



Regional Green Infrastructure Planning

MID-AMERICA REGIONAL COUNCIL

AGENDA

1. What were we asked to do?
2. So, what is green infrastructure?
3. The challenge of a holistic approach
4. Analyzing need
5. From analysis to action
6. A project-based approach
7. Next steps
8. What can this do for you now ?

What were we asked to do?

- Link transportation investment to environmental goals locally, bi-state and nationally
- Link all conservation and restoration programs between related areas of responsibility
- Link ongoing programs, policies, frameworks and initiatives
- Use existing data and planning
- Audience: MARC, municipalities, nonprofits, others to advance related initiatives

New approach to environmental impact

What we heard from the region

- Increase **regional capacity** for Green Infrastructure
- Improve **water quality**
- Increase diverse and connected **habitat**
- Delivery and use of **clean and efficient energy**
- Improve community **health and wellbeing**
- Improve **air quality**
- Increase access to **healthy food**
- Share knowledge of healthful ecosystems **stewardship**
- Link **schools and local government**
- Link **activity centers**
- Determine priority topics for **return on investment**



So, what is green infrastructure?

GREEN INFRASTRUCTURE - planned and managed natural and semi-natural systems which provide multiple benefits.

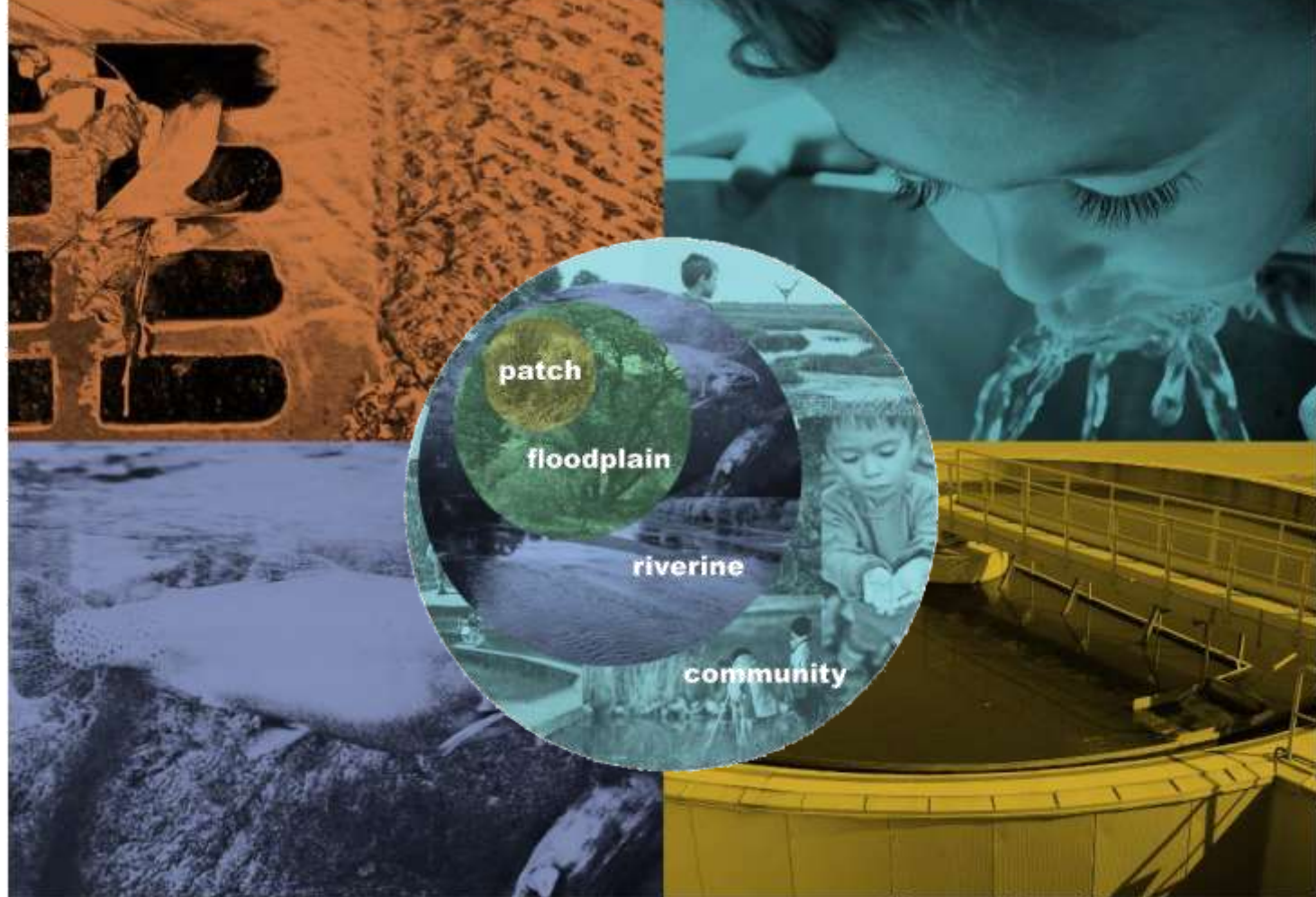
The Nature Conservancy

Green infrastructure planning work
includes goal setting, strategies and
measures for:

- People
- Physical infrastructure
- Organizational capacity

Definition





patch

floodplain

riverine

community

Maintenance Cost and Climate Change

System Inventory

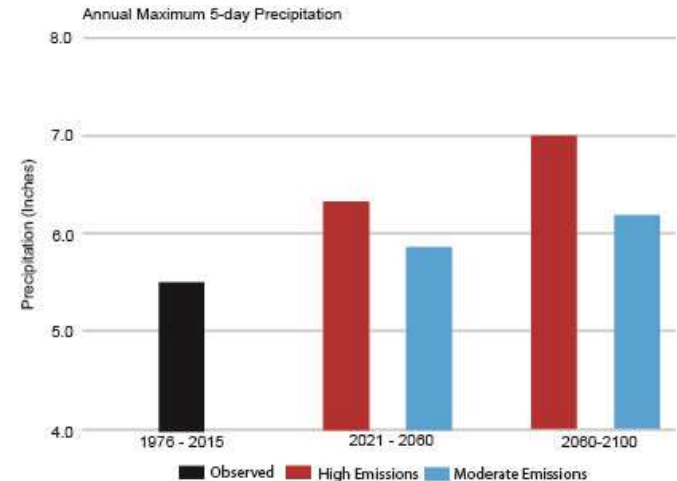
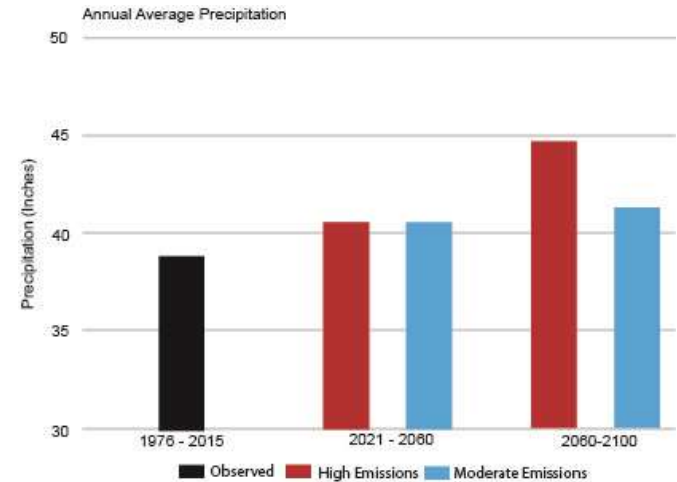
“Aging systems discharge billions of gallons of untreated wastewater into U.S. surface waters each year.

The EPA estimates that the west must invest \$390 billion over the next 20 years to update or replace existing systems and build new ones to meet increasing demand.”

- ASCE 2013 Infrastructure Report Card

Projected Trends

- Hot, dry summers; Increased risk of drought
- Warm, wet spring and fall; Increase number of annual extreme rainfall events



Natural systems:

Grasslands

Wetlands

Rivers

Woodlands

Work together as a whole
to sustain ecological values
and functions...

& form the foundation of
resiliency and green
infrastructure.



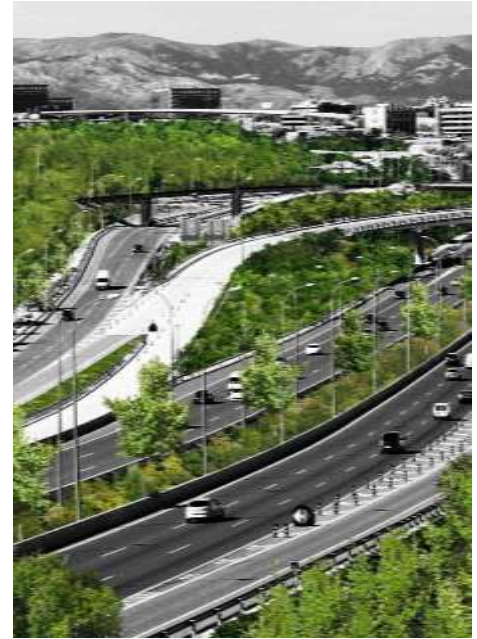
The challenges of a holistic approach



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**Quality of Life
Priority:
Clean Air**



**High Impact
Green Infrastructure
Solutions**

**Quality of Life
Priority:
Clean Air**



**Point
sources**

**Vehicle
Emissions**



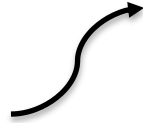
**High Impact
Green Infrastructure
Solutions**

**Quality of Life
Priority:
Clean Air**



**Point
sources**

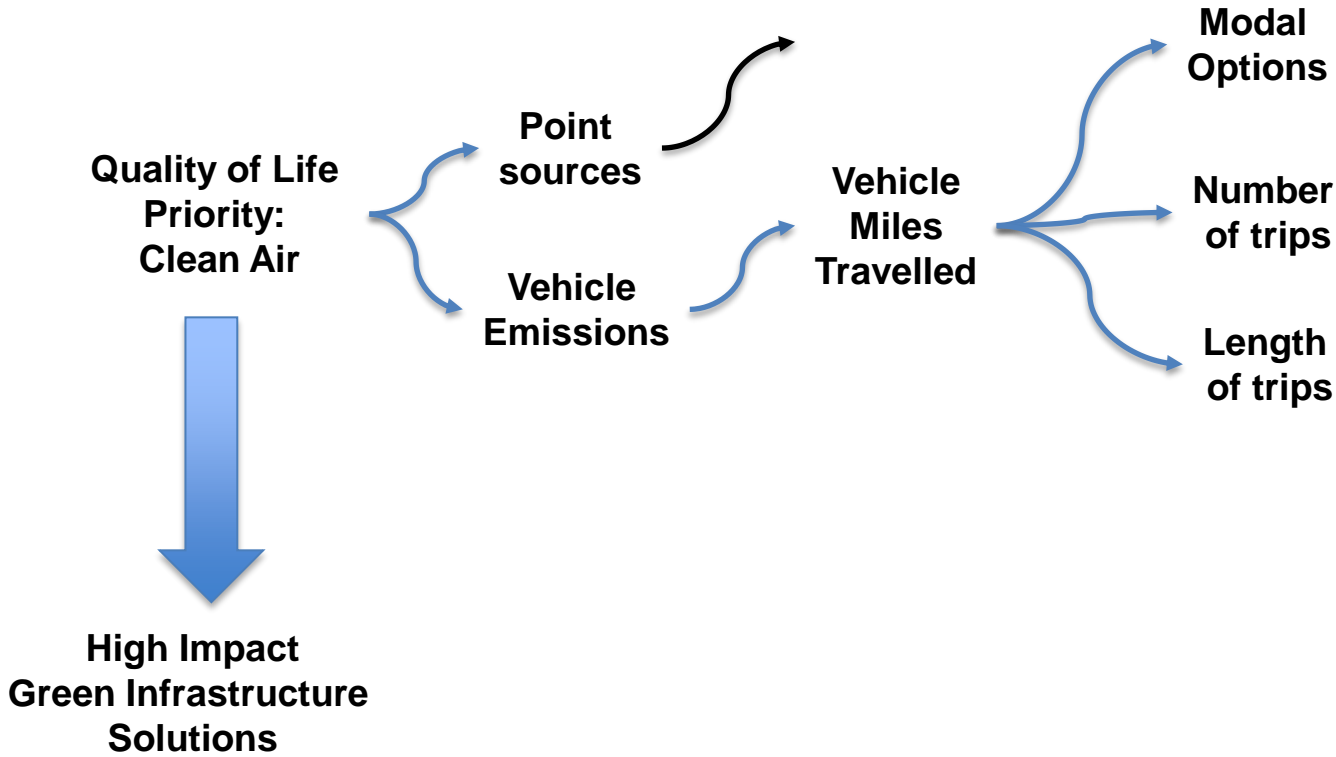
**Vehicle
Emissions**

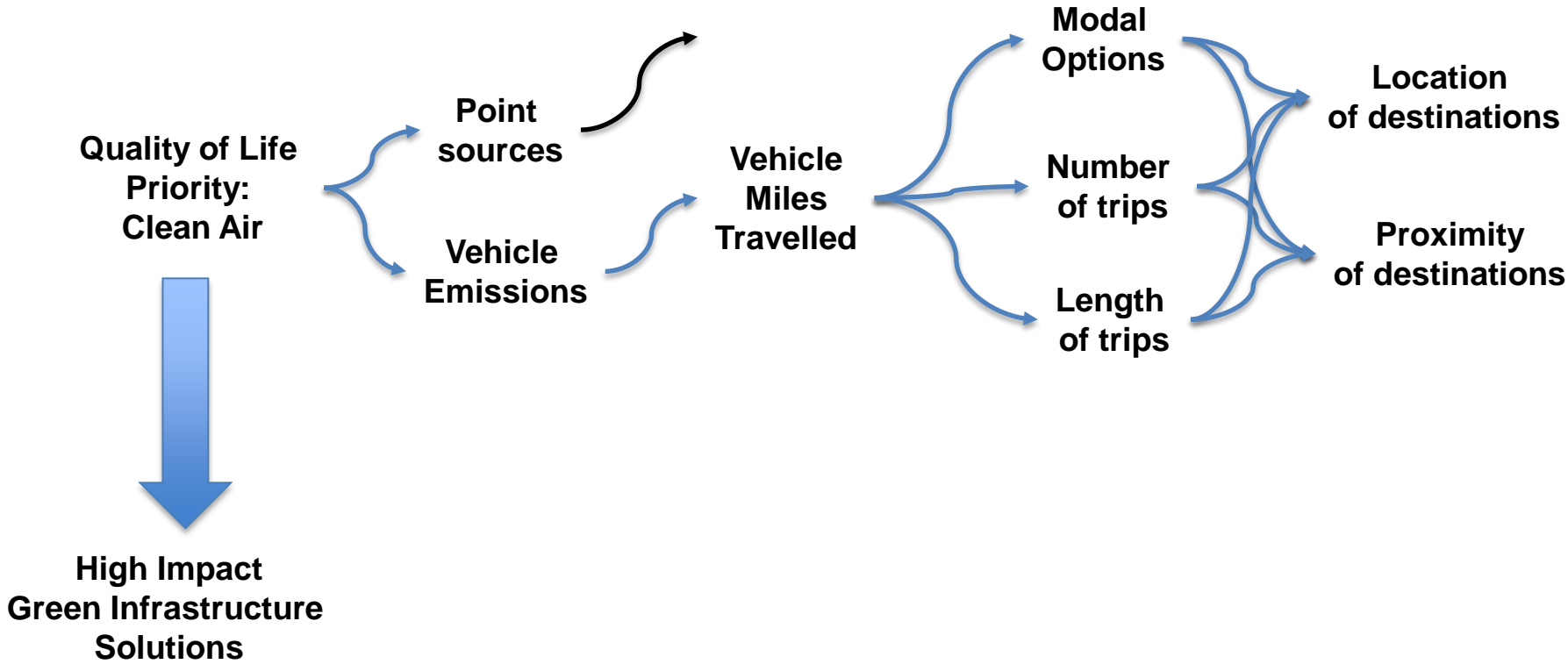


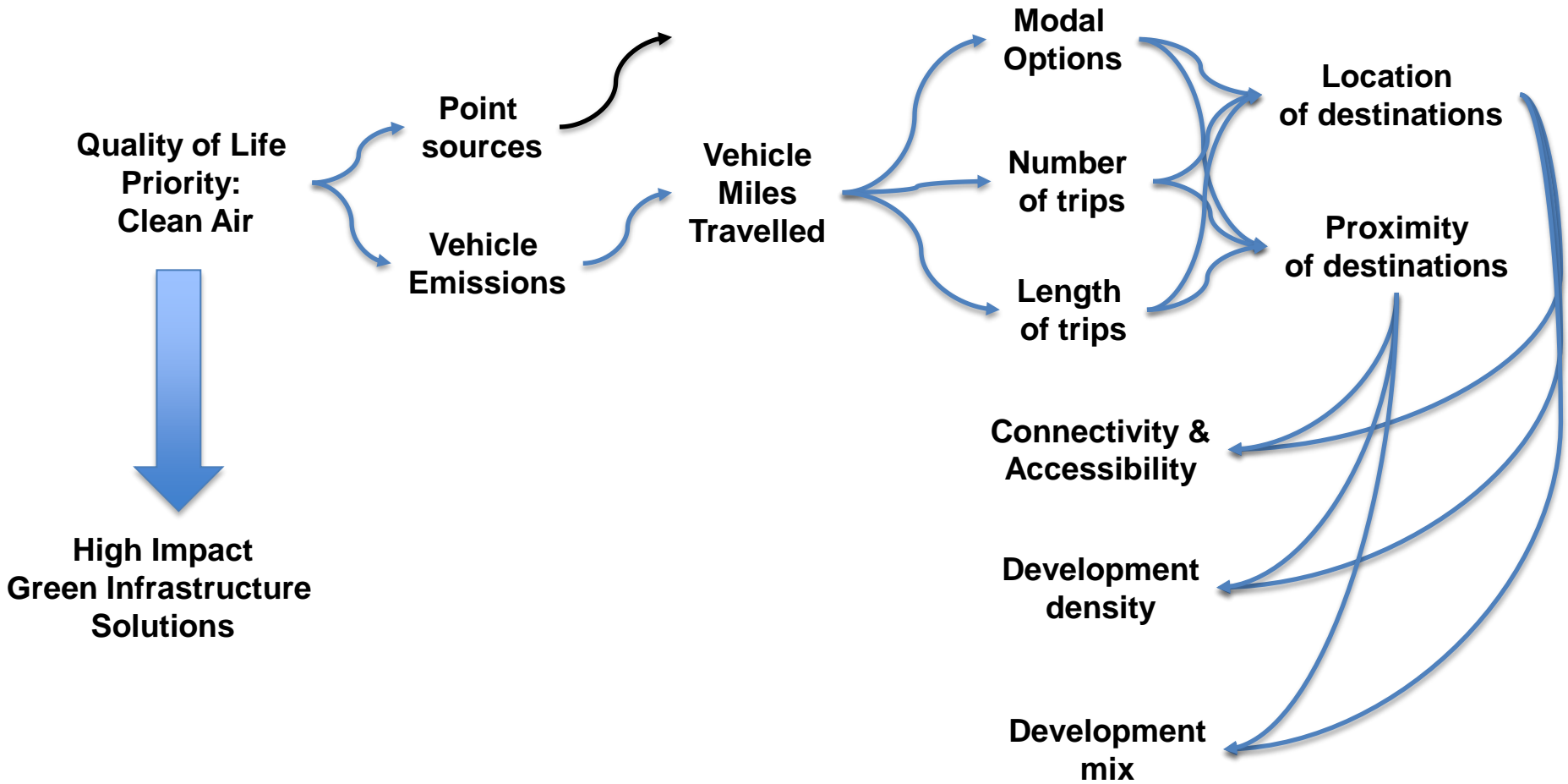
**Vehicle
Miles
Travelled**

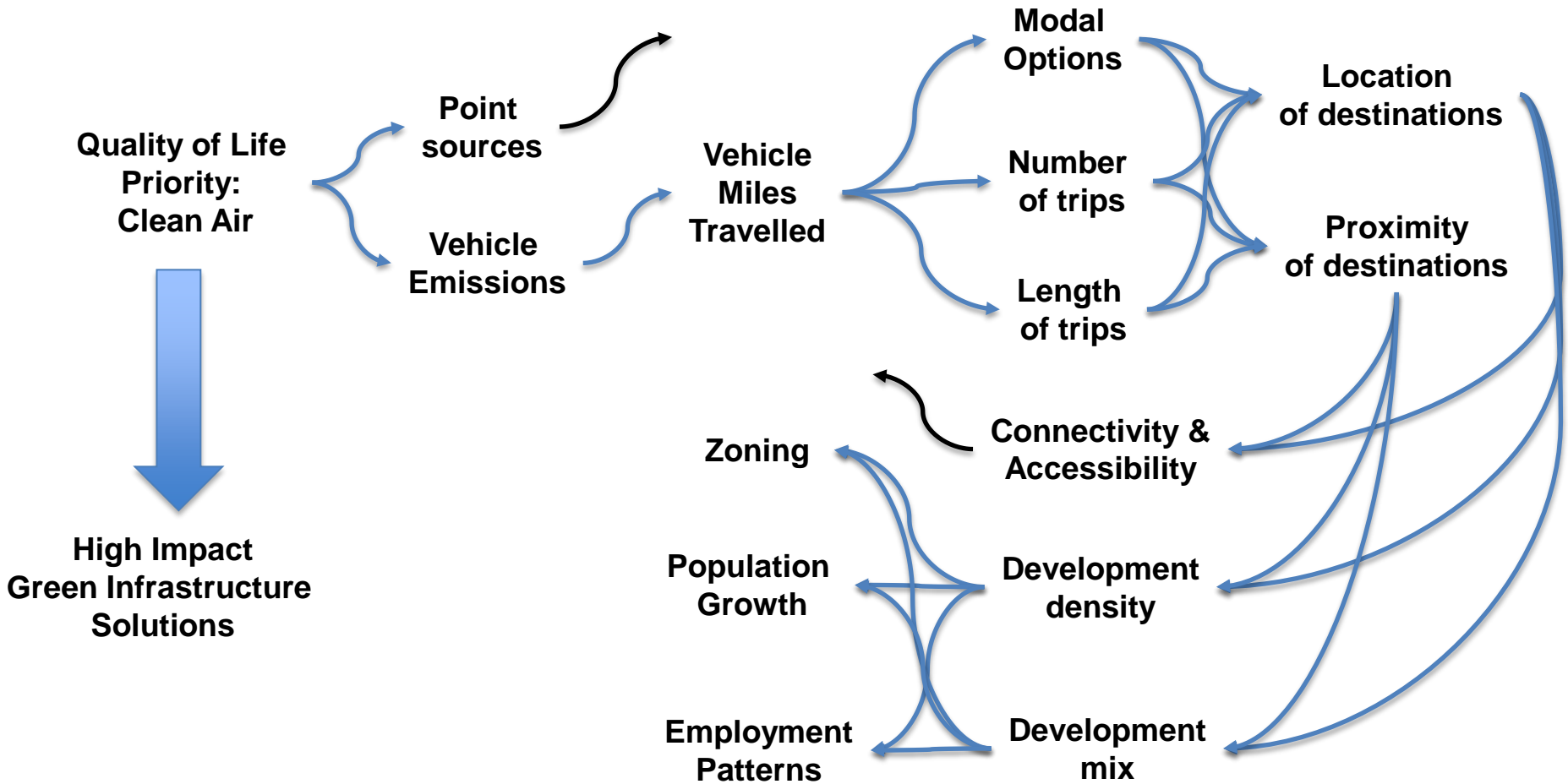


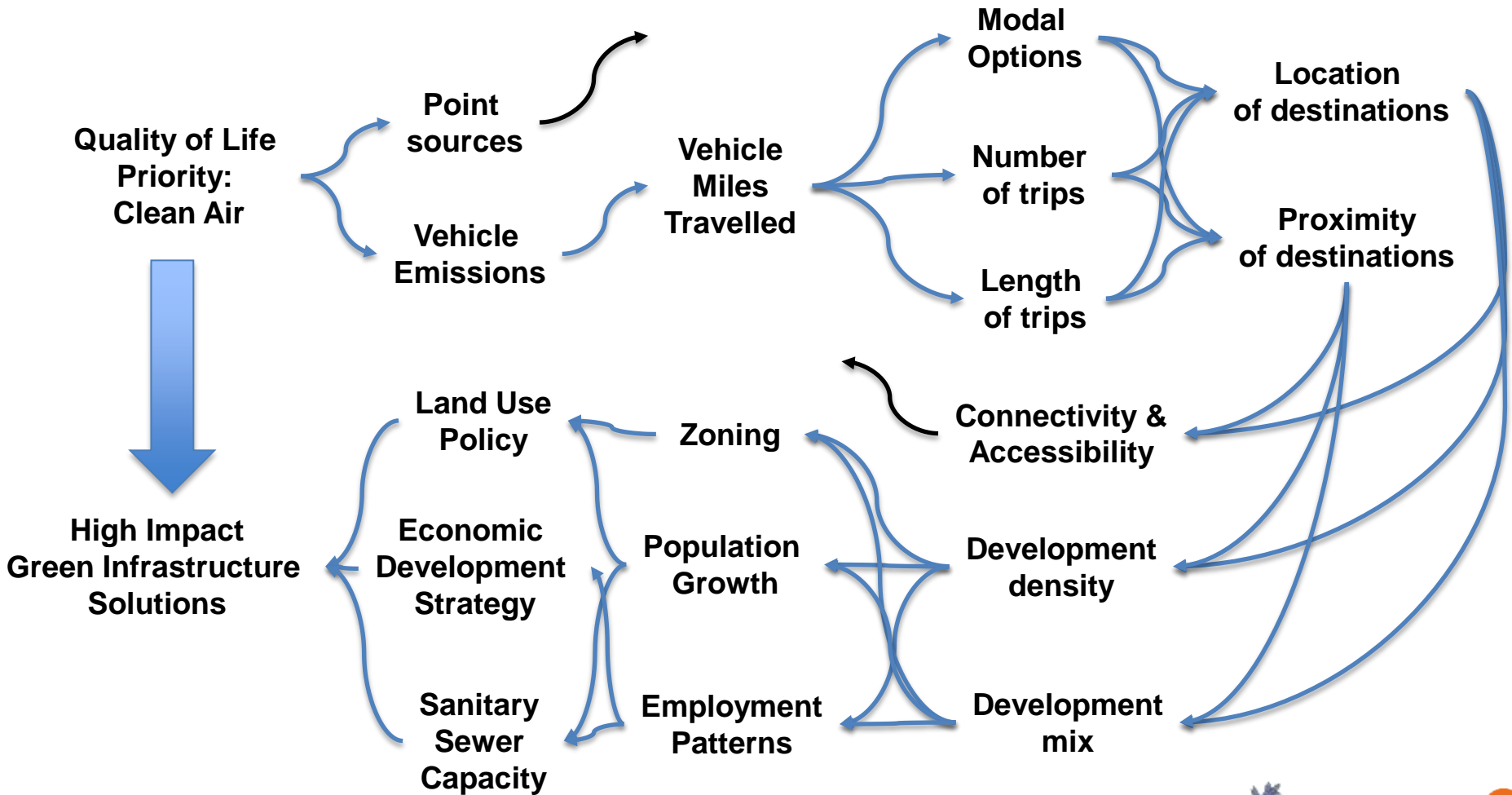
**High Impact
Green Infrastructure
Solutions**

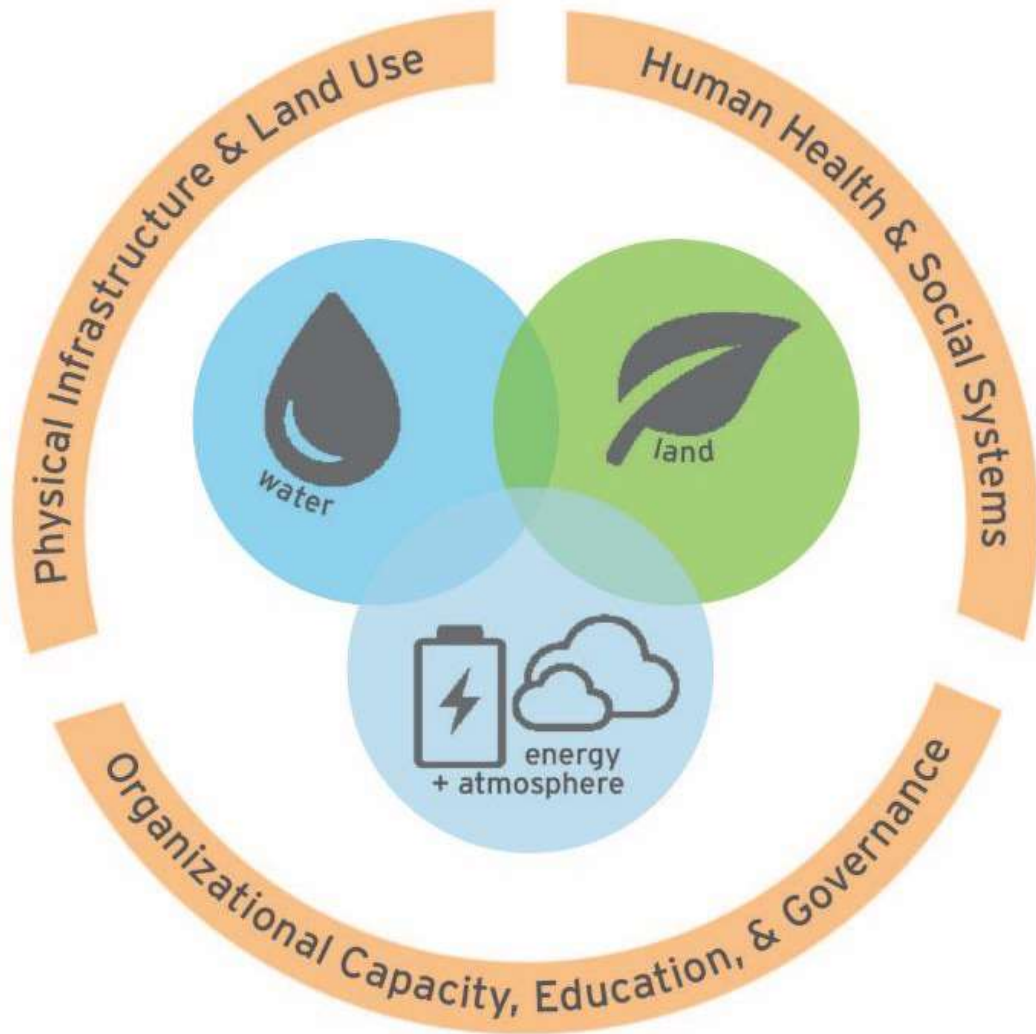












Analyzing need

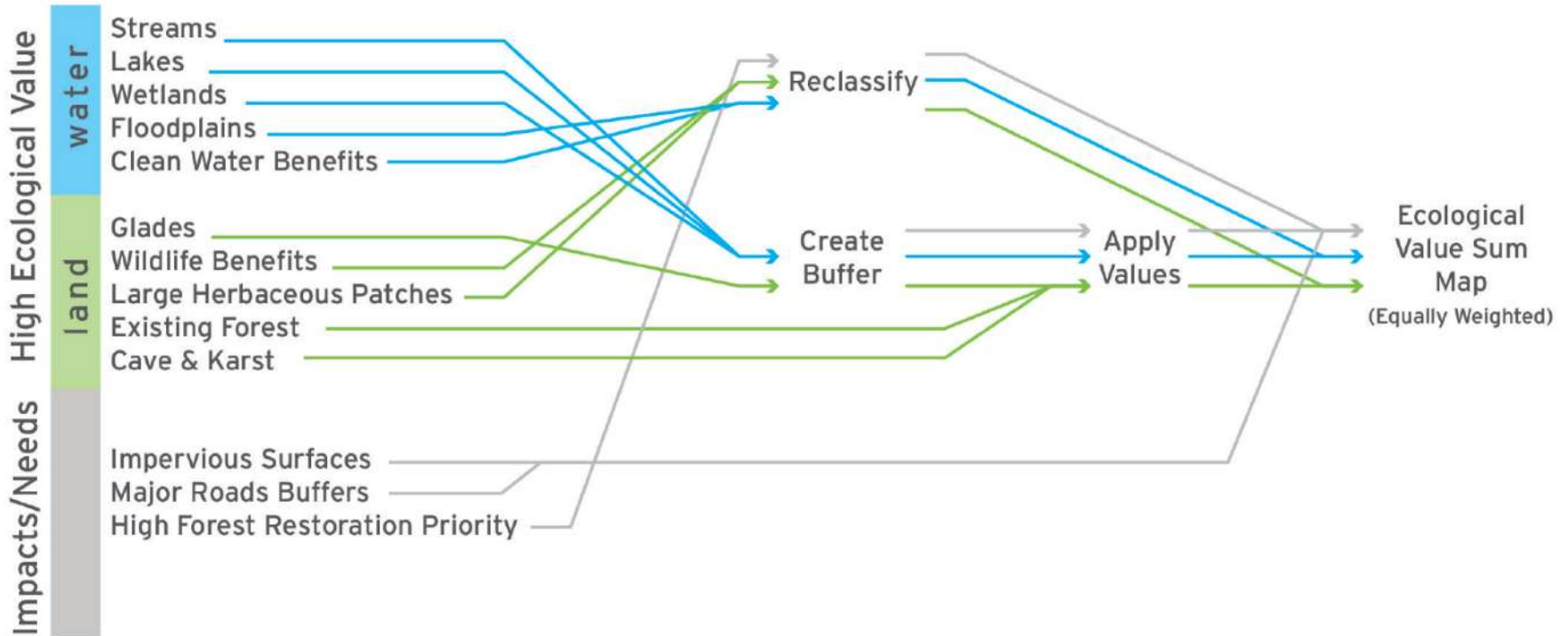
A Process for Analyzing Need

- **Focus on natural systems and process**
 - social, cultural, economic factors are important and interconnected, but not our primary focus
- **Focus on geographically defined variables**
 - air quality, land consumption rates, and other variables are important, but pervasive everywhere
 - specific infrastructure investments would impact these variables in a collective and incremental way
- **Intersection analysis**
 - begin by identifying where important factors converge, connect, and overlap
 - not yet quantifying the relative importance of each system or natural systems variable



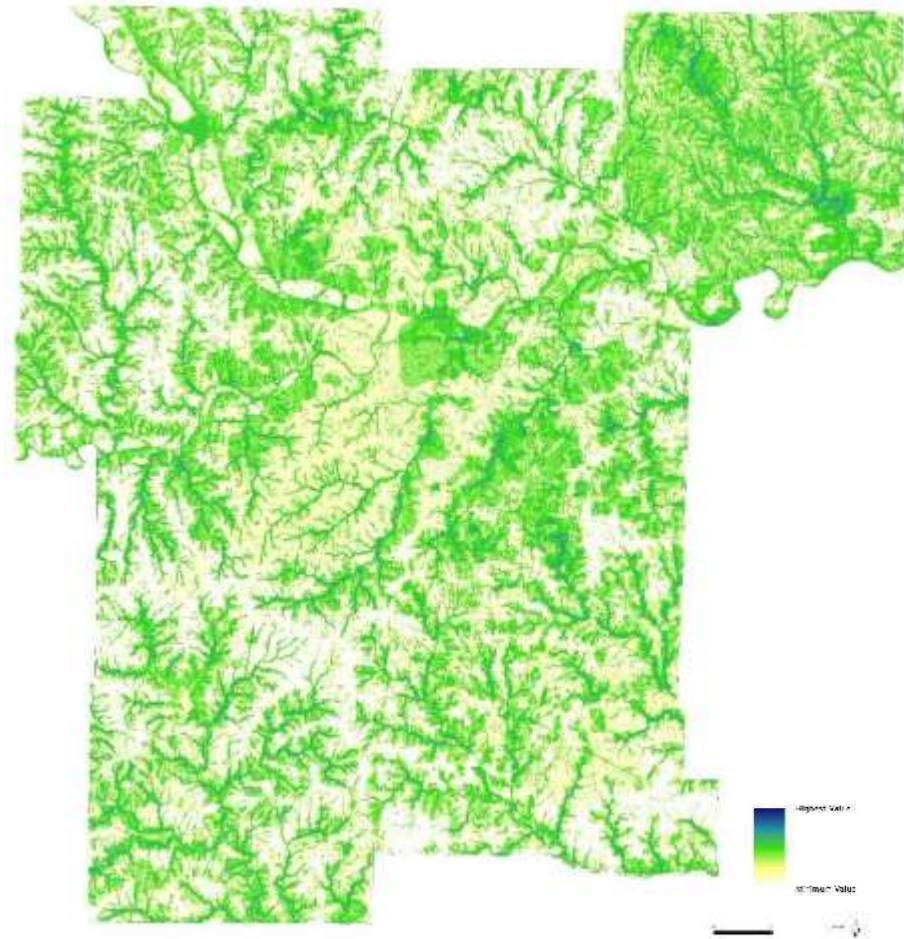
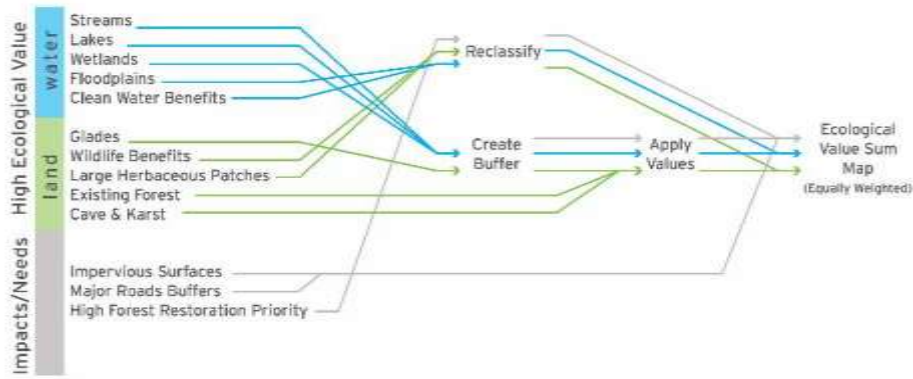
Areas of Ecological Value

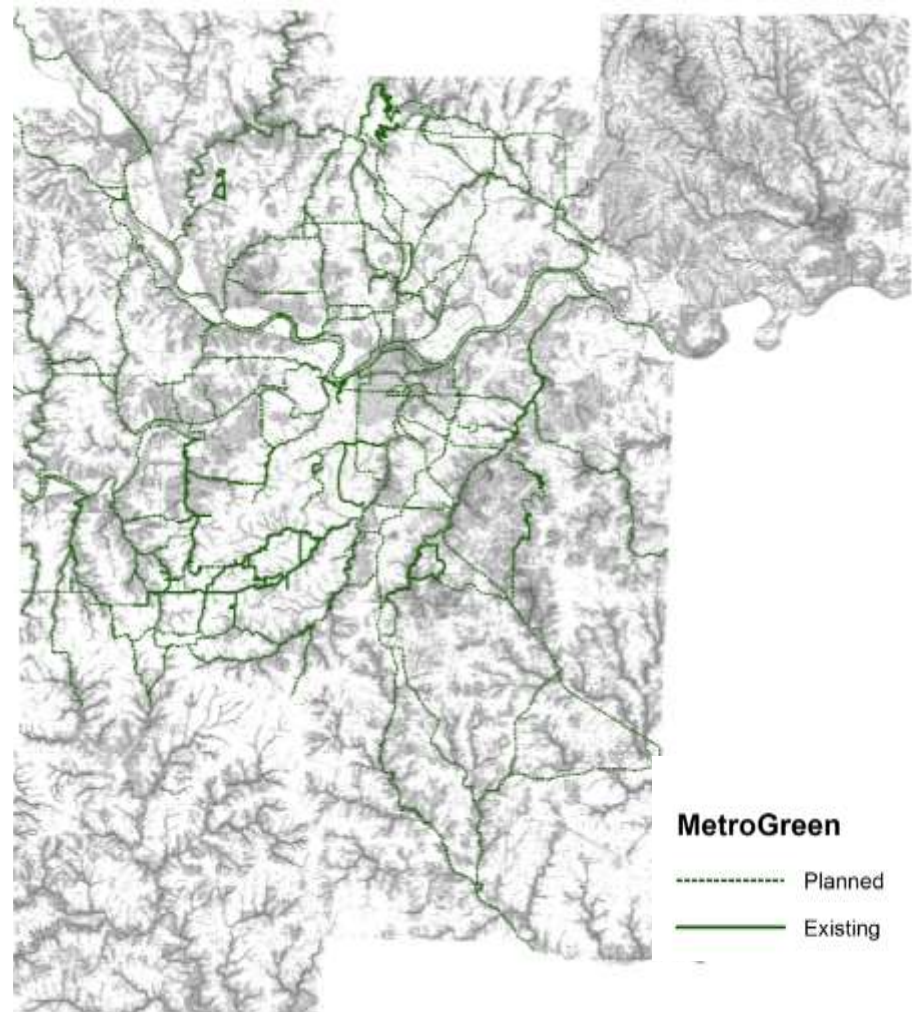
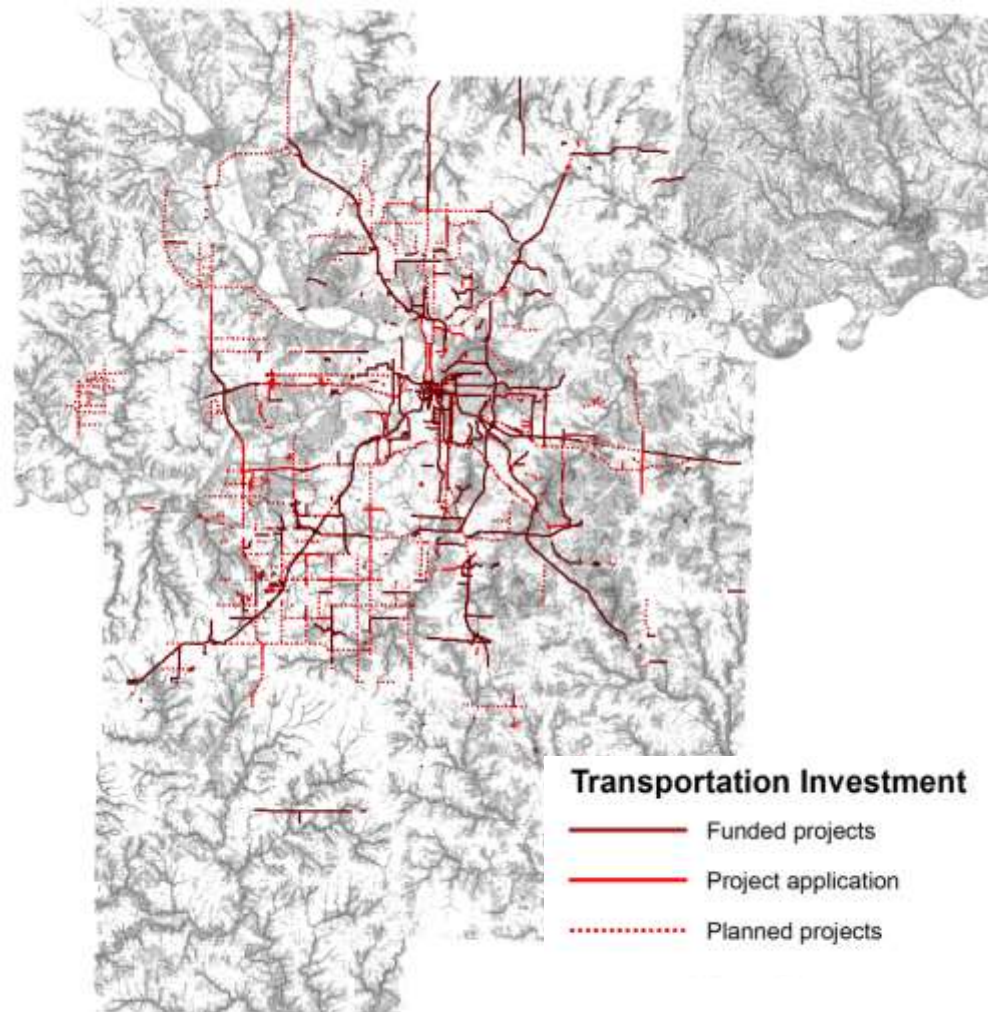
GIS Suitability Factors & Process

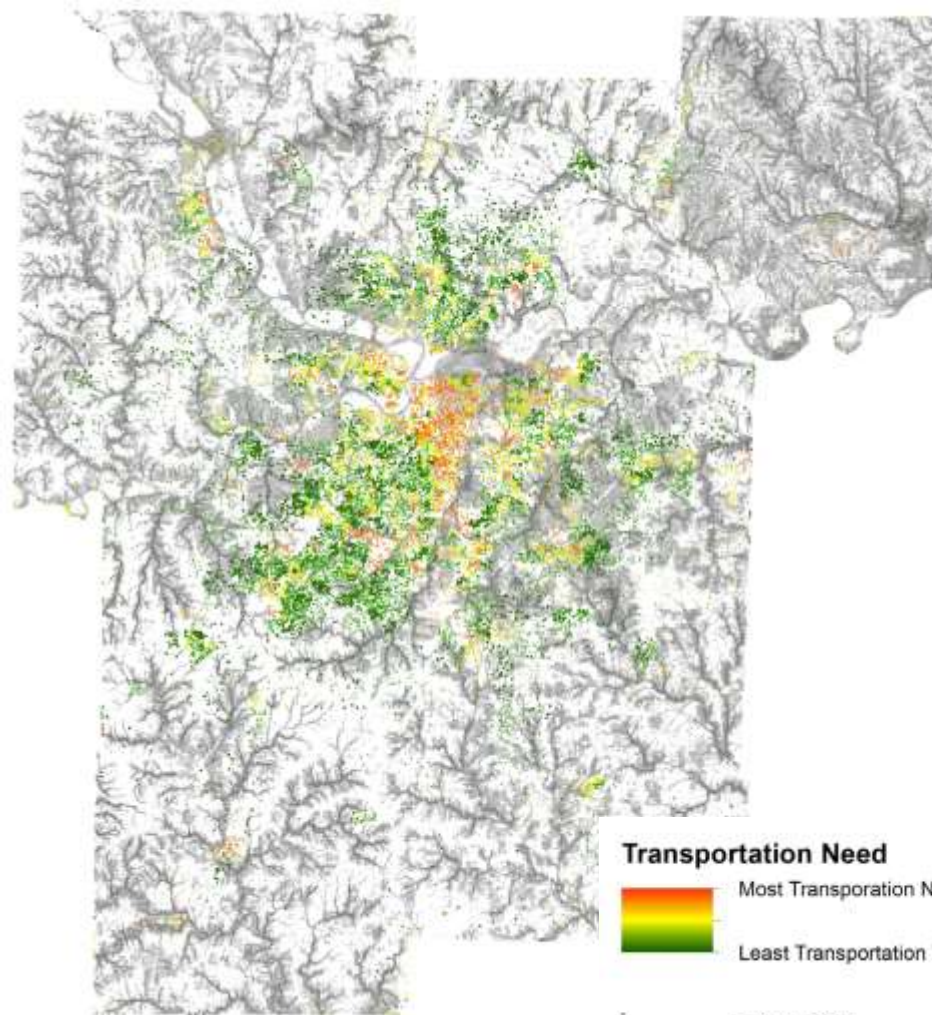


Areas of Ecological Value

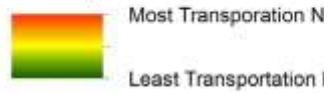
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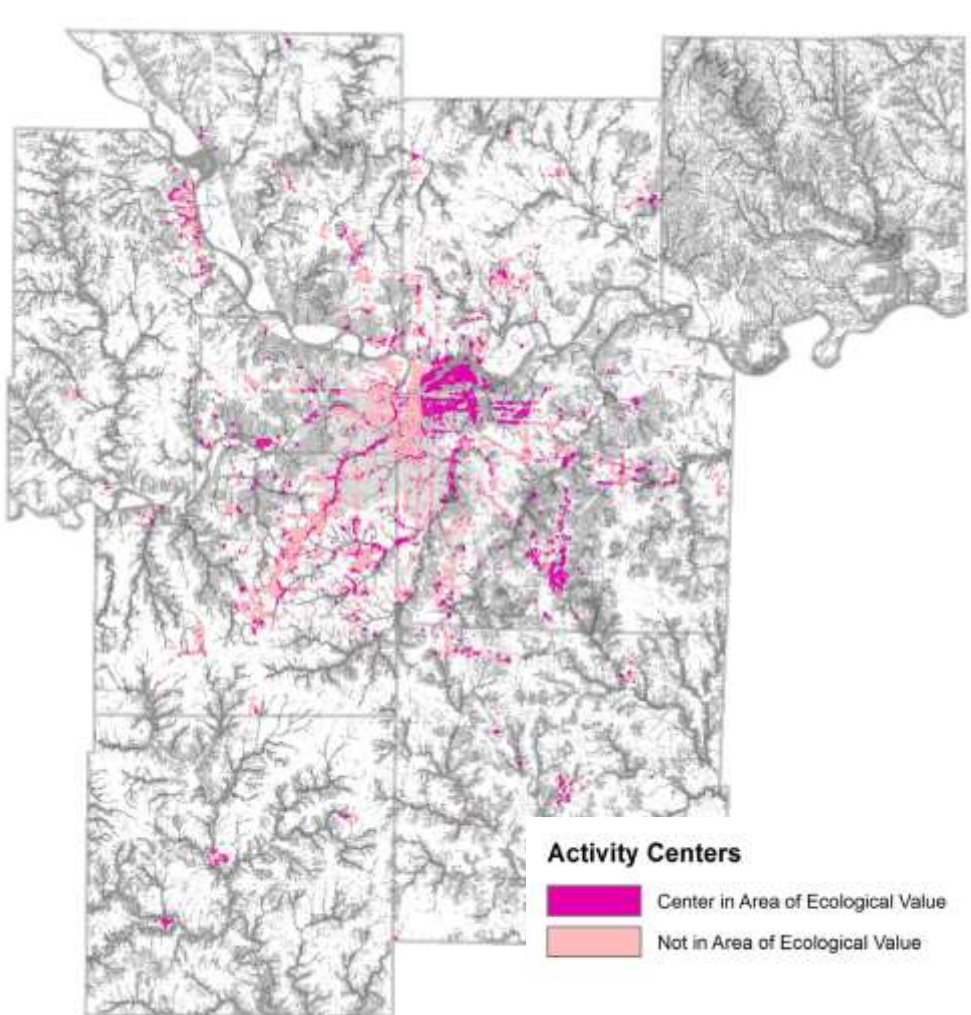




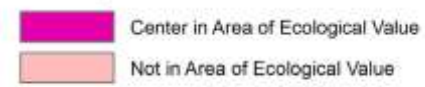
Transportation Need



1 Dot = 100

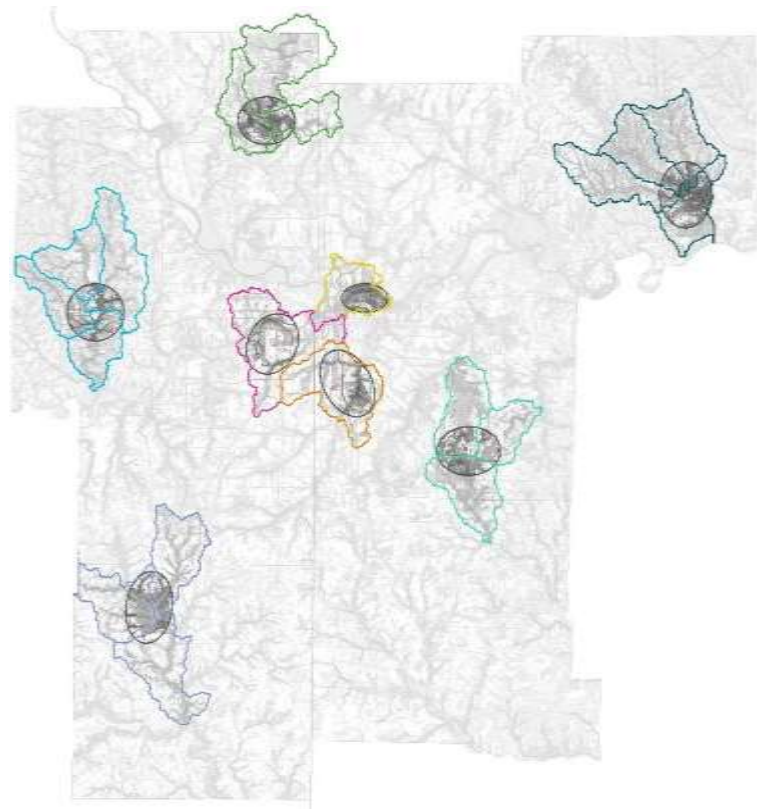
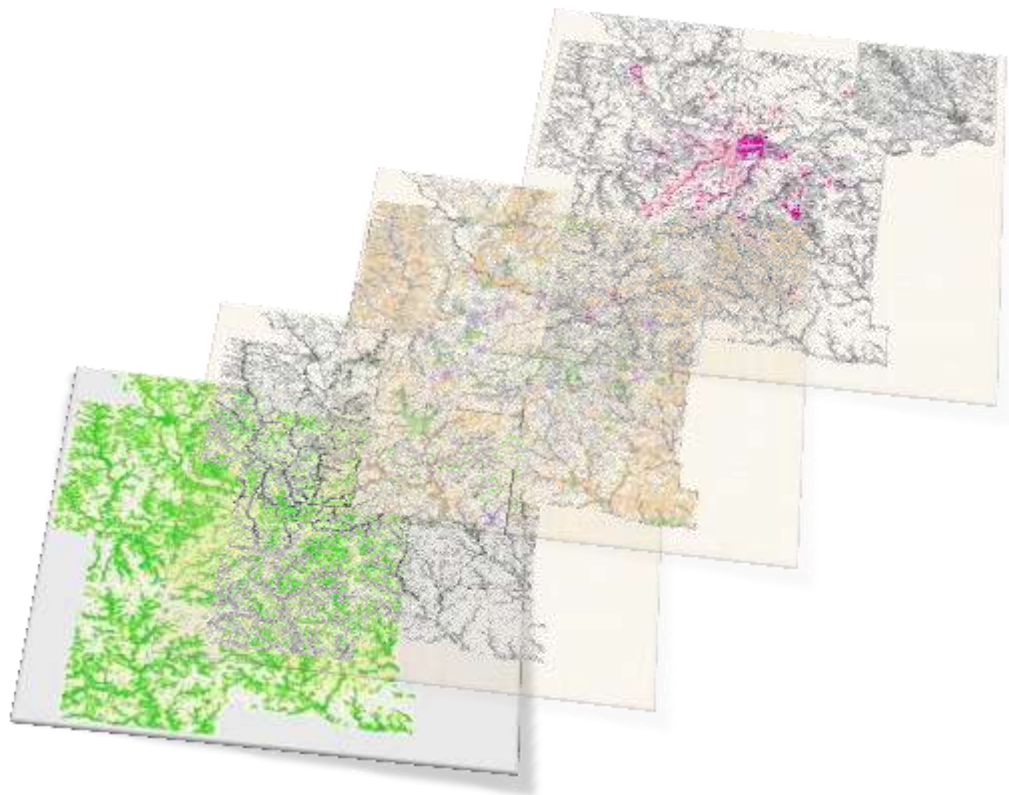


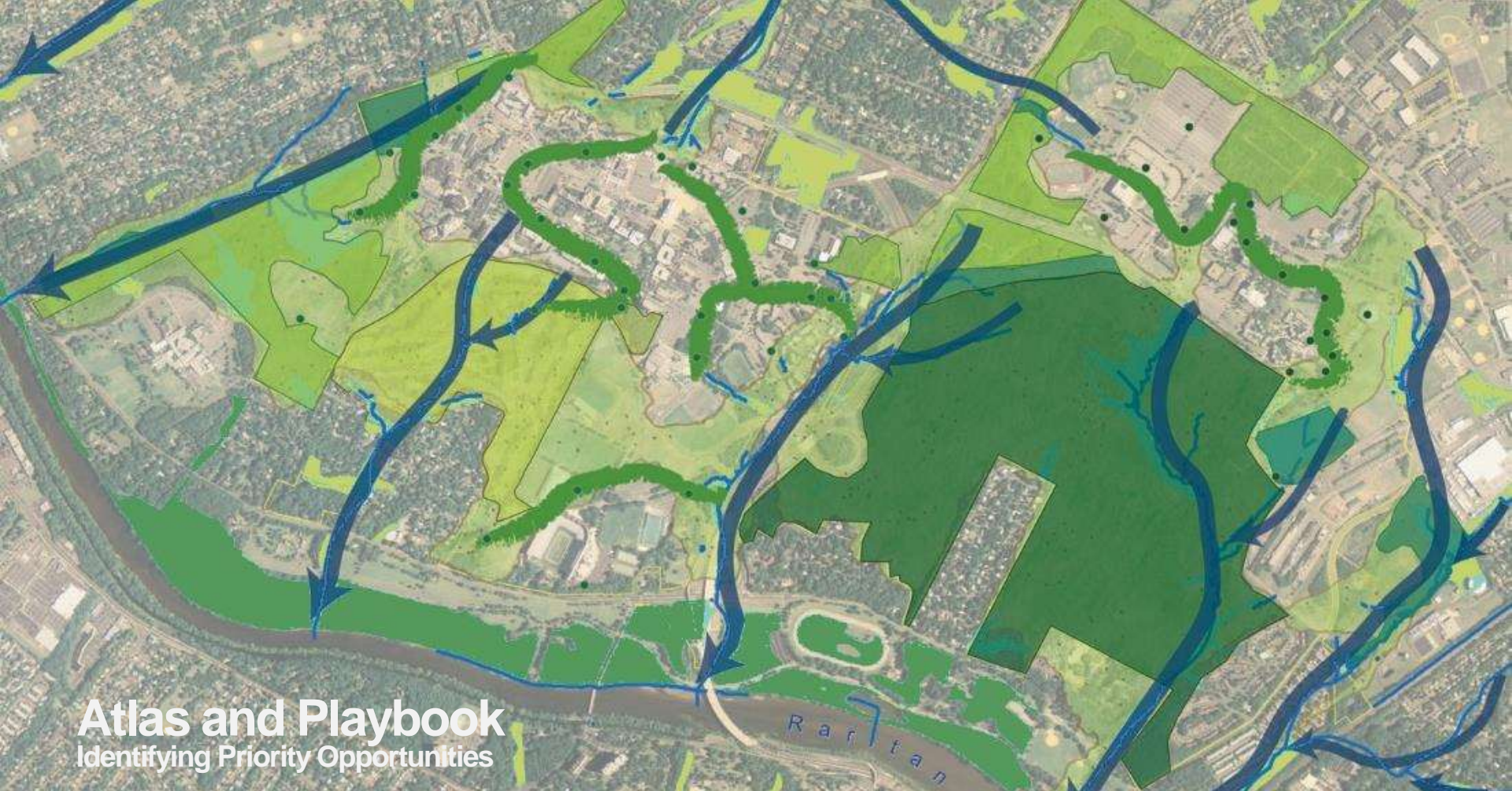
Activity Centers



From analysis to action

From Analysis to Action





Atlas and Playbook

Identifying Priority Opportunities

Establishing the Framework

Criteria

NEED

- Natural Resource & Human Health

MOMENTUM

- Partners collaborating
- Projects started

ACCESSIBILITY

- Translatable to a wide audience
- Lessons shared
- Replication & education

PROXIMITY

- Close to other replicable projects
- Creates a ripple effect

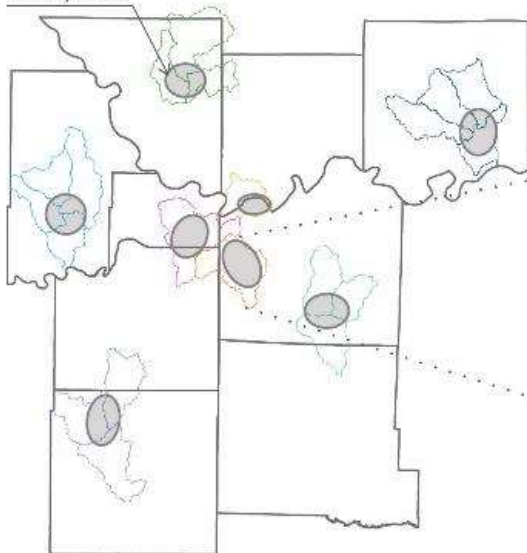
A project-based approach

Green Infrastructure Framework: Atlas + Playbook

ATLAS

9 Counties Scale

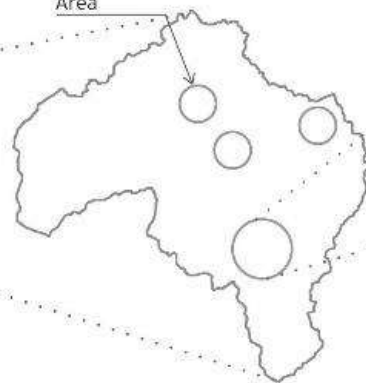
Priority Areas



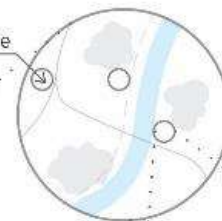
PLAYBOOK

Watershed Scale

Opportunity Area



Project Site



Project Site Template



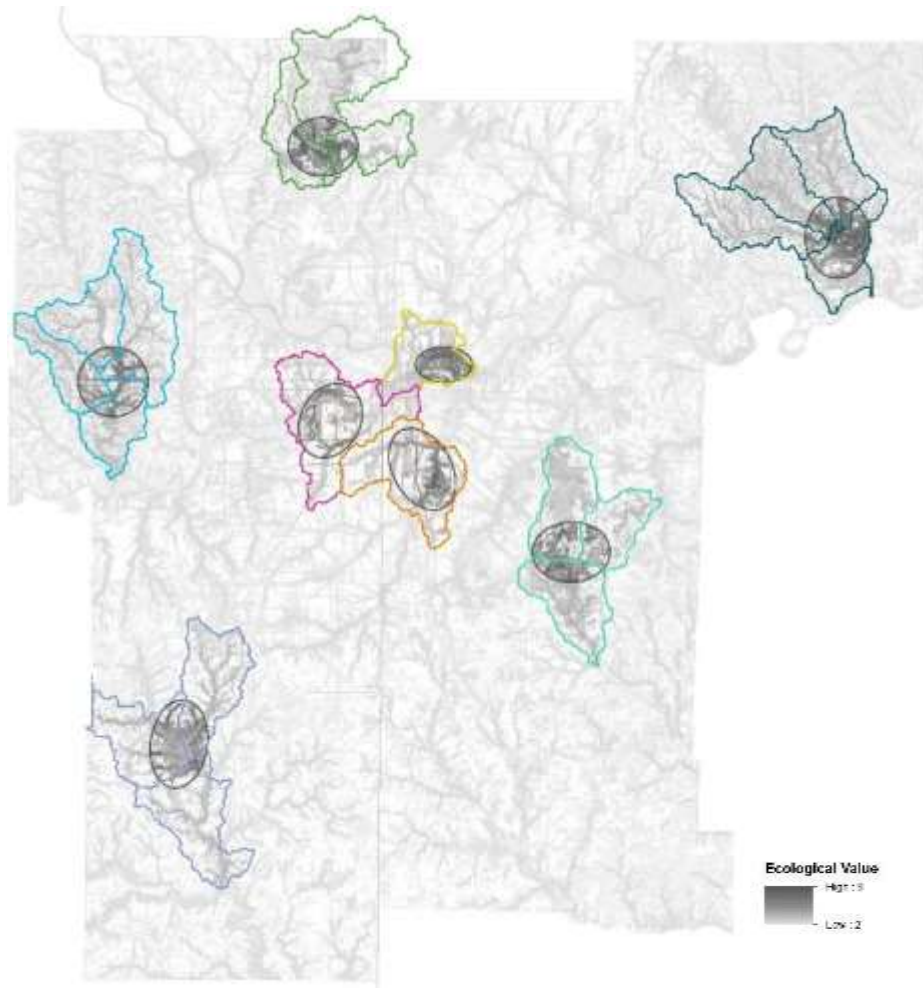
Atlas

Priority Areas

Nexus of highest ecological value and need:

- **Transportation investment**
- **Metrogreen corridors**
- **Transportation equity**
- **High impact land use**
- **Designated activity centers**
- **Social system challenges**

Examples illustrating key challenges and assets across urban, rural and suburban areas of the region.



Playbook

Opportunity Areas

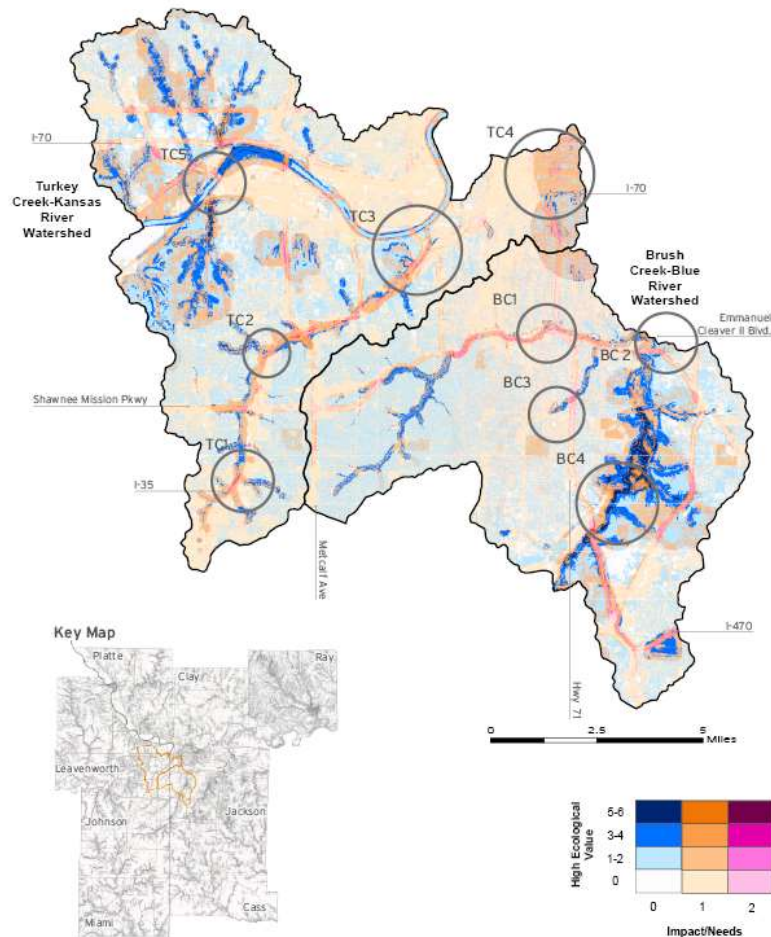
Brush Creek –Blue River Watershed

- Active partners
- Urban Waters location
- Public health focus
- Equity through mobility improvements
- Strategic growth in adaptation to social and environmental challenges

Turkey Creek – Kansas River Watershed

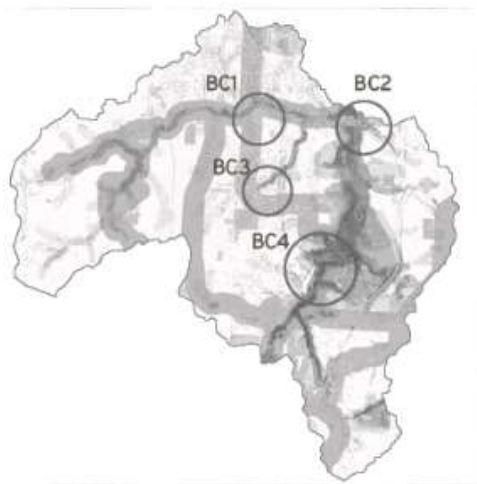
- Development pressure and population growth
- Near term opportunities for Low Impact Development
- Healthcare access
- Active living opportunities

Ecological Value with Impacts and Needs

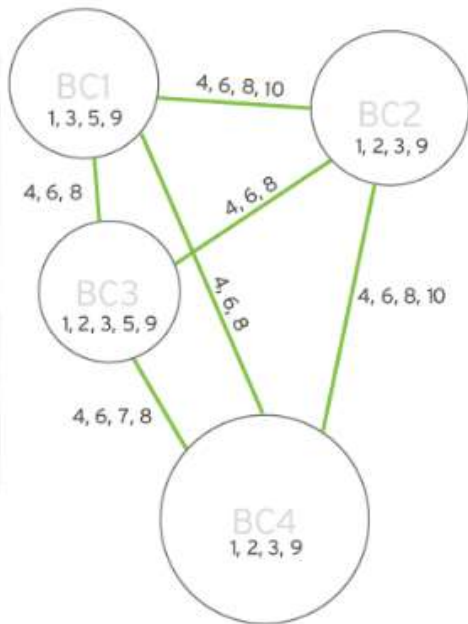


Playbook

Project Sites



0 2 Miles



conservation and development



complete streets



creek/stream bank restoration & recreation



urban & suburban street bmps



stream restoration & development

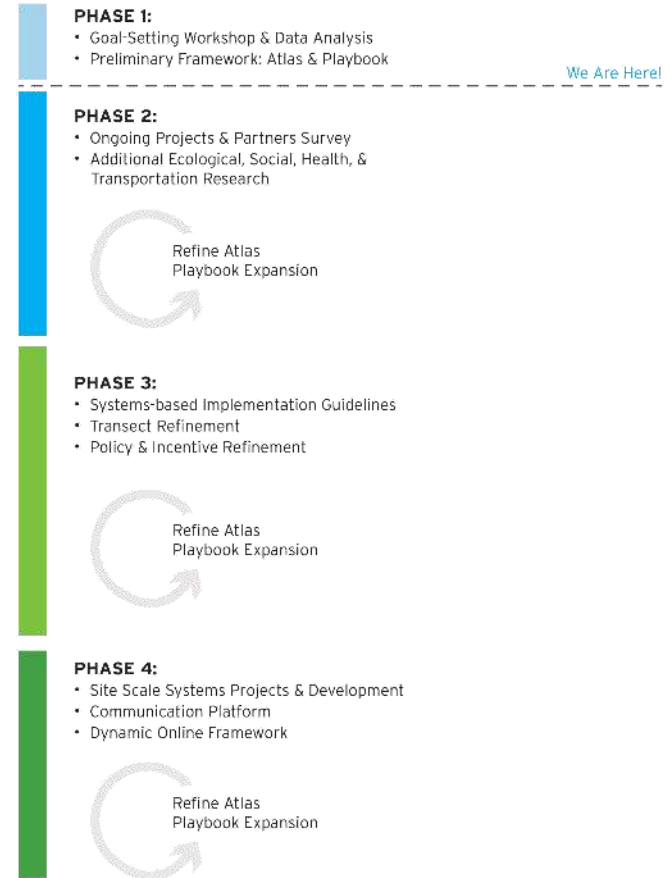


stream restoration

Next steps

Next work to do

- Iterative refinement and expansion of Atlas and Playbook throughout phases
- Survey and mapping of planned/funded projects and partners
- Additional ecological, social, health and transportation research and refined analysis
- **Online communications site**
- Regional transect typology mapping
- Policy and incentive refinement
- Development of best practices for neighborhood-scale integrated green infrastructure systems
- Defining adoption the Green Infrastructure Framework
- Development of key components for adoption or integration (i.e. guidelines, policy, curricula)
- Dynamic online tool for mapping and identifying projects based on perspective and interest areas.



What can this do for you now?

Using this Framework

- **Act now!**
- **Connect organizations and jurisdictions**
- **Identify mutually beneficial projects**
- **Determine specific policies or knowledge required to act**
- **Create local pathways to connected projects**
- **Provide regional coordination of integrated watershed management**

Let MARC know what you need from this framework in order to create the most value for your community.

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