructure and institutions serve the city before the flood?
- How well are the commercial and industrial centers and corridors serving you?

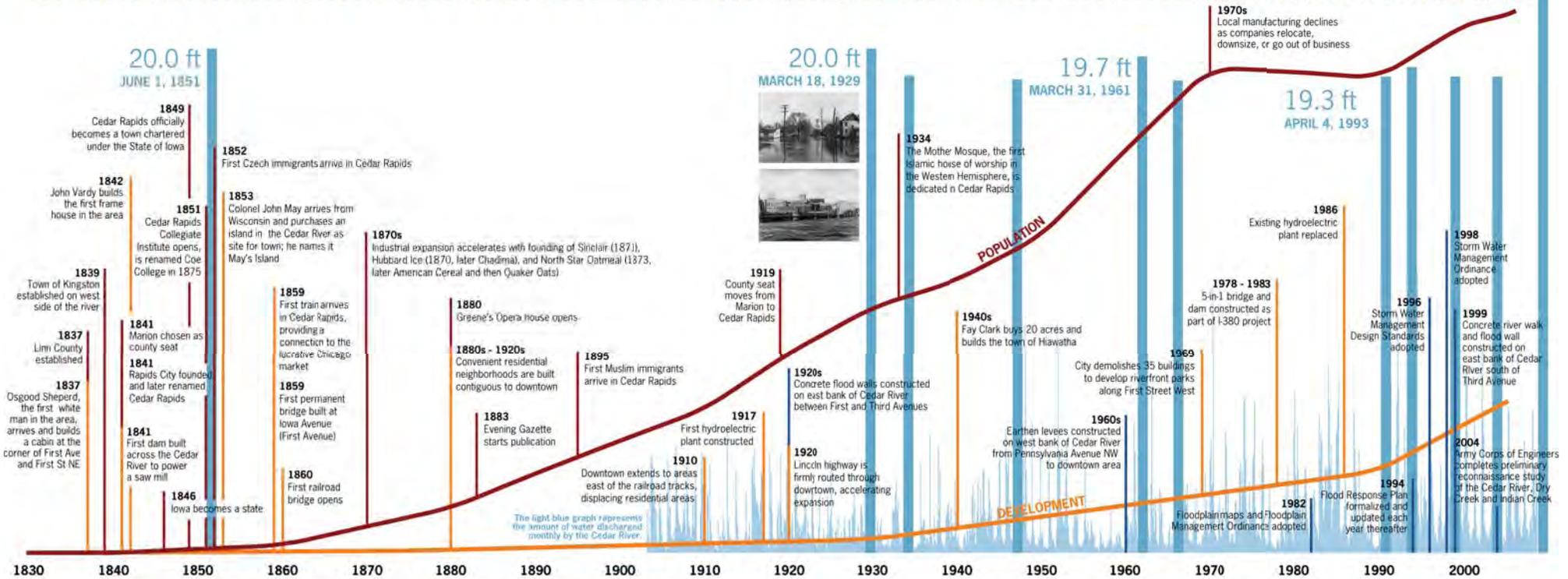


# Cedar Rapids milestones and flood history

31.1 ft  
JUNE 13, 2008

500-YEAR FLOOD LEVEL (26.5 feet)

100-YEAR FLOOD LEVEL (22.0 feet)



# What happened in the flood of 2008?

## Overview

Cedar Rapids crowned 2008 as the “Year of the River” in Cedar Rapids, a title meant to reinforce the connection between the city and the river, and to recognize the 100th anniversary of the city’s purchase of May’s Island. This name is now more significant because of extreme flooding in June 2008 that **inundated all of downtown and the nearby neighborhoods** with a record breaking **31.5 feet of water**. The river swelled due to **unusually high and heavy rainfall** during the week of June 9 – 13th from a system very similar to the storm that caused the 1993 flooding. However, the 1993 flood caused the Cedar River to rise to nearly 20 feet, and this 2008 storm brought the river eleven feet higher. The river crested on **Friday, June 13**, and slowly receded; by June 24, the river was no longer technically at flood stage. While nearly all residents and business owners had property damaged by the flood, no citizens were killed and few were harmed by the rushing water. Five deaths have been related to flooding statewide. Officials estimated that 9 square miles of Cedar Rapids were underwater, and that 24,000 of the city’s 124,000 people were forced to evacuate.

## Impacted Parties

Everyone in Cedar Rapids was impacted by the flood in some way. Those who lost their homes face months of finding temporary housing and waiting for notification of whether they can return to their damaged property. The costs to homeowners and all residents have not been tallied, but we know that at least **3,000 homes were severely damaged**, and at least 400 of those are still unsafe to enter and will require more than 50% of the value of the home to fix. Over **9,000 downtown workers were displaced** and flood damages to businesses are estimated to be billions of dollars.

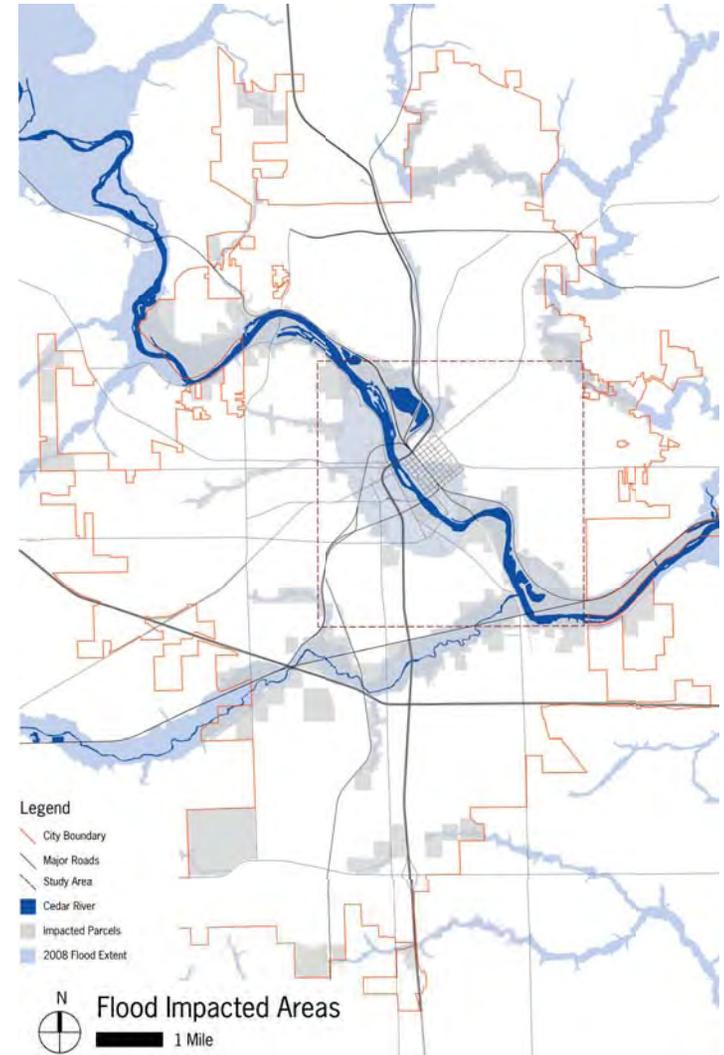
## Costs and Damage

### To Homeowners:

- \$376 million damage to homes
- \$25,000 estimated cost per house to elevate above 100 year floodplain (if house can be saved and rebuilding is allowed)
- Relief will total \$50 - 70 million from the Federal Government to the entire state of Iowa for flood recovery and property buyout (likely will not be approved until 2009)

### To City Government:

- \$504 million to clean up and repair or replace flood-damaged city buildings and other infrastructure
- \$810 million to protect the city against future floods through an assortment of flood management efforts like levees, floodwalls, a new reservoir and property buyouts
- \$504 million + \$810 million = \$1.3 billion in total (current flood clean-up plus future flood management options)



# What was the flood's impact on the Cedar Rapids community?

After the flooding, the Cedar Rapids community has shown its resilience as residents and business owners have worked together to address the many resulting issues. The flood impacted all aspects of life in Cedar Rapids, damaging homes, businesses, and community centers as well as impacting public health and safety. As of June 15th, 25,000 people had been evacuated from the city. Heavily damaged schools have had to close both temporarily and indefinitely. As of July 3, 1,834 students had been displaced due to these closures. A June 19th estimate showed that 7,000 people in Cedar Rapids were unemployed due to the impacts of flooding on their employers. The downtown Public Library, for example, was heavily damaged and will temporarily relocate to the former Big Lots store once they complete planning and re-establish their collection. In the days following the flood, some residents and businesses were victims of looting. Local police worked alongside the community to minimize these occurrences. The floodwaters carried many pollutants including road run-off, sewage, agricultural products, mold and bacteria, posing health threats to the community during the clean-up process.

## TIME CHECK



Most of Time Check's residents were evacuated during flooding as it was among the most impacted sectors of the city. Nearly all the homes in Time Check sustained flood damage. Moreover, the bottom floor of the Mother Mosque of America was flooded, destroying artifacts and community space.

## TAYLOR SCHOOL DISTRICT



Taylor Elementary School is still being gutted and cleaned and will not open during the 2008-2009 school year. The school was one of two in the Cedar Rapids district that were open year round. It is unclear whether Taylor will ever reopen, and students and teachers have been redistributed to other schools throughout the city.

## CZECH VILLAGE



Shop owners and homeowners are anxious to rebuild in Czech Village. The National Czech and Slovak Museum and Library was heavily damaged, but has already organized community events following the flood. The facility will be rebuilt with financial help from donors around the world.

## DOWNTOWN DISTRICT



At the flood's peak, much of the downtown core was underwater, affecting 300 businesses. Over 150 businesses have committed to returning to their downtown locations. These businesses face the challenge of financing their own rebuilding, yet must depend on each other's efforts to reestablish a vibrant commercial core.

## OAKHILL JACKSON

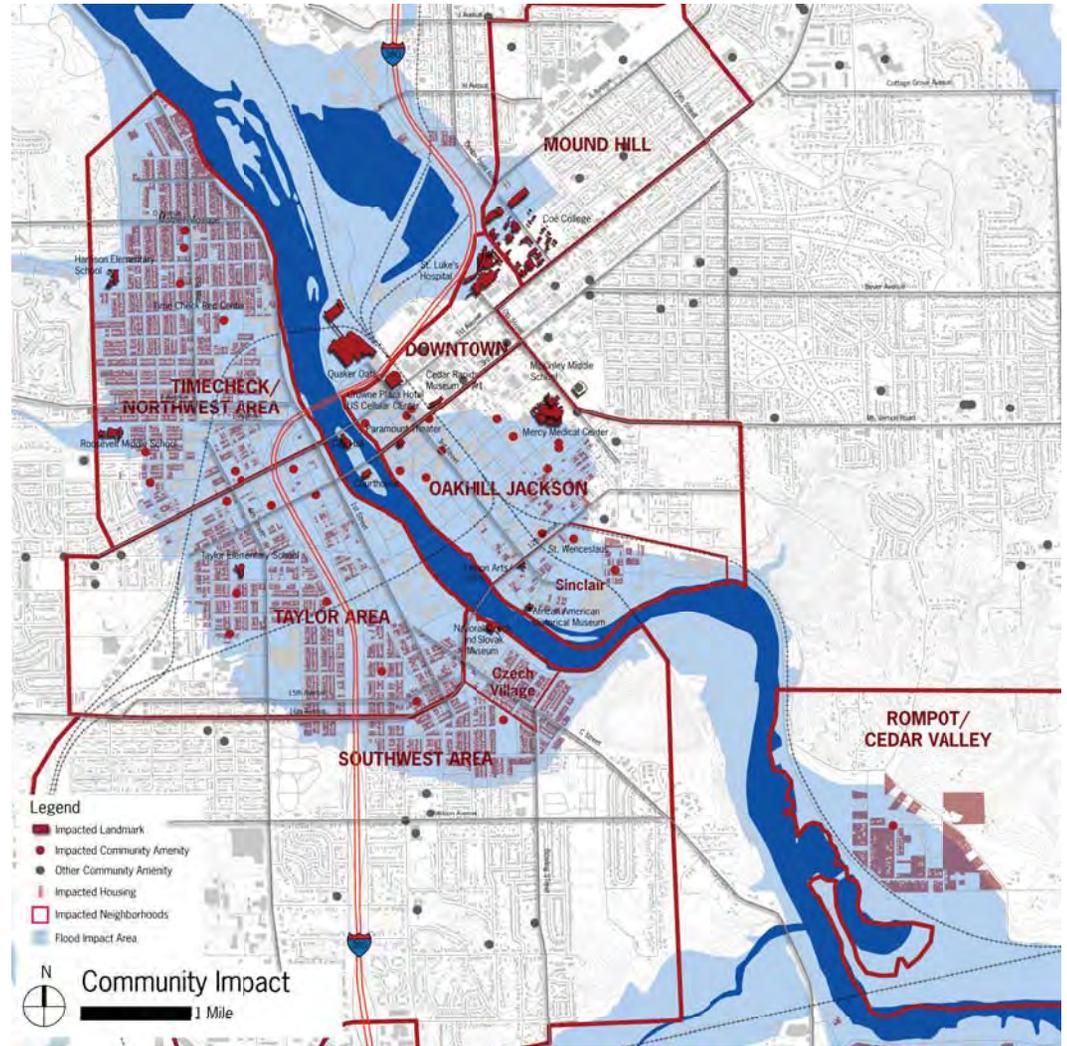


At least 150 homes in Oakhill Jackson were damaged during the flood, as well as the landmark Paramount Theater, shown above. The Mercy Medical Center was flooded, and more than 100 patients were evacuated. Community volunteers protected the facility from further damage with sandbags, and the recovery effort has already begun.

## CEDAR VALLEY



A large part of the mostly residential Rompot/Cedar Valley neighborhood was flooded. Some residents moved to nearby campsites to avoid the flooding. Other residents were able to stay with relatives and reported seeing refrigerators floating down the street.



# How many houses were impacted by the flood, and what was the extent of damage?

Many houses in Cedar Rapids were impacted by the flood, but the area adjacent to the river was hit hardest. That area includes Time Check, Czech Village, Oakhill Jackson and Downtown, along with the Taylor Area Neighborhood and the neighbors of the Sinclair factory. The total number of houses surveyed for flood damage was 5,300. Of those, 44 were completely unsafe for reconstruction and need to be demolished. Another 357 were certified as unsafe for re-occupancy and most likely cannot be salvaged. Approximately 3,200 homes were given yellow placards signifying that they may have significant water damage preventing operation of some critical electrical or mechanical systems. The city has recently begun to allow homeowners with these yellow placards to apply for permits to fix those nonstructural systems (for example, water heaters, boilers, electrical wiring, laundry systems, etc.). A remaining 1,145 homes were given a green placard which means that while they may have water damage, they are structurally safe and the mechanical systems were not significantly impaired. It will take time and money to repair these structures and homeowners are faced with many lingering questions such as when they can begin repairs or be allowed to investigate their home, if the government will buyout properties, how much assistance those without flood insurance will be given, and whether or not they should just move away and start over (among many others).



## Value of Damaged Homes

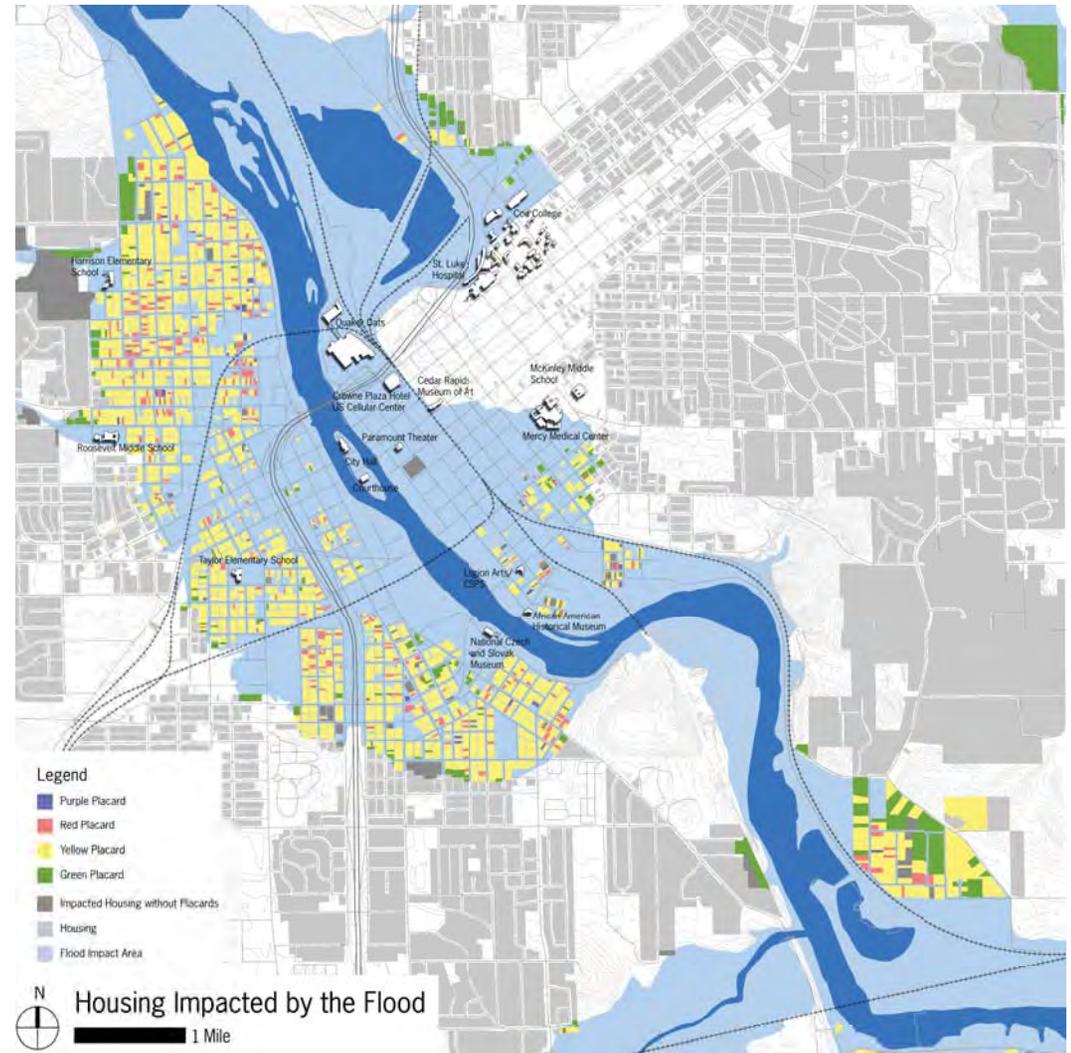
BY LOCATION	Number of Homes	Value
100-year flood plain	1,083 homes	\$88.9 million
500-year flood plain	2,975 homes	\$240.8 million
2008 flood	4,509 homes	\$367.5 million

BY PLACARD COLOR*	Number of Homes	Value
Purple	44 homes	\$2.3 million
Red	357 homes	\$24.1 million
Yellow	3,220 homes	\$239.9 million
Green	1,145 homes	\$151.6 million
<b>TOTAL</b>	<b>4,766 homes</b>	<b>\$417.9 million</b>

## The Placard System

Inspectors from the Code Enforcement Division systematically assessed properties in the damaged areas of the City, assigning each building a colored placard indicating its structural stability. The colored placards quickly communicate a building's safety to property owners and residents.

- PURPLE**  
44 houses (1% of inspected houses)\*  
The building has sustained significant structural damage and needs to be demolished.
  - RED**  
357 houses (7% of inspected houses)\*  
The building has sustained structural damage and is unsafe to enter.
  - YELLOW**  
3,220 houses (68% of inspected houses)\*  
The building has sustained some damage, and there is likely to be water in the building.
  - GREEN**  
1,145 houses (24% of inspected houses)\*  
The building has been inspected and no apparent structural hazards have been found.
  - Impacted housing without placards
  - Housing
  - Flood impact area
- \*as of July 10, 2008



# What was the impact on the institutions and infrastructure of Cedar Rapids?



## ROADS and BRIDGES

All bridges downtown were closed during the height of flooding. I-380 was closed south of the city, as was Highway 30, and both railroad bridges. The Union Pacific railroad bridge was weighed down with trains carrying rocks in an attempt to save the structure. However, the floodwaters and boat houses that floated into the bridge proved too much and it will need significant repairs in the coming months. The CRANDIC bridge was also knocked down, which disrupts an important transportation corridor for the city and will prevent a lot of important industrial and commercial freight.



## WATER

Cedar Rapids' water comes from four wells around the city, three of which were incapacitated by the flood. Well 3, the remaining collector well—producing 25% of the city's total water—was protected by heroic efforts of city water department officials and volunteers who sandbagged and monitored the facility. This action assured that Cedar Rapids still had drinking water, but capacity was down to 25%. On June 22nd, a second well was operational and water processing was up to 75% capacity.



## STORMWATER

The stormwater system was backed up by the heavy rain: runoff could not drain into the overflowed river, sidewalk drains could not take in water, paved areas downtown prevented water from sinking into the ground, and where the ground was not paved, it was completely saturated with water already and could not absorb the additional flow. With the river back below flood stage, the stormwater system is back in operation, but it may need modifications to prevent this situation from occurring in the future.



## INSTITUTIONS

Cedar Rapids' public school central offices were relocated, Taylor Elementary school is closed for the coming school year, and Harrison Elementary was flooded but has been cleaned and will open. Coe College was partially flooded and lost power while Mount Mercy College's campus was not directly impacted by the flood; both housed many flood responders. St. Luke's suffered minor physical damage and temporarily relocated several doctors. Mercy had to evacuate approximately 170 patients and many elderly residents during the height of the flood, and is in the process of rebuilding.



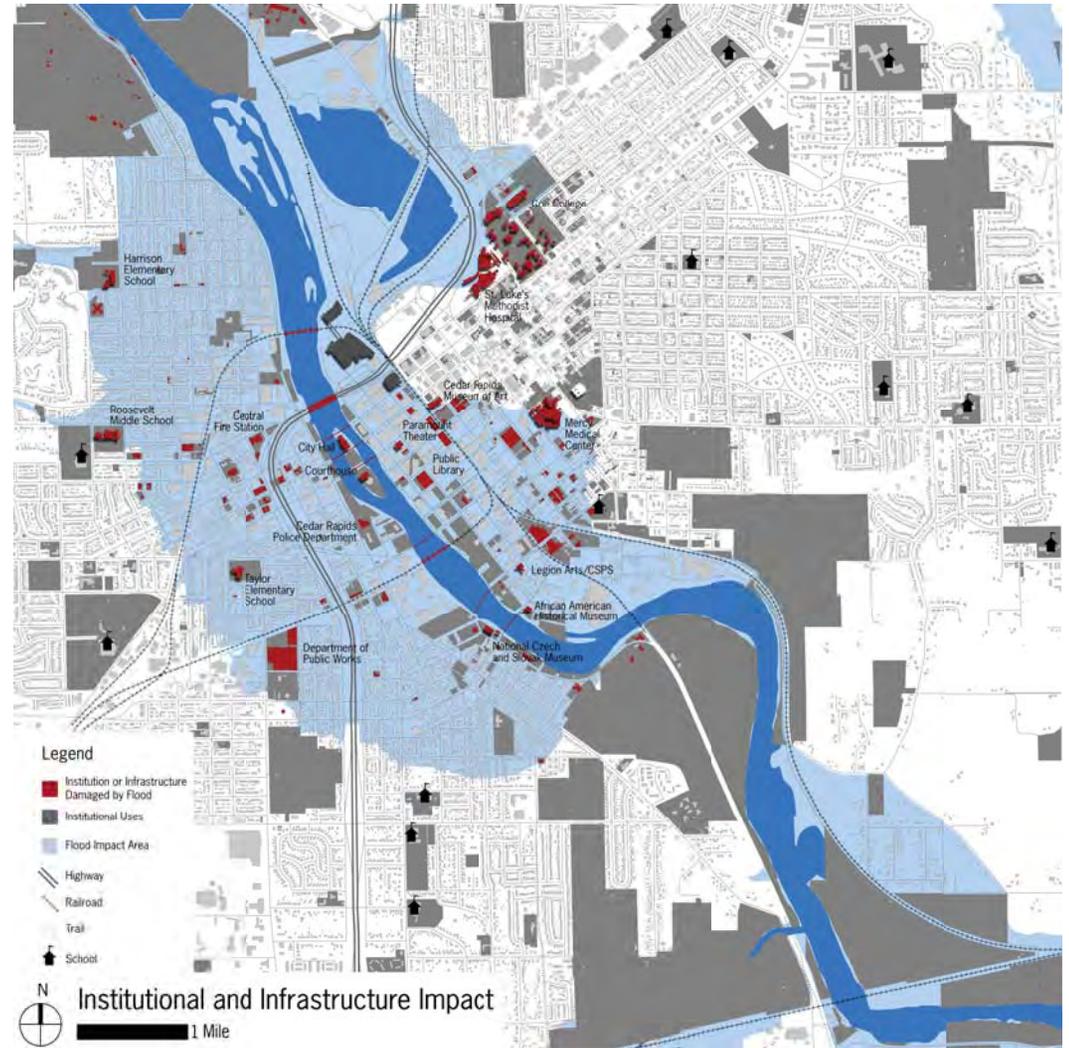
## ELECTRICITY

Two of Cedar Rapids' electricity generating systems were knocked out by the flood. Downtown had no electricity and much of the recovery effort there and in other neighborhoods has been accomplished with the use of diesel-powered generators. Electricity is mostly back online. You must check with Alliant energy before reconnecting your house or building once any repairs are completed. See [www.alliantenergy.com/flood](http://www.alliantenergy.com/flood).



## WASTE TREATMENT

The sewage treatment plant was shut down for a few weeks after the flood. The plant treats nearly 25,000 gallons of sewage from the metropolitan area around Cedar Rapids, and while the plant has been out of order, the waste has been diverted into the river. This is a normal action during extreme floods. The sewage treatment plant was back in partial operation by the third week of July. Repairs will cost between \$5 and 10 million, and are expected to be completed in September.



# What was the impact on the businesses of Cedar Rapids?

## Overview

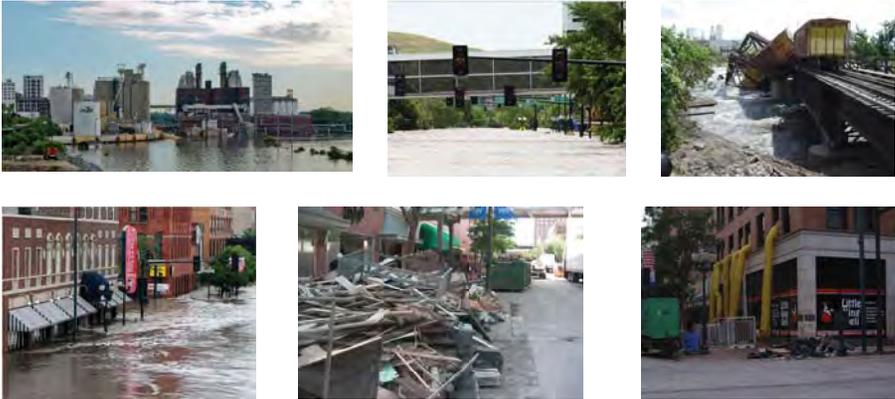
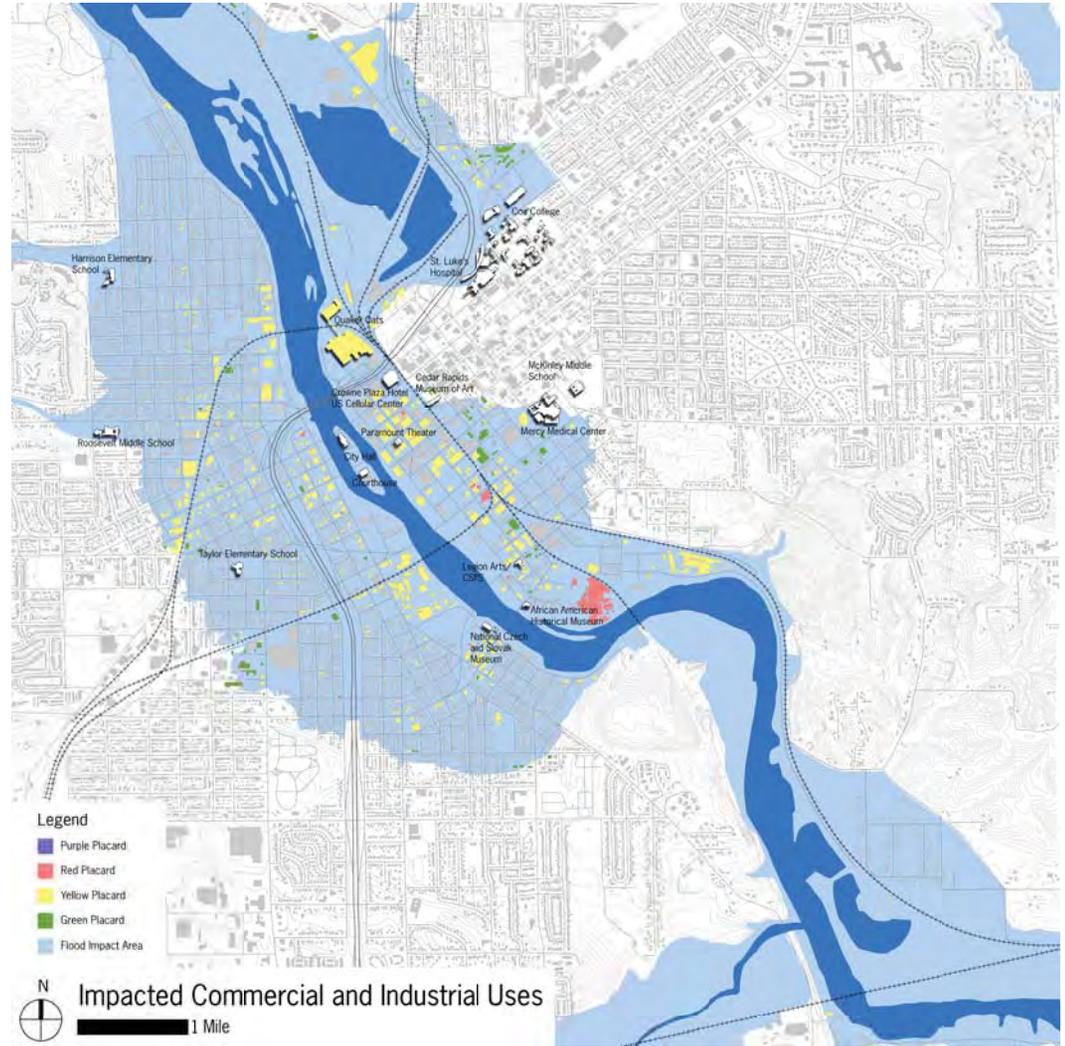
The majority of downtown Cedar Rapids was impacted by the 2008 flood heavily damaging over 300 businesses. Among those businesses were some of the City's largest employers including Quaker Oats, Alliant Energy, St. Luke's Hospital and Mercy Medical Center. Further, Penford and Cargill were heavily impacted as freight connections were disrupted by damaged railroad connections. Statewide, nearly 53% of businesses were in some way affected and 60% had workforce disruptions due to the flood.

## Unemployment

Unemployment rates rose in the weeks following the flood with 7,000 people unemployed in Cedar Rapids as of June 19. Job losses such as these strained the community but the city has thus far been successful at maintaining stability in the face of the disaster. The hospitals have reopened, the Cedar Rapids community schools have temporarily relocated and the Quaker Oats factory has been employing many transitional workers in an effort to clean up the plant after the flood. County employees were temporarily put on vacation or unemployment pay while the county assessed damages and waited for the flood to recede. Further, The city has established a Small Business and Job Recovery fund with the Chamber of Commerce to assist business recovery. The city council is also working to establish a financial counseling fund to assist community members in deciding wisely where to put their money when they start to rebuild, which will be especially useful to smaller businesses.

## Downtown Revitalization

In the weeks and months following the flood the Cedar Rapids business community has showed an impressive display of eagerness to rebuild the downtown and use the event as an opportunity to make the necessary changes to revitalize the downtown and surrounding neighborhoods. The Cedar River Downtown District, a non-profit organization, has been collecting names from businesses that are committed to stay in Cedar Rapids. As of July 22, more than 180 businesses have added their name to the list.



## Open House 1 To receive feedback on how well we have captured the unique characteristics of your community and the impacts it incurred from the floods.

Understanding  
Cedar Rapids

Assessing Flood  
Impacts

Redevelopment Options  
and Framework Evaluation

### Station 2

To describe the major impacts of the 2008 flood and receive feedback on any additional impacts and their relevance before developing strategies to recover.

### Feedback Questions

- How do you feel about how the city has managed flooding in the past? How would you like management to change in the future?
- Did we capture the major impacts of the 2008 floods? Is there anything we are missing?
- How was your community impacted by the flood?
- Are there impacts to infrastructure and institutions that we are missing? Can you tell us about them?
- Which affected services and institutions are still closed or only partially open? Which ones have reopened?
- As we reinvest in our civic services how should we improve on what was there?



# What are the Revitalization and Reinvestment principles that we will follow in developing the recovery plan?



## Retain Local Identity

Protect the elements that contribute a sense of place that is unique to Cedar Rapids. History, public art and culture, landmarks, building height and scale, and architectural heritage form the foundation of the Cedar Rapids Reinvestment Plan.



## Connect People and Places

Enhance the connections between the Downtown and the neighborhoods by creating a network of pedestrian friendly streets, transit routes, and trails that encourage intra-neighborhood connections as well as access to downtown and the riverfront.



## Reinvigorate the Downtown Core

Realize the full potential of downtown by increasing housing, retaining and attracting businesses, strengthening existing institutions, and enhancing pedestrian friendly places.

Reinforce the role of downtown as an economic catalyst for the region.



## Create Distinctive Urban Parks and Civic Spaces

Create places for the community to come together at both the neighborhood and city scale.

Design a network of parks and plazas that Strengthen the neighborhood identity and attract a variety of users to the riverfront.



## Strengthen Neighborhoods

Strengthen each neighborhood with its own identity and as a part of the whole city core. Improve the quality of each neighborhood and make a connection to the downtown and the riverfront.

Enhance neighborhoods as desirable places to live close to downtown yet retain their unique character by providing a range of housing types, schools, parks, local retail, and community centers unique to each neighborhood.



## Develop a Sustainable Community

Improve quality of life by promoting sustainable redevelopment that incorporates environmental, economic and social issues.

Keep environmental impact low, promote social progress and increase economic vitality.



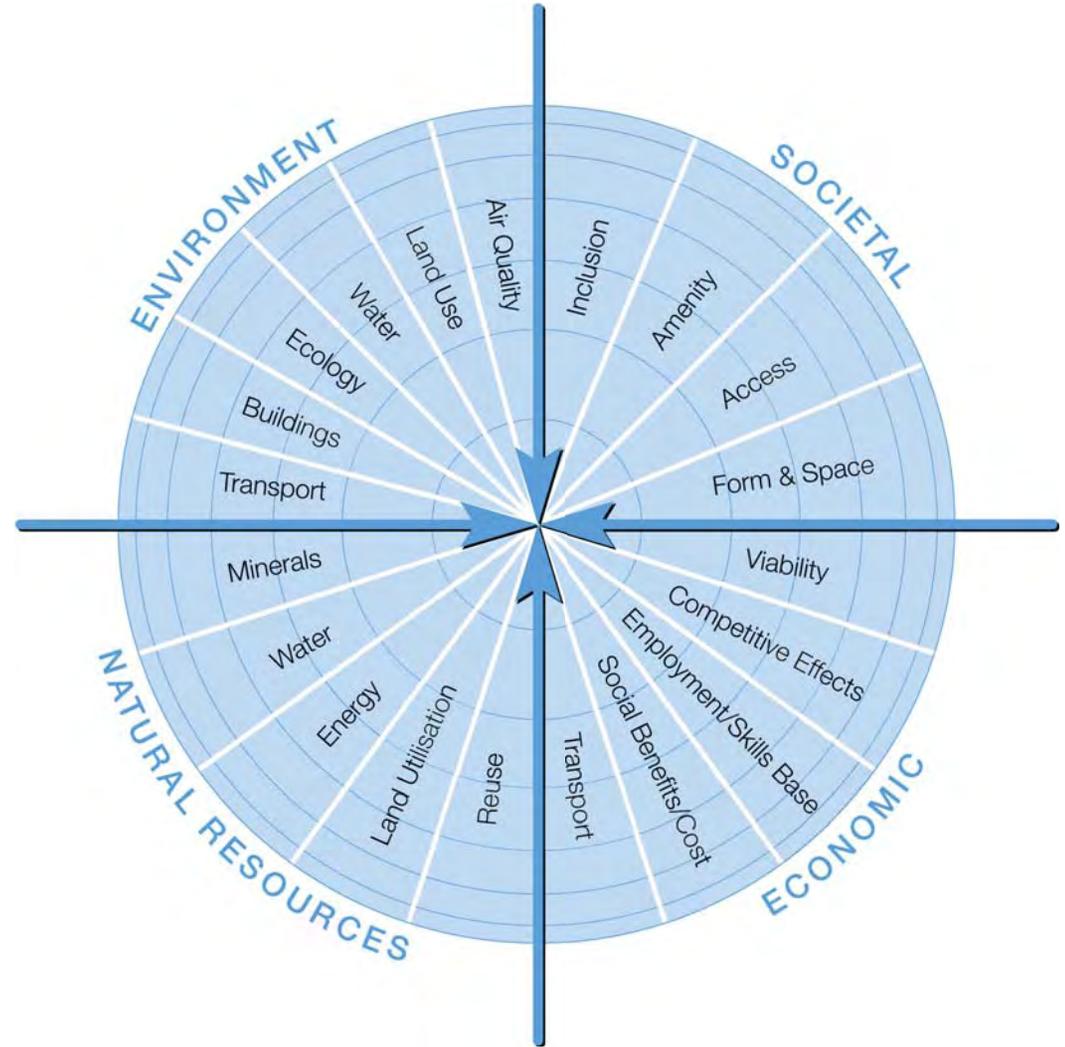
# Why is sustainability important to Cedar Rapid's redevelopment process?

Taking a sustainable approach to master planning allows us to understand both the immediate and the long term performance of the redevelopment plan.

The many factors that go into a sustainable master plan can be organized around the following set of themes:

- Effective protection of the natural **environment**
- Prudent use of **natural resources**
- **Social progress** that recognizes the needs of everyone
- Maintenance of high and stable levels of **economic growth** and employment

Each of these themes can be measured on a variety of scales, and should be kept in balance as we move forward in the redevelopment process.



# Why do floods happen?

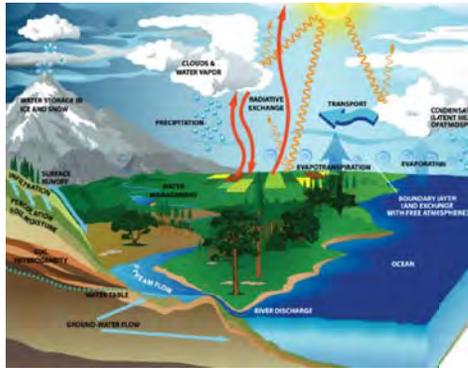


Image source: US Global Change Research Program

- ↑ PRECIPITATION
- ↓ INFILTRATION
- ↓ Evaporation
- ↓ Evapotranspiration (by plants)
- ↓ Water storage in ice and snow
- ↓ Atmospheric storage
- ↓ Streamflow
- ↑ Soil moisture

## Topography

Water flows downhill, so the shape of the land strongly controls both the direction and rate of water flow. The steeper the slopes, the faster the water moves downhill. Flat areas at the bottom of hillsides receive water from uplands and are more prone to inundation. Steep slopes can flood as well, however these waters quickly move downhill scouring the landscape along their path.

## Storage Capacity of the Land

The landscape can function as a large sponge, storing water and delaying runoff into waterways. Water is stored in the atmosphere (as clouds and water vapor), in plants and soil, in our wetlands, lakes, rivers and in underground aquifers. A change—whether man made or natural—to the storage capacity of the landscape can influence how much and how quickly water moves off the landscape and into waterways (rivers, lakes and oceans).

## Impact of Development

As we develop our landscape by building homes, roads and cultivated areas, we change the capacity of soils to infiltrate water. Parking lots, roads and roofs are called impervious surfaces because they do not let any water infiltrate down to the soil below. Even lawns, a natural land cover, are no match for the infiltration rate of the prairies that once covered much of Midwest. Development also moves water into pipes constricting the volume and rate of water flow more tightly than natural streams. Further, as we develop we often flatten landscapes to alleviate construction costs, this changes the direction and rate of water flow as well. Over time landscapes that once retained much of their water are flooding more frequently due to increased development. In fact, globally the rate of flooding has increased tenfold over the last century.

## Why does Cedar Rapids flood?



### WATERSHED

Cedar Rapids' location within the watershed increases the probability of flooding. Foremost, the City lies at the very bottom of the watershed, receiving upland waters from the entire watershed. Secondly, the river corridor through the City is quite narrow, leaving little room as water levels rise.



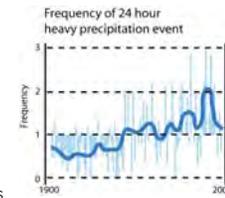
### LAND USE

Traditionally, precipitation events were retained by the thousands of acres of prairie lands whose deep roots quickly infiltrated rainfall. As Iowa developed, prairies and their underlying productive soils were converted into agricultural lands and oak forests were logged or developed as residential neighborhoods. The capacity of the watershed to retain water has decreased significantly and the water that once slowed flowed over the City can now rush in with little warning time.



### TOPOGRAPHY

Cedar Rapids is located within a geographic bowl, with gentle slopes on all four sides and a flat topography within the downtown area. As flood waters rise the City fills very quickly across the shallow downtown elevations.



### PRECIPITATION

Analysis of historical observed data (1900-2000) show that 24-hour heavy precipitation events are becoming more frequent in the region. This means that more rain is coming down in shorter spurts, significantly increasing the rate of runoff. These types of storms can cause significant flooding, especially when placed in context with Cedar Rapids' watershed location, topography, and land use changes.

## What is a Floodplain?

A floodplain is flat or nearly flat land adjacent to a stream or river that experiences occasional or periodic flooding. The 100-year flood plain is the area which has a 1% chance of flooding each year. The extent of the floodplain is delineated largely by topographic line according to historical flood data. The Federal Emergency Management Agency regulates and prescribes the 100-year boundary outlines. Since flood frequency is controlled by dynamic forces, including changes in precipitation frequencies and the land's water holding capacity the actual natural extent of the 100 year flood plain is continuously shifting.



# What are the basic types of flood management strategies?



## Increase Conveyance

Increase conveyance of river and streams



### Options for increasing conveyance

**Earthen Levees** - Compacted earthen structure erected between the river and protected properties.

**Floodwalls** - Engineered barrier erected between the river and protected properties.

**Channel Modifications** - Making a river wider, deeper, smoother or straighter.

**Raise Bridges** - Elevate bridges above the flood level. Bridge remains open and does not block floodwater.

**Diversion Channel** - A new channel that allows floodwaters to by-pass the city.



## Decrease Runoff

Reduce water runoff to water channels



### Options for Decreasing Runoff

#### Stormwater Management

- Planning and zoning
- Open space preservation
- Floodplain Management / Community Rating System (CRS)
- Public Information Activities
- Mapping and Regulatory Activities
- Flood Damage Reduction Activities
- Flood Preparedness Activities

#### Watershed Management

- Retention / Detention Regulations
- Best Management Practices
- Erosion and sediment controls
- Wetlands Protection
- Reservoirs - Control flooding by holding flows behind dams or in storage basins



## Minimize Damage

Decrease level of damage on city's infrastructure



### Options for Decreasing Damage

**Elevation** - Raise existing structures above the flood level.

**Relocation** - Relocate existing structures outside the identified floodplain.

**Floodwarning Systems & Evacuation** - Provide adequate time for residents leave before flooding.

**Dry Floodproofing** - Sealing a building to ensure that floodwaters cannot get inside.

**Wet Floodproofing** - Let water in, but modify utilities, structure components, and contents to be flood and water resistant.

**Acquisition** - Purchase buildings in hazard prone areas to ensure they will no longer be subject to damage.



# What types of housing are appropriate as we redevelop?

## The City is working to:

- Identify the specific workforce housing needs of those who have been displaced, including the quantity and type of housing,
- Identify tools that help developers construct housing at a cost that is affordable to those impacted by the flood.
- Identify locations for in-fill housing near impacted neighborhoods but outside the previously flooded area.
- Prepare options in these areas in the near future, with construction this calendar year, and occupancy in 2009.
- Work with the Affordable Housing Network, which will provide quality control on all affordable housing plans and implementation.

Single Family	Duplex	Townhomes	Multifamily	Mixed Use
---------------	--------	-----------	-------------	-----------



**Density:** 7.5 - 10 units per acre  
**No. of Units:** 1  
**Levels:** 2-3  
**Parking:** 2 cars per unit / surface



**Density:** 8-12 units per acre  
**No. of Units:** 2  
**Levels:** 2-3  
**Parking:** 2 cars per unit / surface



**Density:** 14-18 units per acre  
**No. of Units:** 1  
**Levels:** 2-3  
**Parking:** 2 cars per unit / surface



**Density:** 43 units per acre  
**No. of Units:** 32  
**Levels:** 4  
**Parking:** 1 cars per unit / decked



**Density:** 37 units per acre  
**Commercial:** 33 000 sf  
**No. of Units:** 33  
**Levels:** 4  
**Parking:** 1 cars per unit (resid.)  
 3 cars / 1000 sf (retail)  
 surface + decked



## Open House 1 To receive feedback on how well we have captured the unique characteristics of your community and the impacts it incurred from the floods.

---

Understanding  
Cedar Rapids

Assessing Flood  
Impacts

Redevelopment Options  
and Framework Evaluation

### Station 3

To describe the revitalization and reinvestment principles that we will incorporate into the framework plan and preview a few redevelopment options we are beginning to explore.

### Feedback Questions

- Do you have any expectations for the type of flood management options you would like to see in Cedar Rapids? If so, what are they?
- What are different housing types that could fit into Cedar Rapids? Do any appeal to you? Are there additional housing types that you would like to see up there?





# River Corridor Redevelopment Plan

OPEN HOUSE

## Welcome!

***The purpose of this Open House is:***  
to receive feedback on flood management options, evaluation  
criteria, and examples of other plan elements.

### Schedule for Open House No. 2

Thursday, September 11

10 a.m. to 2 p.m.  
and 4 p.m. to 8 p.m.

Grand Ballroom  
at the Crowne Plaza Five Seasons Hotel  
350 First Avenue NE



# River Corridor Redevelopment Plan

OPEN HOUSE

## River Corridor Redevelopment Plan Chronology

- 2007** – State Economic Development Director Mike Tramontina notes Iowa communities have trouble retaining and attracting young workers and need to upgrade housing, recreation, and quality-of-life amenities if they want to retain college graduates and compete with other Midwestern cities for young professionals.
- 2007** – City Council, with the assistance of the Long Term Planning Commission, develops a shared City Vision Statement.
- Summer 2007** – City Council approves a Downtown Vision Framework Plan developed through a planning and open house process with JLG Architects. The plan's purpose is to assure a vibrant signature downtown to make Cedar Rapids more competitive with other Midwestern communities at retaining and attracting employees and residents.
- June 2008** – Following completion of a Downtown Area Plan in 2007, the City hires planning consultant Sasaki Associates, Inc., to complete a Riverfront Master Plan.
- Week of June 11-13** – Flood impacts more than 5,000 homes; thousands of residents, countless businesses; City, County, School and non-profit facilities, roads and bridges.
- June 17, 2008** – The City Council expands Sasaki/JLG scope of work to include the expanded flood impacted area, and directs them to provide a plan for reinvestment in river corridor neighborhoods including replacement of workforce housing, measures to enhance flood protection, and neighborhood and development options.
- June 2008** – Stanley Consultants hired to coordinate with Army Corps of Engineers development of flood control options for the City.
- July 2008** – City and Affordable Housing Network work to identify specific workforce housing needs for displaced families, locations for in-fill housing near impacted neighborhoods outside the previously flooded area, as well as tools to help construct housing at a cost that is affordable to those impacted by the flood. Ongoing – City works with State and Federal elected officials and agencies on funding for housing needs, flood control and reinvestment and rebuilding.
- July 29, 2008** – City holds the first set of three open houses for the River Corridor Redevelopment Plan to receive feedback from residents.



# River Corridor Redevelopment Plan

OPEN HOUSE

## The City's Challenge and Vision

*On June 11-13, the City experienced a tragic flood of historic magnitude. That flood caused significant damage to neighborhoods, including more than 5,000 homes, impacting thousands of residents and many businesses.*

### **Our Challenge is to:**

- Continue to ensure people are safe;
- Provide improved flood protection;
- Restore affordable workforce housing;
- Ensure vibrant neighborhoods;
- Restore business and downtown vitality, retaining and attracting jobs, and attracting the next generation workforce; and,
- Restore community vitality.

### **Our Vision**

Cedar Rapids must not only recover from the flood and be better, but greater. We must move towards our vision - ***“Cedar Rapids, a vibrant urban hometown – a beacon for people and businesses invested in building a greater community for the next generation.”***



# River Corridor Redevelopment Plan

OPEN HOUSE

## River Corridor Redevelopment Plan

*On June 17, just days after the Cedar River flooded, the City Council expanded the scope of planning work for the Sasaki/JLG consultant team from a downtown and riverfront plan to planning for reinvestment in flood impacted areas.*

### **The planning process will answer these questions:**

1. What are the flood protection/mitigation options and what impact do they have on the City?
2. What new housing options can be made available for people who will not be able to return to their homes and neighborhoods?
3. What is the long-term framework for business reinvestment and redevelopment of Cedar Rapids?



# **River Corridor Redevelopment Plan**

OPEN HOUSE 

## **River Corridor Redevelopment Plan Goals**

- Rebuild high quality and affordable workforce housing and neighborhoods.
- Improve flood protection to better protect homes and businesses.
- Restore full business vitality.
- Preserve our arts and cultural assets.
- Maintain our historic heritage.
- Assure that we can retain and attract the next generation workforce.
- Help our community become more sustainable.



# **River Corridor Redevelopment Plan**

OPEN HOUSE 

## **Public Participation**

The public's participation in providing feedback at open houses is critical to the development of a successful final framework for reinvestment in the Cedar River corridor.

### **This process includes three Open Houses:**

#### **Open House No. 1, July 29**

Identifying and Reviewing Issues and Concerns

#### **Open House No. 2, September 11**

Options to Address Those Issues and Evaluation

#### **Open House No. 3, October 16**

Draft Reinvestment and Revitalization Framework



# River Corridor Redevelopment Plan

OPEN HOUSE

## Open House Options

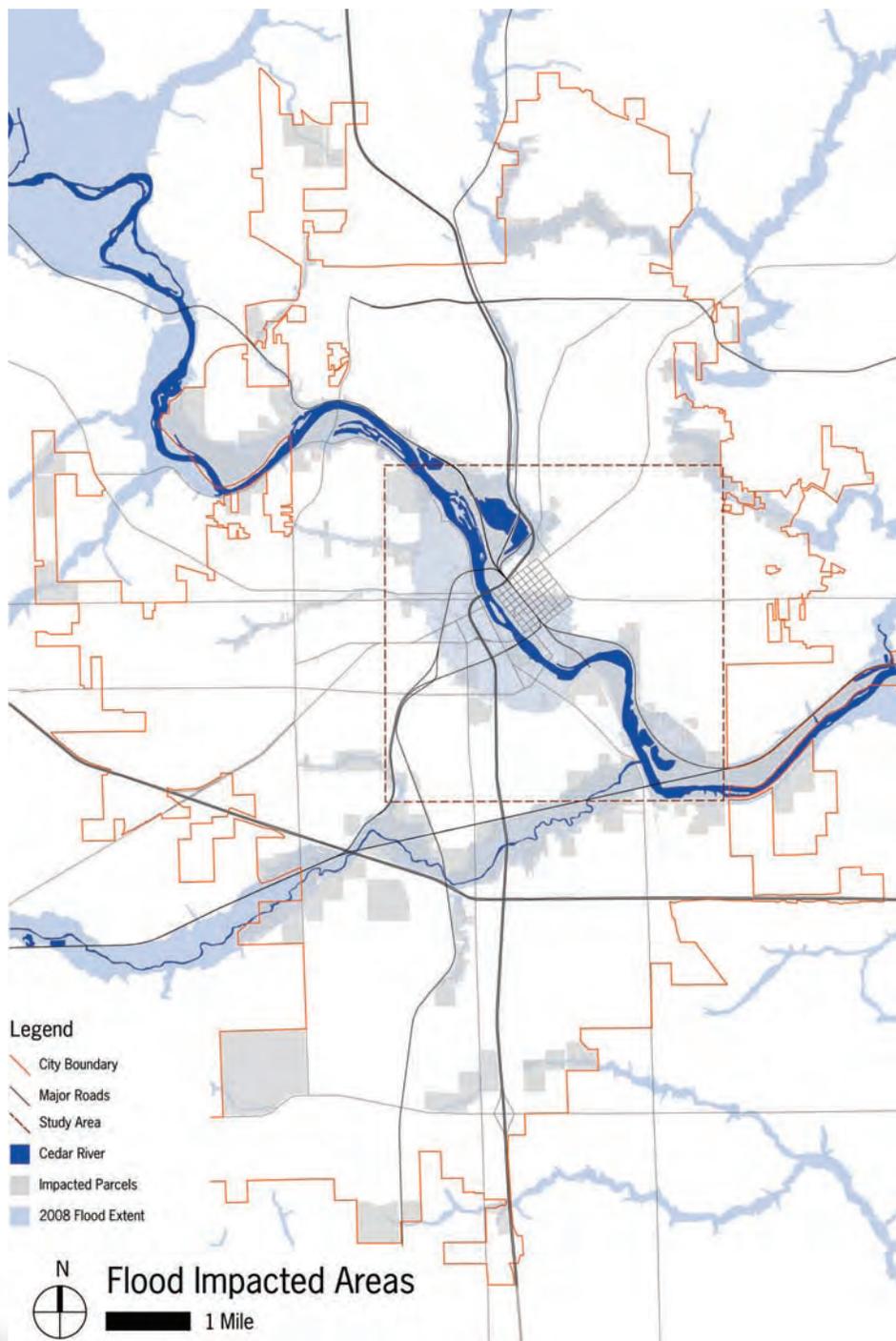
*The emphasis at this open house is on flood management because that is at the core of any planning for the Cedar River corridor. As a result:*

- The largest station is **Flood Management**, with tactics, evaluation criteria, and groups of flood tactics combined for three flood management strategy options.
- Examples of features of other elements have been provided in the areas of:
  1. **Housing and Neighborhoods**
  2. **Transportation**
  3. **Business Reinvestment and Downtown Redevelopment**
  4. **Arts and Culture**
  5. **Open Space and Environment**
  6. **Sustainability**
  7. **Public Buildings and Facilities**

# River Corridor Redevelopment Plan

OPEN HOUSE

## Flood Map



## How Does a City Develop a Flood Management Strategy?

- Flood management decisions are critical because they will drive what we do with all the other elements and features of the plan.
- Cedar Rapids flood management will be complex and not involve one method, but a combination of tactics, to achieve an effective flood management strategy.
- There have been 22 flood management tactics studied, ranging from ways of storing excess water, moving water more quickly through Cedar Rapids, and diverting it around the City.
- Like ingredients in a recipe, a group of these tactics will be combined to achieve the most effective Cedar Rapids Flood Management Strategy.
- The City's flood management strategy will take into account the effectiveness, affordability, timing, costs of tactics and types of protection they provide when grouping them into a strategy that will be comprehensive and reduce risks.

## Flood Management Criteria

***Flood management tactics were evaluated to determine if they were suitable and effective for Cedar Rapids based on the following criteria:***

### **Flood Reduction**

Measured by the percentage of how it would have reduced the 2008 flood level as a stand-alone tactic.

### **Cost**

Estimates include short-term and long-term costs to acquire property, develop, and install this tactic.

### **Installation Time**

Installation ranging from one to two years to more than 50 years depending on complexity, location(s), and land acquisition.

### **Approval Time**

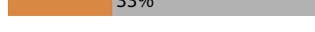
Additional time needed for governmental approvals and permits.

### **Other Impacts**

Other impacts that would result if this tactic were used in the way in which it is described.

# Flood Management Evaluation: Most Effective Tactics

Twenty-two flood management tactics were evaluated. Below are the **11 most effective tactics** at reducing the 2008 flood level, in order of effectiveness.

Tactic	Flood Reduction	Costs	Install Time	Approval Time	Other Impacts
<b>1. Dry reservoir upstream</b> Size: 520,000 acres, 1 ft. of water deep	 98%	\$600–650M	50 years	3–5 years	Effective, but negatively impacts six towns, roads, bridges, and Duane Arnold Power Plant
<b>2. Flood protection at river's edge</b> Floodwalls / levees 10-18 ft. high depending on location	 98%	\$250–275M	10–15 years	1–3 years	Effective, but visually and physically separates the City from the river
<b>3. Flood protection offset from river</b> Floodwalls / levees 5-18 ft. high depending on location	 98%	\$175–200M	10–15 years	1–3 years	Effective, but severs connection to the river and requires extensive property acquisition
<b>4. Diversion channel around Cedar Rapids (East)</b> A 15-mile 330 ft. wide x 20 ft. deep concrete channel along east route	 98%	\$6B	20–30 years	3–5 years	Effective, expensive, and aesthetic issues
<b>5. Diversion channel around Cedar Rapids (West)</b> 11-mile 330 ft. wide x 20 ft. deep concrete channel along west route	 66%	\$4.2B	20–30 years	3–5 years	Effective, expensive, and aesthetic issues
<b>6. Multiple reservoirs upstream</b> Size: Total 520,000 acres, 1 ft. of water deep	 33%	\$900–950M	40–50 years	3–5 years	Effective, but negatively impacts upstream communities
<b>7. Widen Cedar River channel cross section</b> Size: 700 ft. wide	 20%	\$290–320M	10–20 years	3–5 years	Impacts to adjoining property
<b>8. Diversion channel through Cedar Rapids</b> 100 ft. wide by 20 ft. deep concrete channel	 18%	\$1.4B	10–15 years	1–3 years	Aesthetic issues and impacts to adjoining property
<b>9. Construct lift bridge spans</b>	 10%	\$110–120M	10–20 years	< 1 year	Bridges would not be operational during flood event
<b>10. Add tunnel through Cedar River corridor</b> Four 20 ft. diameter tunnels	 5%	\$6.6B	10–15 years	1–3 years	Temporary as being built
<b>11. Increase channel capacity</b> By removing “pinch points” on either side of corridor	 5%	\$35–45M	10–15 years	1–3 years	Impacts to adjoining property



# Flood Management Evaluation: Least Effective Tactics

Twenty-two flood management tactics were evaluated. Below are the **11 least effective tactics** at reducing the 2008 flood level, in order of effectiveness.

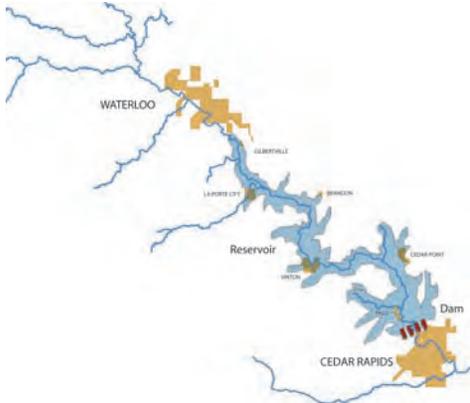
Tactic	Flood Reduction	Costs	Install Time	Approval Time	Other Impacts
<b>12. Remove island</b> Upstream of Interstate 380	5%	\$40-50M	10-15 years	3-5 years	Unknown
<b>13. Dredge Cedar River</b> Increase channel capacity through Cedar Rapids	5%	\$90-100M	10-20 years	1-3 years	Continual operation and maintenance by City
<b>14. Raise all bridges and approaches</b> Provide 3 ft. freeboard above flood of record	4%	\$100-110M	10-20 years	< 1 year	Impacts to adjoining infrastructure. Bridges would be operational during flood events
<b>15. Replace Five-in-One Dam with a rubber dam</b>	3%	\$10-20M	5-10 years	1-3 years	Removal of hydro-electric plant and impacts to adjoining infrastructure
<b>16. Elevate select bridges</b> Above 2008 flood crest	3%	\$60-70M	5-10 years	< 1 year	Impacts to adjoining infrastructure
<b>17. Remove Mays Island</b> Including demolition of buildings	2%	\$175-200M	10-15 years	1-3 years	Removal of City Hall, County Jail, County Courthouse
<b>18. Flood storage at Cedar Lake</b>	1%	\$40-50M	10-20 years	1-3 years	Impacts to two railroads and industrial neighbors without significant flood reduction
<b>19. Elevate railroad bridge</b> 3 ft. above 2008 flood crest	0%	\$5-10M	10-20 years	< 1 year	Impacts to adjoining infrastructure without significant flood reduction
<b>20. Flood storage at Jones Golf Course</b>	0%	NA	10-15 years	1-3 years	Loss of public amenity without significant flood reduction
<b>21. Flood storage at Chain Lake Wildlife Area</b>	0%	NA	10-15 years	1-3 years	Loss of public amenity without significant flood reduction
<b>22. Flood protection around Cedar Valley Neighborhood</b> Construct floodwalls / levees	0%	\$20-25M	10-15 years	< 1 year	Effective at protecting the neighborhood, but does not improve overall flood crest



# Flood Management - Why No One Tactic Will Work

**Four important and popular tactics that can be very useful in a flood management strategy have serious flaws if relied on as a City's stand-alone safeguard when floods threaten.**

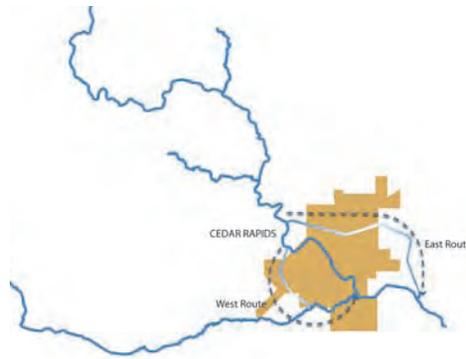
## Upstream Reservoir



**A single reservoir designed to handle the 2008 flood:**

- Effective, but negatively impacts six towns, roads, bridges, and Duane Arnold Power Plant
- Requires 50 years to plan, permit and build

## Diversion Channel



**A single diversion channel designed to handle the 2008 flood:**

- Requires a 15-mile concrete lined channel
- Requires 20 to 30 years to plan, permit and build

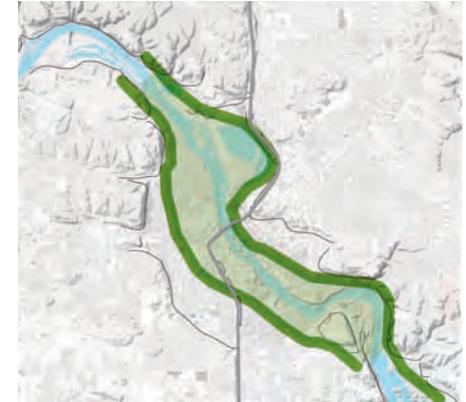
## Flood Protection at River's Edge



**A continuous floodwall or levee at the river's edge designed to handle the 2008 flood:**

- Requires a 12-18 foot high wall, depending on location
- Would visually and physically disconnect the City from the Cedar River

## Flood Protection Offset from River



**A continuous floodwall or levee offset from the river designed to handle the 2008 flood:**

- Requires a 5-10 foot wall, depending on location
- Requires extensive property acquisition

**Instead of using one of these tactics alone, the City has put together for public feedback three examples of Strategy Options containing multiple tactics, sized to be practical and meet community needs.**

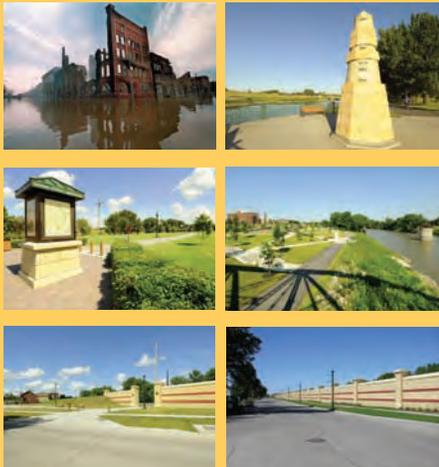


# Flood Management Strategy Options

## Combined Tactics

### Grand Forks Flood Management Strategy

\$400 million flood management includes multiple tactics : diversion channel, levee/ floodwall system, and greenway



- In 1997, the Red River crested at 54.35 feet overtopping existing levees
- Flood protection project is planned to handle 500 year flood
- Diversion channel is 9.5 miles long around the west side of the city
- Levee/floodwall system is 8 miles long
- Levees are designed to carry 3' of clay during flood event
- Floodwalls are built to be 3 feet of taller than the levees
- Greenway is 20 miles long and covers 2,200 acres
- Internal city drainage is pumped over the levee/floodwall by 12 pumping station

What follows are three examples of options for a Cedar Rapids Flood Management Strategy, each combining various tactics that take into consideration their effectiveness, cost, time frame, and impacts.

### Strategy 1 - Upstream Measures and Floodwalls at the River's Edge

### Strategy 2 - Upstream Measures, Floodwalls, and Levees at the River's Edge

### Strategy 3 - Upstream Measures, Floodwalls, and a Levee Offset from the River's Edge

All three strategies provide the same level of protection and include the same upstream measures. Upstream measures include additional storage such as small reservoirs and wetlands as well as non-structural tactics. These measures help lessen the height and visual impact of floodwalls and levees.



# Flood Management Strategy Options

## Strategy 1: Upstream Measures and Floodwalls at the River's Edge

### Description

**Floodwalls** are constructed at the river's edge with strategic openings.

- Openings are either parklands at the end of key streets or sections of removable wall along main commercial districts (i.e. Downtown).
- Selective bridges are elevated or removed.
- Upstream measures and storage will reduce physical impact of wall.

**Size :** 100 acres of land

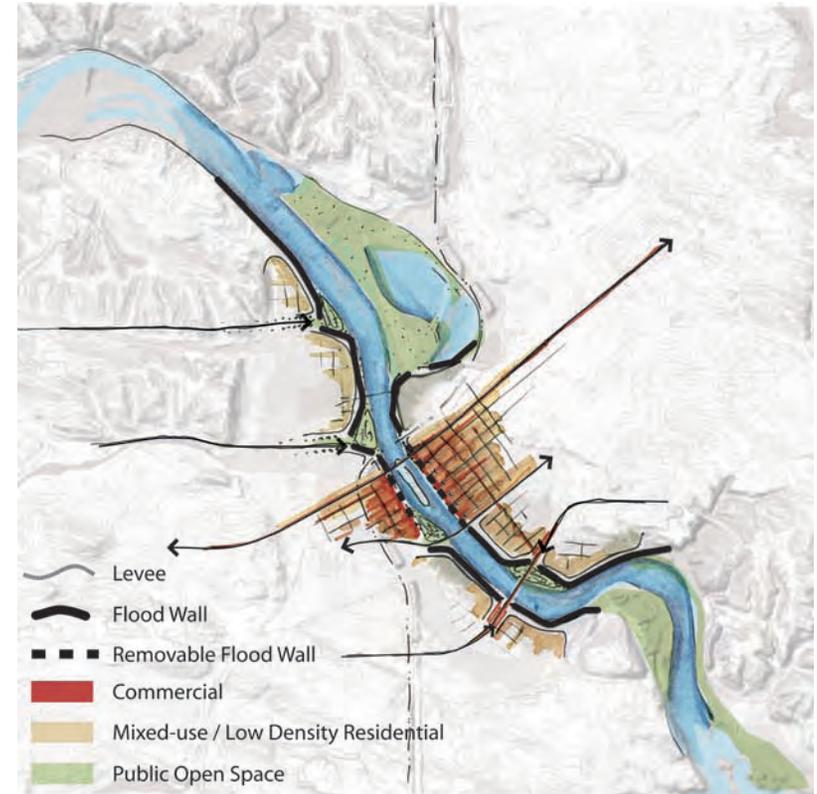
**Probable Total Cost:** \$600 Million to \$900 Million

### **Pros**

- Most cost effective strategy
- Most timely strategy
- Preserves existing neighborhoods

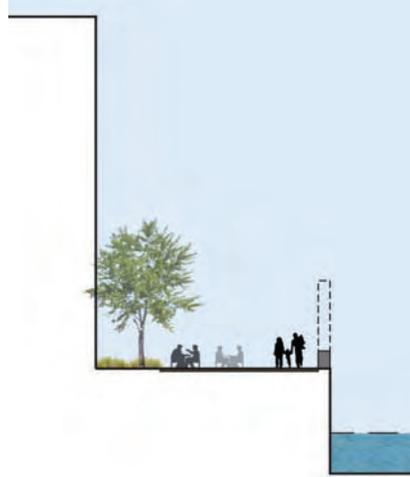
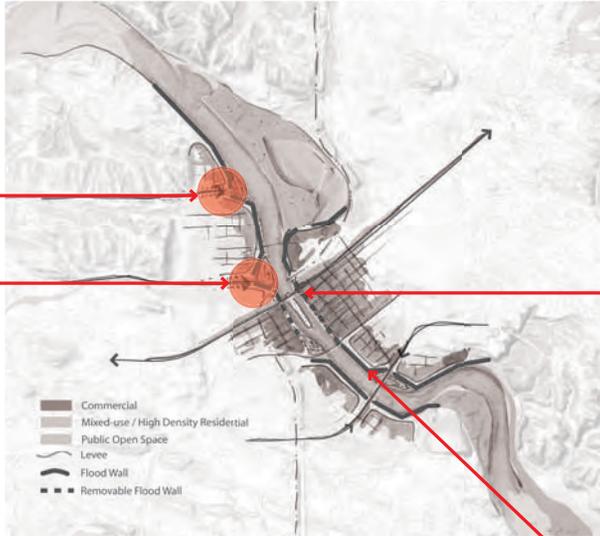
### **Cons**

- The community and the river are visually disconnected

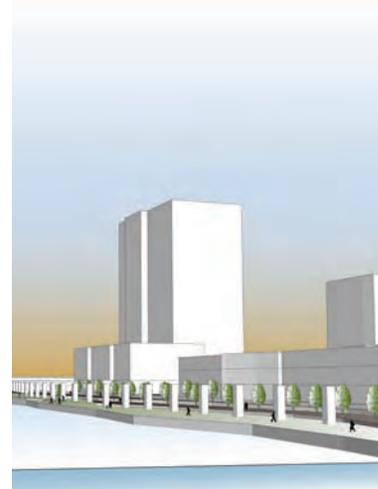


# Flood Management Strategy Options

## Strategy 1: Upstream Measures and Floodwalls at the River's Edge



Removable Floodwall at Downtown



Removable Floodwall, Grand Forks



Permanent Floodwall, Grand Forks



Sunbury, PA



Wilkes Barre, PA



Park at Wall Opening



Fixed Floodwall at the River's Edge



# Flood Management Strategy Options

## Strategy 2: Upstream Measures and Levees at the River's Edge

### Description

- A **levee** and **parkway** system is developed along the river.
- Removable floodwalls are integrated at the downtown edge while permanent floodwalls line industrial uses.
  - Selective bridges are elevated or removed.
  - Upstream measures and storage will reduce physical impact of levee.

**Size :** 250 acres of land

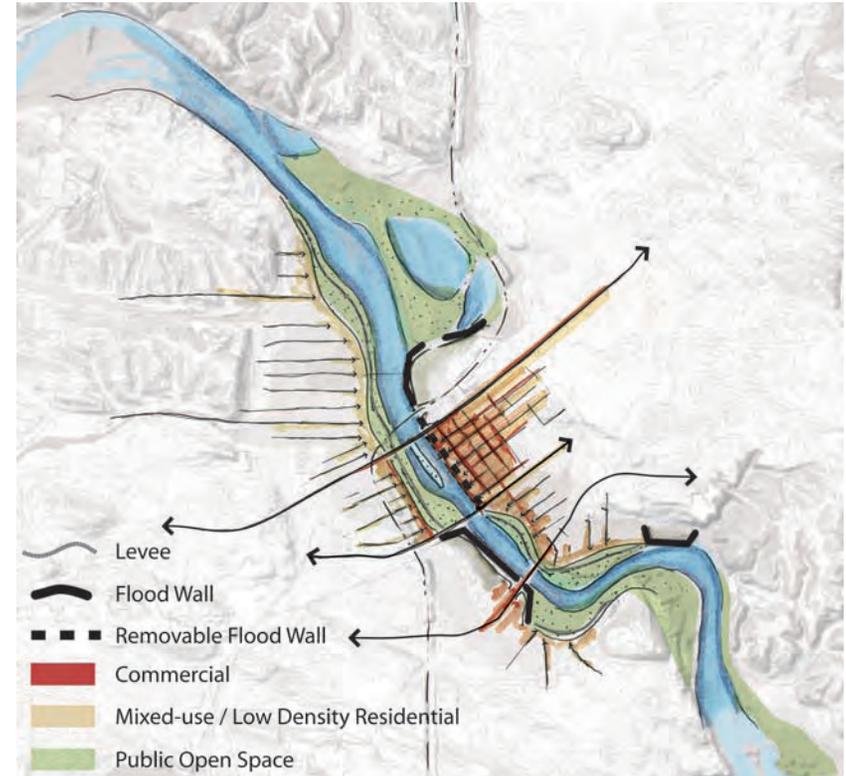
**Probable Total Cost:** \$700 Million to \$1 Billion

### **Pros**

- Moderately cost effective and timely strategy
- A continuous park along the river serves as a new amenity
- Preserves the majority of existing neighborhoods

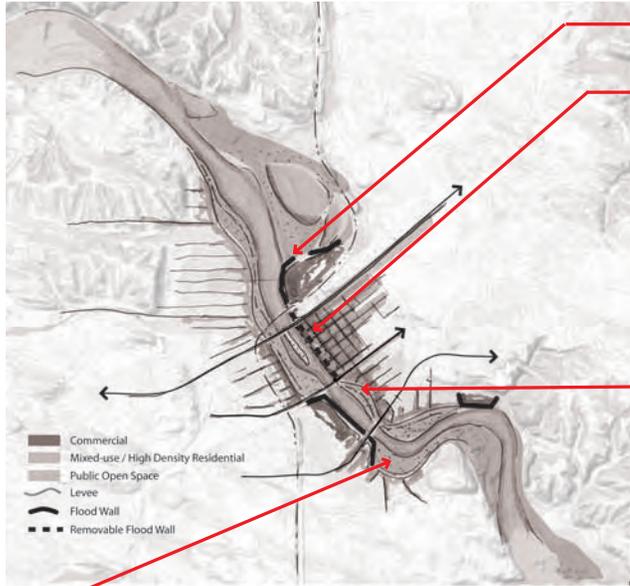
### **Cons**

- The community and the river are visually disconnected
- Requires acquisition of 500-600 feet of land along the river



# Flood Management Strategy Options

## Strategy 2: Upstream Measures and Levees at the River's Edge



Fixed Floodwall at the River's Edge - same as Strategy 1

Removable Floodwall at Downtown - same as Strategy 1



Levee at the River's Edge (Narrow)



Levee at the River's Edge (Wide)



# Flood Management Strategy Options

## Strategy 3: Upstream Measures and a Major Greenway along the River

### Description

Low-lying, floodprone areas are reclaimed as a **naturalized floodplain** with an integrated inland levee.

- Dense new development including housing occurs landside of the levee at the edges of the Greenway.
- Removable floodwalls are integrated at the downtown edge.
- Selective bridges are elevated or removed.
- Upstream measures and storage will reduce physical impact of levee.

**Impacts :** 700 acres of land

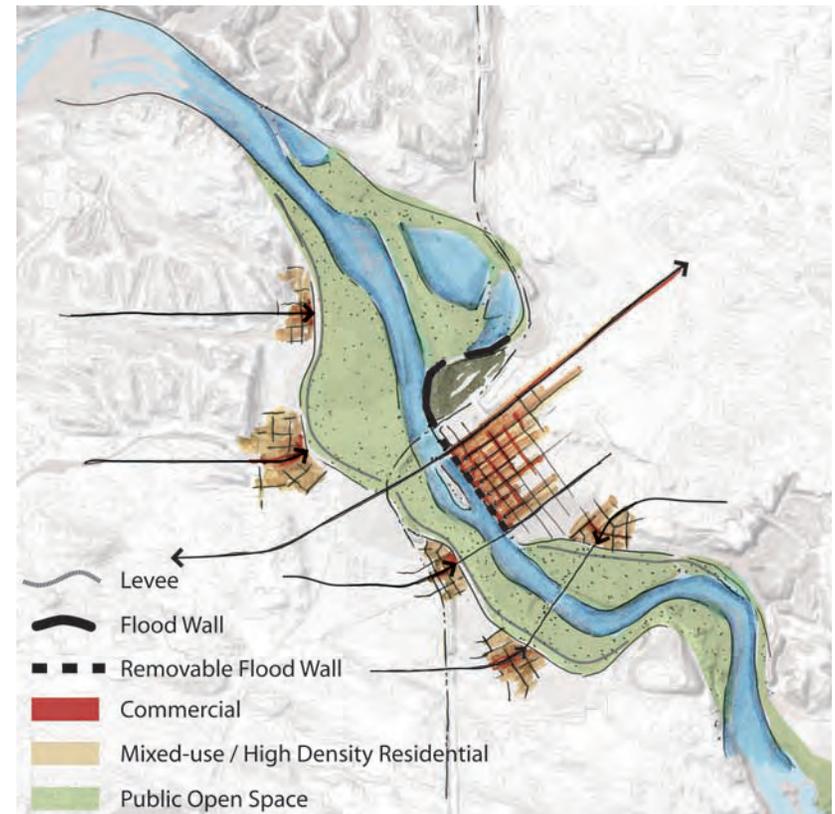
**Probable Total Cost:** \$900 Million - \$1.2 Billion

### **Pros**

- Instead of a vertical wall, a large green space holds flood waters
- The greenway as a great asset and regional amenity

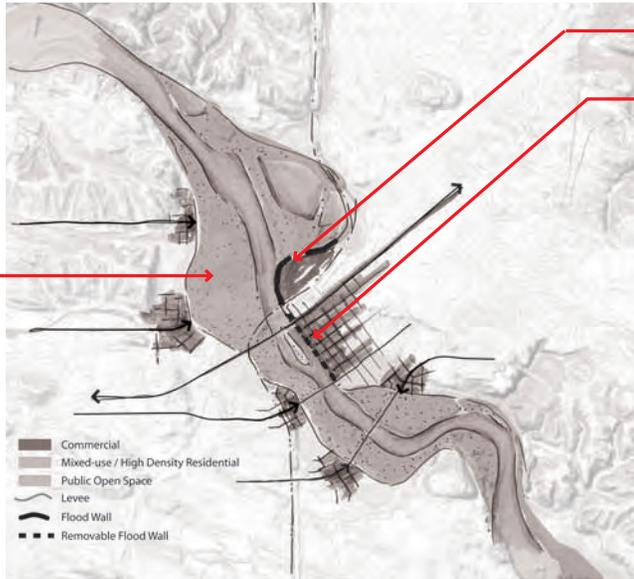
### **Cons**

- Extensive acquisition of land along the river
- Impacts to existing neighborhoods
- Expensive and long time frame



# Flood Management Strategy Options

## Strategy 3: Upstream Measures and a Major Greenway along the River



Fixed Floodwall at the River's Edge - same as Strategy 1

Removable Floodwall at the River's Edge - same as Strategy 1



River Legacy Park, Addison, Texas



Greenway





# River Corridor Redevelopment Plan

OPEN HOUSE

## Housing and Neighborhoods

### *The Need for Affordable Workforce Housing*

*The City is committed to providing suitable replacement housing, ranging from rehabilitation and remodeling to new replacement homes.*

- Before the flood the City was already lacking in affordable housing stock. With the flood, that need has only grown.
- The City is committed to spending \$50 million on affordable housing in neighborhoods, not only to rebuild and restore our community, but to make it better than before.
- The City has lots for in-fill housing to meet the need, which would include:
  - Single-family;
  - Multi-family;
  - Townhomes;
  - Owner-occupied; and
  - Remodel/rehabilitation of existing housing.

### City Housing Goals

- Attainable workforce housing near employment center;
- Neighborhood restoration that incorporates a sense of place, connectivity, and walkability; and,
- Quality, sustainable development practices that provide residents with options for housing, transportation, and recreation.

## **Housing and Neighborhoods Process** *Developing Housing*

### **Community Housing Sources**

- Developers – new housing
- Habitat for Humanity – new housing
- Residents remodeling and rehabilitation, with assistance of other organizations

### **Housing Availability**

The first new housing units will be available by mid-to-early 2009 and residents' needs will drive new housing development.

### **Replacement Housing Task Force**

The City Council appointed a Replacement Housing Task Force to ensure that new housing meets our community needs. Responsibilities are in the areas of:

- Evaluation of the financial gap to meet community housing needs;
- Alignment with the City's goals and vision;
- Addressing the needs of attainable, workforce housing near employment centers;
- Neighborhood restoration – sense of place, connectivity, transit, recreation and walkability;
- Replacement neighborhoods;
- Sustainable development practices; and,
- Range of housing options.

#### **Task Force Members**

James Ernst  
Robert "Ben" Henderson  
Karen Hufnagel  
Frank King  
Larry McGuire  
Emily Meyer  
Lynette Richards

# Housing and Neighborhood Options

## Mixed Use Condominiums and Apartments



Charleston, South Carolina



Emeryville, California

- Neighborhoods with retail/office space
- Retail & office on ground floor
- Walkable & sustainable urban living
- \$250,000 to \$450,000

## Single Family



Bloomington, Indiana



Des Moines, Iowa

- In-fill & new construction
- 800-1200 sq. ft. per unit
- Traditional neighborhood feel
- \$70,000 to \$150,000

## Townhomes and Apartments



Des Moines, Iowa



Columbus, Ohio

- In-fill & new construction
- Duplex, triplex, four-story apartment buildings
- \$90,000 to \$200,000

- Rental units will also be developed, based on the demand. These will include three-bedroom and four-bedroom units.
- New housing units will be developed by early-to-mid 2009. More information will be available in the coming months.
- The City will continue to survey housing needs in the coming months. Development of new housing will be based on residents' needs.



# Housing and Neighborhood Guidelines

## Principles for Sustainable Communities

### New Housing Priorities from public feedback

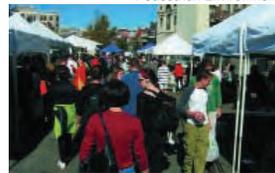
1. Protect housing from future flooding
2. Ensure replacement houses are built quickly and to a high standard of quality
3. Provide affordable housing options
4. Retain character of pre-flood communities
5. Support sustainable neighborhoods where residents can walk to schools, parks and services

### 10 Principles for Livable, Sustainable Communities



Pedestrian Environment

**1. Human Scaled Design**  
Compact and walkable pedestrian environments foster interaction and health



Farmer's Market

**2. Provide Choices**  
Variety of shopping, eating and transit



Rehabilitation of Existing Storefronts

**3. Preserve Urban Centers**  
Use existing infrastructure and avoid sprawl



Millenium Park, Chicago

**4. Create Neighborhood Identity**  
A unique "sense of place" and neighborhood pride



Ladera Ranch, California

**5. Protect Natural Resources**  
Balance nature and development



Reston, Virginia

**6. Vary Transportation Options**  
Walking, biking and public transit



Washington Square, New York City

**7. Build Vibrant Public Spaces**  
Welcoming, well-designed space promotes interaction



Mixed Use, Ground Floor Retail

**8. Promote Mixed-Use Development**  
Diverse land uses makes for vibrant communities



Bay Trail, San Francisco

**9. Conserve Landscapes**  
Open space provides aesthetic and ecological value



Millenium Park, Chicago

**10. Design Matters**  
Design excellence is the foundation of successful communities.

Adapted from the American Institute of Architects (AIA), "How Architects can become Advocates for Livable Communities"

# Transportation Options

The City is committed to providing a safe, accessible, efficient transportation system in the Cedar River Corridor area that focuses on connectivity and is also pedestrian and biker-friendly.

## Transportation Priorities from public feedback

1. Enhance the pedestrian environment within the Downtown core
2. Reduce auto reliance by encouraging multiple transportation options (walking, transit, biking)
3. Support economic activity through efficient freight movement and delivery
4. Maintain and improve cross-river emergency circulation
5. Protect the safety of pedestrians, bikers, and drivers

Needs and Opportunities have been addressed around five categories:

1. Roads + Circulation
2. Freight Rail
3. Public Transit
4. Trails + Sidewalks
5. Downtown Parking

## Roads + Circulation

Establish traffic calming guidelines in downtown core

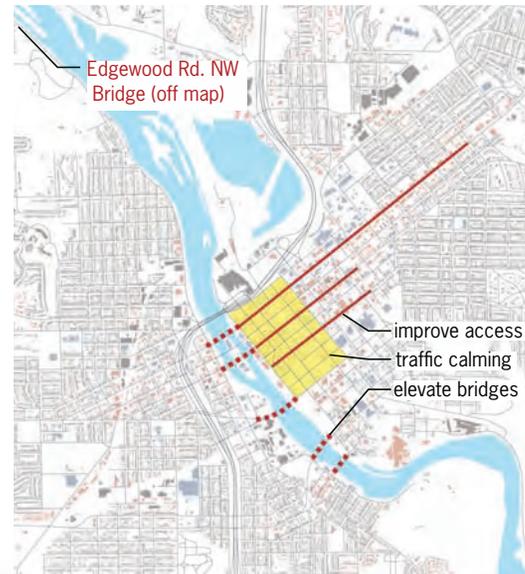
- reduce street widths
- convert one-way streets to two-way
- enhance pedestrian scale

Improve multimodal riverfront access

- Elevate major arterials to improve emergency access



Traffic calming  
Cambridge, MA

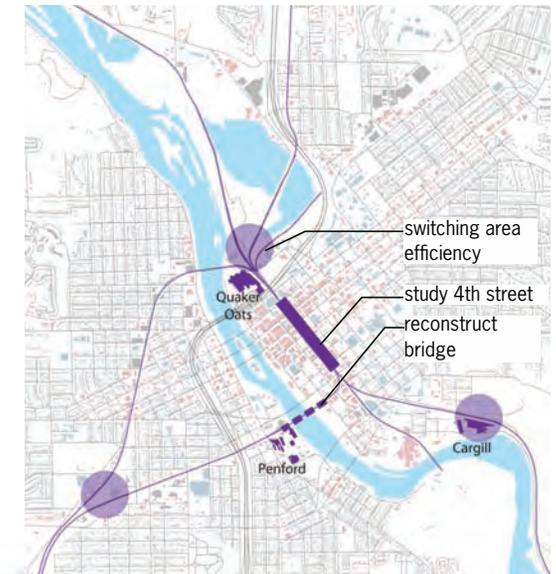


## Freight Rail

- Study 4th Street corridor use
- Reconstruct CRANDIC bridge
- Increase efficiency of switching areas



Union Pacific Bridge  
Cedar Rapids, IA



# Transportation Options

The City is committed to providing a safe, accessible, efficient transportation system in the Cedar River Corridor area that focuses on connectivity and is also pedestrian and biker-friendly.

## Public Transit

- | Expand and extend bus service
- ▬ Establish a circulator service downtown
- Potential locations for an Intermodal Transit Facility
- ⋯ Create transit connection to Coralville and Iowa City



Bus Rapid Transit Station  
Cleveland, OH

## Trails + Sidewalk

- ▬ Create continuous trail system
- ▬ Improve trail character
- ▬ Improve sidewalks
- ▬ Improve street and bridge crossings



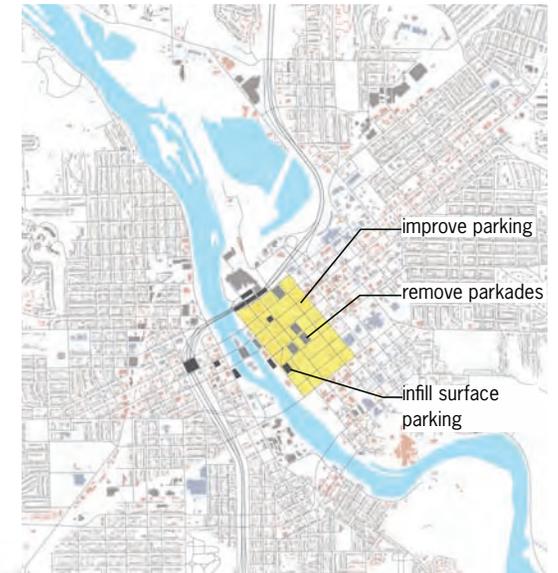
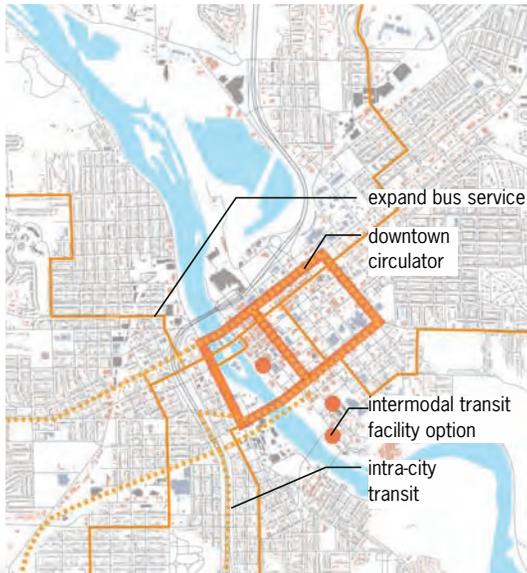
Trail sign  
Cedar Rapids, IA

## Downtown Parking

- ◆ Remove parkades
- ◆ Infill surface parking
- ▬ Improve existing parking system
  - permits for commercial parking
  - consolidated parking meters
  - new parking policies and pricing



Downtown road  
Cedar Rapids, IA

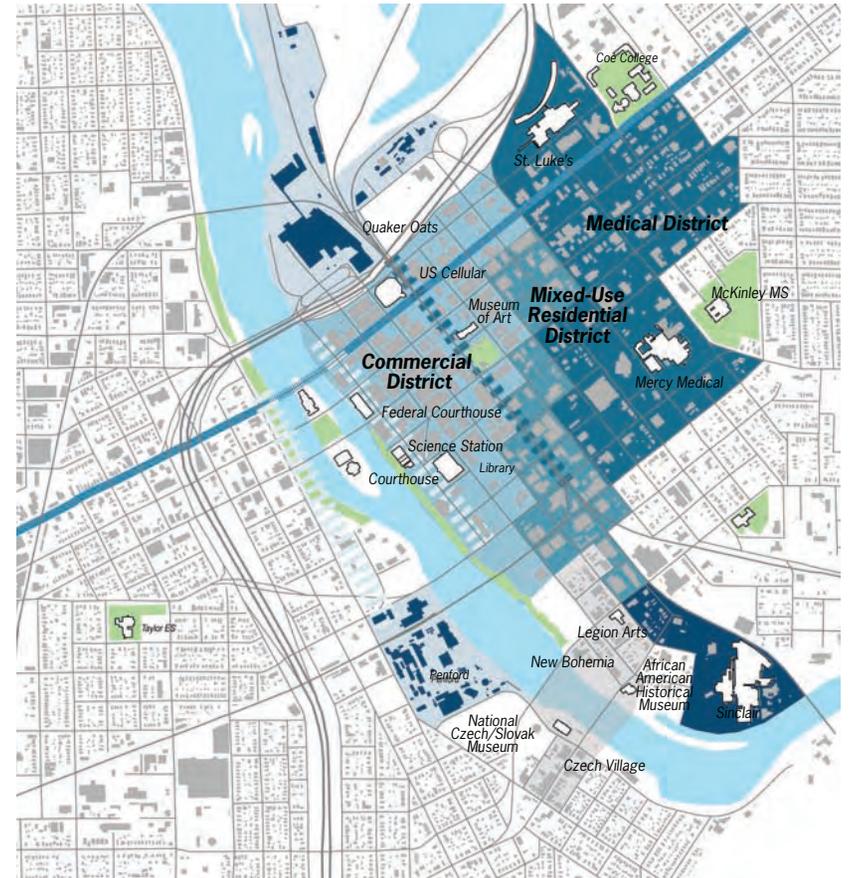


# Business Reinvestment and Downtown Priorities

The City is committed to retaining, growing and attracting businesses to Cedar Rapids, to ensure a strong and vibrant business community and downtown.

## Business Reinvestment and Downtown Priorities from public feedback

1. Keep businesses downtown
2. Provide financial incentives for redevelopment
3. Ensure future job opportunities to support pre-flood population
4. Target new business opportunities for young and skilled employees
5. Incorporate flexible design guidelines that preserve local character and history
6. Support small and local businesses
7. Make connections between downtown and adjacent neighborhoods
8. Strengthen walkable mixed-use districts
9. Make Downtown Cedar Rapids a regional destination point
10. Encourage high tech and industry growth along the Technology Corridor



# Business Reinvestment and Downtown Options

The City is committed to retaining, growing and attracting businesses to Cedar Rapids, to ensure a strong and vibrant business community and downtown.

## Downtown Business Opportunities

1. **Commercial District** with a diversity of uses.
2. **A Mixed Use Housing District** within the Downtown that strengthen relationships to family-oriented and evening activities.
3. **Medical District with** defined edges and workforce housing.
4. **Riverfront Industrial Uses** as prime riverfront redevelopment sites.
5. **Fourth Street Rail Corridor**, if abandoned, offers potential to establish a great pedestrian street or mall.
6. **First Avenue Signature Street** with strong retail and pedestrian activity.
7. **First Street & West Side Activity Zone** with a refocus of activity along the River.
8. **Sinclair Corporate Park** as a restored brownfield business development that compliments Downtown.
9. **Expanded Farmer's Market Venue**



Pedestrian Mall, Boulder, Colorado



16th Street Mall, Denver, Colorado



Street Car, San Francisco, California



Street Fair, Toronto



Retail Street, Reston, Virginia



Downtown Housing, Indianapolis

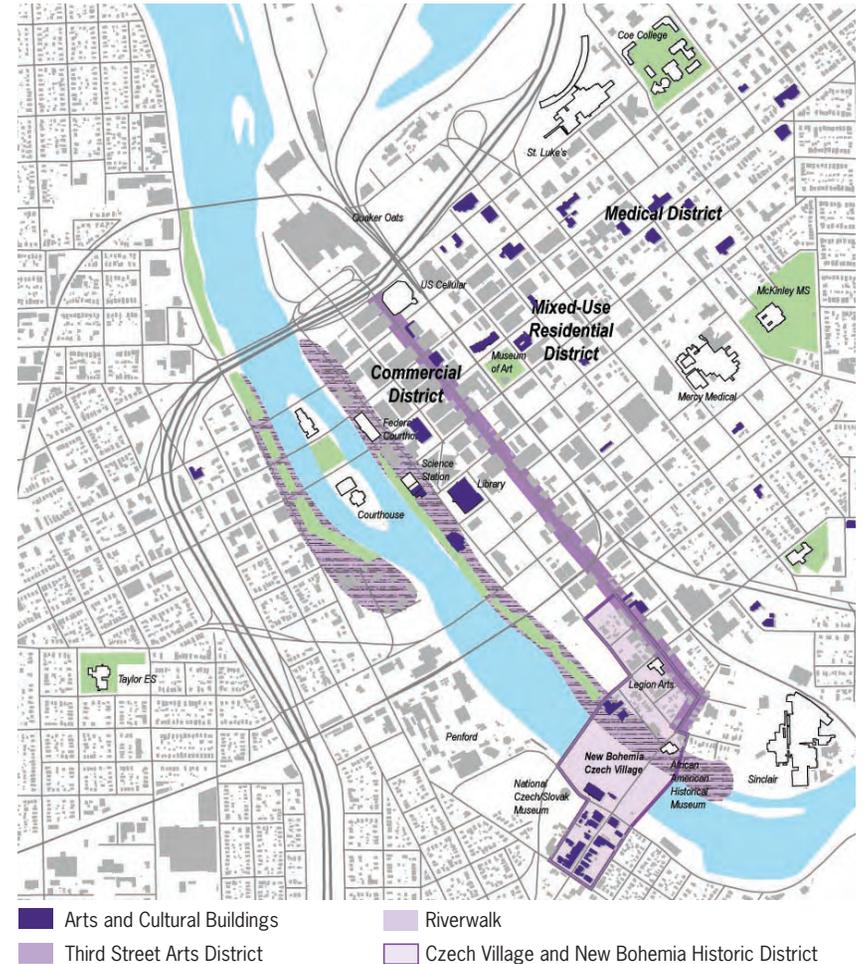


# Arts and Cultural Priorities

The City is committed to the recovery and return of arts and cultural institutions, ensuring a high quality of life to all Cedar Rapids' residents.

## Arts and Culture Guidelines from public feedback

1. Preserve Cedar Rapids' unique history and culture
2. Establish and strengthen a central arts district that is accessible to all citizens
3. Utilize arts and culture to reinforces downtown business support
4. Leverage arts and culture to get City out of hard times
5. Balance focus on arts with high priority housing and business needs
6. Have a financially sound plan to invest in the arts over a long term
7. Future arts and culture investments should be safeguarded from flooding



Arts and Cultural Buildings

Third Street Arts District

# Arts and Cultural Opportunities

The City is committed to the recovery and return of arts and cultural institutions, ensuring a high quality of life to all Cedar Rapids' residents.

## Third Street Arts District



Paramount Theatre



Boston Conservatory Shared Use

- Strengthen identity of district
- Reinforce previous downtown investments
- Potential synergy with downtown businesses
- Concentrate new funding within downtown
- Shared Arts & Culture facility
- Downtown "U" (University)

## Riverwalk



Riverfront Park



Indianapolis, IN

- Utilize river as an active recreational amenity
- Infuse vibrancy to downtown development
- Create flexible event space & Farmer's Market

## Czech Village and New Bohemia Historic District



Czech Village



Leavenworth, WA

- Strengthen historic connections
- Create unique attractions
- Establish corridor from downtown and into surrounding neighborhoods



# Open Space and Environment

The City is committed to ensuring open space, parks, trails, and other recreational opportunities that enhance the quality of life of residents.

## Open Space and Environment Priorities from public feedback

1. Encourage policies that protect the regional environment
2. Provide recreational opportunities for various age groups and interests
3. Utilize flood prone area for natural lands and recreation
4. Redevelop City as a model for sustainability and a high quality of life
5. Develop a well-connected parks and trails system that unites the city and promotes walkability



River Legacy Park, Addison, Texas



River Legacy Park, Addison, Texas



Albert Buddy Attick Lake Park, Maryland



Ellis Park, Cedar Rapids



River Legacy Park, Addison, Texas



Indianapolis, Indiana

## Open Space and Environment Opportunities

1. **River Greenway:** an expanded buffer to enhance water and habitat quality
2. **Greenbelt:** a buffer around the City to limit sprawl and provide recreational amenity
3. **Ellis Harbor and a Navigable Downtown**
4. **Trail Network:** a connected system for bicyclists and pedestrians
5. **Event Spaces:** an amphitheater and/or Farmer's Market
6. **Recreation Center:** a central facility to serve the City from youth to seniors



# Sustainability Framework

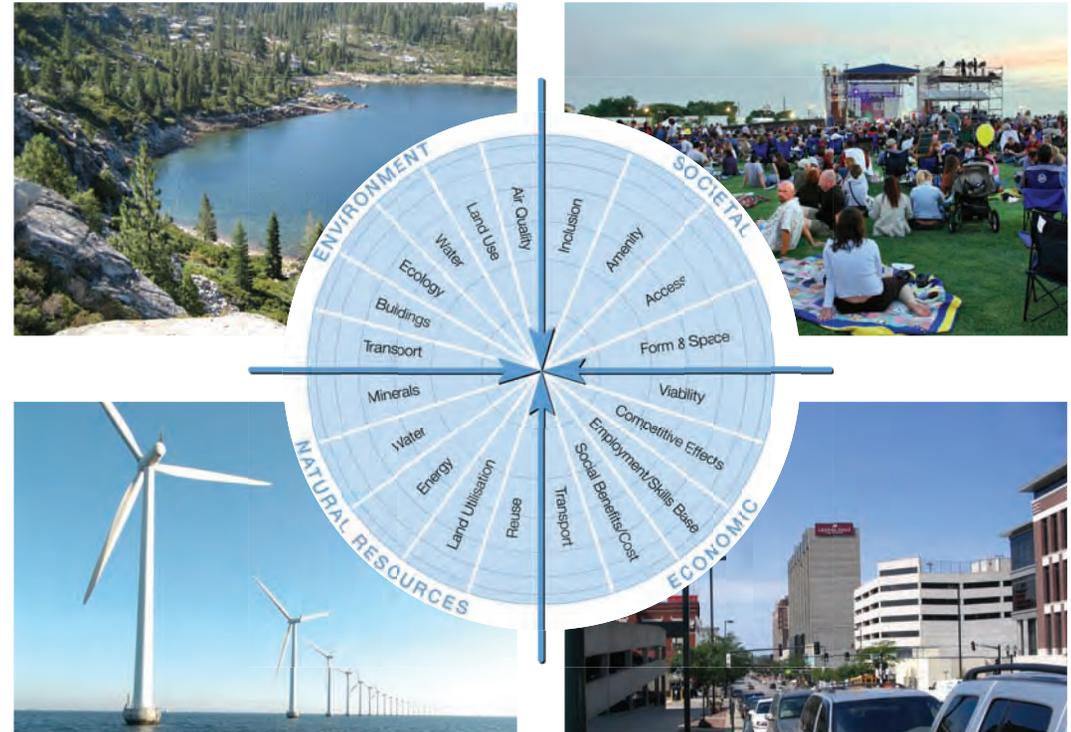
## What is Sustainability?

Taking a sustainable approach allows us to understand both the immediate and the long term performance of the redevelopment plan. This approach is organized around the following four topics:

1. Protection of the **natural environment**
2. Prudent use of **natural resources**
3. **Social progress** that recognizes the needs of everyone
4. Stable levels of **economic growth** and employment

## How can sustainability be incorporated into the framework plan?

1. Higher density walkable communities
2. An integrated flood management strategy
3. Green municipal infrastructure
4. Strengthening reliance on local goods and services
5. Focusing new developments in existing neighborhoods



# Public Buildings and Facilities

The City is committed to the restoration, and where possible, improvement of City, County, and public buildings and structures damaged by the flood.

## Public Buildings and Facilities Priorities from Public Feedback

1. Develop a flood management system that ensures the health of the public and provision of services (energy, drinking water, and sewer) after a major flood
2. Protect or relocate vital city services outside of the floodplain
3. Protect schools and community services within neighborhoods to maintain community strength
4. Create an energy efficient plan for the City with incentives for downtown businesses and new housing development
5. Construct new housing with utilities on upper floors in order to reduce damage from future floods

## Public Buildings and Facilities Opportunities

May's Island



- Flood proof buildings
- Civic assets remain downtown
- Shared facility

Schools



- Coordinate neighborhood planning with school district
- Continue to collaborate connectivity and walkability from home to school

Energy and Water



- Study use of coal downtown
- Removal of 5-in-1 Dam

Police and Fire



- Ensure access to facilities in future emergency
- Co-location for Police and Fire





# River Corridor Redevelopment Plan

OPEN HOUSE

## Next Steps

**September/Early October** – The City Council reviews and provides direction to consultants for further feedback, analysis and planning. Planners use the feedback to develop a draft framework for reinvestment and revitalization in river neighborhoods and downtown.

**Late Summer/Fall** – First phase of housing options presented for potential fall/winter construction start.

**October 16** – Open House No. 3 held to receive feedback on the final draft framework for reinvestment and revitalization.

**Late October** – City Council reviews and approves reinvestment and revitalization plan and establishes investment priorities.

**Winter 2008/2009** – Plans and specifications are prepared for initial project.

**Spring 2009** – Construction begins on prioritized projects.

**Spring/Winter 2009** – Continue planning for future phases.



# River Corridor Redevelopment Plan

OPEN HOUSE

## Comments & Questions?

***Please complete a comment form and  
provide us with feedback on:***

- Flood Management Options
- Housing and Neighborhood Features
- Business Reinvestment and Downtown Redevelopment Features
- Transportation Features
- Arts and Cultural Features
- Open Space and Environment Features
- Public Buildings and Facilities
- Communications and Process
- General Comments



# River Corridor Redevelopment Plan

OPEN HOUSE

## Voluntary Acquisition Hazard Mitigation Grant Program

*The Hazard Mitigation Grant Program (HMGP) – sometimes referred to as a “buyout program” – is provided through Federal and State agencies to reduce the loss of life and property in future disasters. The City is seeking funding for the voluntary acquisition and removal of flood-prone structures, as one component of the overall flood management effort.*

### Program Time Frame

**September 2008** – The City will submit a Notice of Interest to the State Hazard Mitigation Officer on September 12, 2008 that:

- includes a listing of property owners,
- provides State and Federal agencies with an estimate of potential acquisition costs; and
- can be modified to add and remove properties from the City's final application.

**October 2008** – The State will review the Notices of Interest from across the State and invite eligible communities to formally apply for the Hazard Mitigation Grant Program (HMGP).

**October - December 2008** – The City, State, and Federal agencies will work together to identify flood prone areas to be included in the formal application. The final application will be developed to reflect a balance between the River Corridor Redevelopment Plan and the mitigation priorities of State and Federal funding sources.

**December 2008** – According to State officials, the formal application will likely be due in December, 2008.

**April - June 2009** – State and Federal agencies will review the formal applications and announce funding.



**River Corridor  
Redevelopment Plan**  
OPEN HOUSE

# WELCOME

**The Purpose of this Open House is:**  
To receive feedback on the  
Framework for Reinvestment and Revitalization,  
including a Cedar Rapids Flood Management Strategy  
and other plan features.

**Schedule for Open House No. 3**  
**THURSDAY, OCTOBER 16**

10 a.m. to 2 p.m.  
and 4 p.m. to 8 p.m.

Grand Ballroom at the  
Crowne Plaza Five Seasons Hotel  
350 First Avenue NE



# River Corridor Redevelopment Plan

OPEN HOUSE

## River Corridor Redevelopment Plan Chronology

### FOUNDATION WORK – PRE-FLOOD

**August 2006** – The Cedar Rapids City Council, in cooperation and coordination with Linn County, Downtown District, Self-Supported Municipal Improvement District, and the Chamber of Commerce, commissions JLG Architects to perform a downtown development plan that incorporates elements of past plans into a single common Downtown Vision.

**2007** – State Economic Development Director Mike Tramontina tells Iowa communities that in order to compete with other Midwestern cities for young professionals they must upgrade housing, recreation, and quality-of-life amenities.

**Summer-October 2007** – A Downtown Vision Framework Plan is completed in Summer 2007 to assure a vibrant signature downtown that is competitive with other Midwestern communities. In October, the City Council approves the Downtown Area Plan to implement the Vision Framework.

**November 2007** – City adopts a long-term financial management plan with Key Financial Strategies to ensure sound short-term and long-term financial management.

**Late 2007** – City Council adopts long-range Vision for Cedar Rapids' future to guide strategic planning and financial planning in the community.

**January 2008** – City Council commits to smart growth and sustainability measures, including a scorecard to ensure smart growth and sustainability are incorporated into future development.

**January 2008** – Sherman Associates selected as preferred developer for first new housing in downtown in 20 years, as part of Cedar Rapids Downtown Area Plan.

**May 2008** – City Council evaluates two finalists to develop the Riverfront Park Master Plan and selects Sasaki Associates.

**May 2008** – City Council enters into agreement with U.S. Army Corps of Engineers to conduct the Time Check Feasibility Study.



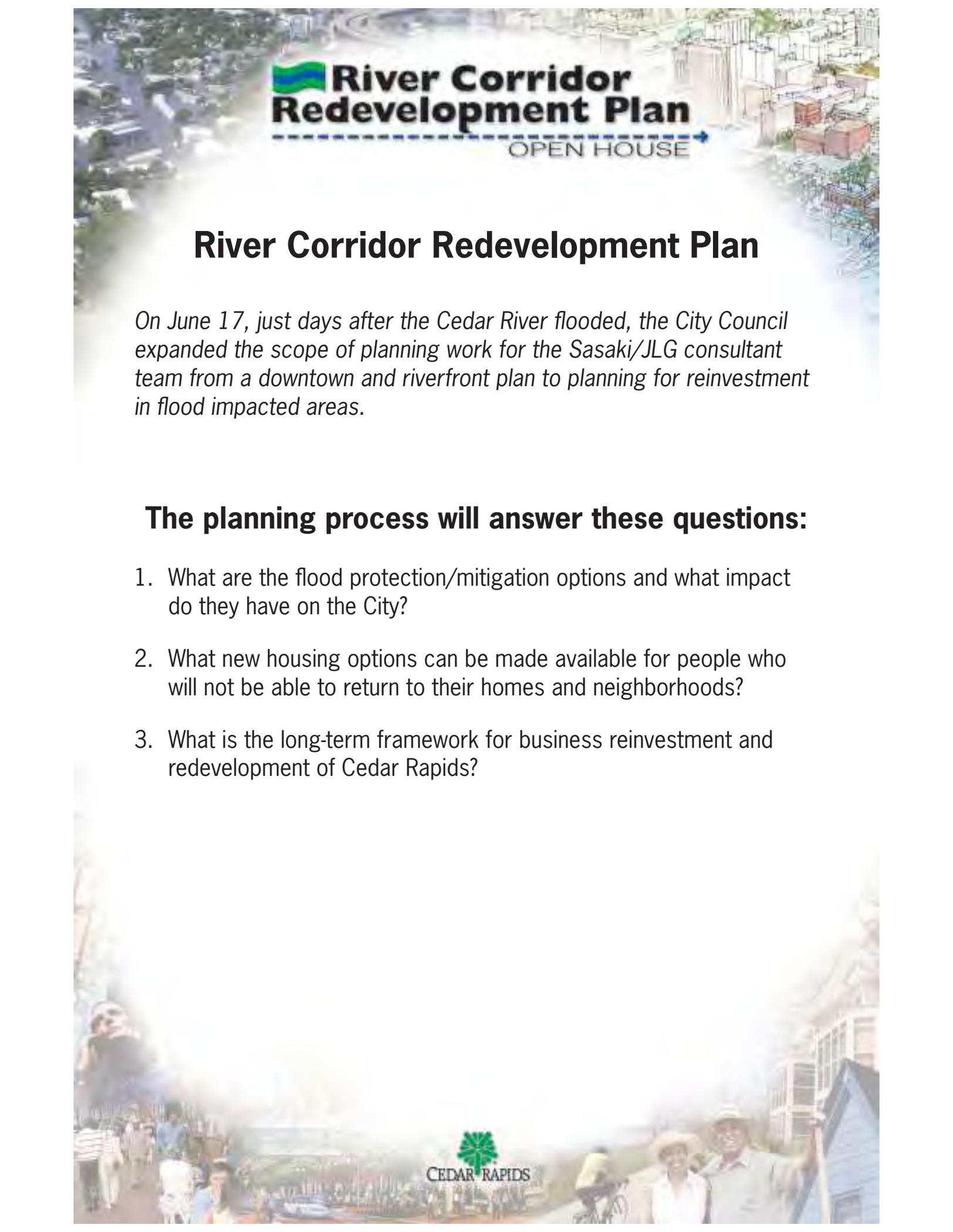
# River Corridor Redevelopment Plan

OPEN HOUSE

## River Corridor Redevelopment Plan Chronology

### FOUNDATION WORK – POST-FLOOD

- June 11-13** – Flood impacts more than 5,000 homes; thousands of residents; countless businesses; City, County, School and non-profit facilities, roads, and bridges.
- June 17, 2008** – The City Council expands Sasaki/JLG scope of work to include the expanded flood-impacted area, and directs them to provide a plan for reinvestment in river corridor neighborhoods including replacement of workforce housing, measures to enhance flood protection, and neighborhood and development options.
- June 2008** – City of Cedar Rapids expands scope of Time Check Feasibility Study with U.S. Army Corps of Engineers for flood management into the Cedar River Feasibility Study. The study will include flood damage and economic analysis, environmental analysis, interior drainage analysis, preliminary design, and public involvement.
- July 2008** – Stanley Consultants hired to coordinate with Army Corps of Engineers development of flood management options for the City.
- July 2008** – City and Affordable Housing Network work to identify specific workforce housing needs for displaced families, locations for in-fill housing near impacted neighborhoods outside the previously flooded area, as well as tools to help construct housing at a cost that is affordable to those impacted by the flood.
- June to Present** – City works with State and Federal elected officials and agencies on funding for housing needs, flood management and reinvestment and rebuilding.
- July 29, 2008** – City holds the first set of three open houses for the River Corridor Redevelopment Plan to receive feedback from residents.
- Sept. 11, 2008** – City holds second of set of three open houses for the River Corridor Redevelopment Plan to receive public feedback.
- Sept. 18, 2008** – City Council requests funding from the USDA–National Resource Conservation Service to identify and make repairs to the stormwater system.
- Sept. 24, 2008** – City Council holds four-hour work session on flood management strategy and River Corridor Plan.
- Oct. 1, 2008** – City Council selects preferred flood management strategy option for public comment and review.
- October 2008** – Developers Skogman and Sherman Associates/MetroPlains, and Hatch Development Group plan for first replacement housing units begin land development process.



# River Corridor Redevelopment Plan

OPEN HOUSE

## River Corridor Redevelopment Plan

*On June 17, just days after the Cedar River flooded, the City Council expanded the scope of planning work for the Sasaki/JLG consultant team from a downtown and riverfront plan to planning for reinvestment in flood impacted areas.*

### **The planning process will answer these questions:**

1. What are the flood protection/mitigation options and what impact do they have on the City?
2. What new housing options can be made available for people who will not be able to return to their homes and neighborhoods?
3. What is the long-term framework for business reinvestment and redevelopment of Cedar Rapids?



# River Corridor Redevelopment Plan

OPEN HOUSE

## River Corridor Redevelopment Plan Goals

- Rebuild high quality and affordable workforce housing and neighborhoods.
- Improve flood protection to better protect homes and businesses.
- Restore full business vitality.
- Preserve our arts and cultural assets.
- Maintain our historic heritage.
- Assure that we can retain and attract the next generation workforce.
- Help our community become more sustainable.



# River Corridor Redevelopment Plan

OPEN HOUSE

## Public Participation Process

For any recovery and reinvestment plan to be successful, it is going to take our entire community working together and getting involved.

The City is holding three sets of open houses at key points in the planning process to receive feedback from the public, to ensure that the final plan reflects the identified needs and interests of the entire Cedar Rapids community.

### **Open House No. 1 – July 29**

Identifying and Reviewing Issues and Concerns

Attendance: About 700;

Comment Forms: About 300

### **Open House No. 2 – Sept. 11**

Options to Address Those Issues and Evaluation

Attendance: About 950;

Comment Forms: About 300

### **Open House No. 3 – Oct. 16**

Feedback on final draft framework for reinvestment and revitalization.



CEDAR RAPIDS



# River Corridor Redevelopment Plan

OPEN HOUSE

## What is the Framework for Reinvestment and Revitalization?

The result of this four-month study and public participation process will be a Framework for Reinvestment and Revitalization.

The framework will include an overall flood management strategy as well as focal points for reinvestment and redevelopment in the Cedar River Corridor in the areas of:

- Neighborhoods and Housing
- Transportation
- Business Reinvestment & Downtown
- Arts and Culture
- Open Space
- Public Buildings and Facilities

Once the public has provided input at this third and final set of open houses, the draft framework will be refined, completed and submitted to the City Council.

The Council will consider the framework in early November. Once approved, the Council will prioritize initial projects and use the framework for future river corridor reinvestment decisions.



CEDAR RAPIDS

# Sustainability as a Lens to Examine Cedar Rapids

**Sustainability is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.** To ensure a sustainable Cedar Rapids' revitalization process, we are evaluating decisions based on the framework below to capture and prioritize actions.

Achieving greater sustainability is an ongoing process that will continue over the coming months and years. Initial ideas for integrating sustainability are noted on each Open House board with the **leaf symbol** to the left. We welcome any ideas that you may have for us to use in the next stage of the revitalization process.



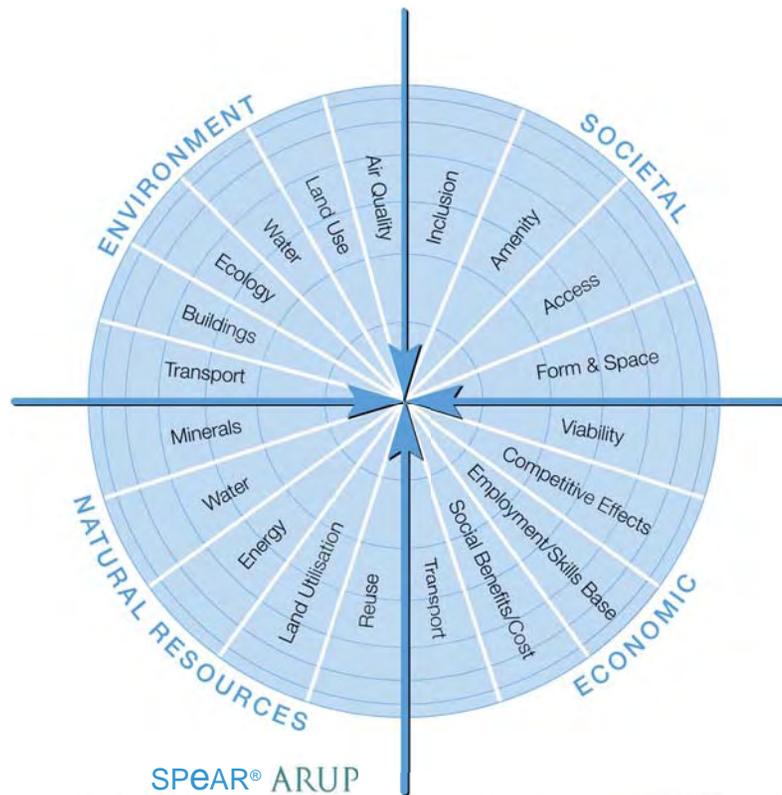
## ENVIRONMENT

Effective protection of the natural environment



## NATURAL RESOURCES

Prudent use of natural resources



## SOCIETAL

Social progress that recognizes the needs of everyone

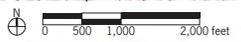
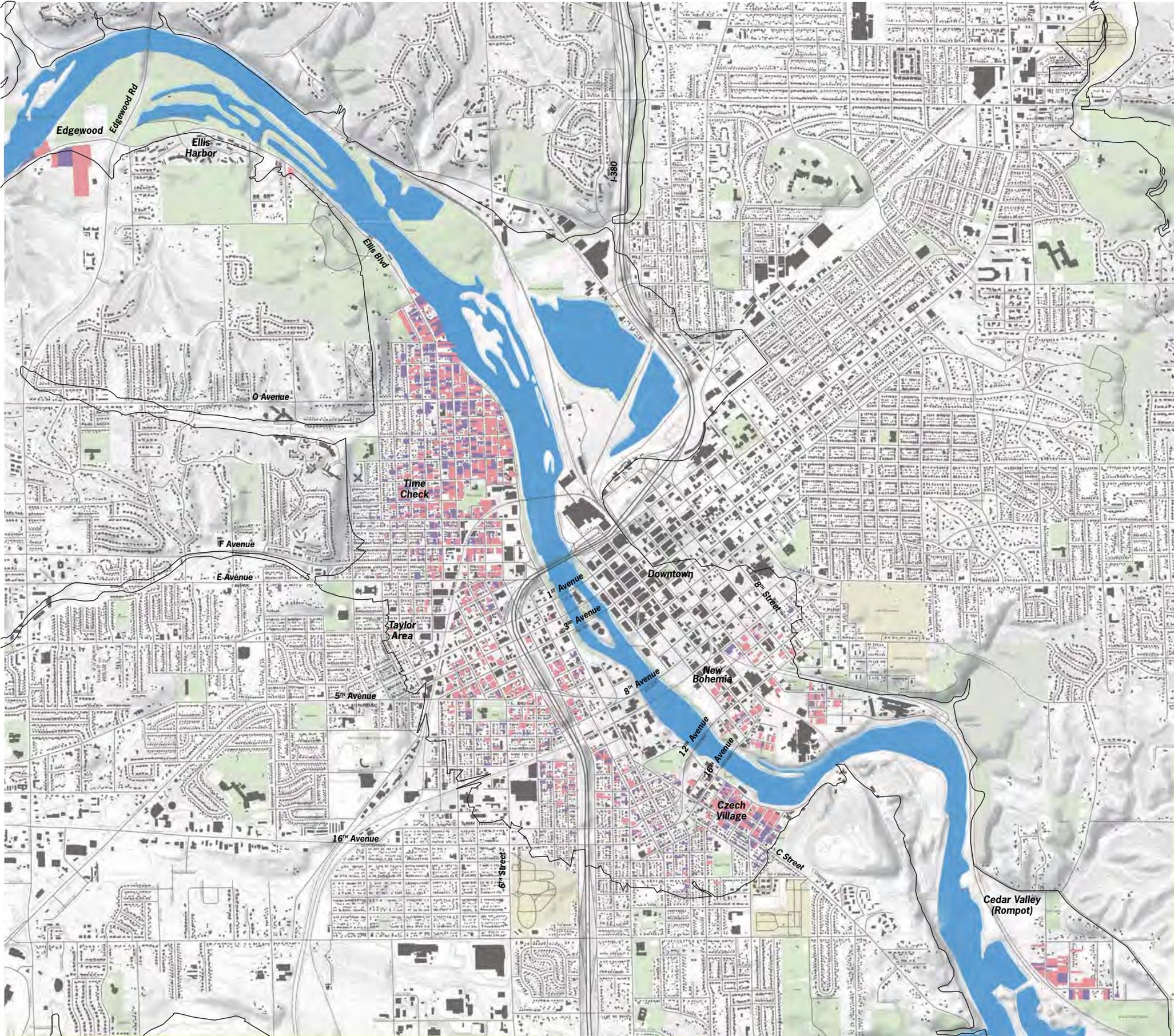


## ECONOMIC

Maintenance of high and stable levels of economic growth and employment



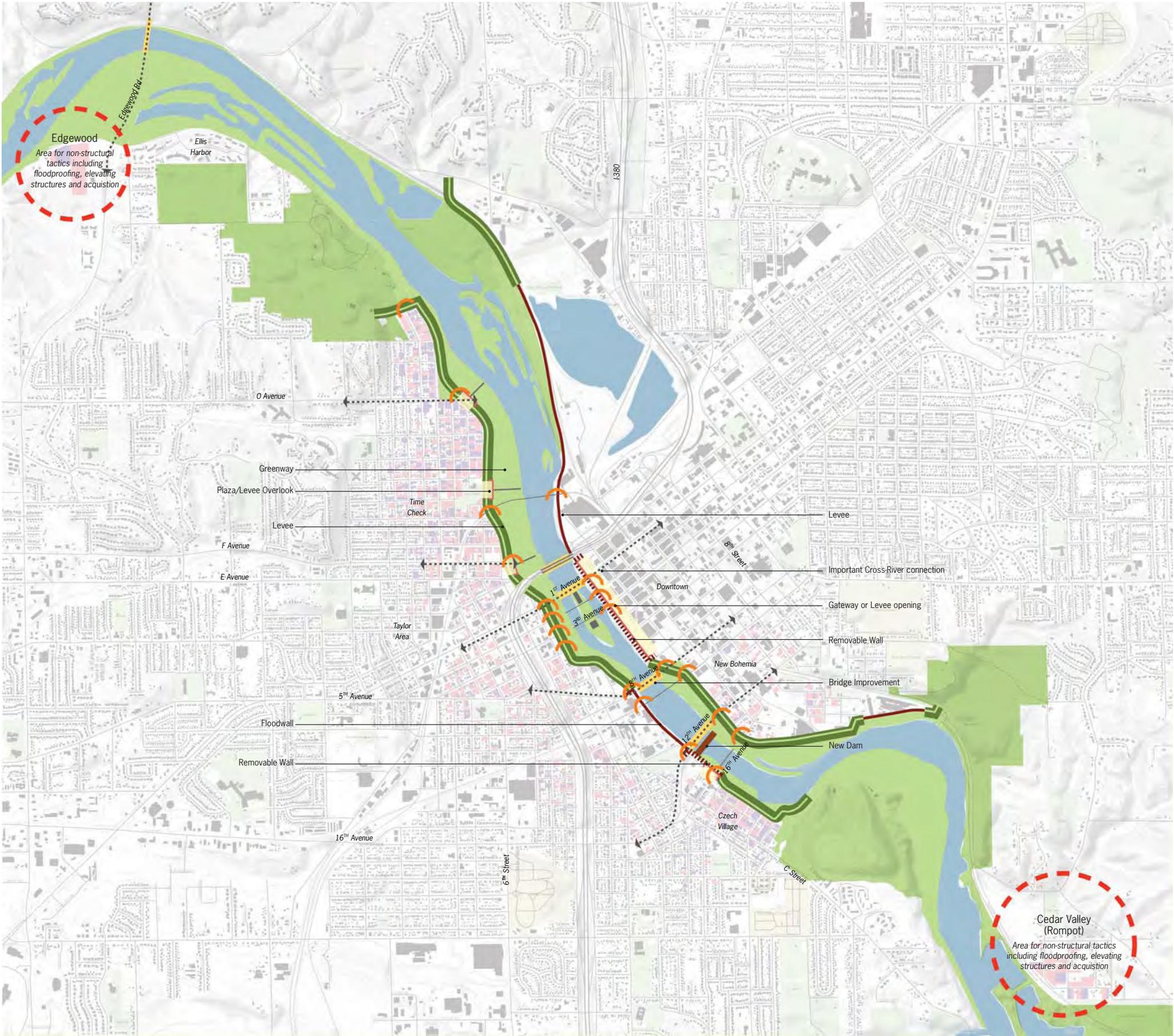
# 2008 Flood Impacts



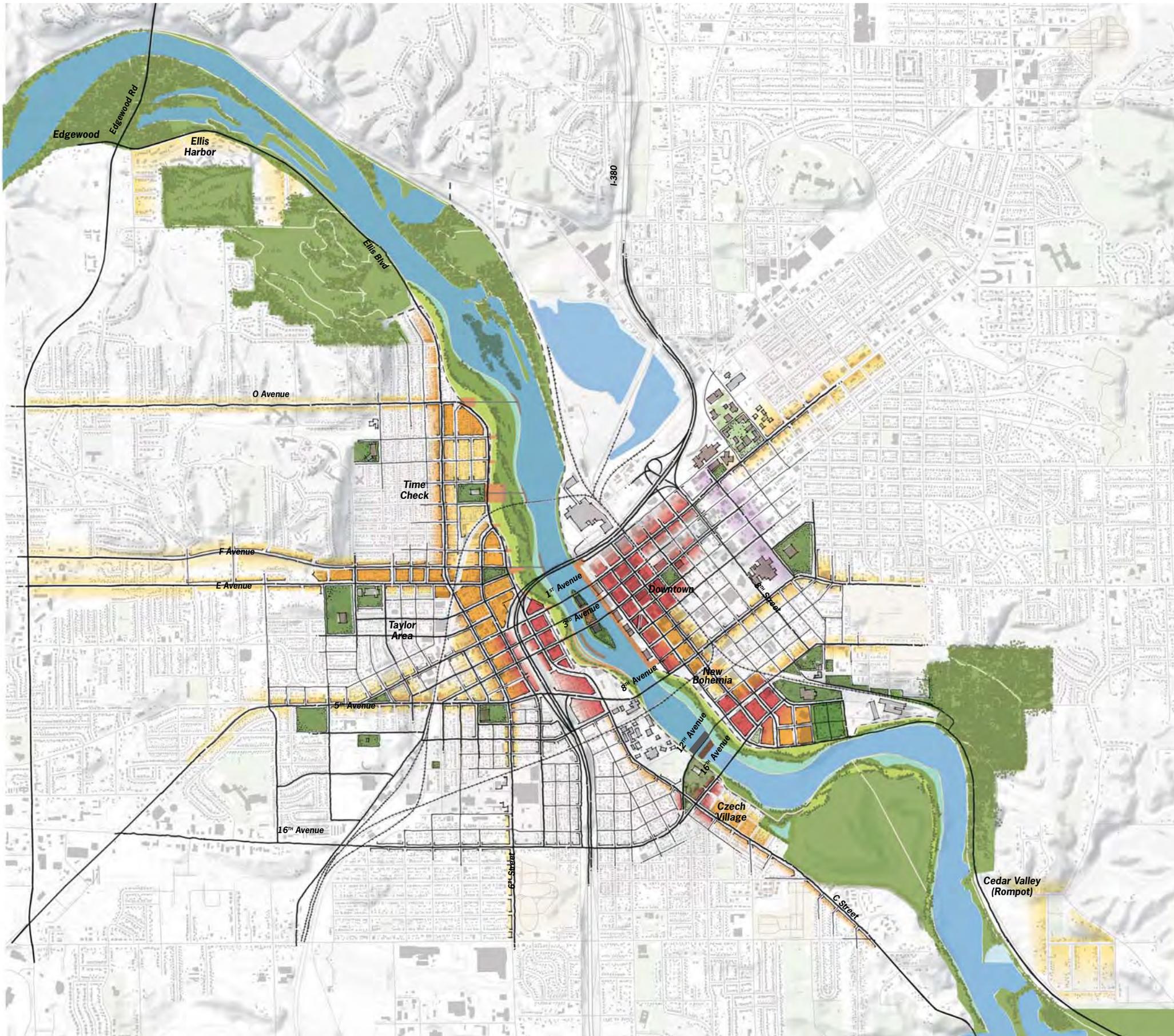
- Substantially damaged parcel
- Partially damaged parcel
- Open Space
- Existing building
- 2008 Flood Event



# Flood Management Strategy



# Framework for Reinvestment and Revitalization



0 500 1,000 2,000 feet

Greenway

Culturally significant building

Intensity of use/redevelopment (high to low)

Existing building



# Framework for Reinvestment and Redevelopment

Cedar Rapids must not only recover from the flood and **be better, but greater**. We must move towards our vision - “Cedar Rapids, **a vibrant urban hometown** – a beacon for people and businesses invested in building a greater community for the next generation.”

The Framework for Reinvestment and Redevelopment integrates the seven plan elements into three main themes for the future of the City to accomplish the Vision.

## 1. A Flood Management Plan

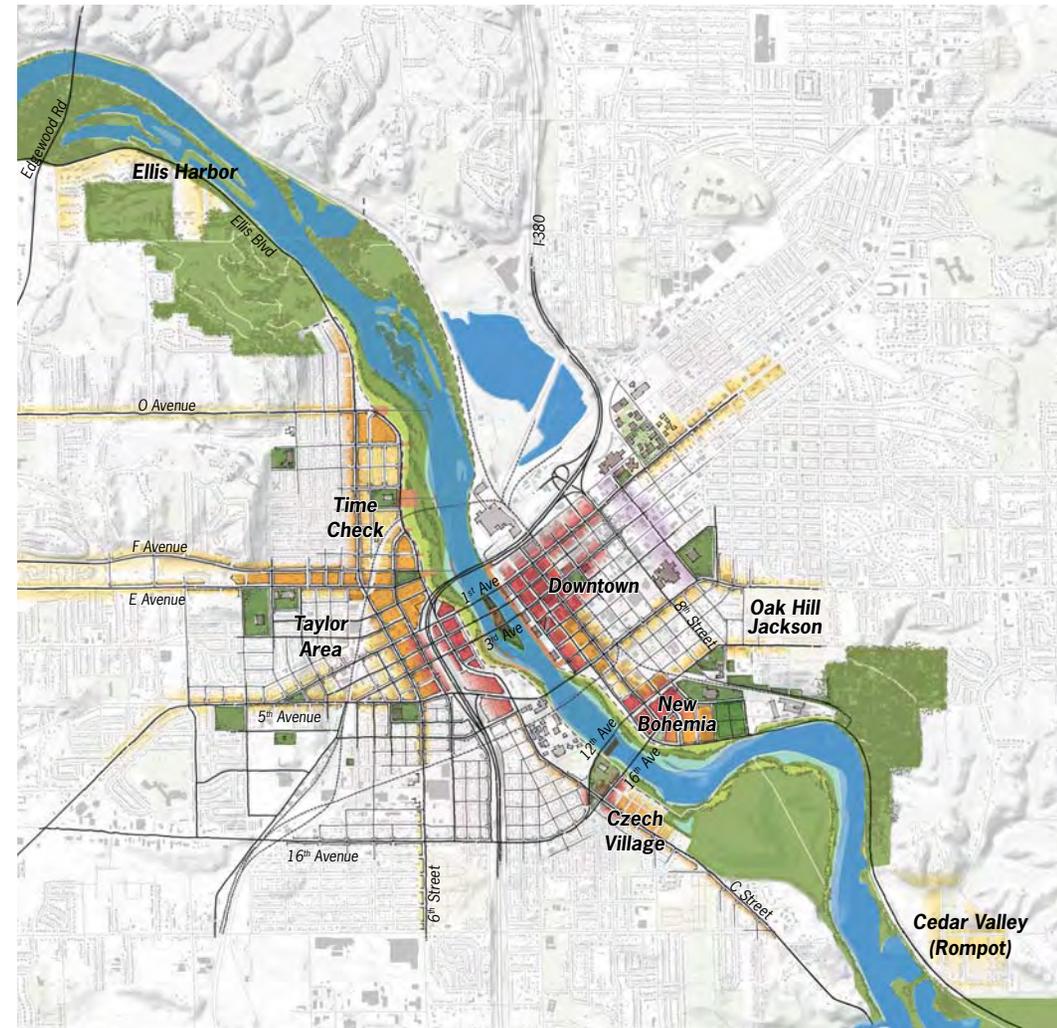
Provide increased protection against future floods and leverage the *flood management* strategy to create a great Riverfront Park for Cedar Rapids.

## 2. Connectivity

Knitting together the City and its neighborhoods via *transportation improvements* to public transit, trail systems, the street grid system, rail operations, and specific streetscapes.

## 3. Sustainable Neighborhoods

Targeted areas within the City serve as opportunities to reinvest and redevelop to provide *housing*, strengthen *neighborhoods*, enhance the *downtown business and arts communities*, and improve *public facilities*.



# Flood Management Strategy

In the wake of the unprecedented 2008 Flood, the City initiated a planning process to provide improved flood management to **better protect** the homes and businesses of Cedar Rapids.

A **flood management strategy** is critical to the success of the revitalization and redevelopment of Cedar Rapids. Developing this strategy required the participation of City representatives, Federal Agencies such as the U.S. Army Corps of Engineers, and the community of Cedar Rapids at Open Houses over the past few months.

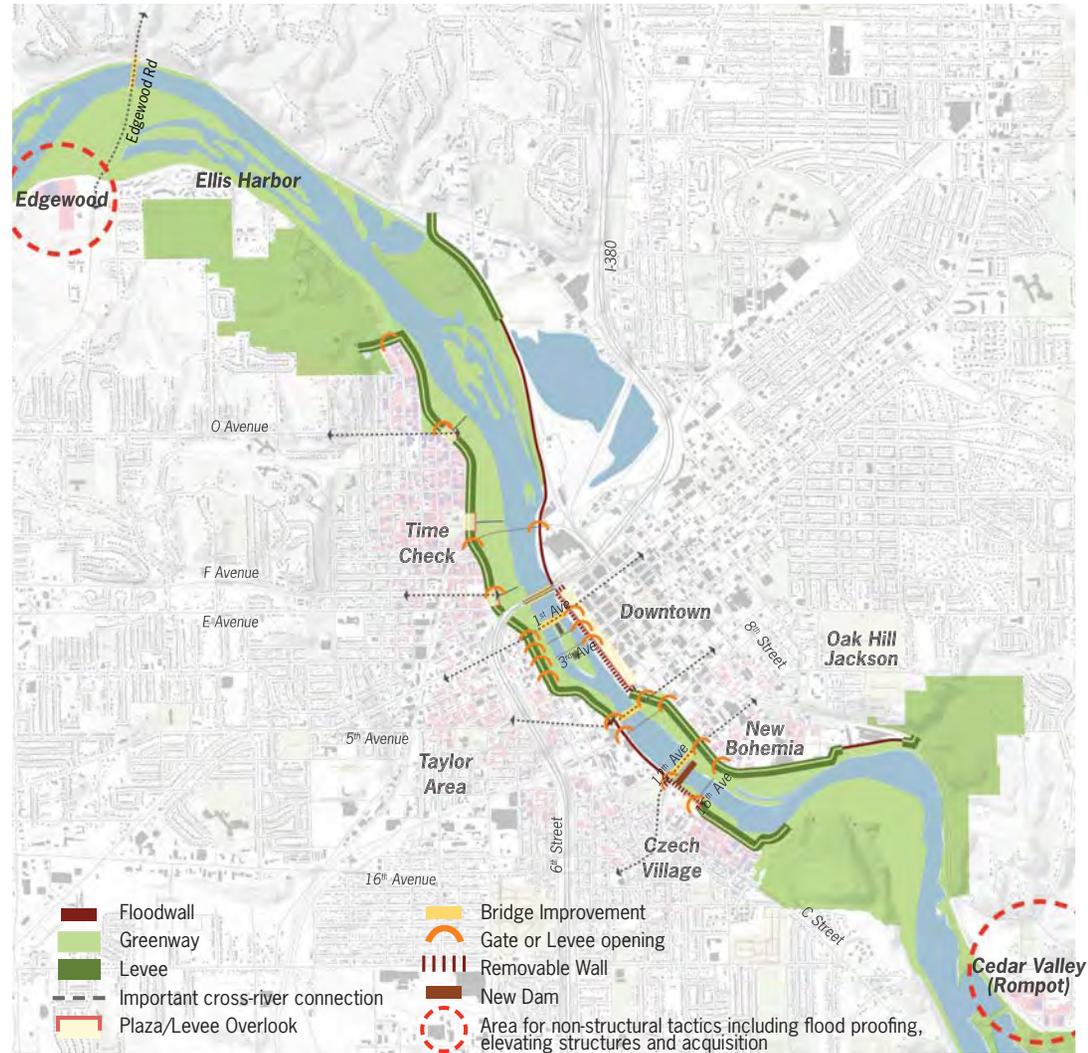
## Flood Management Priorities from Public Feedback

 Uses levees (as shown in Options 2 and 3 previously) more often than vertical floodwalls (as shown in Option 1).

- Maximizes open space (as shown in Options 2 and 3 previously) while preserving existing neighborhoods (as shown in Option 2) as much as possible.

 Preserve critical cultural and economic assets, including Czech Village/New Bohemia, Downtown, Quaker, Cargill, and Penford

- Address non-structural issues such as flood warning systems, watershed management, and land use/zoning practices.
- Prioritize maintaining evacuation capability via bridge(s) in case of floods.



# Flood Management Strategy Tactics

The **flood management strategy** balances the priorities of the community - to provide better protection, preserve neighborhoods and assets, and maximize open space - by combining the following tactics:

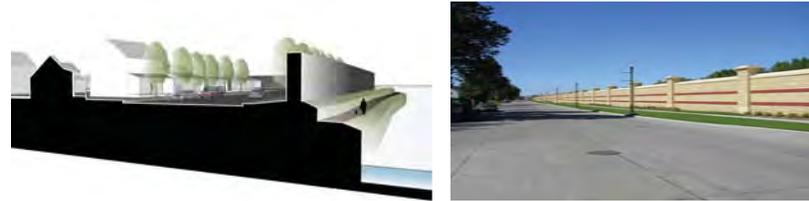


**Size:** 380 acres of land

**Estimated Cost:** \$700 Million - 1 Billion



**A** Removable Floodwall at Downtown and Czech Village



**B** Permanent Floodwall at Quaker, Penford, and Cargill



**C** Wall Openings for Neighborhood Connections



**D** Levee Park / Greenway



# Flood Management Strategy: A Great Riverfront Park

The flood management strategy creates better protection while also creating a Great Riverfront Park for the City.

## Open Space Priorities from Public Feedback



Leverage flood management measures to maximize open space

- Keep the riverfront open to the public



Develop pedestrian and bike trails along greenway corridor connecting downtown to the neighborhoods

- Use the riverfront for parks, high-quality mixed-use development, or public uses

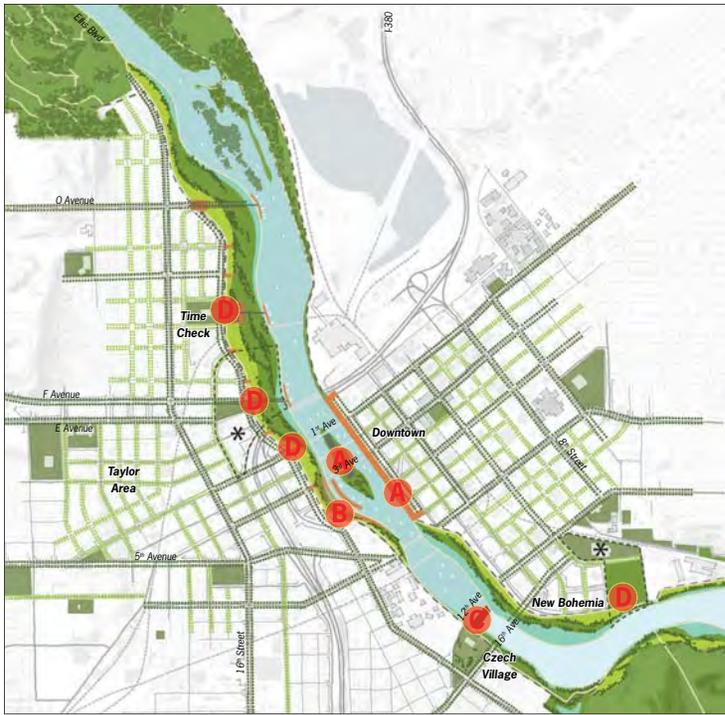


Implement desired greenway program including an expanded farmer's market, trails, a dog park, gardens, an amphitheater, wetlands and interpretive flood education.

- Maintain views to the river



# Flood Management Strategy: A Great Riverfront Park



Typical River Section at Downtown



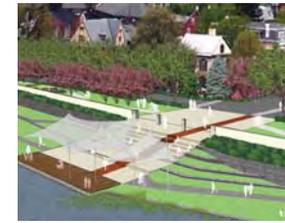
A City Terrace and May's Island Plaza



B Riverfront Amphitheater



C River Level Control for Water Activities Downtown



D Community Gathering Spaces at River



# Flood Management Strategy: A Great Riverfront Park



**E** Continuous Trail System



**F** Restored River Edge and River Recreation



**G** Sports Recreation



Typical Section at Greenway





# River Corridor Redevelopment Plan

OPEN HOUSE

## The Future of the River

*In addition to the structural (or built) elements of the flood management strategy, additional non-structural elements are required to minimize flood crests and damage in the future.*

*These include:*

### **Long-Term Upstream Watershed Management Strategies:**

- Gather stakeholders in watershed and develop goals
- Review and explore possibilities to expand current programs
- Develop ideas for the Cedar River watershed
- Implement pilot projects
- Education and increased voluntary use of proposed techniques

### **Flood Warning Systems and Emergency Action Planning**

- Install additional river level gauges/rain gauges
- Improved crest predictions
- Increased warning time

### **Structures**

- Acquisition
- Elevate structures
- Relocate structures
- Floodproofing (wet and dry)

### **Stormwater Management Practices**

- Reduce run-off
- Improve water quality
- Improve City stormwater regulations

### **Regulatory Planning**

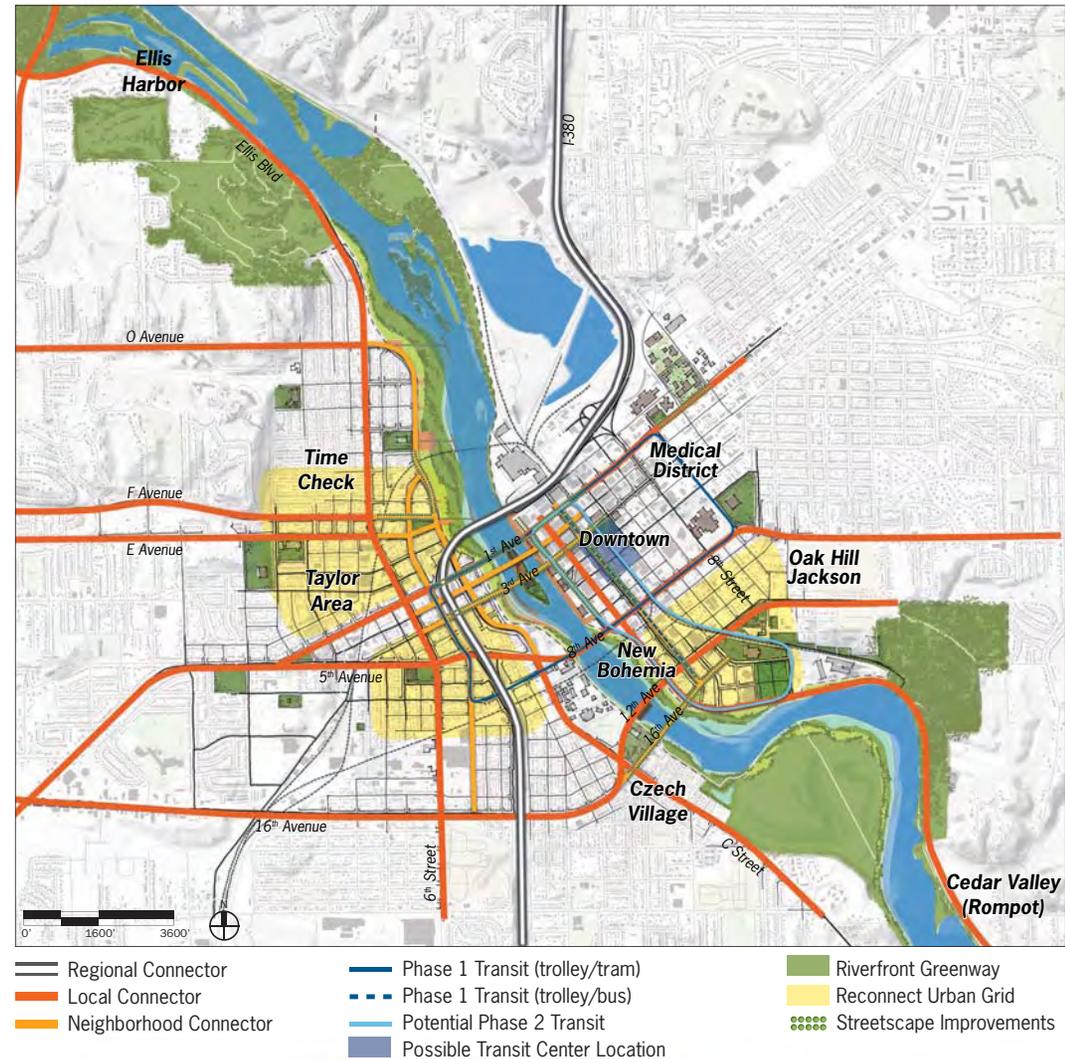
- Building Codes
- Zoning and Land Use

# Connectivity Priorities

Knitting together the City and its neighborhoods via transportation improvements to public transit, trail systems, the street grid, rail operations, and specific streetscapes.

## Priorities from Public Feedback

-  Develop better connectivity and sense of community via community centers, mixed housing and sidewalks
-  Bus or light rail commuter connection to nearby cities
-  Encourage non-vehicular modes to/from and through downtown
-  Expand/extend bus and connect to bicycle and parking facilities
-  Improve pedestrian environments
  - Convert 4th street rail to pedestrian or transit corridor
  - Support development of inter-modal transfer station and transit infrastructure improvements
  - Connect to and complement adjacent areas with the Sinclair area development



# Connectivity Strategy

Strengthen connections at multiple levels to re-establish regional identity, create strong north-south & east-west corridors, and support neighborhoods.

## Opportunities to Improve Connectivity

1. Improve highway interchanges to **reconnect with regional neighbors**.
2. **North-south corridors**, create a stronger sense of community connection to Cedar Rapids for far-north and far-south neighborhoods
3. **East-west corridors**, create vibrant downtown character inclusive of both river banks.
4. **“Neighborhood connector” streets** provide focus for improvements and strengthen neighborhood identities.
5. Explore reuse of **Fourth Street Rail Corridor** as a pedestrian and/or transit corridor.
6. **First Avenue Signature Street** with strong retail and pedestrian activity.
7. Pursue phased opportunities to establish **transit infrastructure**
8. Develop **street hierarchy** consistent with adjacent land uses
9. **Resolve conflict zones** between rail, vehicle, and pedestrians.



Pedestrian Mall, Boulder, Colorado



Walkable Streets, Bethlehem, PA



Multi-modal Transfer Station, Geneva



Light Rail, Denver, CO



Bike/Bus Lane, St. Louis, MO



Bus Mall, Portland, OR

Images by various artists used with permission under creative commons licence, attribution available upon request.

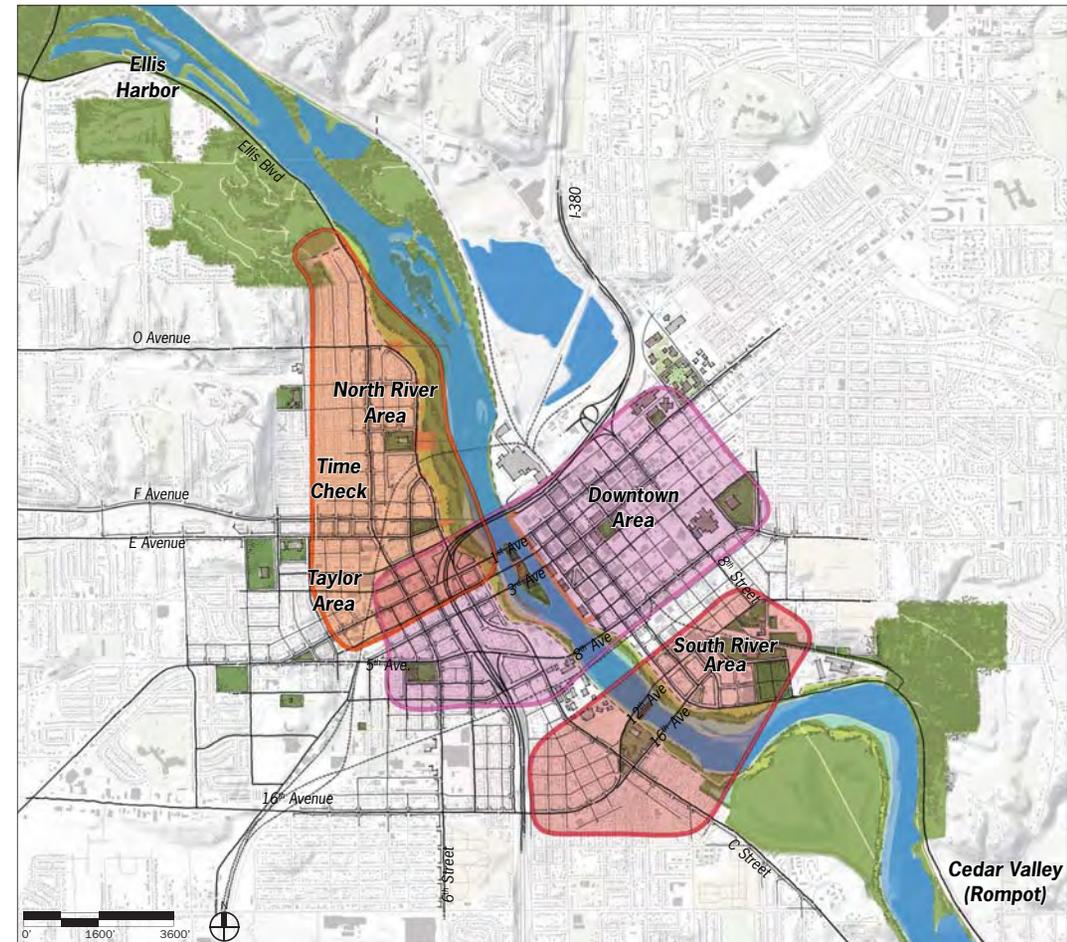


# Sustainable Neighborhoods

Targeted areas within the City serve as opportunities to reinvest and redevelop to provide housing, strengthen neighborhoods, enhance the downtown business and arts communities, and improve public facilities.

## Priorities from Public Feedback

- Encourage sustainable, walkable, mixed-use communities
  - Build the necessary mix of market and affordable housing units
  - Improve downtown utility service
- Explore more sustainable energy supply and storm water management
  - Protect larger industrial community partners
- Restore historic buildings wherever possible
  - Save and/or build on current artistic and cultural facilities within neighborhoods and downtown where possible, including support for churches and other religious communities
  - Relocate if necessary important cultural resources to protected areas, memorialize their original location where appropriate
- Appropriately locate public/shared facilities



- North River Area (Ellis Park & Time Check Districts)
- South River Area (Czech Village, New Bohemia, Sinclair Districts )
- Downtown Area



# Sustainable Neighborhoods

*What makes a sustainable neighborhood?*

## North River Area

*Time Check and  
Ellis Harbor Neighborhoods*

- Reinstill a sense of neighborhood pride by celebrating community assets and identity.
- Build vibrant public spaces that welcome neighborhood visitors and promote interaction for neighborhood residents.
- Provide transportation options by connecting to city-wide walking, biking, and transit routes.
- Leverage aesthetic and ecological value of open spaces by providing connections to the neighborhood.

## Downtown Area

*Downtown and Taylor Area*

- Promote compact and walkable pedestrian environments that foster interaction and health
- Diversify commercial profile with a mixture of office, shopping, eating, and entertainment.
- Provide for a variety of transportation options including walking, biking, and public transit.
- Provide housing options in the downtown area to create 24/7 activity.
- Use existing infrastructure and avoid sprawl by supporting development in existing urban centers.

## South River Area

*Czech Village, Sinclair, New Bohemia and  
Oak Hill Jackson Neighborhoods*

- Foster a strong “sense of place” by celebrating the unique neighborhood identity.
- Build vibrant public spaces that welcome neighborhood visitors and promote interaction for neighborhood residents.
- Balance nature and development by adapting development to the natural topographic and hydrologic conditions.
- Create vibrant communities by promoting diverse land use, and mixed-use development.



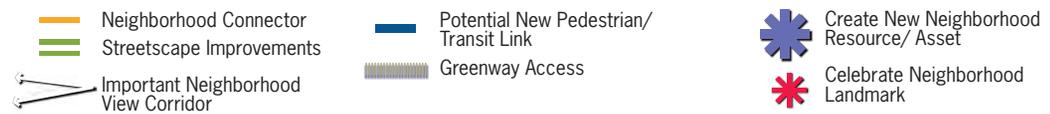
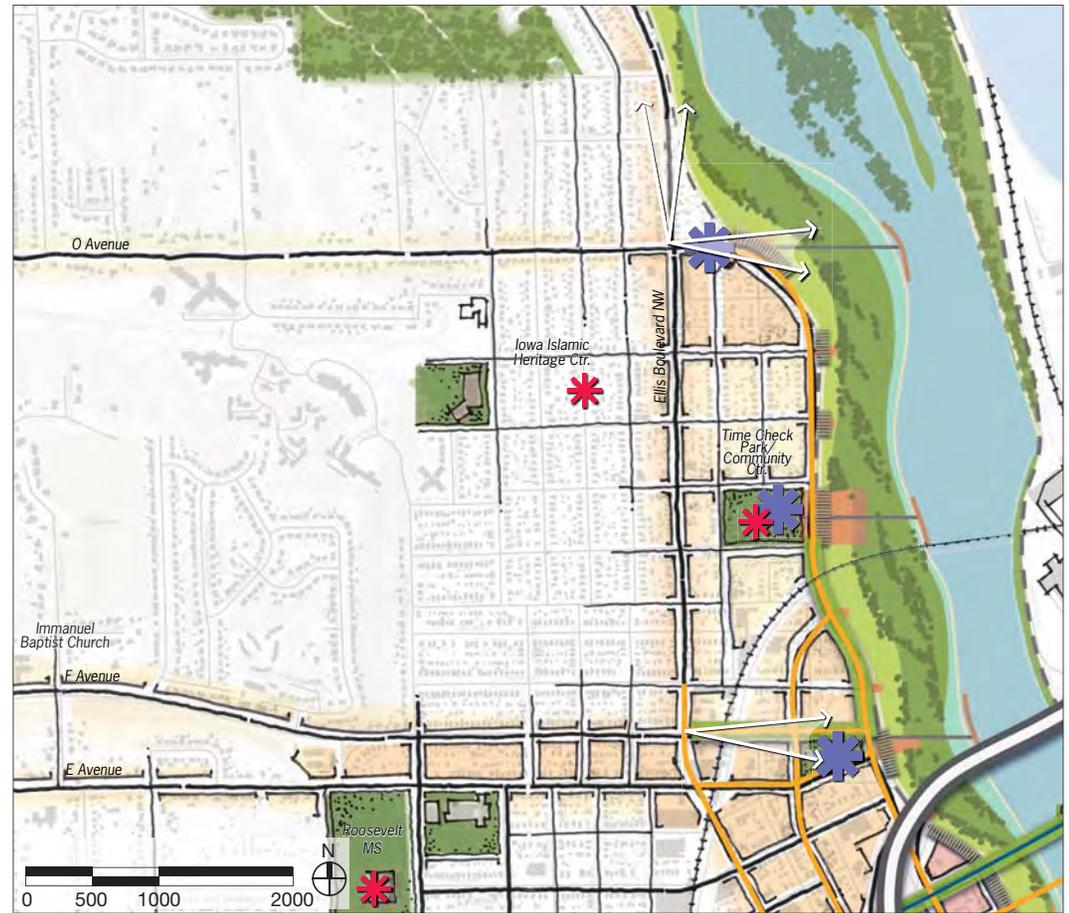
# Sustainable Neighborhoods: North River Area

*Time Check and Ellis Harbor Neighborhoods*

Revitalize this historic neighborhood by celebrating cultural and community assets, improving connectivity, and working with residents to strengthen neighborhood character by re-establishing traditional workforce housing stock.

## Priorities from Public Feedback

-  Diversify Ellis Park area profile with small-scale business and entertainment in addition to existing housing
- Balance the desire for acquisition with the need to preserve neighborhoods such as Time Check
- Maintain neighborhood character and identity in redeveloping impacted areas
-  Provide incentives for homeowners to rebuild, rehab, or relocate in or near existing neighborhoods



# Sustainable Neighborhoods: North River Area

*Time Check and Ellis Harbor Neighborhoods*



*View from the Greenway at Time Check looking toward Downtown*



# Sustainable Neighborhoods: North River Area

*Time Check and Ellis Harbor Neighborhoods*

## Neighborhood Development Opportunities

1. Incentivize and encourage returning residents to **re-establishing neighborhood housing stock**
2. Work with neighborhood organizations to catalyze **investment in the local business community**
3. **Link to downtown** by reconnecting the urban fabric in southeast Time Check and strengthening the Ellis Boulevard NW corridor, and F & E Avenues
4. Explore refurbishment of existing or siting of new **community resource/ recreation facilities**
5. **Connect riverfront greenway** to residential areas



*Mixed-use Commercial - Residential, Kentlands, MD*



*Townhomes and Single Family Mix, Stapleton, CO*



*Workforce Housing, Dundee & Geneva, IL*



*Local Connector, Frostburg MD*



*Walkable Streets, Cincinnati, OH*



*Mixed-use Retail - Residential, Hudson, OH*

Images by various artists used with permission under creative commons licence, attribution available upon request.

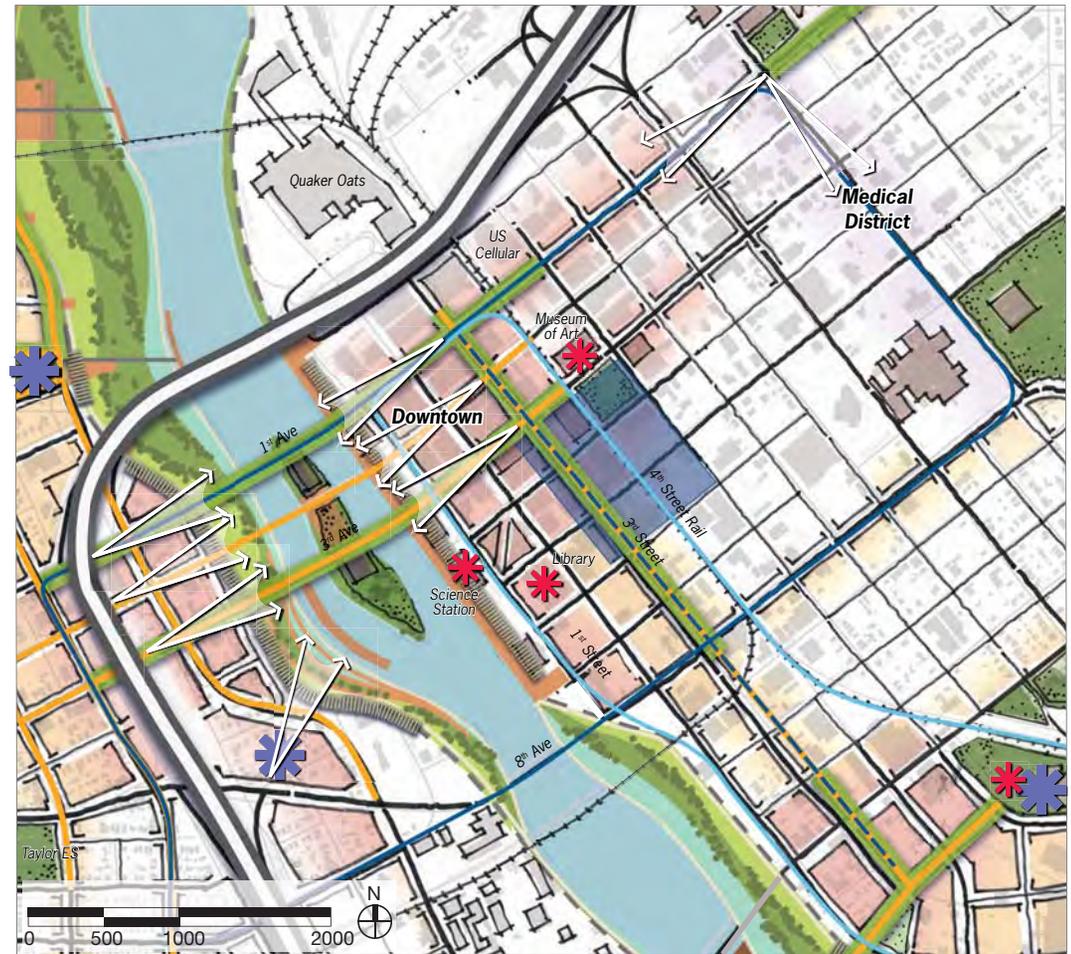


# Sustainable Neighborhoods: Downtown Area

Create a vibrant cohesive downtown character that diversifies the urban fabric, reconnects east and west, and accommodates key civic, business, and cultural resources.

## Priorities from Public Feedback

-  Diversify downtown commercial profile
-  Densify medical district
-  Improve pedestrian connections
-  Convert 4th street to pedestrian or transit corridor
  - Invest in a “signature street” along 1st Avenue
  - Support farmers market expansion
  - Reinvest in library as an important civic resource
-  Support local businesses to rebuild and reinvest
-  Replace relocated civic facilities downtown within a vibrant dynamic commercial environment
  - Invest in cultural/arts corridor along 3rd Street



 Neighborhood Connector/ Streetscape Improvements	 Potential New Pedestrian/ Transit Link	 Create New Neighborhood Resource/ Asset
 Important Neighborhood View Corridor	 Potential Location for Multi-modal Transit Center	 Celebrate Neighborhood Landmark
 Greenway Access		



## Sustainable Neighborhoods: Downtown Area



*View along the City Terrace Downtown looking toward May's Island*



# Sustainable Neighborhoods: Downtown Area

## Downtown Development Opportunities

1. Locate and develop **multi-modal transit hub** in conjunction with phased development of **transit infrastructure**.
2. Activate riverfront park with **vibrant local market place** for regular **farmer's market**, as well as periodic **artisan and cultural fairs** and festivals.
3. Develop a **vibrant mixed-use district** around a **new civic center** that consolidates civic services
4. Create a "Downtown U" that fosters community gathering and learning.
5. Diversify retail-commercial profile of the **business district** to activate street edges and create a vibrant "destination downtown"
6. Create **signature street** along 1st Avenue
7. Maintain and support existing cultural facilities on 3rd Avenue and connect to **cultural arts corridor** along 3rd Street
8. Develop **street hierarchy** consistent with adjacent land uses to locate appropriate parking resources, improve streetscape, and create a more walkable downtown.
9. Improve **pedestrian infrastructure and streetscapes**
10. Add **urban housing options** to promote **24/7 activity**.
11. Densify **medical district** to create **vibrancy**.



Civic Center - Canal Walk, Indianapolis, IN



Findlay Farmers Market, Cincinnati, OH



Mixed-use Retail - Entertainment, Newport, KY



Mixed Use Residential - Retail, Chicago, IL



Walkable Development, Burlington, VT



King Farm Arts/Education Center, Kentland, MD

Images by various artists used with permission under creative commons licence, attribution available upon request.



# Sustainable Neighborhoods: South River Area

Czech Village, Sinclair, New Bohemia and Oak Hill Jackson Neighborhoods

Knit together the New Bohemia, Sinclair, Czech Village and Oak Hill Jackson neighborhoods in a way that leverages community assets and investment for mutual benefit, supports diversity, and celebrates individual character.

## Priorities from Public Feedback

-  Diversify Czech Village with mixed use retail/commercial with residential on upper floors
-  Connect to and complement adjacent areas with the Sinclair area development
- Maintain neighborhood character and identity in redeveloping impacted areas
-  Provide incentives for homeowners to rebuild, rehab or relocate near existing neighborhood



# Sustainable Neighborhoods: South River Area

*Czech Village, Sinclair, New Bohemia and Oak Hill Jackson Neighborhoods*



*View along 14th Avenue looking towards Saint Wenceslaus Church*



# Sustainable Neighborhoods: South River Area

*Czech Village, Sinclair, New Bohemia and Oak Hill Jackson Neighborhoods*

## Neighborhood Development Opportunities



1. Reestablish **neighborhood cultural institutions** like National Czech and Slovak Museum and African American Historical Museum

2. Celebrate significant **neighborhood landmarks**, like Saint Wenceslaus Church and the clocktower



3. **Streetscape improvements along neighborhood connectors** link New Bohemia and Czech Village to new Sinclair residential district.



4. Create **new neighborhood assets** to catalyze development, like a community/ recreation center or civic open space/ plaza.



5. **Connect riverfront greenway** to residential areas



*Neighborhood Connector, Charlevoix, MI*



*Mixed Use Development, Galena, IL*



*Streetscape Improvements, University City, MO*



*Mixed Use Development, Covington, KY*



*Neighborhood Connector, Galena, IL*

Images by various artists used with permission under creative commons licence, attribution available upon request.





# River Corridor Redevelopment Plan

OPEN HOUSE

## Neighborhood Planning Process

The City will begin **Phase 2 of the River Corridor Redevelopment Plan**, involving neighborhood planning in Winter 2008. The City is currently shaping the neighborhood planning process based on best practices in other communities. The process may include open houses, neighborhood meetings, a master steering committee and/or focus groups to identify elements of the plan. More information will be available in the coming months.

**The City will work with neighborhoods to delineate areas of neighborhood reinvestment in more detail, taking into consideration:**

- the unique and specific characteristics of each neighborhood;
- making neighborhoods more sustainable;
- mixed income and multi-generational; and,
- better and stronger than before.

**Neighborhoods will include:**

- Czech Village
- Northwest (Time Check)
- Taylor Area
- Downtown
- Oakhill Jackson (New Bohemia)
- Cedar Valley (Rompot)
- Edgewood/Ellis Park
- Medical District/Near Downtown

**Groups involved will include:**

- Neighborhood Associations
- People in the neighborhoods
- Replacement Housing Task Force
- Enhance Our Neighborhoods
- Recovery & Reinvestment Coordination Team



CEDAR RAPIDS

# Housing and Neighborhood Options

## Rental Housing

### Estimated Replacement Need:

Type	Units Required
Market Rate	150
Affordable	230
Subsidized	88
<b>Total</b>	<b>468</b>

## Owner-Occupied Housing

### Estimated Replacement Need:

Type	Units Required
Market Rate	210
Affordable	210
<b>Total</b>	<b>420</b>

## Housing Priorities From Public Feedback

1. Protect housing from future flooding
2. Ensure high-quality replacement houses are built quickly
3. Provide affordable housing options
4. Retain character of pre-flood communities
5. Support sustainable neighborhoods where residents can walk to schools, parks and services



# Housing and Neighborhood Options

## Single Family Housing



Bloomington, Indiana



Des Moines, Iowa



Charleston, South Carolina



Emeryville, California

## Townhomes and Apartments



Des Moines, Iowa



Columbus, Ohio

## Goals for Sustainable Housing

- Rehabilitate existing housing where financially feasible
- Ensure high-quality replacement housing is built quickly
- Provide mixed-income neighborhoods
- Target scattered sites and infill opportunities
- Build on character of pre-flood communities
- Connect to schools, parks and services
- Preserve existing historical character of buildings where possible



# Housing and Neighborhood Options

## Progress to Date

### Progress to Date

#### Rental Housing Units

Project Name	Affordable	Market	Total
Roosevelt Apts	82	14	96
Brown Apts	15		15
Affordable Family Rental	40		40
Senior Affordable Rental	24	12	36
Brickstone (6th St SE)	48		48
Brickstone (12th Ave SE)	48		48
<b>Total</b>	<b>257</b>	<b>26</b>	<b>283</b>

#### Owner-Occupied Housing Units

Project Name	Affordable	Market	Total
Affordable Townhome	25		25
Oak Hill Homes		11	11
<b>Total</b>	<b>25</b>	<b>11</b>	<b>36</b>

**Total Units Reviewed To Date:** 319

#### Single-family Housing

- In-fill & new construction
- 800-1200 sq. ft. per unit
- Traditional neighborhood feel
- \$70,000 to \$150,000 for purchase



Sketch provided by Skogman Homes



#### Condominiums and Townhomes

- Neighborhoods with retail/office space
- Retail & office on ground floor
- Walkable & sustainable urban living
- \$100,000 to \$250,000 for purchase



Sketch provided by Sherman Associates



#### Townhomes and Apartments

- In-fill & new construction
- 700-1350 sq. ft. per unit
- two to four-story apartment buildings
- 1-3 bedroom units
- Estimated range of \$500-1000 per month



Sketch provided by Sherman Associates





# River Corridor Redevelopment Plan

OPEN HOUSE

## Cedar Rapids Public Facilities Co-Location Concept

**City Goal: To replace damaged public facilities, where possible, with more sustainable, lower-cost government facilities conveniently co-located for the public.**

- The City of Cedar Rapids has received much positive feedback from the public on the “one-stop shop” for flood recovery assistance at Westdale Mall.
- The City, in conjunction with the Cedar Rapids School District and Linn County, is examining the potential for replacement of some of the damaged facilities with two co-located facilities to save costs, shrink government and make getting services easier for the public.

### The community is exploring the concept of two major co-located facilities:



**Community Service Center** – Possibly consolidating City, County and School District services on one campus in three administrative buildings with a shared facility hub/reception center, joint parking, a common heating and cooling plant, and connections between buildings so you would not need to walk outside.



**Community Operations Center** – Containing City areas such as solid waste and recycling, streets, forestry, fleet and facilities maintenance, shop/storage, and the School District building and grounds department.

**The Planning Process for Public Facilities  
will begin in 2009.**



# River Corridor Redevelopment Plan

OPEN HOUSE →

## Next Steps

### October 2008

Developer Skogman will kick off new housing construction in October 2008, with housing availability 2009.

### Early November 2008

City Council takes action on River Corridor Framework for Reinvestment & Revitalization.

### December 2008

Neighborhood planning process unveiled, which will last from Early '09 to Summer '09.

### Late 2008

Army Corps of Engineers begins its Flood Management Strategy feasibility analysis, projected to take 19 to 24 months, likely to conclude in 2010.

### 2009

Planning and development City/Community facilities.

### 2009

Kickoff of feasibility determination for first downtown projects – cornerstone of downtown reinvestment and redevelopment.

### 2009

Kickoff of multi-family housing construction.

### 2010–2015

Community facilities construction.

### 2012

Flood management system construction begins.



CEDAR RAPIDS



# River Corridor Redevelopment Plan

OPEN HOUSE

## Voluntary Acquisition Hazard Mitigation Grant Program

*The Hazard Mitigation Grant Program (HMGP) – sometimes referred to as a “buyout program” – is provided through Federal and State agencies to reduce the loss of life and property in future disasters. The City is seeking funding for the voluntary acquisition and removal of flood-prone structures, as one component of the overall flood management effort.*

### PROGRAM TIME FRAME

- Sept. 12, 2008** – Notice of Interest submitted to the State Hazard Mitigation Officer indicating all residents interested in participating in a voluntary acquisition.
- Sept. 29, 2008** – City invited by the State Hazard Mitigation Officer to complete a formal application for Hazard Mitigation Grant Program funds.
- Oct. 8, 2008** – City Council committed to including properties within the flood management alignment in the Hazard Mitigation Grant Program application. Properties acquired with Hazard Mitigation Grant funds have a limited reuse of green space only.
- Jan. 30, 2009** – City’s Hazard Mitigation Grant Program application due to the State Hazard Mitigation Officer.
- Spring/Summer 2009** – State and Federal agencies review formal applications.
- Fall 2009** – State and Federal agencies expected to announce funding allocations for the Hazard Mitigation Grant Program.



CEDAR RAPIDS

# Comments & Questions?

**Please complete a comment form  
and provide us with feedback on:**

- Flood Management Strategy
- Riverfront Park
- Housing & Neighborhoods
- Downtown & Business Reinvestment, including Arts and Cultural Facilities
- Public Facilities
- Connectivity/Transportation
- General Comments



# Executive Summary

## Introduction

The evaluation of flood mitigation proposals was one of Stanley Consultants roles under a contract with Sasaki Associates who was serving as the overall prime for the Cedar Rapids River Corridor Redevelopment. The U.S. Army Corps of Engineers (COE), Rock Island District, is in the initial stages of a Feasibility Study for Cedar Rapids. The tasks completed during this evaluation are intended to supplement tasks of the COE Feasibility Study. These tasks included plan formulation, preliminary hydrologic and hydraulic analysis, public involvement, and presentation of the City of Cedar Rapids' preferred option. It is intended that the work completed for this evaluation will be credited as part of the City's cost share.

The other roles included attending public meetings, responding to City Council and City residents requests to evaluate flood mitigation ideas. Additionally, Stanley Consultants advised Sasaki's team on effects of team proposals, helped to identify the flood protection wall and levee alignment and to provided rough order of magnitude costs for the flood mitigation proposals.

## Flood Mitigation Proposals

### General

Alternate ways to reduce flooding in Cedar Rapids were generated by the Sasaki Team as well as the City Council, City staff and the community who submitted ideas through the City Council. Stanley Consultants evaluated these proposals by completing analysis to determine the potential reduction in flood crest, a prediction of when improvements could be attained and a rough order of magnitude (ROM) cost estimate. A total of 30 structural and 10 non-structural flood mitigation options were evaluated and summarized in Table 1 at the end of this Executive Summary.

Examples of structural proposals with affect on 2008 flood crest and ROM cost include: building a reservoir upstream, constructing a diversion channel around Cedar Rapids, dredging the river channel, elevating the bridges, eliminating "pinch" points, constructing a diversion channel through downtown

and constructing flood walls and levees. Non-structural proposal examples include flood proofing structures by either wet or dry methods, incorporating watershed management and buying out previously flood damaged properties.

Structural proposals costs and flood crest reduction varied greatly. The high cost was \$5.6 billion to construct a diversion channel with a drop in the 2008 flood crest varying from 8.5 feet to 12 feet. Lower cost proposals in the \$10 million range include raising bridges, removing bridges and replacing the Five in One Dam with a rubber dam. Unfortunately, these proposals only reduced the 2008 flood crest by approximately 1 foot.

### **Conclusion**

The proposal that appears to provide the greatest protection and be cost effective is to construct flood walls and levees along the Cedar River. The Army Corps of Engineers' study will further evaluate the walls and levees developing a cost to benefit ratio that will determine qualification for Federal funding.

### **Flood Wall and Levee Alignment**

Two basic alignments were considered for the walls and levees: 1) an alignment very near the Cedar River's bank and 2) an alignment set back from the river's edge allowing more area to convey flow during a flood event and offering a green space between the river and the flood protection structure. The alignment that the Sasaki Team pursued was one that considers demountable walls in downtown areas where a permanent wall construction is not desirable, permanent walls in areas where only a narrow width is available and lower cost levees where space is available. This alignment was denoted as Strategy 2B during the Public Meetings. Stanley Consultants' input was to provide technical guidance to Sasaki's team and to provide costs for the final Strategy 2B. The ROM construction cost for this alignment is estimated to be \$360,000,000 to protect against a 2008 record flood event.

### **Hydraulic Modeling Approach**

The study was completed using the available hydraulic model and data. The city provided the current HEC-RAS model, which is the Federal Emergency Management Agency (FEMA) model with updates. A flood frequency analysis was completed to account for the additional 34 years of peak flow data since the completion of the latest FEMA Flood Insurance Study (FIS). These flows along with the flow from the 2008 record flood (150,000 cfs) were used to generate the existing condition water surface profiles through the city. The HEC-RAS model was adjusted to represent the proposed option and water surface profiles were generated. Comparing the proposed condition and existing condition water surface elevations provided the change or effectiveness of the option.

After completion of the analysis of the options, the U.S. Geologic Survey (USGS) revised the 2008 peak flow from 150,000 cfs to 140,000 cfs. This change and the USGS flow frequency analysis at the Cedar Rapids gage were provided by the COE. The updated information was incorporated into the analysis of the Strategy 2B, but work completed prior to the USGS update remains unchanged.

## **Cost Estimate Methodology**

The cost estimates are based on conceptual level of design. Three approaches were used to estimate costs based on the type of flood protection: 1) upstream reservoirs, 2) flood walls, diversion channels and other flood improvements and 3) tunnels.

The volume of upstream reservoirs were estimated based on the quantity of water needed to reduce the flood flow from the 2008 level of 150,000 cfs to the 1993 level of 70,000 cfs. This storage was compared to the storage and costs estimated in a 1982 Army Corps of Engineers (ACOE) Report. These costs were proportioned then escalated to today's dollar using a 4% yearly construction escalation.

Flood wall types and levee cross-sections were generated from experience on other projects including those in Grand Forks and New Orleans. Quantity take-offs were completed on the wall/levee types, unit costs developed and cost per linear foot were developed. Aerial maps with contour elevations were used to estimate wall heights and to create conceptual alignments. Costs for gate closures were estimated from previous flood control experience. Land acquisition costs for the wall and right-of-way to build and maintain the wall were included added along with an estimate of permitting costs. These costs were extended to obtain a total estimated conceptual cost.

The tunnel costs were obtained by contacting tunneling contractors to establish tunnel costs. Inlet, outlet and permitting costs were added to the tunneling to obtain a total cost for the tunneling concepts.

## Cedar Rapids River Corridor Redevelopment

Table 1 - Summary Flood Mitigation Options

Date 1/9/09

Item No.	Title	Potential Reduction in Flood Crest (Range in Ft)	Flood Management Effectiveness Compared to 2008 Flood	Construction Timeline	Permitting Timeline	ROM Cost Estimate (2008 Level of Protection)	Comments
<b>Structural</b>							
S1	Locate Large Reservoir Upstream	3.4 to 5.7 (100-year Flood Crest) 6.4 to 9.3 (500-year Flood Crest) 8.7 to 11.8 (2008 Flood Crest)	98%	Nearly 50 years	3 - 5 years	\$600,000,000	
S2	Locate Multiple Reservoirs Upstream	7.0 to 10.7 (100-year Flood Crest) 5.7 to 8.2 (500-year Flood Crest) 4.8 to 5.7 (2008 Flood Crest)	47%	40 to 50 years	3 - 5 years	\$920,000,000	
S3	Use Cedar Lake for Flood Storage	0 to 0.2 (100-year Flood Crest) 0 to 0.1 (500-year Flood Crest) 0 to 0.1 (2008 Flood Crest)	1%	10 to 20 years	1 - 3 years	\$41,000,000	
S4	Use Jones Golf Course as Retention / Detention Basin	0 to 0 (100-year Flood Crest) 0 to 0 (500-year Flood Crest) 0 to 0 (2008 Flood Crest)	0%	10 to 15 years	1 - 3 years	Not Effective for Flood Control	
S5	Construct Flood Protection (Floodwalls / Levees) at River's Edge	0 to -0.8 (100-year Flood Crest) 0 to -2.4 (500-year Flood Crest) 0.0 to -3.8 (2008 Flood Crest)	98%	10 to 15 years	1 - 3 years	\$260,000,000	Floodwalls/Levees increase the water surface elevations throughout the city and upstream.
S6	Construct Flood Protection (Floodwalls / Levees) Offset From River at 100 Year Elevation	0 to -0.1 (100-year Flood Crest) 0 to -0.9 (500-year Flood Crest) 0 to -1.5 (2008 Flood Crest)	98%	10 to 15 years	1 - 3 years	\$186,000,000	Floodwalls/Levees increase the water surface elevations throughout the city and upstream.
S7	Construct Flood Protection (Floodwalls / Levees) Offset From River at 500 Year Elevation	0 to 0 (100-year Flood Crest) 0 to -0.2 (500-year Flood Crest) 0 to -0.3 (2008 Flood Crest)	98%	10 to 15 years	1 - 3 years	\$188,000,000	Floodwalls/Levees increase the water surface elevations throughout the city and upstream.
S8A	Build Diversion Channel Around Cedar Rapids (East Route)	3.4 to 5.7 (100-year Flood Crest) 6.4 to 9.3 (500-year Flood Crest) 8.7 to 11.8 (2008 Flood Crest)	98%	20 to 30 years	3 - 5 years	\$5,600,000,000	Option is based on a concrete lined channel with a 330 feet top width, 1:1 side slopes, and 20 feet of water depth.
S8B	Build Diversion Channel Around Cedar Rapids (West Route)	1.2 to 5.7 (100-year Flood Crest) 2.0 to 9.3 (500-year Flood Crest) 2.5 to 11.8 (2008 Flood Crest)	98%	20 to 30 years	3 - 5 years	\$2,800,000,000	Option is based on a concrete lined channel with a 350 feet top width, 1:1 side slopes, and 20 feet of water depth.
S9A	Increase Cedar River Channel Cross Section by Dredging	0 to 0.4 (100-year Flood Crest) 0 to 0.3 (500-year Flood Crest) 0 to 0.2 (2008 Flood Crest)	2%	10 to 20 years	1 - 3 years	\$26,000,000	Option is based on dredging the bottom of the river from the Five in One dam to south side of landfill.
S9B	Increase Cedar River Channel Cross Section by Widening Channel	0 to 3.8 (100-year Flood Crest) 0 to 3.3 (500-year Flood Crest) 0 to 3.2 (2008 Flood Crest)	27%	10 to 20 years	3 - 5 years	\$333,000,000	Option is based on widening the river channel to a bottom width of 700 feet from the Five in One dam to south side of landfill.
S10	Elevate CRANDIC Railroad Bridge Above 2008 Flood Crest	0 to 0.2 (100-year Flood Crest) 0 to -0.1 (500-year Flood Crest) 0 to -0.2 (2008 Flood Crest)	0%	10 to 20 years	Less than 1 year	\$7,300,000	CRANDIC railroad bridge is located downstream of 8th Avenue. Elevate bridge superstructure above 2008 flood crest.

## Cedar Rapids River Corridor Redevelopment

Table 1 - Summary Flood Mitigation Options

Date 1/9/09

Item No.	Title	Potential Reduction in Flood Crest (Range in Ft)	Flood Management Effectiveness Compared to 2008 Flood	Construction Timeline	Permitting Timeline	ROM Cost Estimate (2008 Level of Protection)	Comments
	<b>Structural</b>						
S11A	Elevate all Bridges and Approaches Above 2008 Flood Crest	0 to 1.6 (100-year Flood Crest) 0 to 1.2 (500-year Flood Crest) 0 to 0.6 (2008 Flood Crest)	5%	10 to 20 years	Less than 1 year	\$105,000,000	Bridges included: UP railroad upstream of I-380, 1st, 2nd, 3rd, 8th, CRANDIC RR, 12th, 16th & CRANDIC railroad downstream of 16th.
S11B	Elevate Select Bridges Above 2008 Flood Crest	0 to 1.2 (100-year Flood Crest) 0 to 1.0 (500-year Flood Crest) 0 to 0.4 (2008 Flood Crest)	3%	5 to 10 years	Less than 1 year	\$63,000,000	Bridges included: 1st, 2nd, 3rd, & railroad downstream of 16th.
S12A	Demolish Buildings and Remove Mays Island	0 to 0.7 (100-year Flood Crest) 0 to 0.5 (500-year Flood Crest) 0 to 0.3 (2008 Flood Crest)	2%	10 to 15 years	1 - 3 years	\$182,000,000	Flood crest reduction occurs upstream of Mays Island.
S12B	Remove Island Upstream of Interstate 380	0 to 0.8 (100-year Flood Crest) 0 to 0.7 (500-year Flood Crest) 0 to 0.6 (2008 Flood Crest)	5%	10 to 15 years	3 - 5 years	\$44,000,000	Flood crest reduction occurs upstream of island.
S13	Construct Lift Bridge Spans	0 to 1.7 (100-year Flood Crest) 0 to 1.6 (500-year Flood Crest) 0 to 1.3 (2008 Flood Crest)	10%	10 to 20 years	Less than 1 year	\$109,000,000	Bridges included: 1st, 2nd, 3rd, & railroad downstream of 16th.
S14	Replace Five in One Dam Gates With Rubber Dams	0 to 0.2 (100-year Flood Crest) 0 to 0.3 (500-year Flood Crest) 0 to 0.4 (2008 Flood Crest)	3%	5 to 10 years	1 - 3 years	\$14,000,000	Flood crest reduction occurs upstream of dam. Additional reduction may be possible if dam operation is considered.
S15	Provide Rubber Dam at South to Maintain Water Elevation During Low Flow	Negligible	0%	5 to 10 years	1 - 3 years	\$12,000,000	Operation can lower dam in advance of a flood for a negligible effect on the crest.
S16	Construct a Tunnel Parallel to Cedar River Through Cedar Rapids Corridor	0 to 1.3 (100-year Flood Crest) 0 to 0.8 (500-year Flood Crest) 0 to 0.7 (2008 Flood Crest)	5%	10 to 15 years	1 - 3 years	\$300,000,000	Option is based on four tunnels with a diameter of 20 feet.
S17	Build Diversion Channel Through Downtown Cedar Rapids	0 to 2.8 (100-year Flood Crest) 0 to 2.6 (500-year Flood Crest) 0 to 2.2 (2008 Flood Crest)	18%	10 to 15 years	1 - 3 years	\$140,000,000	Option is based on a concrete lined channel 100 feet wide, vertical walls, and 20 feet of water depth.
S18A	Elevate Edgewood Road With Increase in Opening	0.2 to -0.1 (100-year Flood Crest) 0.2 to -0.2 (500-year Flood Crest) 0.2 to -0.3 (2008 Flood Crest)	0%	2 to 5 years	Less than 1 year	\$29,400,000	Minor increases anticipated in water surface elevations upstream of the bridge.
S18B	Elevate Edgewood Road With Same Opening	0 to -0.3 (100-year Flood Crest) 0 to -0.5 (500-year Flood Crest) 0 to -0.7 (2008 Flood Crest)	0%	2 to 5 years	Less than 1 year	\$25,000,000	Increases in water surface elevations anticipated upstream with no additional openings.
S19	Introduce Flood Protection Around Mays Island	0 to 0.0 (100-year Flood Crest) 0 to 0.1 (500-year Flood Crest) 0 to 0.1 (2008 Flood Crest)	0%	2 to 5 years	Less than 1 year	\$26,500,000	

## Cedar Rapids River Corridor Redevelopment

Table 1 - Summary Flood Mitigation Options

Date 1/9/09

Item No.	Title	Potential Reduction in Flood Crest (Range in Ft)	Flood Management Effectiveness Compared to 2008 Flood	Construction Timeline	Permitting Timeline	ROM Cost Estimate (2008 Level of Protection)	Comments
<b>Structural</b>							
S20	Use Chain Lake Wildlife Area for Flood Storage	0 to 0 (100-year Flood Crest) 0 to 0 (500-year Flood Crest) 0 to 0 (2008 Flood Crest)	0%	10 to 15 years	1 - 3 years	Not Effective for Flood Control	
S21	Increase Channel Capacity by Removing "Pinch Points" on Either Side of Corridor	0 to 0.7 (100-year Flood Crest) 0 to 0.7 (500-year Flood Crest) 0 to 0.7 (2008 Flood Crest)	5%	10 to 15 years	1 - 3 years	\$37,000,000	
S22	Construct Flood Protection (Floodwalls / Levees) at Cedar Valley Neighborhood	Negligible	0%	10 to 15 years	Less than 1 year	\$22,000,000	Flood Management Effectiveness only includes the reduction on the Cedar River, not the local reduction on the dry side of the flood protection.
S23	Construct Additional CMP Culverts in UPRR at C Street	0 to 0.0 (100-year Flood Crest) 0 to 0.1 (500-year Flood Crest) 0 to 0.1 (2008 Flood Crest)	0%	5 to 10 years	Less than 1 year	Not Effective for Flood Control	Add five 114-inch CMP culverts to the existing three 114-inch CMP culverts in the railroad embankment.
S24	Build Canal Through West Side of Cedar Rapids	0 to 3.6 (100-year Flood Crest) 0 to 3.2 (500-year Flood Crest) 0 to 2.9 (2008 Flood Crest)	30%	10 to 15 years	1 - 3 years	\$232,000,000	Option is based on a concrete lined canal with a 240 feet top width, vertical sides, concrete lined, and an average depth of 15 feet.
S25	Construct Flood Protection (Floodwalls/Levees) at Ellis Road West of Edgewood Road	Negligible	0%	10 to 15 years	Less than 1 year	\$22,000,000	Flood Management Effectiveness only includes the reduction on the Cedar River, not the local reduction on the dry side of the flood protection.
----	Remove All Bridges - Sensitivity Analysis	0 to 2.9 (100-year Flood Crest) 0 to 2.8 (500-year Flood Crest) 0 to 2.4 (2008 Flood Crest)	20%	----	----	----	Remove all bridges from Edgewood Road to the Union Pacific Railroad at C Street. Shows maximum possible flood reduction for removing bridges.
----	Remove Dams - Sensitivity Analysis	0 to 0.3 (100-year Flood Crest) 0 to 0.4 (500-year Flood Crest) 0 to 0.5 (2008 Flood Crest)	4%	----	----	----	Remove the Five in One Dam and dam south of UPRR at C Street. Shows maximum possible flood reduction for removing dams.
<b>Non Structural</b>							
NS1	Floodproof Structures by Dry Floodproofing Methods	None	0%	1 to 2 years	Minimal (City of Cedar Rapids permit)	Cost per residence: Option 1 - \$32K Option 2 - \$24K	Method only effective if floodwaters rise/fall rapidly. Effective for homes without basements. Cost assumption for 4000 sf residence. Option 1 - Replacing interior/exterior building materials with water resistant materials. Option 2 - Place earthen berm around perimeter of house against HDPE house wrap.
NS2	Floodproof Structures by Wet Floodproofing Methods	None	0%	1 to 2 years	Minimal (City of Cedar Rapids permit)	Cost per Residence \$30 K	Based on relocating appliances / utilities from basement. Cost Includes addition of a utility room on the house.

## Cedar Rapids River Corridor Redevelopment

Table 1 - Summary Flood Mitigation Options

Date 1/9/09

Item No.	Title	Potential Reduction in Flood Crest (Range in Ft)	Flood Management Effectiveness Compared to 2008 Flood	Construction Timeline	Permitting Timeline	ROM Cost Estimate (2008 Level of Protection)	Comments
	<b>Non Structural</b>						
NS3	Incorporate Agricultural Lands Policy (Watershed Management)	Varies depending on extent of implementation of new programs and expansion of existing programs	Varies	Varies	Varies	Varies	Size of watershed upstream of Cedar Rapids is 6,510 square miles. Effectiveness, construction, permitting and cost vary depending upon implementation of new programs and expansion of existing programs.
NS4	Acquire / Buyout Heavily Damaged Structures	Negligible	1%	1 to 2 years	Iowa DNR Asbestos Removal Notification for Demolition	Varies - dependant upon assessed values. Estimated to be approximately \$22/sf of property	Cost assumption that a structure is on the property
NS5	Develop Flood Warning System Along Cedar Rapids Corridor	None	0%	2 to 5 years	None	\$50K/gage station	Assume new gage station. Cost does not include annual operation and maintenance cost.
NS6	Develop Zoning and Planning Along Cedar Rapids Corridor (Stormwater Management)	Varies depending on extent of implementation	Varies	1 to 2 years	None	Varies	
NS7	Develop New Building Codes Along Cedar Rapids Corridor	None	0%	1 to 2 years	None	----	
NS8	Develop Evacuation Plans Along Cedar Rapids Corridor	None	0%	----	None	----	See City's Flood Response Plan for Evacuation Map
NS9	Elevate Structures	None	0%	2 to 5 years	Minimal (City of Cedar Rapids permit)	Approx. Cost per Residence Raise 4' - \$19.4K Raise 6' - \$26.8K Raise 8' - \$34.1K	Advantages: No displacement of residents. Disadvantages: Outbuildings may still be subject to flood damage. Possible loss of access during flooding.
NS10	Relocate Structures	Negligible	1%	2 to 5 years	Minimal (City of Cedar Rapids permit)	Approx. Cost per Residence \$40K	Cost assumption that relocation is within the immediate area. Cost does not include destination site preparation/foundation construction

---

## EXECUTIVE SUMMARY – TRANSPORTATION COMPONENT

---

The City of Cedar Rapids commissioned the preparation of a River Corridor Redevelopment Plan, including a Reinvestment and Revitalization Framework Plan. As part of this effort, the following transportation issues were addressed.

- Transit
- Freight Railroads
- Bridges
- Streets and Parking
- Pedestrian and Bicycle

The recommendations made as part of the redevelopment plan analysis are based on a preliminary review of the transportation issues. More detailed, follow-up studies are required to confirm these recommendations.

### **Transit**

A review of Cedar Rapids Transit (CRT) was performed. Transit services were impacted due to the June 2008 floods. The Ground Transportation Center (GTC) took on approximately 8' of water during the flood. Consequently, downtown transfers now take place at a temporary facility located at 2<sup>nd</sup> Street SE and 12<sup>th</sup> Avenue SE. In addition, as a result of the flood, eight buses had to be taken out of service, but are being replaced. Post flood, fare collection had to be temporarily suspended due to the inability to empty fareboxes to the vault because of the flooding of the bus garage.

According to CRT, their fiscal year 2009 budget is \$8,807,472. Prior to the flood, there was pressure on this budget caused by the high price of diesel fuel. According to a January 1, 2008 Fleet Utilization Analysis<sup>1</sup>, the average bus age for the CRT fleet is 18.2 years. The useful service life of a transit bus is 12 years (as defined by the Federal Transit Administration). Thus, the CRT bus fleet requires significant renewal. The CRT bus garage opened around 1940. The useful service life of a bus garage is 40 years (as defined by the Federal Transit Administration). Thus, the CRT bus garage requires renewal. In addition, the bus garage took on approximately 5' of water during the flood. A temporary office and bus facility has been established at the Westdale Mall. The City Council had approved a location for a new Intermodal Transfer Facility (ITF) site at 3<sup>rd</sup> Street SE and 9<sup>th</sup> Avenue SE. This proposed site was flooded and alternative site options outside of the 100-year floodplain are now under consideration.

A benchmarking analysis for CRT and 15 peer transit properties was performed based on federal National Transit Database (NTD) reporting. CRT compares as follows:

- Above-average in terms of revenue vehicle-miles operated
- Slightly below-average in annual unlinked trips provided
- Above average on the basis of peak vehicle requirements
- Above-average with regard to average daily ridership
- Below-average in terms of reported operating expense per revenue vehicle-mile

---

<sup>1</sup> Passenger Transportation Development Plan, March 2008 (FY08), Corridor MPO

- Below-average in reported operating expense per passenger-mile, and
- Below-average on the basis of passenger trips per revenue vehicle-mile

It is important to note that the Cedar Rapids average fleet age was more than twice that of the next nearest average of any of the peers. This has a substantial effect on the cost of providing transportation. Another factor that works against CRT's economy of operating expenses is the garage supporting the system is life-expired and was not designed with the needs of modern transit vehicles in mind. These factors undoubtedly contribute to below-average operating expense measures. CRT must be credited for providing its service as effectively as it does.

The following transit improvements are recommended.

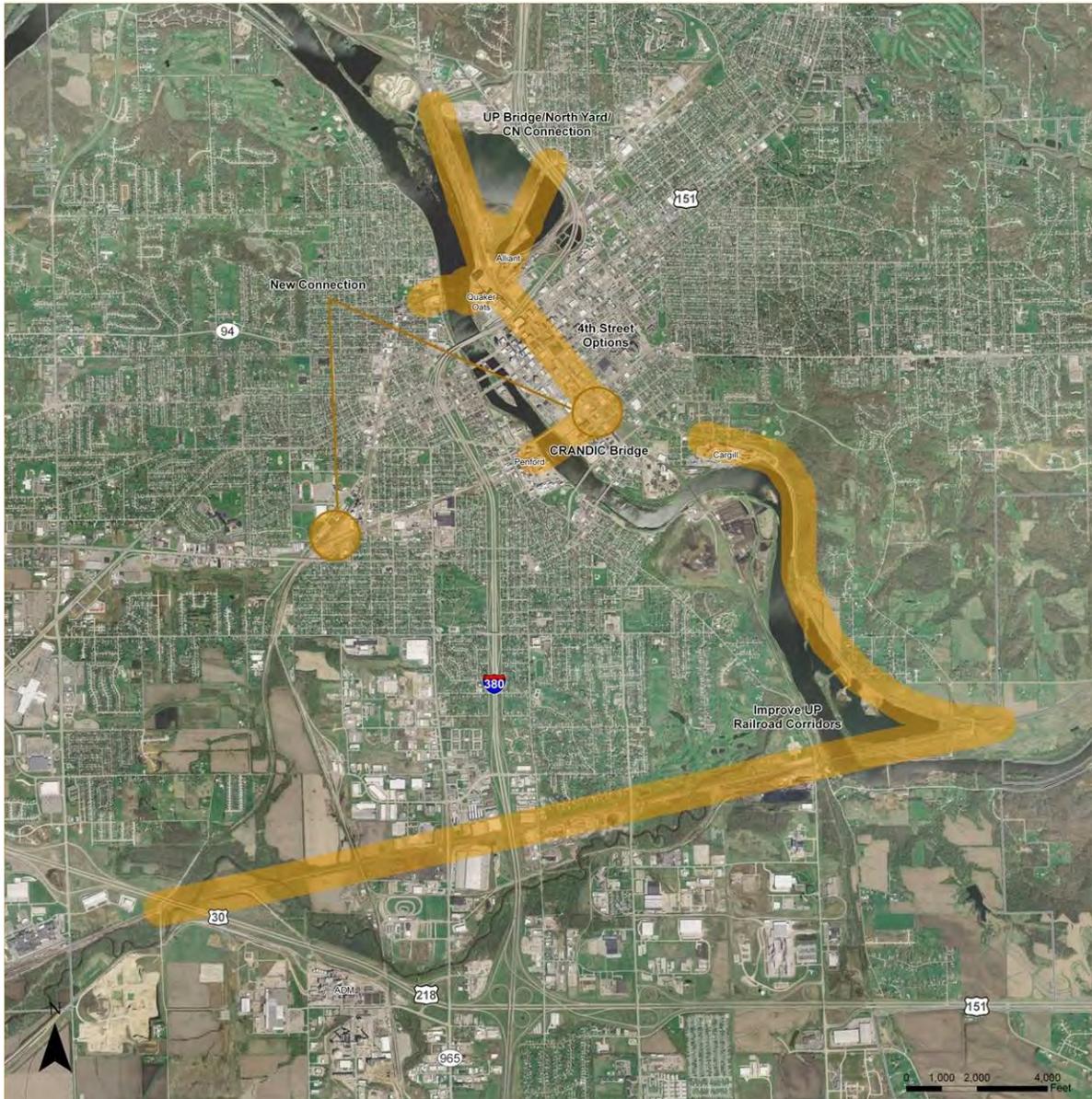
- **Renew Bus Fleet** - With the average age of CRT's bus fleet over 18 years, compared to the 12-year useful service life of a transit bus, the CRT bus fleet must be renewed. The acquisition of five or six new buses per year is recommended.
- **Renew Bus Garage or Consolidated Fleet Facility** - The CRT bus garage is well beyond its useful service life, so a new replacement facility will be needed.
- **New Intermodal Transfer Facility Site** – The Corridor MPO is evaluating potential ITF sites located between 4<sup>th</sup> and 7<sup>th</sup> Streets SE and 4<sup>th</sup> and 7<sup>th</sup> Avenues SE.
- **Progressive Service Improvements** - incremental improvement of fixed-route bus service including greater frequencies, service spans, weekend service, express bus service, and bus rapid transit is recommended.
- **Downtown Circulator** - The potential exists for a new downtown circulator bus route linking the Cedar Rapids Medical Center area to the central business district and possibly to the west side or the river.
- **Intercity Commuter Bus** – The feasibility of intercity commuter bus service between Cedar Rapids and Coralville/Iowa City is recommended to be evaluated.

## **Freight Railroads**

Cedar Rapids is served by five freight railroads. They include the Union Pacific (UP), the Cedar Rapids and Iowa City Railway (CRANDIC), the Canadian National (CN), the Iowa Northern Railway Company (IANR), and the Iowa Interstate (IAI). The IANR and IAI have trackage rights in Cedar Rapids. A major recommendation of the Vision Cedar Rapids Downtown Framework Plan (May 2007) was to reduce or eliminate the impacts of freight railroad operations along the 4<sup>th</sup> Street Corridor in downtown Cedar Rapids. As part of the River Corridor Redevelopment Plan effort, potential options for reducing and removing freight railroad traffic from the 4<sup>th</sup> Street Corridor were identified.

Based on previous work by the City of Cedar Rapids, potential freight railroad improvements were developed to address the 4<sup>th</sup> Street Corridor issues. These potential improvements are shown in the figure below and include:

### **Potential Freight Railroad Improvement Projects**



- Quiet Zones - Crossings that are closely-spaced, such as the avenues crossing the 4<sup>th</sup> Street Corridor, can be addressed as a group in considering them for quiet zone status. Given the typical traffic volumes, it is unlikely that gates and flashers would be sufficient to reduce the risk at some of these crossings. Supplemental safety measures (SSMs), such as four-quadrant gates or medians, are more likely to be required in this case.
- New UP-CRANDIC Connection North of Wilson Ave. SW – The new connection between the UP and CRANDIC has a conceptual capital cost of \$2.7 million. The Wilson Avenue SW connection and crossover are anticipated to be located on railroad-owned land, so no land acquisition costs are included.
- New UP-CRANDIC Connection at 3<sup>rd</sup> St. SE and 10<sup>th</sup> Ave. SE – A new connection between the UP and CRANDIC has a conceptual capital cost of \$6.4 million. The industrial parcel bounded by 3<sup>rd</sup> Street SE, 9<sup>th</sup> Avenue SE, 10<sup>th</sup> Avenue SE and the

UP tracks would have to be acquired. In addition, trackage rights agreements between the UP and CRANDIC would be necessary.

- **Realign Connections at UP, CN, and Industries Using Existing UP Bridge –** Realigned track connections at the east end of the Cedar River bridge between the UP-Cedar Rapids Industrial Lead (CRIL) tracks and the UP North Yard, CN Yard, Alliant, and Quaker Oats facilities would realign the connections between the rail lines and the local industries, so that cars to/from ADM could be interchanged via a route that no longer requires the use of the UP-CRIL via the 4<sup>th</sup> Street SE right-of-way. A conceptual cost of \$6.4 million was estimated for these improvements. This cost estimate does not include any earthwork or track construction or other costs associated with relocating the UP North Yard further to the north to replace capacity lost by the new connections or the CN yard further to the east.
- **New Realigned UP Bridge Over Cedar River –** A new, ballasted-deck, double-track bridge realigned on an angle to the northeast of the Quaker Oats elevator building would replace the existing UP truss bridge over the Cedar River that was constructed in 1898. In order for this concept to be successful, it would be necessary to re-establish connections to UP North Yard, CN Yard, Alliant, and Quaker Oats facilities. Removal of the existing bridge is anticipated to cost approximately \$4.2 million, while construction of the new bridge would cost approximately \$31 million. New track across the bridge would add over \$910,000 to the project cost. This cost estimate does not include the cost of the approach work on either end of the bridge or the reconfigured connections to North Yard, the CN or any of the industries in that general area.
- **New UP Third Main Track -** A new third running track (136# rail) along UP Boone Subdivision for a distance of 4.8 miles from the east end of Beverly Yard (approximately Edgewood Road SW) to Otis Road SE would be constructed. This improvement provides an alternative means for delivery of cars to/from Cargill's SE side facility so as to not tie up one of the existing main line tracks. Holding tracks of an approximate 24-car capacity would also be constructed near Otis to allow for staging of cars destined for Cargill. Conceptual cost is estimated to be \$105 million.

### Current Status

Discussions are currently underway with the freight railroads to identify a set of freight railroad improvements for which to seek funding assistance. Additional improvements such as upgrading and double tracking of the UP-CRIL from west of the UP downtown bridge to the UP Beverly Yard have been identified.

### **Bridges**

During the June 2008 flood, only the I-380 bridge remained open out of Cedar Rapids seven bridges over the Cedar River. The Edgewood Road, 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 8<sup>th</sup>, 12<sup>th</sup>, and 16<sup>th</sup> Avenue bridges over the Cedar River were closed during the flood.

### Downtown Bridges

Several flood mitigation tactics involving the downtown bridges were identified and preliminary hydraulic modeling was performed to examine the potential effectiveness for

these tactics. The following information on these bridge-related options was presented in the September 11, 2008 open house meeting.

### Downtown Bridge Flood Mitigation Tactics

Tactic	Flood Reduction	Costs	Install Time	Approval Time	Other Impacts
9. Construct Lift Bridge Spans	10%	\$110 – 120 Million	10 – 20 years	< 1 year	Bridges would not be operational during flood event
12. Raise All Bridges and Approaches (Provide 3 ft. freeboard above flood of record)	4%	\$100 – 110 Million	10 – 20 years	< 1 year	Impacts adjoining infrastructure. Bridges would be operational during flood events
16. Elevate Selected Bridges (Above 2008 flood crest)	3%	\$60 – 70 Million	5 – 10 years	< 1 year	Impacts adjoining infrastructure.

Source: Sasaki Associates/Stalley Consultants

Preliminary hydraulic modeling indicated that the upstream bridges (1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> Avenue bridges) have more impact on flood mitigation than the downstream bridges. The age of the downtown bridges was also examined to ascertain their useful service life. Typical service life for a bridge is 40-50 years. The opening years for downtown Cedar River bridges under jurisdiction to Cedar Rapids are shown below. As seen in this table, the 2<sup>nd</sup> and 3<sup>rd</sup> Avenue bridges are approaching the end of their useful service life.

### Downtown Bridges Opening Year

Cedar River Bridge	Opening Year
1 <sup>st</sup> Avenue	IADOT
2 <sup>nd</sup> Avenue	Reconstructed 1965
3 <sup>rd</sup> Avenue	Reconstructed 1966
8 <sup>th</sup> Avenue	Reconstructed 1987
12 <sup>th</sup> Avenue	1974
16 <sup>th</sup> Avenue	1989

More detailed hydraulic modeling with the recommended Cedar Rapids flood management strategy is required to determine the flood mitigation benefits of removing, consolidating, or raising the elevation of these bridges. At the same time, detailed traffic and engineering studies will be needed to determine the traffic operations impacts of these options and how high these bridges could be raised, recognizing the impact to the bridge approaches and adjacent land uses.

#### Edgewood Road Bridge

The Cedar Rapids Public Works Department is exploring potential concepts for addressing the flooding of the Edgewood Road bridge over the Cedar River. In particular, the need exists to raise the elevation of the south approach to the bridge from south of Ellis Road NW. The Cedar Rapids Public Works Department has alternative concept plans for the Edgewood Road bridge and south approach improvements.

#### Southwest Arterial Bridge

The Cedar Rapids Public Works Department is exploring potential concepts for a new Cedar River bridge crossing. This proposed new bridge crossing, referred to as the Southwest Arterial is located approximately half way between downtown Cedar Rapids and US-30/US-151, and would connect C Street SW and Otis Road SE just south of the UP mainline. An additional advantage of the proposed Southwest Arterial Bridge is the elimination of two at-grade railroad crossing of the UP. The Cedar Rapids Public Works Department has alternative concept plans for the proposed Southwest Arterial Bridge.

### I-380 Realignment

The section of I-380 through the downtown area was examined for potential realignment. Concerns have been raised about the safety of the I-380 section through downtown because of the tight turning radii and the crashes that have occurred in the vicinity of the reverse-curve section. A concept involving the realignment of the I-380 bridge over the Cedar River to the north and improving the curvature of the section to 4 degrees was developed. The estimated conceptual cost for this realignment of I-380 exceeds \$215 million. This cost estimate excludes land acquisition, residential/commercial acquisition, demolition, environmental mitigation, enhancements, removal of existing I-380, and existing roadway relocation. It is recommended that as part of the upcoming Iowa Department of Transportation study of I-380 that realignment at the Cedar River be examined.

### Highway 100 Bridge

The Iowa Department of Transportation is studying the extension of Highway 100. The proposed Highway 100 Extension is included in the 2040 Transportation Plan for the Cedar Rapids Metropolitan Area. The Iowa Department of Transportation has recently completed the Final Environmental Impact Statement for the project.

### Sinclair Bridge

The Cedar Rapids Public Works Department has explored a proposed new bridge crossing, referred to as the Sinclair Bridge. This concept is generally located at the south tip of downtown and would connect the Sinclair site area (former meat packing plant) at 3<sup>rd</sup> Street SE to generally follow the former UP freight line to the southeast, crossing the Cedar River, and eventually connecting with C Street SW. This potential new bridge concept must be reviewed for compatibility with the recommended flood mitigation strategy and in concert with decisions on the 2<sup>nd</sup> and 3<sup>rd</sup> Avenue bridges.

### **Streets and Parking**

As stated in the Vision Cedar Rapids Downtown Framework Plan (May 2007), the current street network in Downtown Cedar Rapids was designed mainly to handle large volumes of traffic generated by the retail activity in the 1980s. Improvements are desired in visual character, comfort, and convenience so as to create an economically healthy, vibrant, aesthetically-enhanced, and pedestrian-friendly downtown area. Potential improvements include:

- Converting one-way streets to two-way operations
- Improve aesthetics by developing signature streets and boulevards
- Provide on-street parking

- Provide street continuity
- Provide greater access to the riverfront

### One-Way to Two-Way Downtown Street Conversion

The potential downtown locations for one-way street conversions to two-way operations include:

- 2<sup>nd</sup> Avenue and 3<sup>rd</sup> Avenue SE from 13<sup>th</sup> Street SW/Rockford Road SW to 19<sup>th</sup> Street SE
- 4<sup>th</sup> Avenue and 5<sup>th</sup> Avenue from 1<sup>st</sup> Street SE through 19<sup>th</sup> Street SE

These two sets of one-way to two-way street conversions were evaluated together due to their proximity.

A Summary Report of the Cedar Rapids Downtown Circulation Study Phase One (August 2006) that was prepared by Ament, Inc. and Kimley-Horn and Associates, Inc. was reviewed. This report examined the effects of one-way to two-way street conversions and the ability to provide additional on-street angle versus parallel parking relative to the one-way to two-way street conversions. The existing lane configuration and alternative concepts for 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, and 5<sup>th</sup> Avenues from the Downtown Circulation Study Phase One are shown in Figures 5.1 – 5.4. These alternative concepts included one-way and two-way street operations with parallel and angle parking.

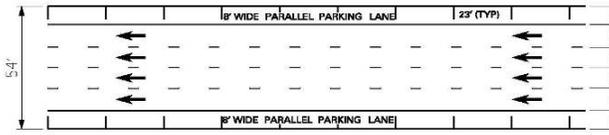
A wider range of alternative concepts for 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, and 5<sup>th</sup> Avenues SE has been prepared that include parallel parking, angle parking, no-parking, and bicycle lanes for two-way operations on these streets. Preliminary recommendations are that 4<sup>th</sup> Avenue SE and 5<sup>th</sup> Avenue SE can proceed toward implementation for conversion from one-way to two-way operations. Consideration should be given to alternate two-way operation configuration concepts, such as Alternate 2 for 4<sup>th</sup> Avenue SE and 5<sup>th</sup> Avenue SE, which includes two-way operations, with one-lane in each direction, center left turn lanes, bike lanes, and parallel parking.

Given the need to examine the 2<sup>nd</sup> and 3<sup>rd</sup> Avenue bridges, as discussed in Section 4, and the need to re-examine the 2040 projected traffic volumes, no recommendation on one-way to two-way conversion of 2<sup>nd</sup> Avenue SE and 3<sup>rd</sup> Avenue SE can be made.

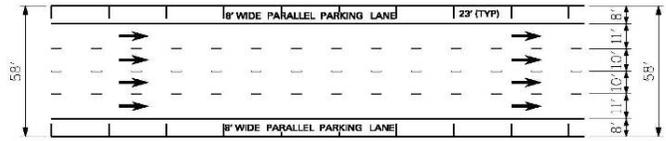
### 1<sup>st</sup> Avenue – Grand Boulevard

The Sasaki/JLG Team recommends that 1<sup>st</sup> Avenue be converted to a Grand Boulevard. A street comprises the entire three-dimensional visual corridor, including the public realm

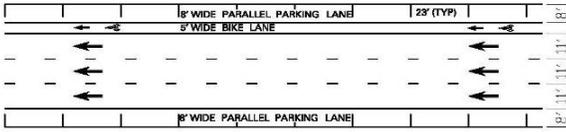
## Conversion Alternatives for 2<sup>nd</sup> and 3<sup>rd</sup> Avenues SE



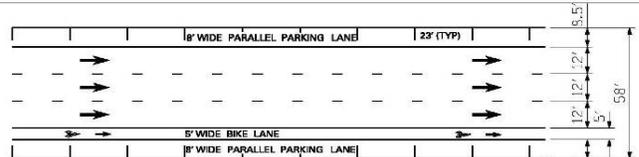
2nd AVENUE SE: EXISTING LANE CONFIGURATION



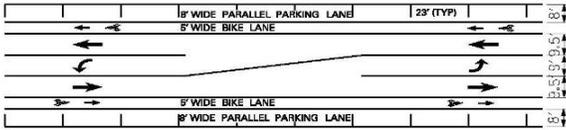
3rd AVENUE SE: EXISTING LANE CONFIGURATION



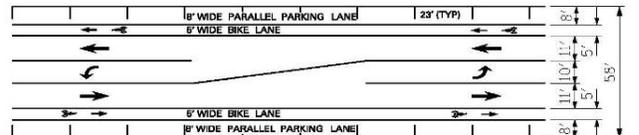
ALTERNATE 1  
2nd AVENUE SE: ONE-WAY WITH BIKE LANE AND PARALLEL PARKING ON BOTH SIDES



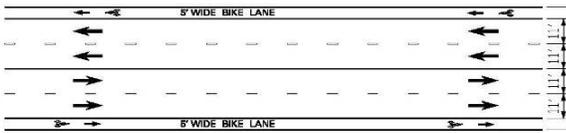
ALTERNATE 1  
3rd AVENUE SE: ONE-WAY WITH BIKE LANE AND PARALLEL PARKING ON BOTH SIDES



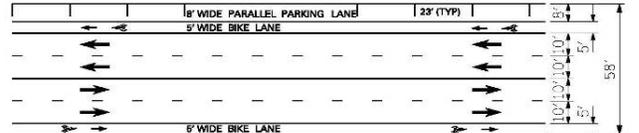
ALTERNATE 2  
2nd AVENUE SE: TWO-WAY WITH 2-WAY LEFT TURN LANE AND BIKE LANE AND PARALLEL PARKING ON BOTH SIDES



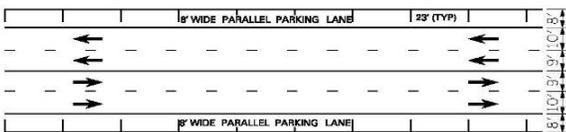
ALTERNATE 2  
3rd AVENUE SE: TWO-WAY WITH 2-WAY LEFT TURN LANE AND BIKE LANE AND PARALLEL PARKING ON BOTH SIDES



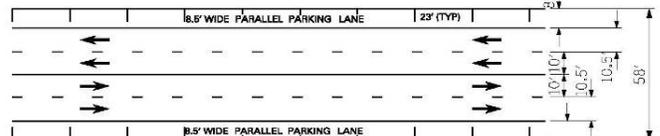
ALTERNATE 3  
2nd AVENUE SE: TWO-WAY WITH BIKE LANE ON BOTH SIDES AND NO PARKING



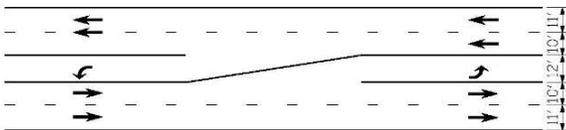
ALTERNATE 3  
3rd AVENUE SE: TWO-WAY WITH BIKE LANE ON BOTH SIDES AND PARALLEL PARKING ON ONE SIDE



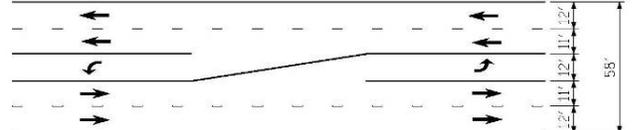
ALTERNATE 4  
2nd AVENUE SE: TWO-WAY WITH PARALLEL PARKING ON BOTH SIDES WITH NO BIKE LANE



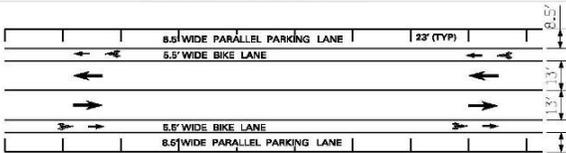
ALTERNATE 4  
3rd AVENUE SE: TWO-WAY WITH PARALLEL PARKING ON BOTH SIDES WITH NO BIKE LANE



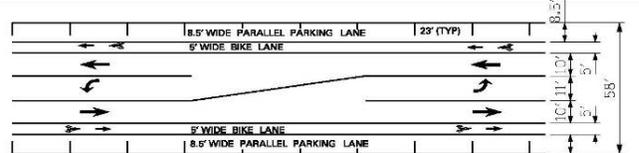
ALTERNATE 5  
2nd AVENUE SE: TWO-WAY WITH 2-WAY LEFT TURN LANE WITH NO BIKE LANE AND NO PARKING



ALTERNATE 5  
3rd AVENUE SE: TWO-WAY WITH 2-WAY LEFT TURN LANE WITH NO BIKE LANE AND NO PARKING

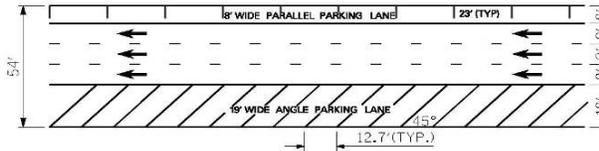


ALTERNATE 6  
2nd AVENUE SE: TWO-WAY WITH BIKE LANE AND PARALLEL PARKING ON BOTH SIDES

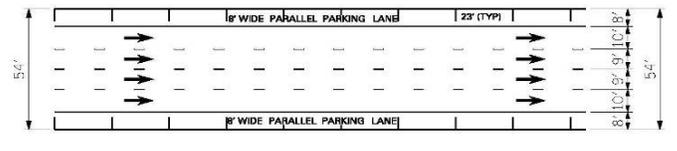


ALTERNATE 6  
3rd AVENUE SE: TWO-WAY WITH 2-WAY LEFT TURN LANE AND BIKE LANE AND PARALLEL PARKING ON BOTH SIDES

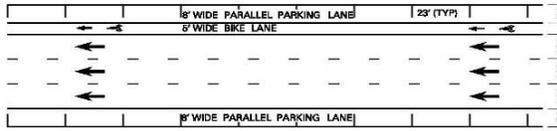
## Conversion Alternatives for 4<sup>th</sup> and 5<sup>th</sup> Avenues SE



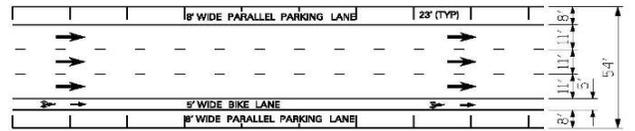
4th AVENUE SE: EXISTING LANE CONFIGURATION



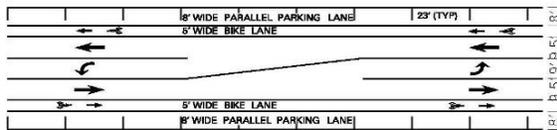
5th AVENUE SE: EXISTING LANE CONFIGURATION



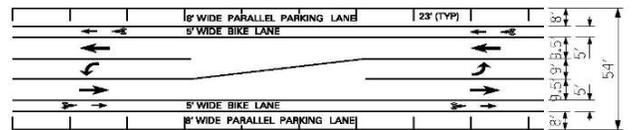
ALTERNATE 1  
4th AVENUE SE: ONE-WAY WITH BIKE LANE AND PARALLEL PARKING ON BOTH SIDES



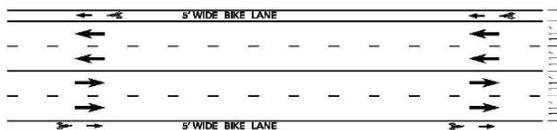
ALTERNATE 1  
5th AVENUE SE: ONE-WAY WITH BIKE LANE AND PARALLEL PARKING ON BOTH SIDES



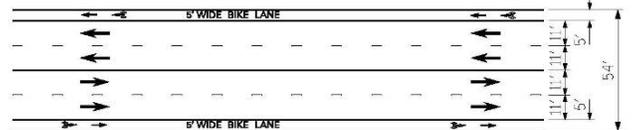
ALTERNATE 2  
4th AVENUE SE: TWO-WAY WITH 2-WAY LEFT TURN LANE AND BIKE LANE AND PARALLEL PARKING ON BOTH SIDES



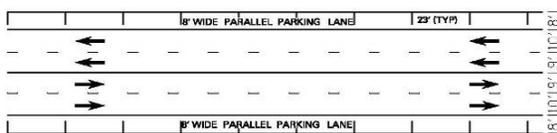
ALTERNATE 2  
5th AVENUE SE: TWO-WAY WITH 2-WAY LEFT TURN LANE AND BIKE LANE AND PARALLEL PARKING ON BOTH SIDES



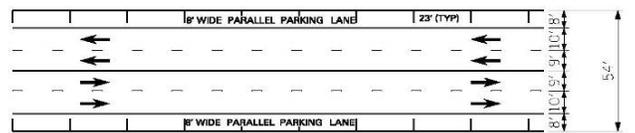
ALTERNATE 3  
4th AVENUE SE: TWO-WAY WITH BIKE LANE ON BOTH SIDES AND NO PARKING



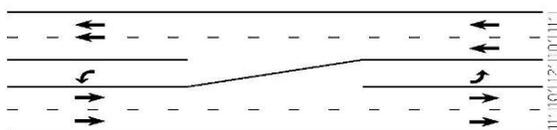
ALTERNATE 3  
5th AVENUE SE: TWO-WAY WITH BIKE LANE ON BOTH SIDES AND NO PARKING



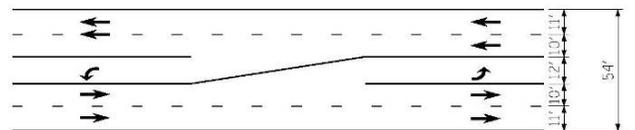
ALTERNATE 4  
4th AVENUE SE: TWO-WAY WITH PARALLEL PARKING ON BOTH SIDES WITH NO BIKE LANE



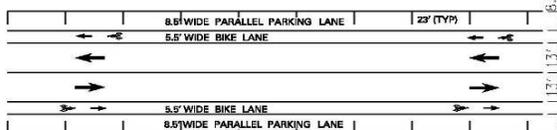
ALTERNATE 4  
5th AVENUE SE: TWO-WAY WITH PARALLEL PARKING ON BOTH SIDES WITH NO BIKE LANE



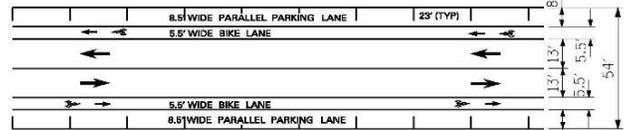
ALTERNATE 5  
4th AVENUE SE: TWO-WAY WITH 2-WAY LEFT TURN LANE WITH NO BIKE LANE AND NO PARKING



ALTERNATE 5  
5th AVENUE SE: TWO-WAY WITH 2-WAY LEFT TURN LANE WITH NO BIKE LANE AND NO PARKING



ALTERNATE 6  
4th AVENUE SE: TWO-WAY WITH BIKE LANE AND PARALLEL PARKING ON BOTH SIDES



ALTERNATE 6  
5th AVENUE SE: TWO-WAY WITH BIKE LANE AND PARALLEL PARKING ON BOTH SIDES

and how it relates to the adjacent land uses. Special emphasis is placed on streets that service and take into account all users, not just motor vehicles. The following are our recommended characteristics of a 1<sup>st</sup> Avenue Grand Boulevard.

- Accommodate multiple users and connect to the broader street network
- Accommodate social interaction, encourage pedestrian activity, or serve as a social network
- Use hardscaping, landscaping, street furniture, or other physical elements to create a unique personality and capture a sense of public space
- Capitalize on building design, scale, architecture, and proportionality
- Benefit from community involvement and participation (festivals, parades, open-air markets, etc.)
- Reflect the local culture or history
- Provide interesting visual experiences, vistas, natural features, or other qualities
- Utilize green infrastructure or other sustainable strategies

### Complete Streets/Traffic Calming

The Cedar Rapids metropolitan area is investigating the concept of “Complete Streets.” Complete streets are designed and operated to enable safe access for all users. Complete streets policies are intended to make a community’s streets work for drivers, transit riders, pedestrians, and bicyclists, as well as for older people, children, and people with disabilities. In addition, to help implement complete streets in local neighborhoods where traffic issues exist, it is recommended that Cedar Rapids consider the use of traffic calming techniques. Traffic calming techniques are typically used to increase pedestrian safety and to better integrate pedestrian and bicycles in to the roadway system.

### Parking

Provision of adequate parking amenities is essential for the economic health and vitality of downtown Cedar Rapids. Pre-flood, there were 3,190 parking spaces in six public off-street parking garages (parkades), 1,700 parking spaces in 16 off-street parking lots, and 1,161 on-street parking meter spaces, for a total of 6,051 public parking spaces in the downtown area. There are 4,669 private off-street parking spaces, resulting in a total of over 10,720 parking spaces in the downtown area. The 1<sup>st</sup> Street Parkade is unlikely to re-open, resulting in a loss of 369 off-street parking spaces or 8% of public off-street parking spaces. The City should continue to monitor public and private parking supply and usage as the downtown area redevelops to ensure sufficient capacity exists for downtown area land uses, including cultural, business, retail, and residential activities.

### Parallel Versus Angled Parking

The provision of angled parking along roadways may lead to an increase in parking capacity, but requires greater width (17 to 19.5 feet) than that required for a parallel parking lane (8 to 9 feet). The “rule of thumb” as identified by the Institute of Transportation Engineers for implementation of angled parking is that if there are more than 10,000 vehicles using a given roadway per day, then parallel parking is recommended. For roadways with less than 10,000 vehicles per day, conditions are suitable for angled parking to be considered. Prior to the implementation of angled parking on any roadway, a detailed traffic analysis should to be performed to evaluate the impacts to roadway capacity and traffic operations at all intersections along the roadway.

## **Pedestrian and Bicycle**

Creating a walkable and pedestrian-friendly environment is critical for the vitality of downtown Cedar Rapids. Walkability has been identified as one of downtown Cedar Rapids's greatest need in the Vision Cedar Rapids Downtown Framework Plan (May 2007). Bicycling as a mode of transportation can reduce the number of short trips that are too long to be walked yet too short for efficient use of a car. National travel analysis suggests that 40% of trips are less than five miles, which is a distance well-suited for bicycle use.

### Pedestrian Actions

Cedar Rapids has begun the process of creating a walkable downtown with streetscape improvements completed in approximately 40 blocks in the core downtown area. The streetscape program should be continued and expanded beyond the core downtown area. Potential improvements to be considered include the following:

- Sidewalks - To facilitate pedestrian activity, Cedar Rapids should add new sidewalks where links are missing, and widen existing sidewalks, as appropriate. Other important issues to consider when reviewing and planning for new sidewalks include:
  - Pavement quality, which is a factor for encouraging use as well as limiting potential liability from injury
  - Providing wider sidewalks in commercial districts or town centers, because they are more inviting than narrow, crowded sidewalks
  - Protection from moving traffic, including shoulders, a slightly higher elevation, a row of parking, or trees and planters
  - Signage or striping to make motorists aware of the pedestrian space, especially at conflict points such as when sidewalks cross curb cuts
- Median Islands and Curb Extensions - Median islands create a safe waiting place for pedestrians when crossing a major street. At corners, curb extensions shorten the street crossing distance for pedestrians. Both median islands and curb extensions help increase pedestrian safety when crossing streets.
- Mid-block Crossings - Mid-block crossings are best for locations with very heavy pedestrian and vehicular traffic and long block lengths. Mid-block pedestrian crossings provide additional safe access for pedestrians by creating a designated crossing point.
- Traffic Speed Reduction – Fast moving traffic acts as a deterrent to pedestrian activity and makes walking more dangerous and less enjoyable. To slow down vehicles, Cedar Rapids can implement a number of tactics, including:
  - converting driving lanes to parallel parking
  - planting trees and other landscaping along the roadside,
  - encouraging buildings to be constructed closer to the street rather than behind a parking lot
  - altering the road surface approaching pedestrian crossings
  - Including more speed bumps and speed tables in the roadways
- Provide Pedestrian Amenities – Pedestrian amenities can make the experience of walking more interesting and enjoyable. Benches or ledges give people a place to rest, talk and people-watch, and should be distributed widely. Attractive, human-

scale lighting helps provide a pleasant aesthetic and a sense of security. Trees, planters, hanging flower baskets, city banners, and brick pavement all make a pedestrian environment more attractive.

### Bicycle Actions

The City is in the process of identifying potential locations to modify current roadway design to accommodate and encourage the use of bicycles as a viable option for commuters. Important issues to increase bicycling as a mode of transportation is to ensure that there are accessible destinations, reachable on safe facilities with secure parking at the destination. Potential improvements to be considered are the following.

- Multiple-Use Paths/Trails - The Cedar Rapids metropolitan area has an extensive existing and planned trail network that is documented in the 2040 Transportation Plan. Many of these trails consist of converted unused rail corridors for pedestrian and bicycle use.
- Bicycle Lanes – On-street bicycle lanes are the most common and convenient facility for bicyclists to use. These designated bicycle lanes should be at least five feet wide. Appropriate amounts of right of way are needed to create bicycle lanes and striping and signage designate the lane. For streets that are unable to support a separately striped bicycle lane, the use of “sharrows” is an acceptable form of indicating that bicyclists and motorists should share the lane.
- Signing and Striping – On the road, striping and marking a bicycle lane clearly delineates a cyclist lane from vehicle lanes, or a “sharrow” indicates that bicyclists and motorists should share the traffic lane. Similarly, traffic signs are necessary for increasing bicyclists and driver’s awareness of each other’s presence.
- Bicycle Parking - Bicycle parking is a key component of encourage bicycling. Parking should be secure, with designated areas and sufficient bicycle racks or lockers. Sheltered bicycle parking is preferable. Bicycle racks in high traffic areas should be visible, designed to store many bicycles without damage and enable bikes to be locked using a variety of lock types. Lockers are secure, protect bikes from weather and vandalism or theft, and can be placed in underutilized space.
- Bicycles on Transit – Many transit agencies have purchased and installed bicycle racks on their bus vehicles. The most common practice is to mount a bicycle rack on the front of the bus. Front mounted racks typically carry two bicycles.



**MEMO**

From the Desk of..... **Michelle Mongeon Allen**, AIA  
 JLG Architects  
 322 First Ave N, Ste 200 Minneapolis, MN 55401  
 612.746.4260 phone 612.746.4754fax  
 612.709. 2832 cell phone  
 mallen@jlgarchitects.com

To..... **Jason Hellendrung - Sasaki**  
 Project..... **08038B – Cedar Rapids Disaster  
 Recovery Planning - Facilities**

Date ..... **10.16.2008**

**Cedar Rapids City Facilities Program Assessments SUMMARY**

**Introduction**

On June 17, just days after the Cedar River flooded, the City Council expanded the scope of planning work for the Sasaki/JLG consultant team from a downtown and riverfront plan to planning for reinvestment in flood impacted areas. While JLG's involvement included contributions to the overall planning effort, *the Work outlined in this executive summary references the Framework for Redevelopment and Reinvestment in Public Buildings and Facilities, specifically*. A briefing with City Council on that same date highlighted several directives specific to this effort:

- Process:
  - Involve the greater Cedar Rapids Community
  - Communicate with and consider partnerships with City, Parks, County, Schools and others
- Planning
  - Seize on the opportunity to come back stronger and better
  - Prioritize sustainable solutions, long-term efficiencies and customer service

**Scope of Work – City Facilities Program Assessments**

Damage Assessments

- Physical damage assessments by OTHERS (third parties)
- On-site visual observations only
- Analysis of damage assessments prepared by OTHERS (third parties)

Stakeholder Interviews

- Determination of efficiency and effectiveness of pre-flood facilities
- Consideration of long-term needs and opportunities

Preliminary Space Programs

- Ballpark square footage requirements
- Operations issues
- Space relationships

Analysis of Potential Facility Efficiencies and Co-location Opportunities

Facilities Master Plan Recommendations

**Process**

In June, 2008, JLG worked with City staff to identify and prioritize the list of damaged facilities (see Tab, "Baseline Facilities List") as a baseline for the study. On-site visual observations were made of the prioritized facilities as they became accessible and JLG attended meetings with City building assessment consultants to gain as much information as possible regarding the physical damage to and future viability of those buildings.

Initial stakeholder interviews began in July as a very broad brush assessment of long-term needs and opportunities (see Tab “Meeting Minutes” for all stakeholder interviews). Interviewees included City Departments and other community representatives such as Linn County, Cedar Rapids School District, local not-for-profits, Next Generation Council, neighborhood associations, local business representatives, medical groups and other similar stakeholders.

Open House #1 was held on July 29, 2008, and two questions specifically addressed the civic building infrastructure:

1. Which affected services and institutions are still closed or only partially open? Which ones have reopened?
2. As we reinvest in our civic services how should we improve on what was there?

Feedback strongly supported the “one-stop-shop” service model that was established for flood recovery assistance at Westdale. This concept of “co-location” aligned with the City Council’s initial process and planning directives (noted in the “Introduction” section) and became a primary driver for the remainder of the facilities program assessment work.

The co-location of departments and services supports three significant initiatives:

- Sustainability: Co-location allows for higher utilization of spaces through shared commons and support services, resulting in an overall reduction in actual square footage – “building less” is one of the most sustainable things you can do. Smaller buildings and shared parking reduce the impervious footprint, offering more area for green space and on-site storm-water retention, and increase site densities. Additionally, the resulting critical mass allows for sustainable systems, materials, and other options that might not otherwise be economically feasible in decentralized facilities (economies of scale).
- Long-term efficiencies: In addition to reduced square footage in terms of initial building costs, the long-term savings in operating expenses due to reduced area and improved systems can be substantial. Shared commons and support services can be attractive amenities at a larger scale and, along with daylighting and other sustainable initiatives, can greatly improve staff productivity. A recent study noted that the cost of an employee is 100 X the energy cost of a building; therefore, anything that can be done to improve employee performance will be even more cost effective than improvements to building performance.
- Customer service: The basic idea behind co-location is to mitigate the general public’s confusion about where to go for assistance. By co-locating civic customer service functions in a single complex or on a single campus, customers are at least getting to the right parking lot --- a central reception function can further ease the process. And when staff efficiency and productivity increases, our municipalities are able to deliver new and improved programs and services.

As these ideas were synthesized with other planning components, the stakeholder list was narrowed:

- Animal Control
- Fine Arts/Paramount Theater
- US Cellular Center
- Cedar Rapids Fire Department
- Main Library
- City Hall/Veterans Memorial Commission
- Parks/Recreation
- Police Department

- Public Works
- Linn County
- Cedar Rapids School District

Open House #2 was held on September 11, 2008, and the facilities station focused on priorities and opportunities:

*Public Buildings and Facilities Priorities from Public Feedback*

- Develop a flood management system that ensures the health of the public and provision of services (energy, drinking water, and sewer) after a major flood
- Protect or relocate vital city services outside of the floodplain
- Protect schools and community services within neighborhoods to maintain community strength
- Create an energy efficient plan for the City with incentives for downtown businesses and new housing development
- Construct new housing with utilities on upper floors in order to reduce damage from future floods

*Public Buildings Facilities and Opportunities*

May's Island

- Flood proof buildings
- Civic assets remain downtown
- Shared facility

Schools

- Coordinate neighborhood planning with school district
- Continue to collaborate connectivity and walkability from home to school

Energy and Water

- Study use of coal downtown
- Removal of 5-in-1 Dam

Police and Fire

- Ensure access to facilities in future emergency
- Co-location for Police and Fire

Additional interviews were scheduled in order to develop preliminary space programs. The goal of the programming sessions was to identify following information:

- Main building components in terms of general function
- Existing square footage
- Programmed or desired square footage (where available)
- Location issues
- Co-location opportunities

Through these individual interviews with each of the stakeholder groups, JLG assimilated the information and analyzed potential facility efficiencies and co-location opportunities. Ultimately, the focus of the facilities recommendations was to improve efficiencies and customer services by co-locating like-uses in centralized facilities, convenient to the users, related service providers and the public. Follow-up meetings were held with each of the groups to discuss the preliminary concepts, most notably:

- Community Service Center: a single campus that could support administrative and customer service functions for the City, County, Cedar Rapids School District, and other similar users, with enclosed connections between the structures and the potential for shared parking and conference facilities to maximize utilization and building efficiency

- Community Operations Center: a centralized facility that could house City, County, and Cedar Rapids School District infrastructure and operations departments, along with a centralized Community Fleet Maintenance Center
- Community Safety Center: a new training facility that could accommodate police, fire and other related partners' conference and classroom needs, skills training functions, joint communications, and storage and support functions --- a vocational relationship with local colleges could possibly evolve this into a regional academy

The preliminary recommendations were positively received, with the understanding that significantly more work and detail would evolve in the ensuing implementation phases. Minor updates were made and a final facilities recommendation presented to the City in preparation for the October 16, 2008, Open House #3.

### **Outcome: Facilities Masterplan Recommendations**

See Tab "Facilities Program Assessment Summary Matrix" for a simplified graphic representation of the following information:

#### **1. Animal Control**

- Co-locate with Kirkwood Community College to maximize operational and vocational opportunities
- Could be co-located with Community Safety Center if in close proximity to Kirkwood

#### **2. Fine Arts - Paramount**

- Components:
  - Theater w/black box theater/rehearsal facility
  - Administration
  - Box Office
  - Outdoor Amphitheater
- Location:
  - New downtown site adjacent to river to accommodate amphitheater
  - OR remain in existing Paramount Theater with remote amphitheater

#### **3. US Cellular Center**

- Components:
  - Events
  - Conference
- Location: to remain in existing location

#### **4. Central Fire Department**

- Administration:
  - Needs to be part of a station as opposed to City Hall – Central Fire Dept, new Westside Fire Station, or other
- Station functions:
  - Housing/dormitory
  - Apparatus and support functions
  - Location:
    - Remain at existing location
    - OR re-locate to Police Department site
    - OR re-locate to other central downtown site
- Fleet maintenance:

- Co-locate with new Central Fleet Maintenance Facility

## 5. New Intermodal Transportation Facility

- Components:
  - Transit – city and county?
  - Greyhound/Burlington Trailways
  - Parking
  - Childcare center
  - Office – CR Transit
  - Retail/commercial – ARC?
  - Fleet – see new Fleet Maintenance Facility
- Location:
  - Downtown; task Force has identified 5 sites
  - Recommend keeping First Avenue site on the table

## 6. Library

- Components:
  - Library
  - Branch locations
- Location:
  - Central location for Main Library
  - Study neighborhood options for branch libraries

## 7. Community Service Center (formerly City Hall)

- City Administration
  - Auditor/Treasurer's Office/Finance
  - City Clerk
  - City Manager
  - Community Development/Neighborhood Liason
  - Human Resources
  - IT
  - Parking – customer service functions
  - Purchasing
  - City Attorney's Office
  - City Council workspace
  - City Assessor (relocated from Public Works)
  - Building/zoning/code enforcement (relocated from Public Works)
  - Engineering and Sewer Maintenance (relocated from Public Works)
  - Facilities Construction (relocated from Public Works)
  - Housing Inspections (Rental) (relocated from Public Works)
  - Housing Services (Section 8, leased housing, rehab) (relocated from Public Works)
  - Traffic Engineering (relocated from Public Works)
  - Civil Rights (relocated from GTC)
  - Fair Housing (relocated from GTC)
  - Training/Board/Council/Conference/Meeting Facilities
  - Utility billing
  - Solid Waste – customer service functions
  - Parks/Recreation Administration
- Veterans' Memorial Commission – could possibly stay in existing building if it remains?
- Cedar Rapids School District
  - Accounts Payable
  - Accounts General

- Affirmative Action
- Benefits A-L, Benefits M-Z
- Board Secretary
- Business Services
- Community Relations Office
- Curriculum Service Center
- Data Processing
- Dropout Prevention
- Five Seasons Day Care
- Food and Nutrition – co-locate with Warehouse?
- Foundation
- Graphics and Printing Services
- Human Resources
- Kingston Stadium
- Mail Room
- Office of Learning and Leadership – Administration
- Office of Learning and Leadership – Curriculum
- PACT
- Payroll
- Purchasing or Purchasing Repair
- Research, Evaluation and Planning
- Reception
- Special Services
- Student Services
- Summer School
- Superintendent
- Technology
- Transportaion
- TV – Media Services
- Volunteer Program
- Wellness Program
- County
  - Board of Supervisors
  - Administrative Services
  - Finance and Budget
  - Purchasing
  - IT
  - HR
  - Risk Mgmt
  - Planning and Development
  - Recorder
  - Assessor
  - Treasurer
  - Auditor
  - Facilities
  - Motor Vehicle
  - Linn County Engineering
- State?
  - DHS
  - Juvenile Probation
  - Public Defender

- State Driver's License
- Workforce Development
- IDOT – District Engineer
- Federal?
  - Social Security
  - Department of Labor
  - Veterans' Commission?
  - FDIC
  - Congressional
  - State Representative
  - USPS
- Other?
  - Arts/Culture – exhibition and performance space (interior and exterior)
  - Kirkwood functions?
  - Chamber of Commerce?
  - Other School Districts?
  - Other municipalities?
- Common/shared service opportunities
  - Lobby/reception
  - Lunchroom/cafeteria
  - Daycare
  - Meeting/conference/training facilities
  - Council/Board Chambers
  - Printing/Production
  - Wellness Center
  - Mail services
  - ICN
  - Retail space (leased)
- Location: Central downtown community service campus
  - City Administration
  - County Administration
  - Cedar Rapids School District Administration

## 8. Parks/Rec/Riverfront Maintenance

- Administration: co-locate with new Community Service Center
- Fleet Maintenance:
  - Currently located at Harbor maintenance building
  - Co-locate with Central Fleet Maintenance Facility
- Parks Maintenance: divided into three sectors (existing to remain)
  - Noelridge
    - Support satellite fueling station for Community Operations Center?
  - Beaver
  - Ellis – three maintenance groups at this site:
    - Harbor maintenance (maintain harbor boat area) and construction crew (build playgrounds, etc.)
    - Parks operations maintenance (parks within Ellis Park sector)
    - Recreation operations maintenance (pools, rec. centers, etc.)
- Recreation:
  - Recreation and Community Life Center (P.L.A.Y)

- Part of "human services campus", with possible partners:
      - Non-profits
      - Senior center
      - Branch library
      - Emergency shelter
      - Early childhood development
      - Medical – health screening, PT, etc.
      - Outdoor activities – soccer, ball parks, dog park, skate park, etc.)
    - Central location
      - Neighborhood Recreation Centers
      - Trails – community has identified this as a priority
  - Golf
    - Jones is coming back, to a limited amount
    - Capital improvements needed at all facilities
    - Consider Junior Course in greenway, like Grand Forks?
    - Equipment maintenance serviced via mobile unit of Central Fleet Maintenance
  - Usher's Ferry – needs to be re-visioned

#### 9. Central Police Department

- Station functions
  - Remain at existing location (presumes existing police station is on dry side of flood mitigation strategy)
- Training
  - Co-locate with new Community Safety Center
- Communications
  - Co-locate with new Community Safety Center
- Fleet maintenance and fueling
  - Remain at current location in short-term
  - Currently testing co-operation with Central Fleet Maintenance Facility during night shift

#### 10. New Eastside and Westside Police Stations

- East – Wellington/Moundview neighborhood
- West – between 33<sup>rd</sup> Ave and 27<sup>th</sup> Ave and Edgewood Road and 6<sup>th</sup> St.

#### 11. New Community Safety Center

- Possible co-location for new Westside Fire Station
  - Public education
  - Fire prevention bureau
  - Fire Department Administration?
- Joint Communications/Dispatch
  - Fire Department
  - Police Department
  - Area Ambulance?
  - Traffic/Streets?
  - Other?
- Training
  - Shared users
    - Fire Department
    - Police Department

- State Patrol
- County Sheriff's Office
- Kirkwood?
- Local volunteer fire departments?
- General Public?
- Conference/classroom functions – state-of-the-art facility for technology training and
  - General technology training
  - General classroom functions
  - K.T.S.(Kirkwood Technology Services?) supports distance learning
  - Department of Justice training?
  - Emergency Command training?
- Physical/wellness functions
  - Fire and police still need these functions in their existing facilities
  - Physical and defensive tactics training
  - Workforce health/safety?
- Fire Training functions
  - Live burn tower
  - Repelling exercises
  - Confined space rescue training
  - Trench rescue training
  - Kirkwood has a small training facility
- Driving course and simulation
  - Urban and high-speed
  - Public works snowplow and bus training (or at Kirkwood?)
  - Kirkwood provides CDL and motorcycle training and offers Driver's Education
- Shooting Range
  - Indoor target range
  - Indoor tactical range – "Tactical Village"
    - Could be used for fire department training if it could accommodate live burns
    - Could also accommodate K-9 training and obstacle course
  - 24-hour/12-month capability
  - F.A.T.S. (Fire Arms Training Simulation)
  - Isaac Walton League offers public (private citizen) training and range
- Rifle Range
  - Outdoor facility (100 yd)
  - Indoor options?
  - Proximity issues
    - Could be a separate remote facility if necessary
    - County currently operates a rifle range – perhaps this could continue to function as a joint-use remote range in lieu of co-location?
- Academy
  - Main Law Enforcement Academy is at Johnston
  - Regional Academy held at Cedar Rapids Police Department could be accommodated here
  - Fire Department state certification is done elsewhere, but skills training could happen here

- Special regional training opportunities (ex: homicide training, etc.)
  - State Patrol Academy is at Johnston
- Equipment storage and staging
  - Urban Search and Rescue (Fire Department, but through the State)
  - S.W.A.T. (Police Department)
  - H.A.Z.M.A.T. – technical rescue
- State Patrol HQ and dispatch
  - Existing facility is adequate, but should be located closer to I-380
  - Could consider co-location at this facility
- Common/shared service opportunities
  - Lobby/reception
  - Lunchroom/cafeteria
  - Lockers
  - Other?
- Location:
  - Co-location or cross-functionality with Kirkwood? If co-located, then Westside Fire Station would be a separate facility and/or another fire station at Kirkwood?
  - Another west side location?

## 12. NEW Community Operations Center (formerly Public Works)

- Administrative
  - Solid Waste and Recycling – office
  - Streets Department – office (operational and program management)
  - Forestry – office (operational and program management)
  - Fleet Management – office
  - Facilities Management - office
  - Other city departments?
  - School District (Cedar Rapids) Building and Grounds Department
  - Workforce Health and Operational Safety - office
- Storage/shop
  - Traffic signal shop
  - Sign shop
  - Storage (salt, sand, etc.)
  - Vehicle and equipment storage (maintenance at new Central Fleet Facility)
  - Fueling
- Fleet Maintenance
  - Fire Department – trucks, vehicles
  - City – trucks, vehicles
  - City – busses (FTA has some limitations on co-location that need to be studied further)
  - City – Parks/Rec fleet maintenance
  - Police Department – very recently, the PD agreed to allow Fleet Maintenance to work on their vehicles during the second (night) shift; could be a first step moving PD fleet operations to a central facility
  - School District – vehicles
  - School District – busses (preventative maintenance should be co-located with operations functions)
  - Airport (new contract)

- Generally, if entity fleet maintenance and operations are not co-located on site, then depot maintenance could occur at a Centralized Fleet Maintenance facility while preventative maintenance may need to happen where said operations are housed
  - Warehousing and Distribution Center
    - City
    - School District - City and School District already have cooperative purchasing agreements
    - Other?
  - Location:
    - Existing Public Works facility
    - Fleet Maintenance could be a separate facility on a separate site, if necessary, but not ideal
    - Warehousing and Distribution Center does not need to be, and may not want to be, co-located with Community Operations Center
    - Need for off-site satellites for fueling, salt, road materials, etc. – currently have some materials at Noelridge

**13. Linn County Office Building**

- Co-locate on Community Service Campus

**14. Linn County Community Services (LCCS)**

- Components:
  - LCCS (from Wittwer Building)
  - Options
- Location:
  - Rebuild on existing Options site
  - OR rebuild on new central location (on bus line)
  - OR rebuild on new Community Service campus

**15. County Courthouse**

- Components:
  - Courtrooms
  - Attorneys
  - Clerk of Courts
  - Court Administration
  - Juvenile court offices (from Wittwer)
- Location: pending decision regarding Mays Island and cost/benefit analysis

**16. Jail** – pending decision regarding Mays Island and cost/benefit analysis

**17. State Agencies that County provides space for**

- Components:
  - Department of Human Services (DHS)
  - Juvenile probation officers
  - Public Defenders
- Location:
  - Co-locate with new County Office Building on Community Service campus
  - OR house them in County-owned facility rather than lease (will be a cost issue)

**18. Sheriff's Office:** to remain in existing location

## 19. Fleet

- Components
  - LIFTS
  - County Fleet
  - Sheriff
  - Conservation
- Preliminary Recommendations – existing operations to remain; develop Central Fleet Maintenance Facility in a way that makes it feasible for other entities to join in the future

## 20. Cedar Rapids School District

- Administration: co-locate on New Community Service Campus
- Fleet Maintenance: co-locate/co-operate with Central Fleet Maintenance Facility
- Buildings and Grounds: co-locate with new Community Operations Center
- Warehousing: co-locate with central Warehousing/Distribution Center

## 21. Federal Courthouse

## 22. Other

- Fine Arts – other?
- Non-profit Service Center
- African-American Museum
- Czech Museum

## Next Steps

- Facilities program development
- Life-cycle cost analyses of proposed options
- Neighborhood planning process (study possible location alternatives)
- Continued synchronization with Cedar River Corridor Redevelopment Plan



# Cedar Rapids Disaster Recovery Planning

Facilities Program Assessment

## SUMMARY MATRIX

16 October, 2008

COMMUNITY SERVICE CENTER	COMMUNITY OPERATIONS CENTER	COMMUNITY OPERATION CENTER: FLEET MAINTENANCE	COMMUNITY SAFETY CENTER	NEIGHBORHOOD CENTER	EXISTING LOCATION	OTHER
--------------------------	-----------------------------	--	-------------------------	---------------------	-------------------	-------

**LEGEND:**

- preferred location
- optional location

Exist. Site	Department	Possible location	Remarks
<b>CITY</b>			
2	Animal Control Shelter	○	● Co-locate with Kirkwood; could be co-located with Safety Center if it's in proximity to Kirkwood
45	Aquatics Ellis Pool	○	Verify
3	Science Station	●	
4	Indian Creek Nature Center	○	Verify
	Riverside/Oak Hills TIF (Sinclair)	●	Redevelopment site
32	Paramount Theatre	○ ○	Re-hab existing facility or build new Performing Arts Center
18	US Cellular Center & Ballrooms	●	Re-program and update
<b>Cedar Rapids Fire Department</b>			
9	Central Fire Station (station functions only)	●	○ Existing location or another central site
9	Public Education/outreach	●	○ With a fire station- Central, Westside or other
9	Administration	●	○ With a fire station- Central, Westside or other
9	Communications/dispatch	●	
9	Conference/classroom/training	●	
9	Training (skills, fire tower)	●	
9	Maintenance Garage (fleet maintenance)	●	
n/a	New Westside Fire Station	●	○ Will depend upon final location of Safety Center
	Urban Search and Rescue	●	
19	Five Seasons Transportation Center	●	
<b>Ground Transportation Center</b>			
22	City Bus Passenger Terminal	●	● New Intermodal Transportation Facility
22	School and Trailways Terminal	●	● New Intermodal Transportation Facility
22	Transit Department	●	● New Intermodal Transportation Facility
22	Civil Rights Office	●	
22	Fair Housing Office	●	
22	Pedestrian Tunnel (GTC to Town Center)	●	● Sell existing GTC building?
23	Forestry	●	
<b>Golf</b>			
25	Jones Golf Course/misc. structures	●	
28	Main Library	○ ○	Verify ; also consider branch locations

Exist. Site	Department	serv	ops	fleet	safety	nbhd	exist	other	Possible location	Remarks
<b>City Hall</b>										
30	Auditor	●								
30	City Clerk	●								
30	City Council	●								
30	City Manager	●								
30	City Attorney	●								
30	Community Development/ Neighborhood Liason	●								
30	Human Resources	●								
30	Information Technology	●								
30	Parking	●							○ And/or part of new Intermodal Transportation Facility	
30	Purchasing	●							○ Or part of a central warehousing/distribution center?	
30	Treasurer's Office	●								
30	Veteran Memorial Commission	○					●			
30	Conference/training	●								State-of-the-art facilities
n/a	"Virtual City Hall"					●				
<b>Parks</b>										
34	Administration	●								
35	Storage Building						○		Verify	
42	Apache Park (misc. structures)						○		Verify	
45	Cheyenne Park (misc. structures)						○		Verify	
46	Czech Village Park (misc. structures)						○		Verify	
46	Ellis Park (misc. structures)						○		Verify	
53	Greene Square Park Building						○		Verify	
54	Hayes Field (misc. structures)						○		Verify	
54	Riverfront Park (misc. structures)						○		Verify	
55	Riverside Park (misc. structures)						○		Verify	
60	Seminole Valley Park (misc. structures)						○		Verify	
60	Tait Cummins Park (misc. structures)						○		Verify	
<b>Parking</b>										
63	First Street Parkade							●	Demolish	
64	Third Avenue Parkade							●		
65	Fourth Avenue Parkade							●		
66	Five Seasons Parkade							●		
67	GTC Parkade							●		
68	Mays Island Plaza Parkade							○	Studying options for Mays Island	
<b>Police Department</b>										
69	Administration/Central Police Station							●		
69	Conference/classroom/training				●					
69	Training (Skills)				●					
69	Communications/dispatch				●					
69	Fleet Maintenance/fueling			○				●	Testing central fleet maintenance concept	
n/a	Eastside Neighborhood Station						●			
n/a	Westside Neighborhood Station						●			
72	Shooting Range				●					
	S.W.A.T.				●					
	HAZ. MAT.				●					
<b>Public Works Office</b>										
73	Assessor	●								
73	Building/Zoning/Code Enforcement	●								
73	Engineering & Sewer Maintenance	●								
73	Facilities Construction	●								
73	Fleet and Facilities Management	●	●	●					Facilities Management at Operations	
73	Housing Inspections (Rental)	●								
73	Housing Services - Section 8, leased housing, rehab	●								
73	Solid Waste & Recycling	●	●						Utility billing co-located with Service Center, operations at Operations Center	
73	Streets Department		●							
73	Traffic Engineering	●								
	Conference/training	●								
<b>Public Works Other</b>										
73	Traffic Signal Shop	●								
73	Sign Shop	●								
73	Salt Storage	●							○ Additional material/fuel site - Noelridge area?	
73	Sand Storage	●							○ Additional material/fuel site - Noelridge area?	
73	Oil House	●							○ Additional material/fuel site - Noelridge area?	
73	Fuel Island	●							○ Additional material/fuel site - Noelridge area?	
73	Vehicle, truck, equipment storage	●								
74	Recycling	●							○ Could consider remote location	

		serv	ops	fleet	safety	nbhd	exist	other	
Exist. Site	Department	Possible location						Remarks	
	<b>Recreation</b>								
77	Tennis Courts						○		Verify
78	Roundhouse Rec Center						○		Verify
79	Timecheck Rec Center						○		Verify
	P.L.A.Y./Human Services Campus							●	New facility; locations to be studied
84	<b>Riverfront Maintenance</b>			●					Fleet maintenance operations
86	<b>Ushers Ferry Pioneer Village</b>						○		Verify
87	<b>Water Office &amp; Meter Shop</b>		●					●	Utility billing/cust. service co-locate with Service Center
<b>COUNTY</b>									
	<b>Administration</b>								
	Board of Supervisors		●						
	Administrative Services		●						
	Finance and Budget		●						
	Purchasing		●						
	IT		●						
	HR		●						
	Risk Management		●						
	Planning and Development		●						
	Recorder		●						
	Assessor		●						
	Treasurer		●						
	Auditor		●						
	Facilities		●						
	Linn County Engineering		●						
	Motor Vehicles		●						
	Conference/training		●						
	Veterans' Affairs							●	State-of-the-art facilities
									Co-locate with State Workforce Development OR Co-locate with LCCS/Options
	<b>Fleet</b>								
	LIFTS			○				●	
	Maintenance Shop			○				●	
	Conservation Maintenance Shop			○				●	
	Sheriff's Office			○				●	
	Fueling			○				●	Procurement cards
	<b>Linn County Community Services</b>							●	Co-locate with Options
	<b>Options</b>						●	○	Or re-build on new site
	<b>Courthouse</b>						○		Mays Island - studying options
	<b>Jail</b>						○		Mays Island - studying options
	<b>Sheriff's Office</b>							●	
<b>CEDAR RAPIDS SCHOOL DISTRICT</b>									
	<b>Administration</b>								
	AP		●						
	Accounts General		●						
	Benefits A-L, M-Z		●						
	Board Secretary		●						
	Buildings and Grounds			●					
	Business Services		●						
	Carpenter Shop			●					
	Community Relations Office		●						
	Curriculum Service Center		●						
	Data Processing		●						
	Dropout Prevention		●						
	Five Seasons Day Care		●						
	Food and Nutrition							●	Central warehousing/distribution center
	Foundation		●						
	Graphics and Printing Services		●						
	HR		●						
	Kingston Stadium		●						
	Mail Room		●						

Exist. Site	Department	Possible location						Remarks
	<b>Administration (con't)</b> Office of Learning and Leadership - Admin. Office of Learning and Leadership - Curric. PACT Paint Shop Payroll Purchasing or Purchasing Repair Research, Evaluation And Planning Reception Special Services Student Services Summer School Superintendent Technology Transportation TV - Media Services Volunteer Program Warehouse Wellness Program Conference/training	●						
	<b>Transportation Maintenance</b> Fleet maintenance Bus maintenance			●				Transportation operations co-located with their fleet Transportation operations co-located with their fleet
<b>OTHER?</b>								
	<b>State</b> Drivers License? Workforce Development? DHS IDOT Maintenance/Operations? IDOT District Engineer? State Patrol HQ State Patrol Training	●		●		○	●	Need to communicate with State Admin. Services ● Co-locate with County Veterans' Affairs ● County provides space for them
	<b>Federal</b> Social Security Administration? Dept. of Labor? Veterans' Commission Congressional/State Reps	●						○ Co-locate with local Vets' Commission?
	<b>Other</b> Kirkwood Area Ambulance	○				○	○	Numerous co-location/co-vocation opportunities



