

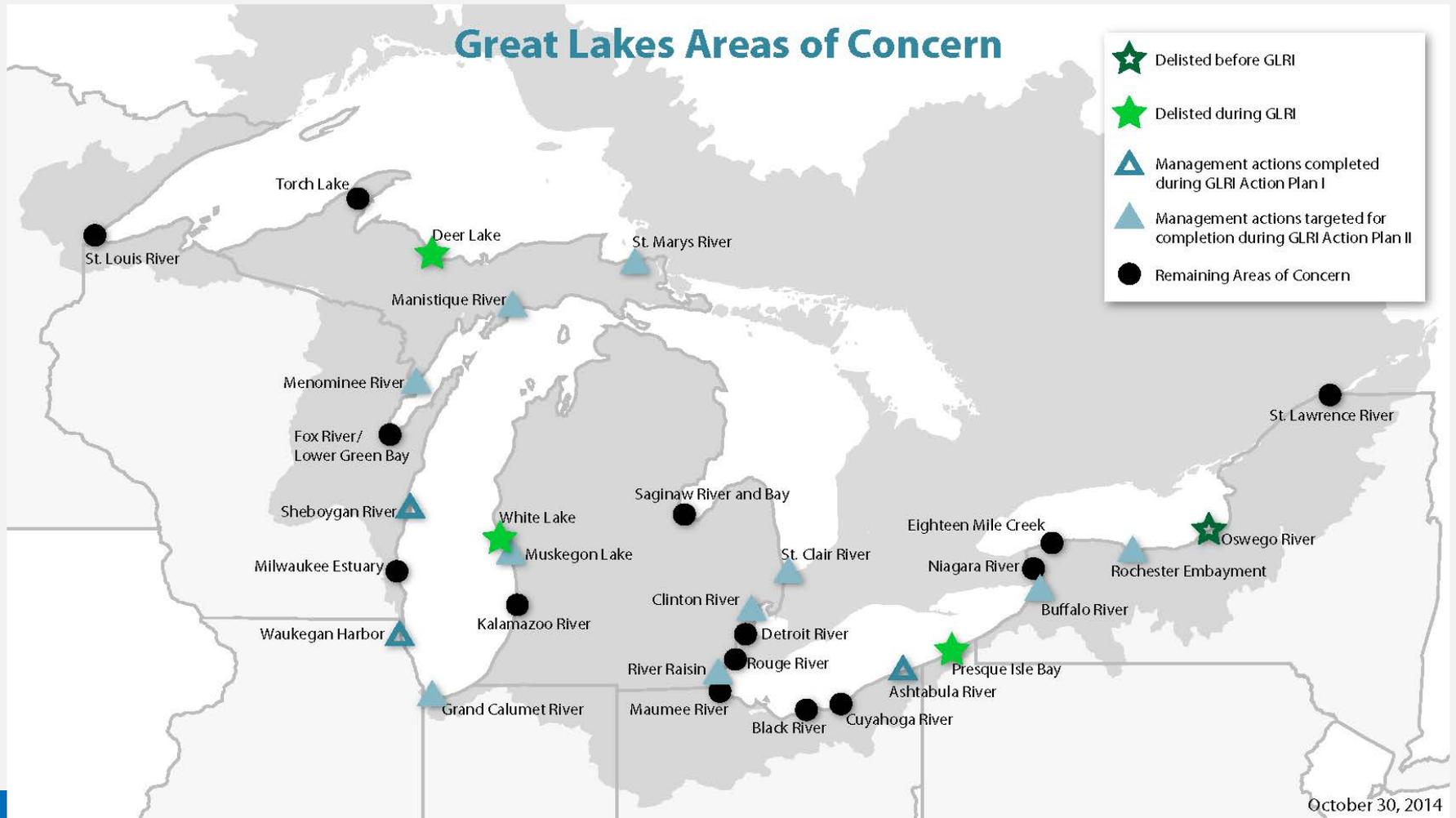


# Building and applying a framework to uncover relational values of ecosystem services

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A Community on Ecosystem Services, Alexandria VA  
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# Areas of Concern (AOC)



# Remediation to Restoration to Revitalization (R2R2R)

- Contaminated sediment *remediation* to aquatic habitat *restoration* to community *revitalization*
- Integrating ecological and social science research to help *maximize* the *positive societal* and *environmental outcomes* from remediation and restoration projects, and to support local decision-making

## Restoration & Revitalization



**Managing Contamination**  
Partnering companies purchased a 15-acre parcel in Ashabula Township for a Sediment Consolidation Facility, where contaminated sediments from the riverbed would be stored. This facility was completed in 2006.

State and federal agencies implemented dredging of the Ashabula River between 2006 and 2011, removing over 700,000 cubic yards of contaminated sediment from the river and respending it for commercial shipping and recreational boating. The contaminated material was pumped into a specifically designed landfill and isolated from the environment.





**Restoring the River**  
Restoration of the Ashabula River began in 2008. About 2,500 feet of fish habitat and a total of 10.5 acres of river, wetland, and upland habitat were created, providing a home for mammals, birds, and fish.

Through the efforts of many, the Hah-tah-hah River is returning to its former glory as a "river of many fish."






Using funds from the U.S. EPA, USACE, industry and the State of Ohio, approximately 700,000 cubic yards of contaminated sediment were removed from the river between 2006 and 2010, pumped upland through a 1.5 mile pipeline to a special sediment consolidation facility, and was promptly reburied deep blue water to contaminated sediment from the heavy water.

The Ashabula River Partnership: A model approach to environmental cleanup




# Hypothesis



Narrow-leaf cattails in Kingsbury Bay

- Revitalization is local
- Context dependent
- It is **not** chaotic
- Relationships follow a pattern
  - Organizational missions
  - Geography matters

# Case study methodology

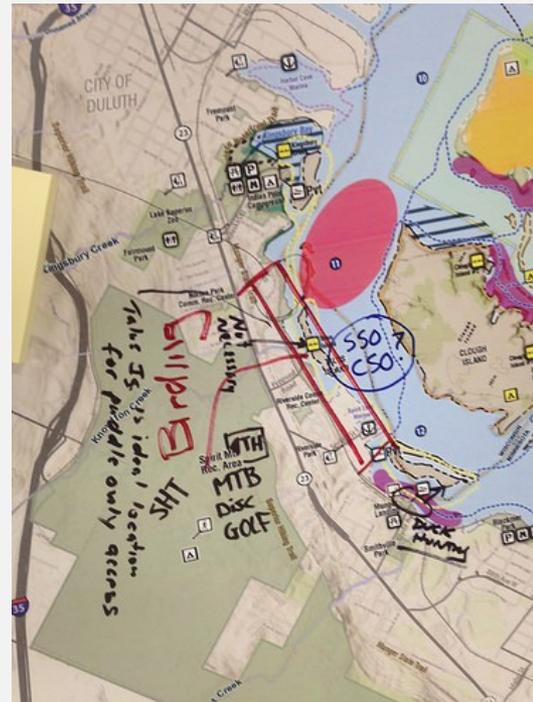
- Case study method used in social sciences when object of study (R2R2R) cannot be removed from its context
  - Interactions between GLNPO and State Agencies
  - Interactions between Region 5 and City of Duluth
  - Area of Concern Program and Making a Visible Difference
- Community decision makers



Volunteers at Lake Superior Zoo

# Exploratory case study to identify “how” and “why” in R2R2R

- Who makes decisions
- Types of decisions
- Settings where decisions or elements of decision are discussed
- Lessons learned in Duluth can be applied or tested in other AOCs or programs



Participatory mapping

*Exploratory case study approaches can be used to build theories  
In the social sciences, theories are the tools*

# Duluth as a representative case



- City of Duluth is adjacent to St. Louis River AOC
- Extensive revitalization activity based
- Brownfields redevelopment
- Many collaborative venues for observation

# Data collection and analysis

## Data collection

- Document analysis
  - Planning documents
  - Grant applications
  - Community meetings
- Participant observation at public and other planning meetings
- Participant action research

## Analysis

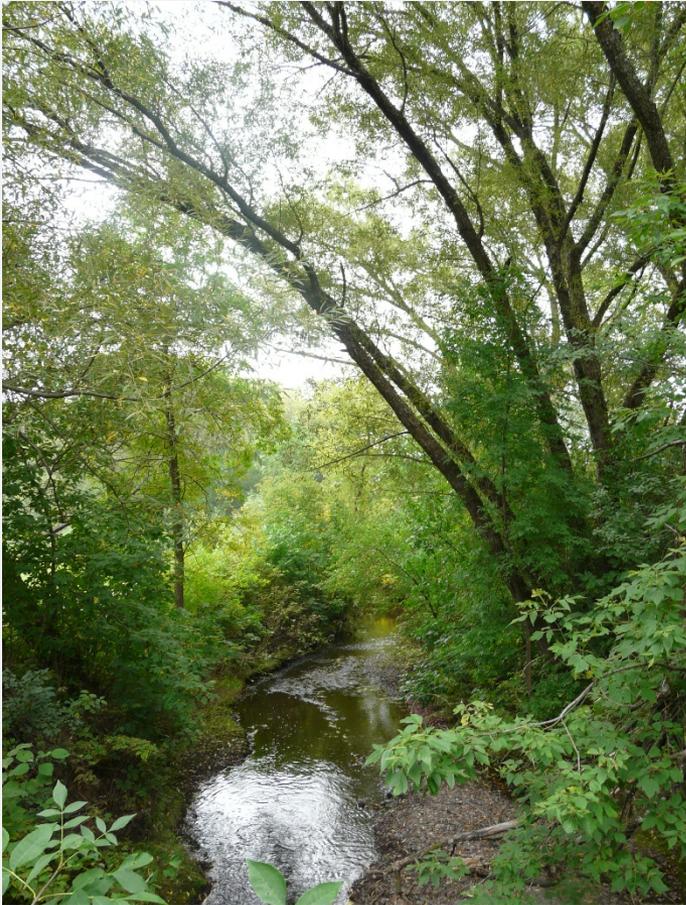
- Qualitative analysis
  - Read and code documents and meeting notes
  - EGS: final, intermediate, complementary or negative service
  - Institutional arrangements

Group/ Setting	AOC Mgmt.	Habitat Committee	St. Louis River Summit	St. Louis River Technical Committee	Park Plan	Comprehensive, Brownfields or Other Plans
State agencies	X	X	X	X		X (brownfields plan only)
Federal agencies	X	X	X	X		
USEPA	GLNPO ORD R5	ORD	ORD	ORD R5	ORD	ORD R5
NGOs	X	X	X	X	X	X
City agencies		X (Parks)		X (Economic Development, Parks, Community Planning)	X (Parks)	X (Economic Development, Community Planning, Parks)
Researchers	X	X	X			
<b>Community</b>					<b>X</b>	<b>X</b>

# Context, policy, and participants

- Area of Concern
  - Policy has been created (Roadmap to Delisting)
  - Decision makers are resource managers and stakeholders
  - Practitioners consult with experts (academics, agencies)
- City of Duluth
  - They do everything from creating policy to pulling weeds
  - Decision makers are staff, they utilize consultations and consult with stakeholders
  - Gather public input, but also more intensive and intentional consultation with other stakeholders
- Community
  - Spent time organizing and advocating for valued services
  - Connected with the City of Duluth and other experts

# Community values in R2R2R

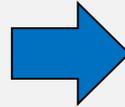


Keene Creek near Irving Park

- Access to the process
- Housing (new and existing)
  - Organized a housing fair
- Marketing for the neighborhood
  - Created FB group to promote neighborhood
- Parks and Trails
  - Organized opportunities for input
- Health and fairness
  - Surveyed over 600 through a campaign

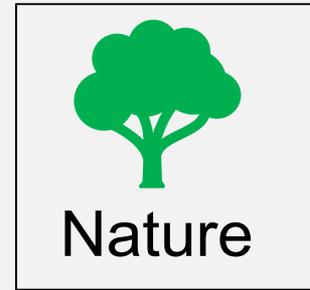
# Relational values of ecosystem services

- A good quality of life
  - Value-based
  - Context-dependent
  - Multi-dimensional
  - Material and non-material components



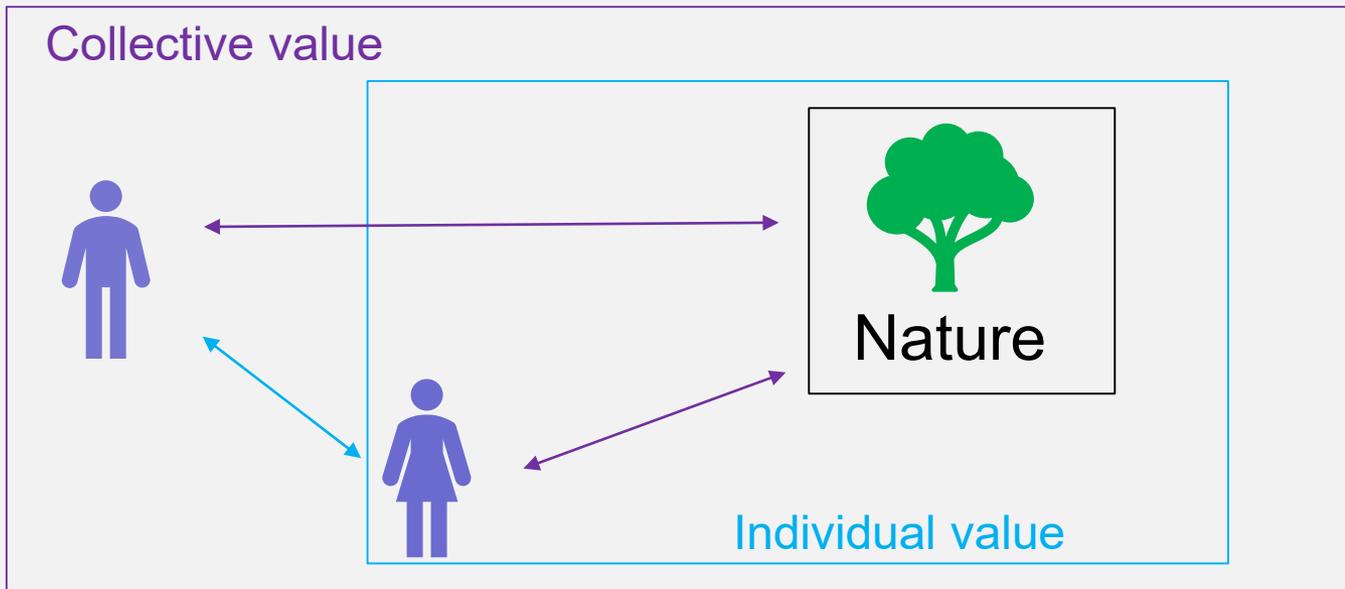
- Access to food, water, shelter
- Health, education, good social relationships
- Physical, energy and livelihood security, equity
- Cultural identity, material prosperity
- Spiritual satisfaction
- Freedom of choice, action and participation in society

**Instrumental value**  
Nature has value to humans because it provides something



**Intrinsic value**  
Nature has inherent value

### Relational values



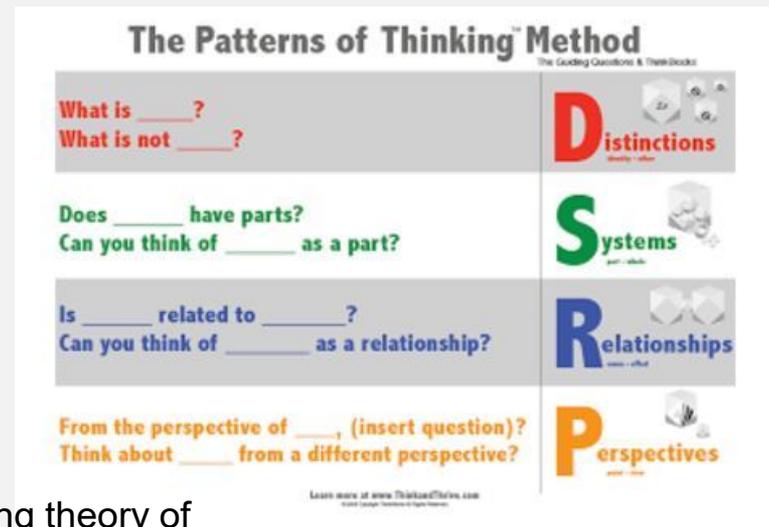
Identity  
Social cohesion  
Ethic of care  
Responsibility  
Principles

# Distinctions-Systems-Relationships-Perspectives (DSRP) Framework

- Method to unpack and understand how people think (Cabrera 2015)
  - We make *distinctions*
  - Life is organized in *systems*
  - We recognize *relationships* between the whole and its parts
  - There are multiple *perspectives*

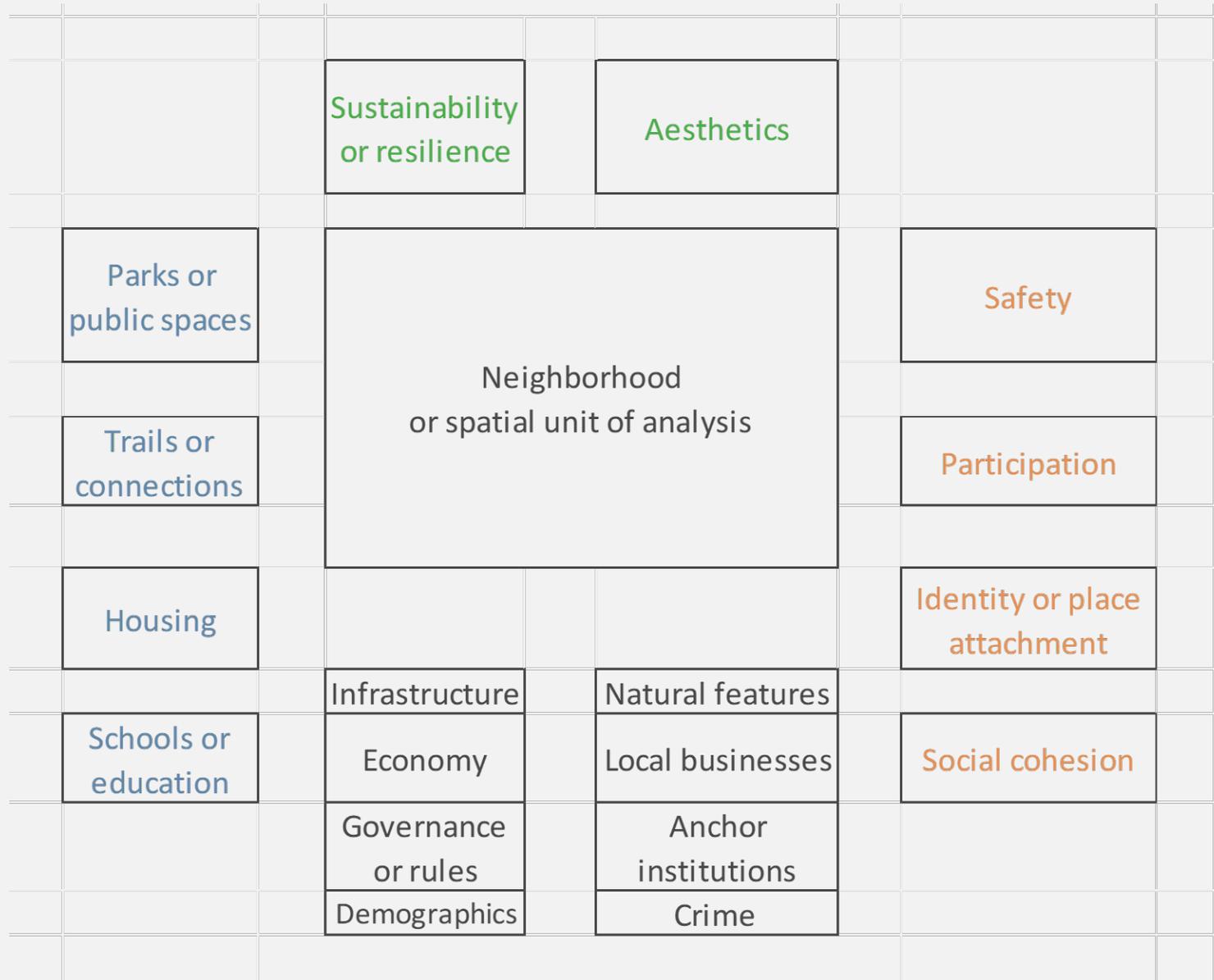


<http://stdaily.ghost.io>



Cabrera, D., Cabrera, L. and Powers, E., 2015. A unifying theory of systems thinking with psychosocial applications. *Systems Research and Behavioral Science*, 32(5), pp.534-545.

# The Neighborhood Model



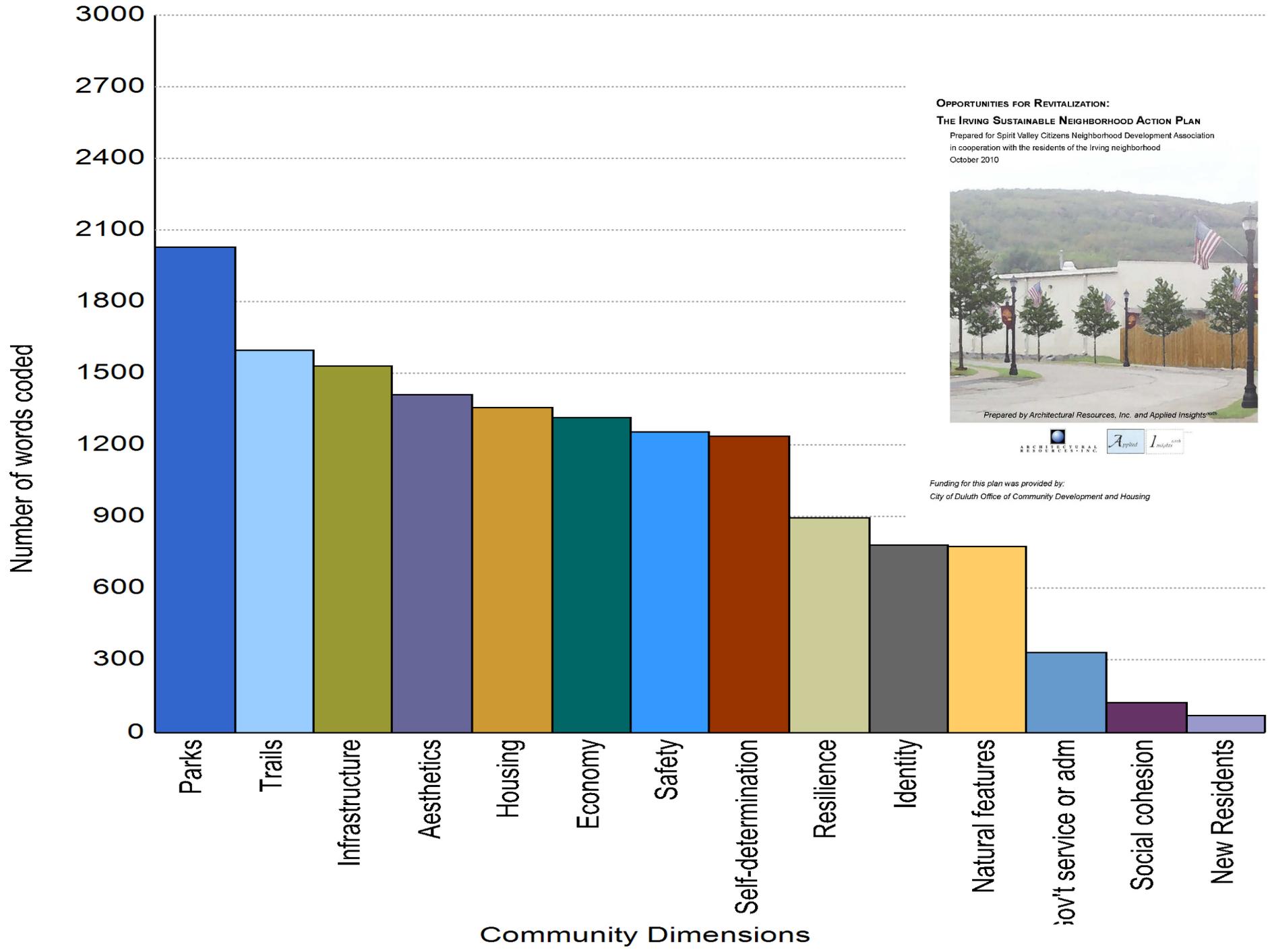
**OPPORTUNITIES FOR REVITALIZATION:**  
**THE IRVING SUSTAINABLE NEIGHBORHOOD ACTION PLAN**  
 Prepared for Spirit Valley Citizens Neighborhood Development Association  
 in cooperation with the residents of the Irving neighborhood  
 October 2010



*Prepared by Architectural Resources, Inc. and Applied Insights™*

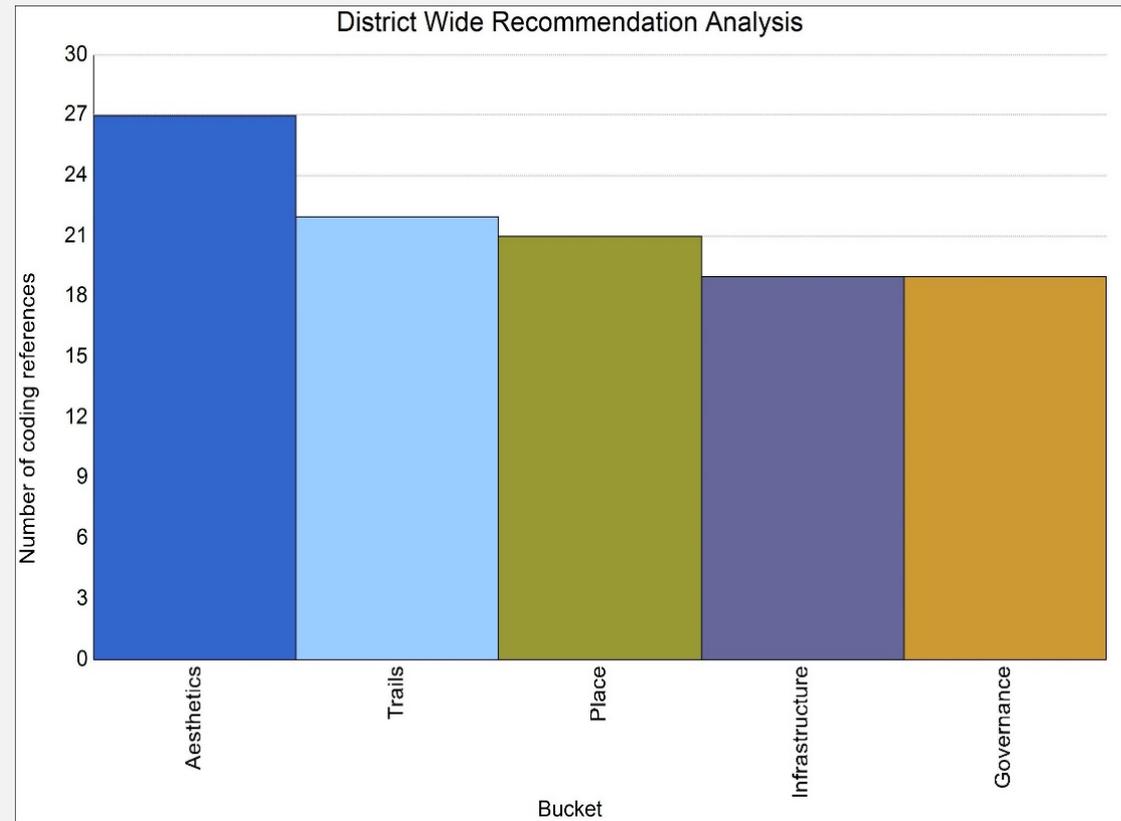


*Funding for this plan was provided by:  
 City of Duluth Office of Community Development and Housing*



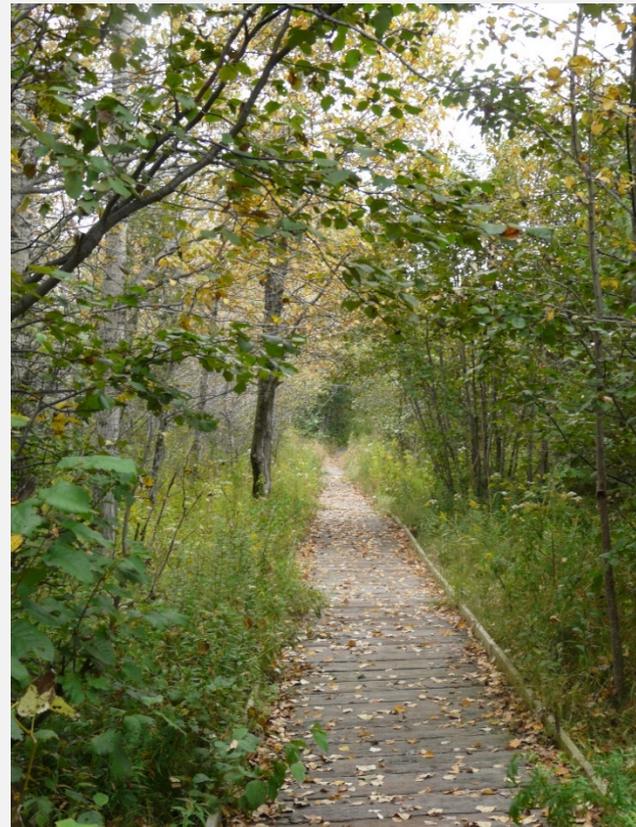
# Relate the data to the community problem

- Aesthetics
  - How neighborhood should look
- Connectivity
  - More bike trails
- Identity
  - Who we are, history
- Infrastructure
  - Flow of traffic



# Contribution to solutions

- Understanding different perspectives creates opportunities for meaningful engagement
- Increased the breadth and depth of stakeholder engagement in R2R2R
- Demonstrated use of social science methods for engaging stakeholders in research



Trail at Grassy Point

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St. Louis Bay at sunrise