Flint Futures:
Alternative Futures for Redevelopment of Chevy in the Hole, Flint, Michigan

Jennifer Dowdell    Dave Laclergue    Emily Marshall    Rebekah VanWieren
Advisor: Joan Nassauer
Client: Genesee County Land Bank and Genesee Institute
Introduction – *Conceptual background*

**Stakeholder priorities:**

- Housing
- Jobs
- Safety
- Livability

**“The Big Questions”:**

- What economic drivers will allow redevelopment and stimulate new growth at Chevy in the Hole?

- Given the economic context and environmental risks of this site, what kinds of remediation are advisable?

- After remediation, what kinds of redevelopment and ecological restoration are feasible?

- How could redevelopment phases respond to both community needs and brownfield constraints?
## Introduction - Scenario comparison

<table>
<thead>
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<th><strong>Flint’s Urban Riverfront</strong></th>
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<th><strong>Flint River State Park</strong></th>
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<td><strong>Phase I</strong></td>
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<td>Development</td>
<td><img src="image1" alt="Map of Development Phase I" /></td>
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Alternative Futures

**Flint’s Urban Waterfront**
- Phase 1: 2010-2020
- Phase 2: 2020-2040

**Flint River State Park**
- Phase 1: 2010-2035
- Phase 2: 2035-2040
Outline

- Site history and context
- Land use legacy
- Methods
- Alternative Futures
- Conclusion
Site History and Context
Context - *Flint River*
Context - Chevy in the Hole

1930s

http://info.detnews.com
Context – Surrounding Land Uses

- Kettering University
- UM Flint
- Mott Park Neighborhood
- Carriage Town Neighborhood
- Third Ave. Neighborhood
- Downtown Flint
- Grand Traverse Neighborhood
- Saginaw St.
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Context – Surrounding Land Uses

Kearsley Street
Third Avenue
Chevrolet Avenue
Stevenson Street
Kearsley Street
Land Use Legacy
**Brownfield:**

A property where real or perceived contamination complicates redevelopment

Entire site is fenced off from the community
• **Phase I Assessment:** An initial investigation of historical records to identify likely contamination issues

• **Phase II Assessment:** Soil and water samples from across the site are analyzed to characterize specific contamination problems
No Phase I or II Assessments have been conducted at Chevy in the Hole
Land Use Legacy - Potential Contamination

Chevy in the Hole Site Assessment
Hazardous Material & Waste Storage, 1989

Industrial operations
- Sheet metal
- Motor assembly
- Painting
- Employee Parking Lots
Land Use Legacy - Potential Contamination

Chevy in the Hole Site Assessment
Hazardous Material & Waste Storage, 1989

Underground Storage Tanks

Hazardous Material Storage
- Gasoline and diesel fuel
- Petroleum compounds
- Paints
- Waste water
Land Use Legacy - Potential Contamination

Chevy in the Hole Site Assessment
Hazardous Material & Waste Storage. 1989

Hazardous Material Storage Areas

Hazardous Material Storage
- Gasoline and diesel fuel
- Petroleum compounds
- Paints
- Waste water
Land Use Legacy - *Potential Contamination*

**Chevy in the Hole Site Assessment**
Hazardous Material & Waste Storage, 1989

- **Likely Clean**
- **Likely Clean**
- **Residual Contamination**
- **Contamination Hot Spots**

**Likely Contaminant Groups**
- Volatile organic compounds
- Polyaromatic hydrocarbons
- Heavy metals
Containment / Encapsulation:
Prohibit the movement of hazardous substances through impermeable caps

- Clean fill material
- Impermeable cap
- Contaminated soil
- Contaminated groundwater
Phytoremediation:
The use of plants to degrade, stabilize, or accumulate contaminants from soil as well as ground and surface waters.
Alternative Futures - *Phase 1 Assumptions*

- **Flint’s Urban Waterfront**
  - Contamination
  - Remediation

- **Flint River State Park**
  - Contamination
  - Remediation
Methods
Normative Scenarios

• Assumptions, or stories, of landscape change

• Often hypothesized to have certain ecological, economic or cultural benefits, providing images of a landscape that could meet societal goals

Alternative Futures

• These scenarios then serve to generate plausible futures, models of landscape pattern based on contextual as well as societal data and future goals.
Guiding Principles - *Shared assumptions*

- **Development Pressures**
  Market exists for new housing
  No development in the 100-yr floodplain

- **Contamination**
  Contaminated groundwater exists
  More testing is needed
  Metals and other volatile contaminants exist

- **Remediation**
  Minimize public risk
  Contaminated groundwater will not flow directly into the river

- **Ecological Enhancements**
  Hardened concrete channel removal considered
  LID strategies

- **Circulation**
  One-way roads become two-way
  Design for non-motorized transportation (greenways)
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## Scenario Matrix - Assumptions

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Alternative Futures

Flint’s Urban Waterfront

Phase 1: 2010-2020
Phase 2: 2020-2040

Flint River State Park

Phase 1: 2010-2035
Phase 2: 2035-2040
Landscape futures
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Flint’s Urban Riverfront Phase 1 - Remediation & public open space

Holistic Remediation Strategy

Riverfront Park Amenities

Public and Private Development Investments
Flint’s Urban Riverfront Phase 1 - Remediation & public open space

- Holistic Remediation Strategy
- Riverfront Park Amenities
- Public and Private Development Investments
Flint’s Urban Riverfront Phase 1 - Remediation & public open space

Holistic Remediation Strategy

Riverfront Park Amenities

Public and Private Development Investments
Assumption:

Contamination is localized in hot spots
Assumption:
Contamination is localized in hot spots

Remediation:
Cut/fill, condense/cap
Flint’s Urban Riverfront Phase 1 – *Remediation and Circulation*
Flint’s Urban Riverfront Phase 1 – Remediation and Circulation

Kearsley Boulevard
Overlook Park
Soccer fields
Kettering University
2nd St.
Court St.
Chevrolet Ave.
Flint's Urban Riverfront Phase 1 – Remediation and Circulation

Kearsley Boulevard
Overlook Park
Soccer fields
Kettering University
2nd St.
Court St.
Chevrolet Ave.
Flint’s Urban Riverfront Phase 1 - Riverfront Park Amenities
Flint’s Urban Riverfront Phase 1 - River Terraces
Flint’s Urban Waterfront: Phase 1 - River Terraces

Riverfront Plaza
Pedestrian bridge
Fishing Nook
Flint’s Urban Riverfront Phase 1 - Riverfront Park Amenities
Flint’s Urban Riverfront Phase 1 - *Riverfront Park Amenities*

**Play field**
Flint’s Urban Riverfront Phase 1 - Riverfront Park Amenities

- Community Gardens
- Urban Tree Nursery
- Greenway
Flint’s Urban Riverfront Phase 1 – Riverfront Park Amenities
Flint’s Urban Riverfront Phase 1 – Riverfront Park Amenities

Oxbow Lake
Flint’s Urban Riverfront Phase 1 - *Riverfront Park Amenities*

Confluence park
Flint’s Urban Riverfront: Phase 1 - Development
Flint’s Urban Riverfront: Phase 1 – Riverfront Park Amenities

Wetland Courtyard
Flint’s Urban Riverfront – Developing an Urban Corridor

Kettering University

Kearsley Business Park

Residential
Flint’s Urban Riverfront – Kearsley Business Park

- Connection to Nearby Amenities
- Institutional Controls
- Kettering Connection
- Interior Park

Kearsley Blvd

Google Headquarters, Mountain View, CA
University of Wisconsin Research Park, Madison

University of Wisconsin–Madison

Visteon Corporation, Dearborn
Flint’s Urban Riverfront – Residential

- Single Family
- Riverfront
- Live/Work
- Multi-Family
- Chevy Crossing
- Nearby Amenities
- Neighborhood Rain Gardens
- Third Ave
- Kearsley Blvd
- St. Paul, MN
- City of Seattle
- Minneapolis
- Multi-Family
Flint River State Park Phase 1 - Remediation, Biofuels, and Recreation

- Remediation greenhouse
- Phytoremediation
- Biofuel crop production
- Controlled public access
Flint River State Park Phase 1 - Views

Agricultural Patterns

Remediation Greenhouse

Plant Textures

Kearsey
Flint River State Park Phase 1 - Greenway Experience
Flint River State Park Phase 1 - Recreation Nodes

- Michigan Museum of Industry
- Indoor Recreation Center
- Round River Playground
- Canoe and Bike Rentals
- Sports Fields
Flint River State Park Phase 2 - Ecological Restoration & Recreation

Riparian Restoration

Open Space Connections

Residential Amenity
Flint River State Park Phase 2 - Riparian Restoration
Flint River State Park Phase 2 - Riparian Restoration

Braided River Flood Control Expansion
Flint River State Park Phase 2 - Riparian Restoration

Stevenson Bridge Expansion
Flint River State Park Phase 2 - Open Space Connections
Flint River State Park Phase 2 - Open Space Connections
Flint River State Park Phase 2 - Residential Amenity

Recreation and playing fields in new residential area
Flint River State Park Phase 2 - Residential Amenity

Community Gardens in raised beds
Flint River State Park Phase 2 - Open Space Connections
Memorial Oak Grove

UAW Sit-down Strike memorial wall
Memorial Oak Grove

UAW Sit-down Strike memorial wall

Remnants of the willow and switchgrass remediation
Flint River State Park Phase 2 - Riparian Restoration
Flint River State Park Phase 2 - Riparian Restoration
Flint River State Park Phase 2 - Riparian Restoration

- Park and Kayak Launch
- Swartz Creek Nature Reserve
- Museum Complex
Flint River State Park Phase 2 - *Riparian Restoration*
Flint River State Park Phase 2 - Open space connections
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Flint River State Park Phase 2 - Open space connections

River's edge fishing and beach access
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Joan Nassauer
Genesee County Land Bank and Genesee Institute
Flint Futures Booster Club: Richie Susie and Brent

Questions