

# APPENDIX

## PHASE 1 GREEN INFRASTRUCTURE FRAMEWORK

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# WORKSHOP MATERIALS

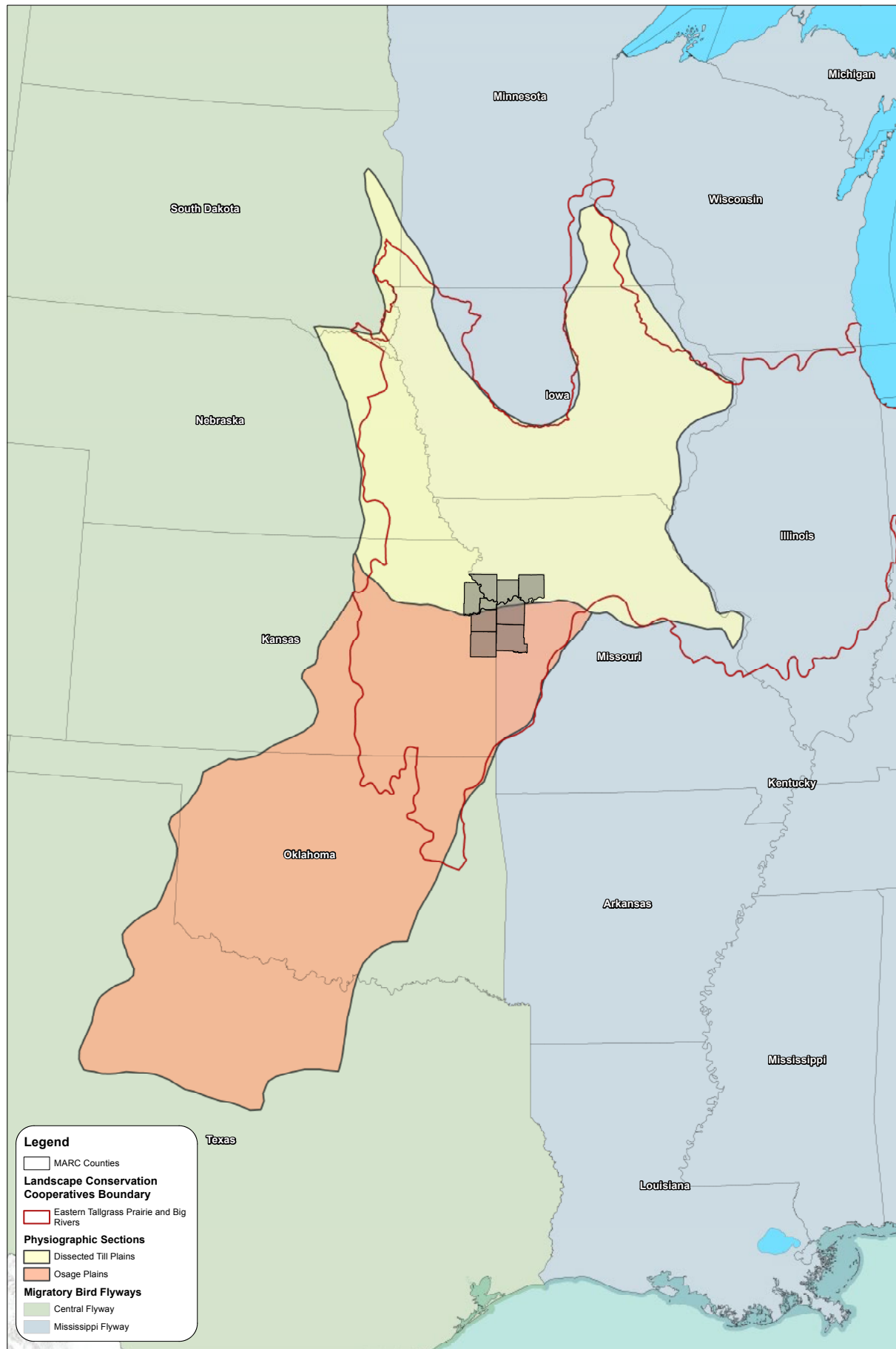
Community involvement has been a critical component of developing a framework which is appropriate to the unique human and environmental contexts within the MARC region.

This plan includes the views and insight provided by stakeholders from across the region, all interested in removing barriers to green infrastructure. Over 70 stakeholders attended a community workshop held November 15th, 2016.

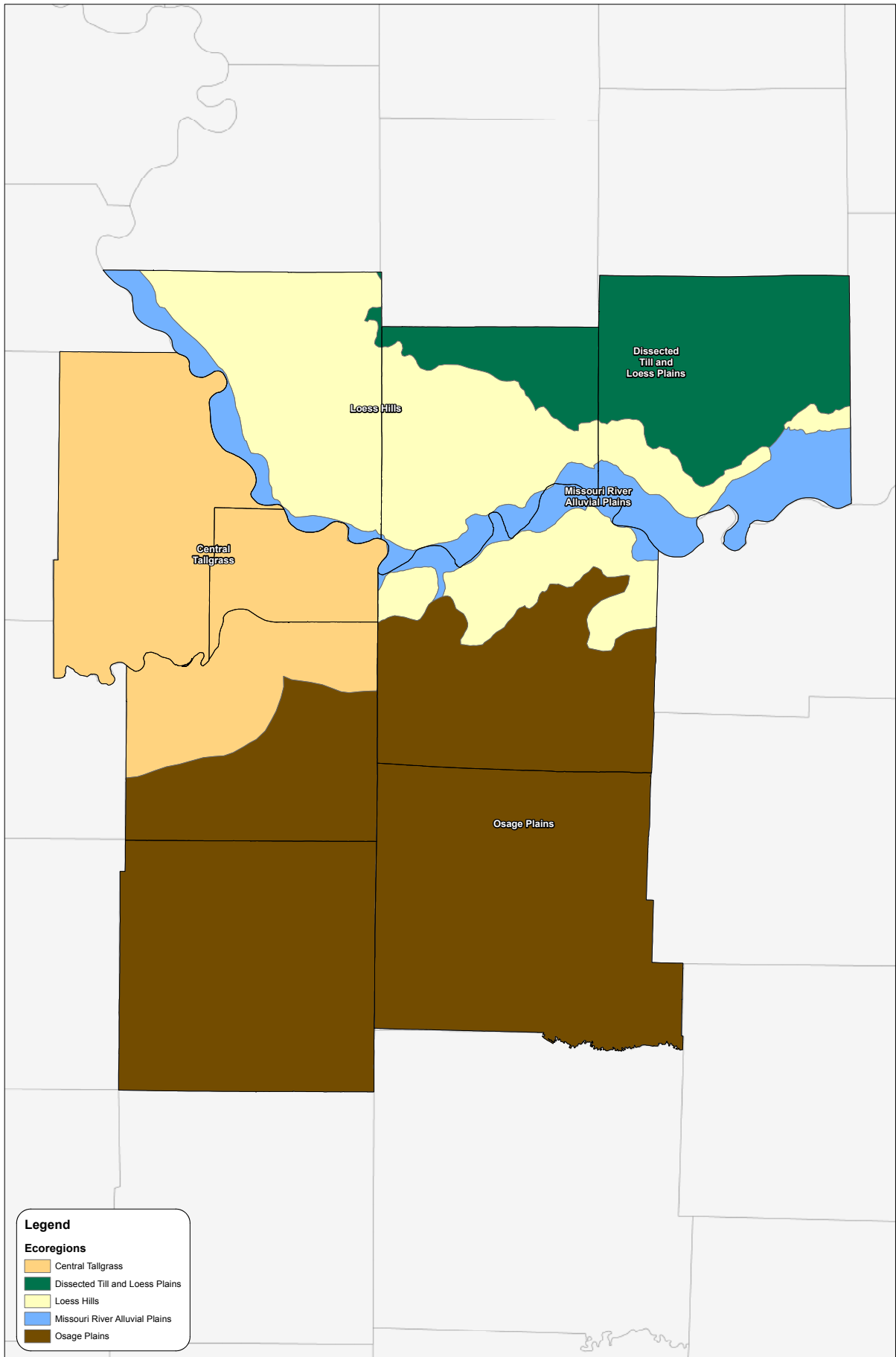
The workshop began with a presentation outlining the context of green infrastructure within the MARC region. The presentation included a series of maps to familiarize the attendees with regional ecological and human systems. Attendees were also provided a reference packet of 11 inch by 17 inch maps with this same information at the scale of each watershed for use during discussion.

Following the presentation, attendees worked in breakout discussion groups where they identified and prioritized both goals and strategies for their local area. In the interest of developing ecologically appropriate partnerships and solutions, attendees were grouped by the HUC 8 watershed wherein their interests primarily resided.

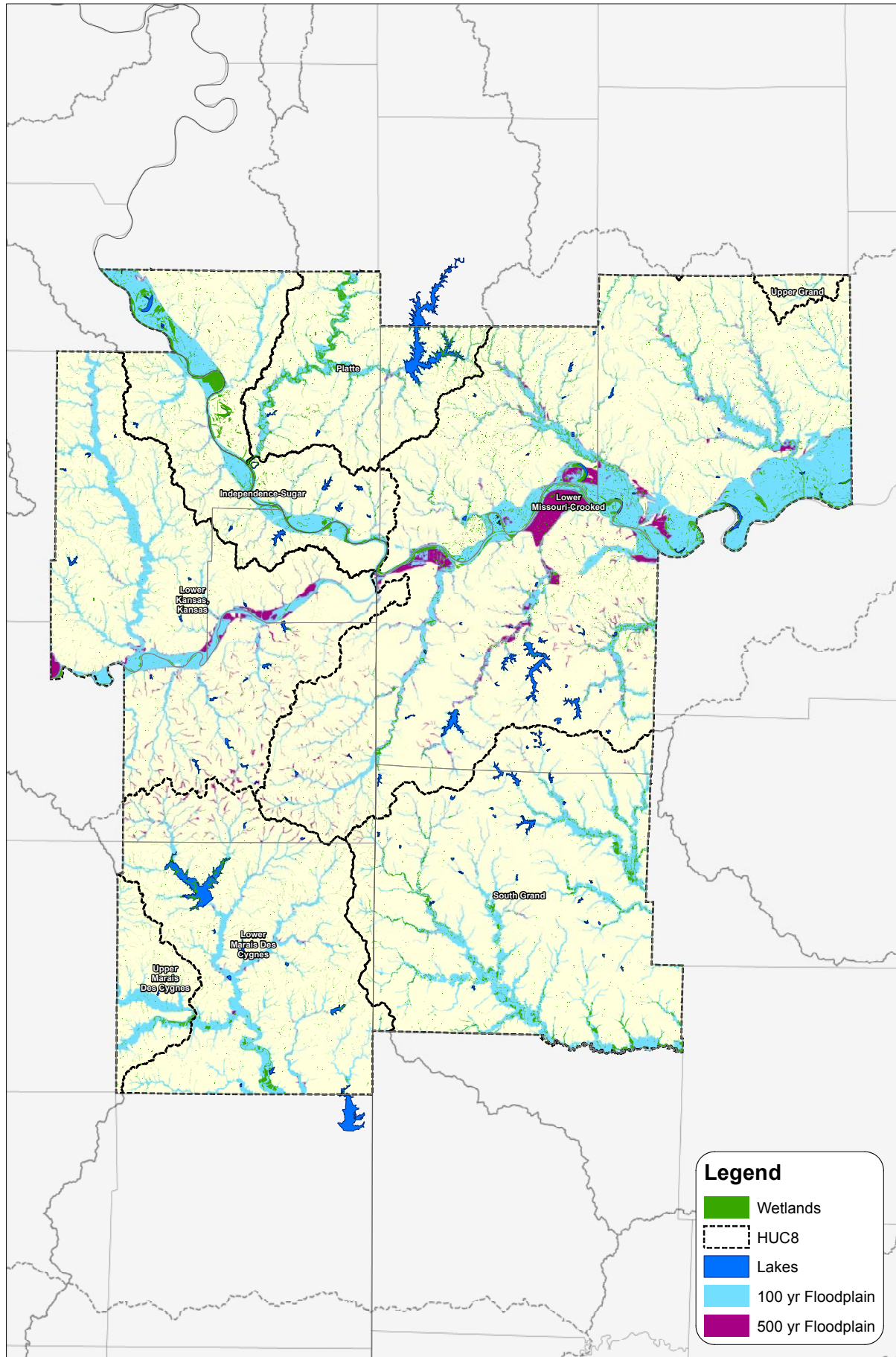
The following are the ecological systems maps presented, followed by the notes and completed worksheets which resulted from the breakout group discussions.



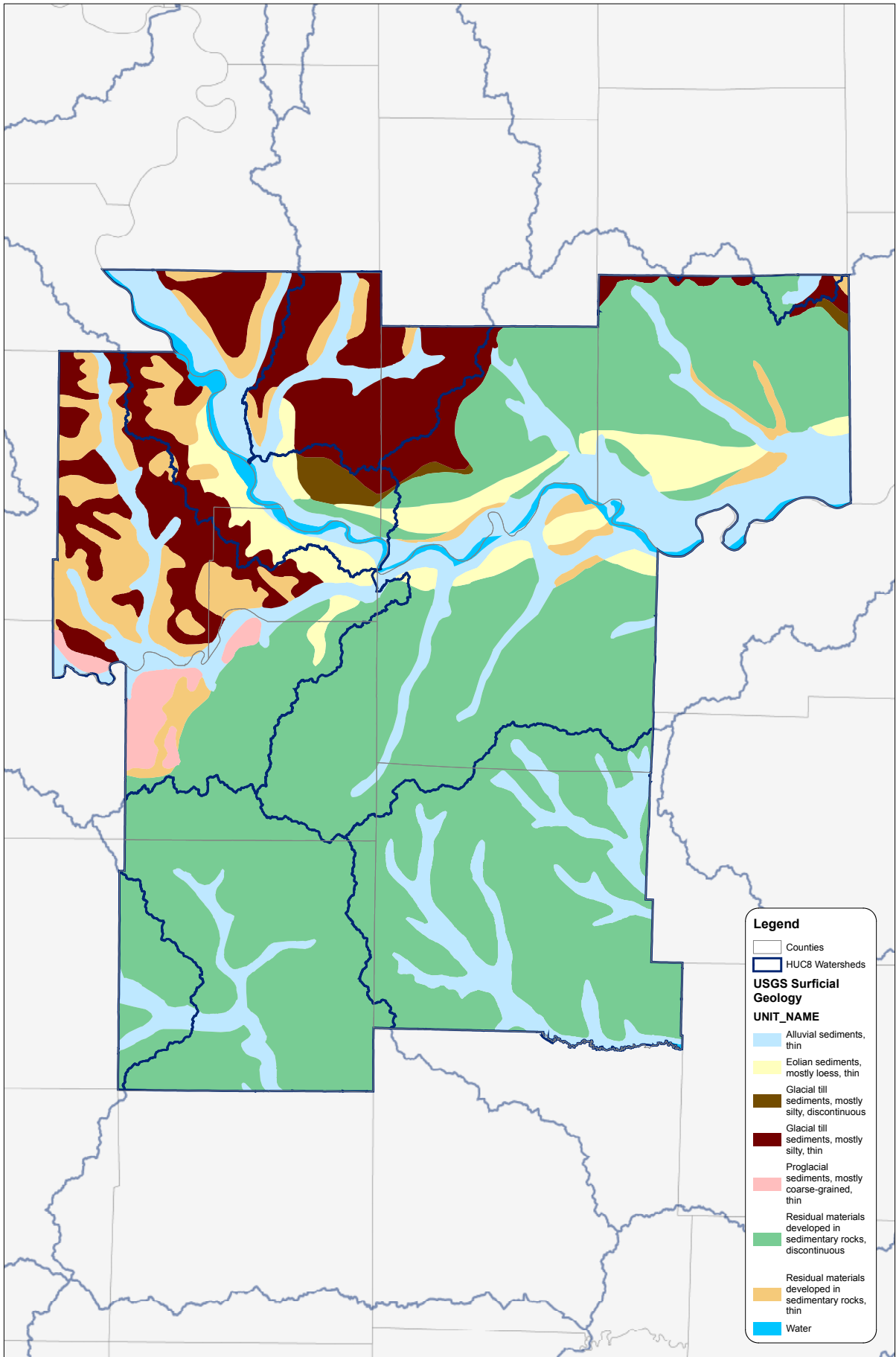
## Continental Ecological Overview: Ecosystems and Migratory Patterns



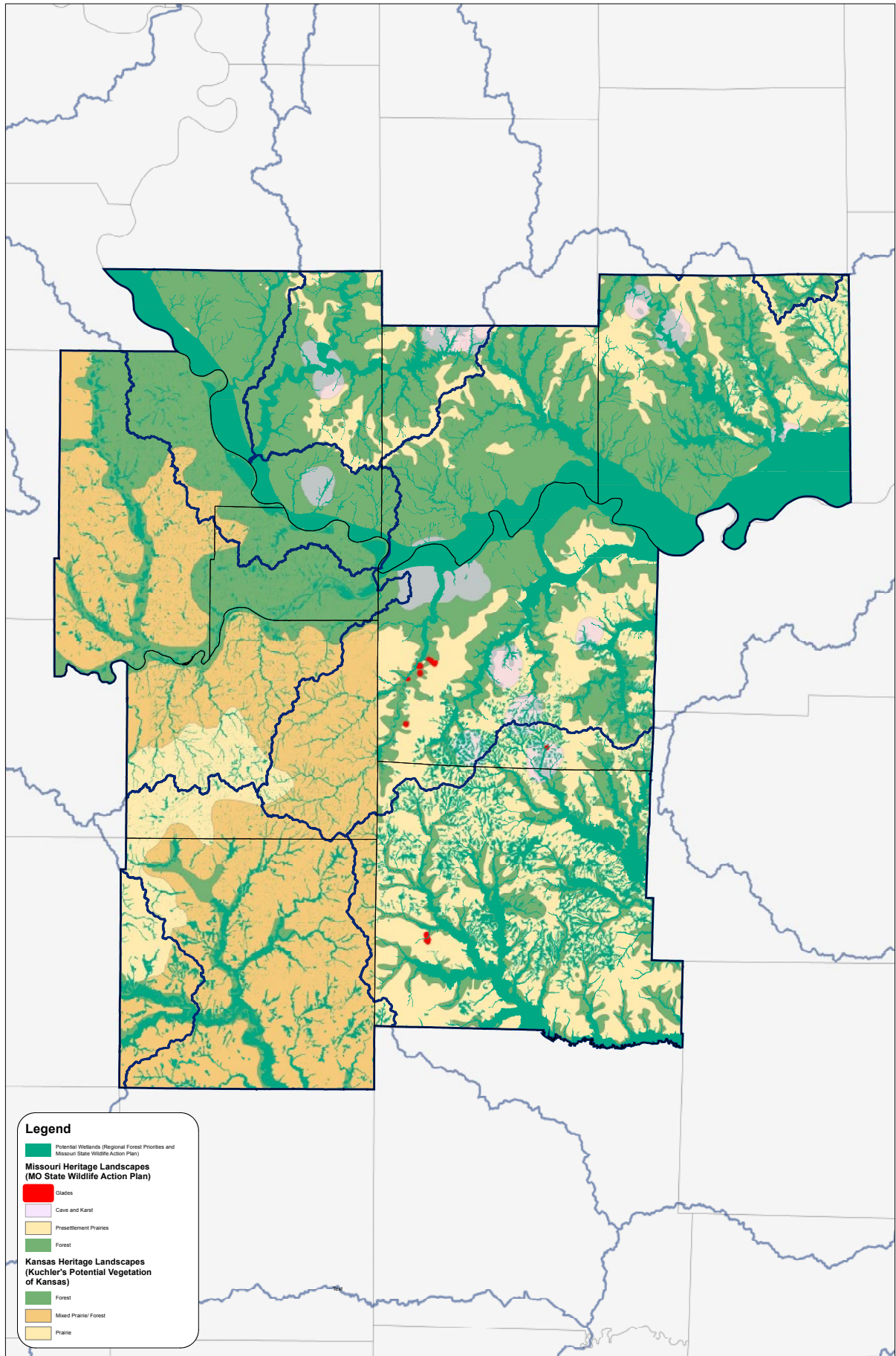
Regional Soil and Habitat EcoRegions



Regional Hydrology

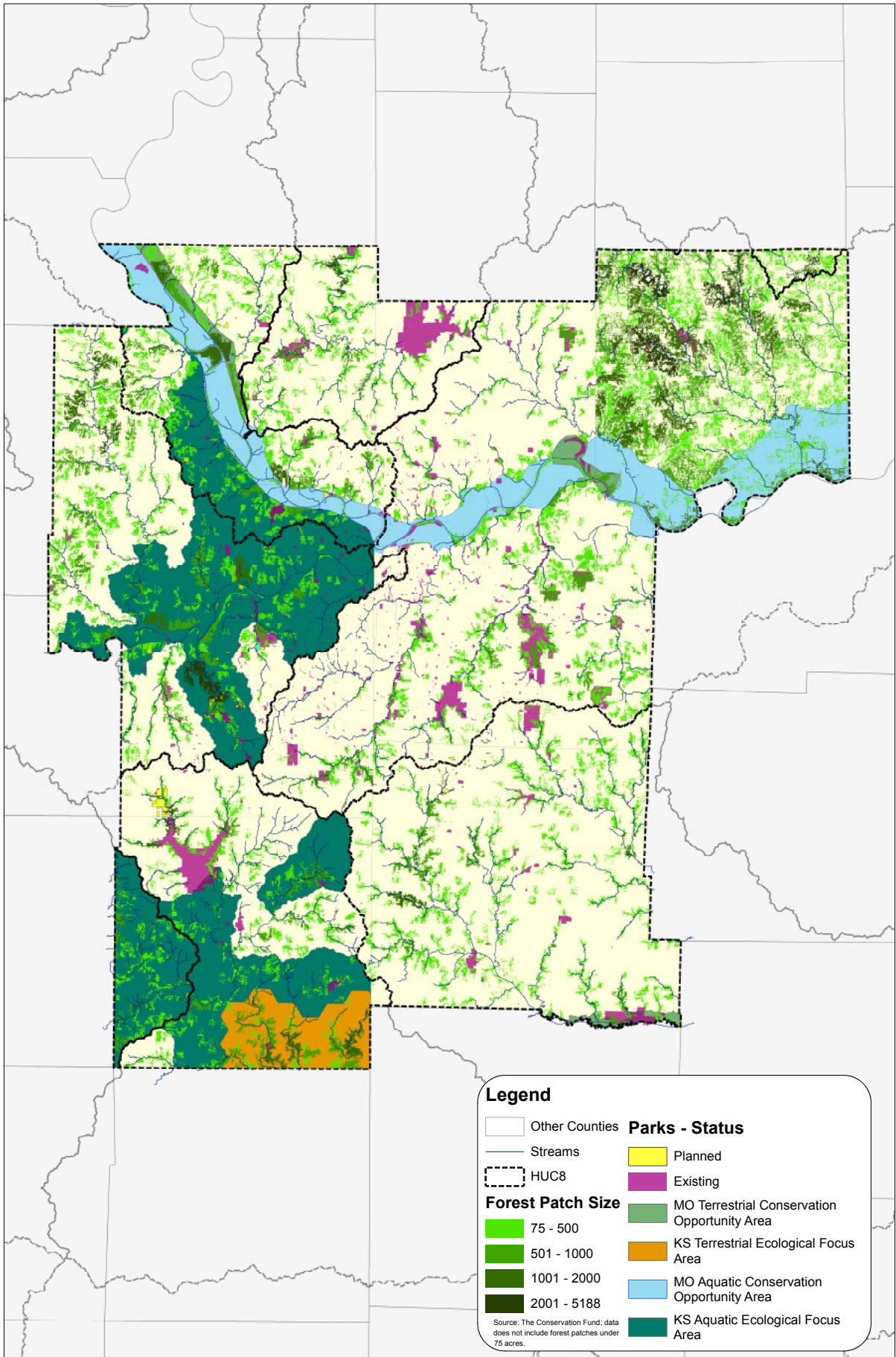


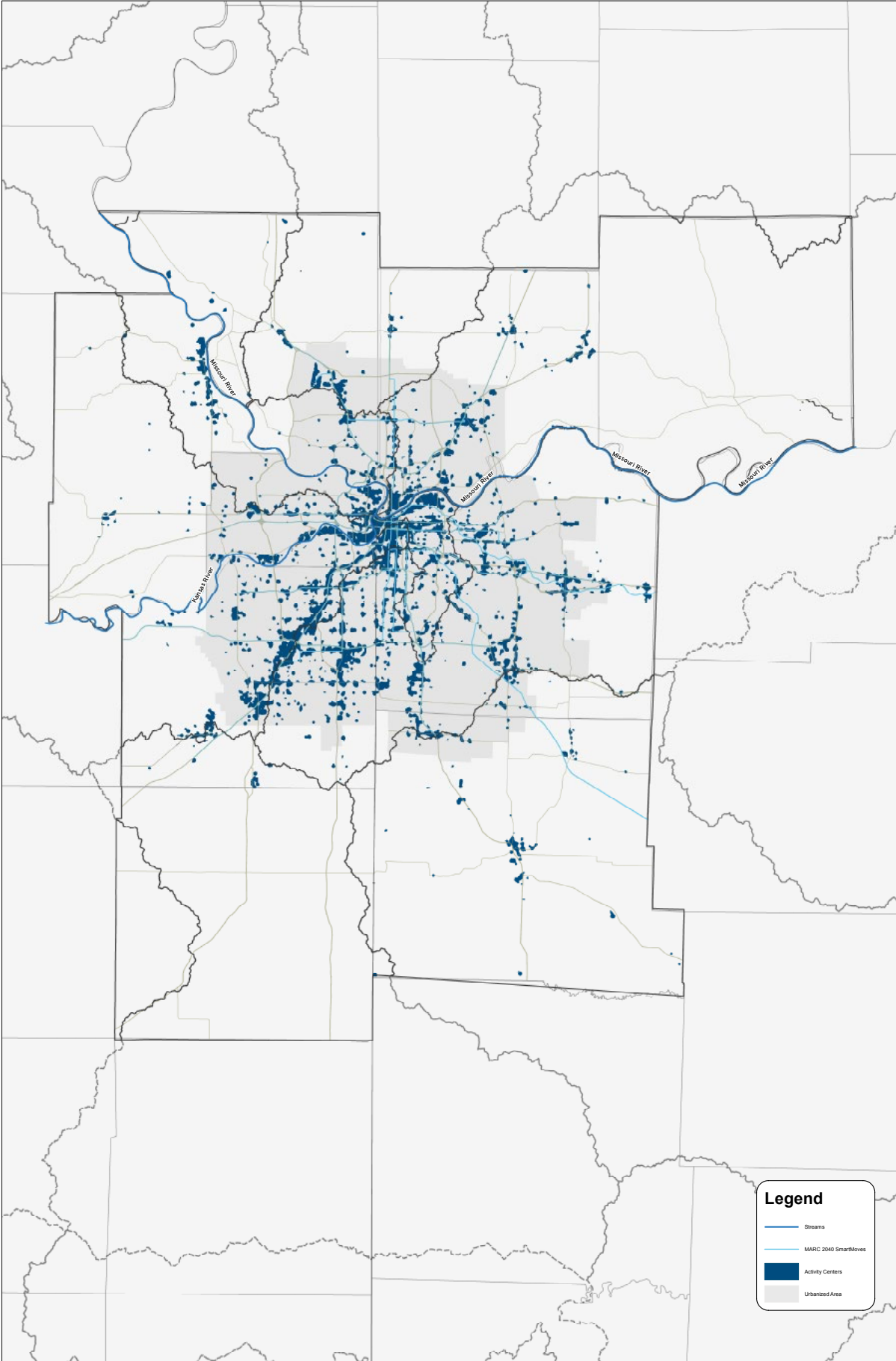
Regional Surficial Geology



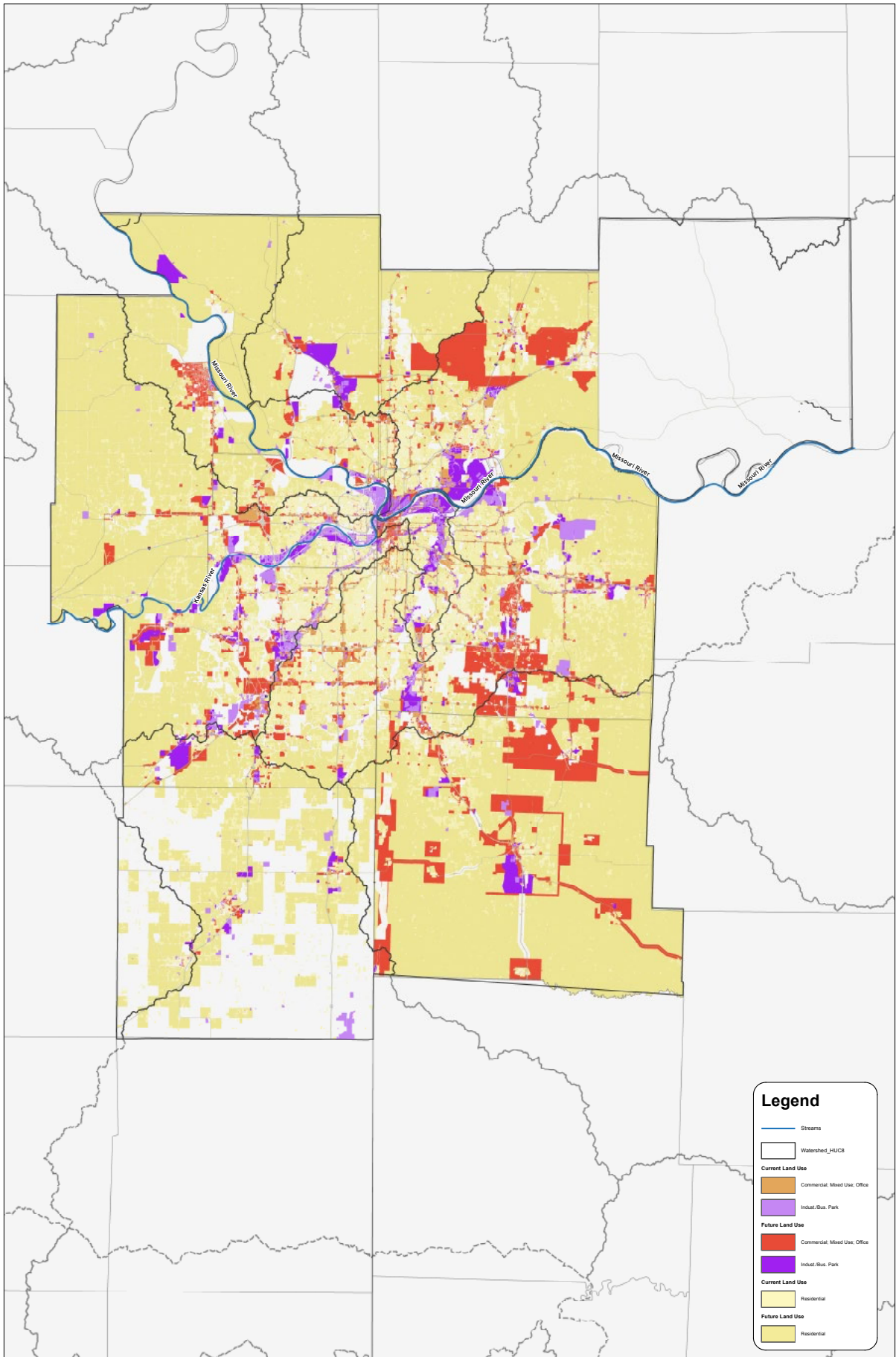
## Regional Heritage Landscapes



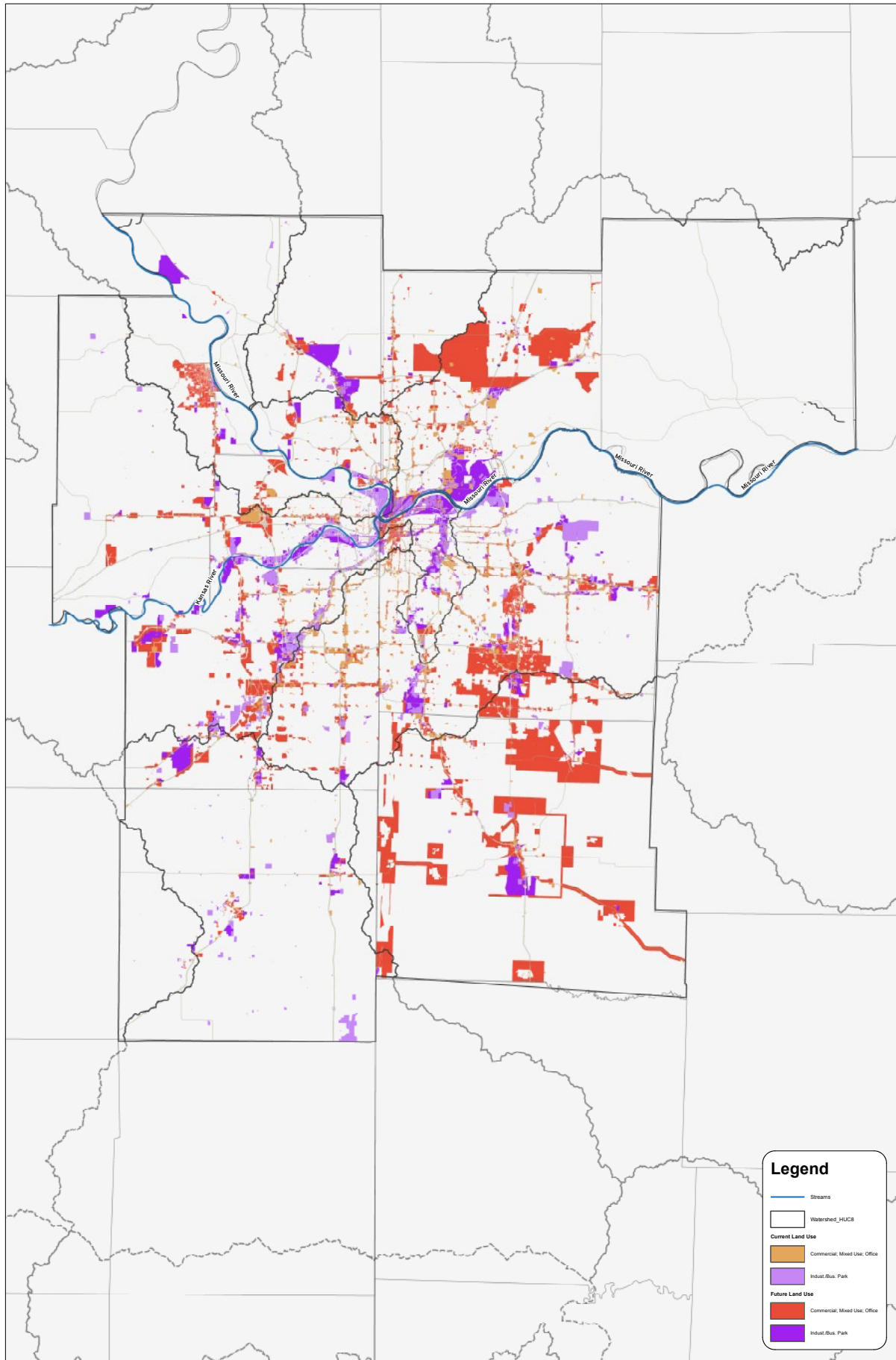




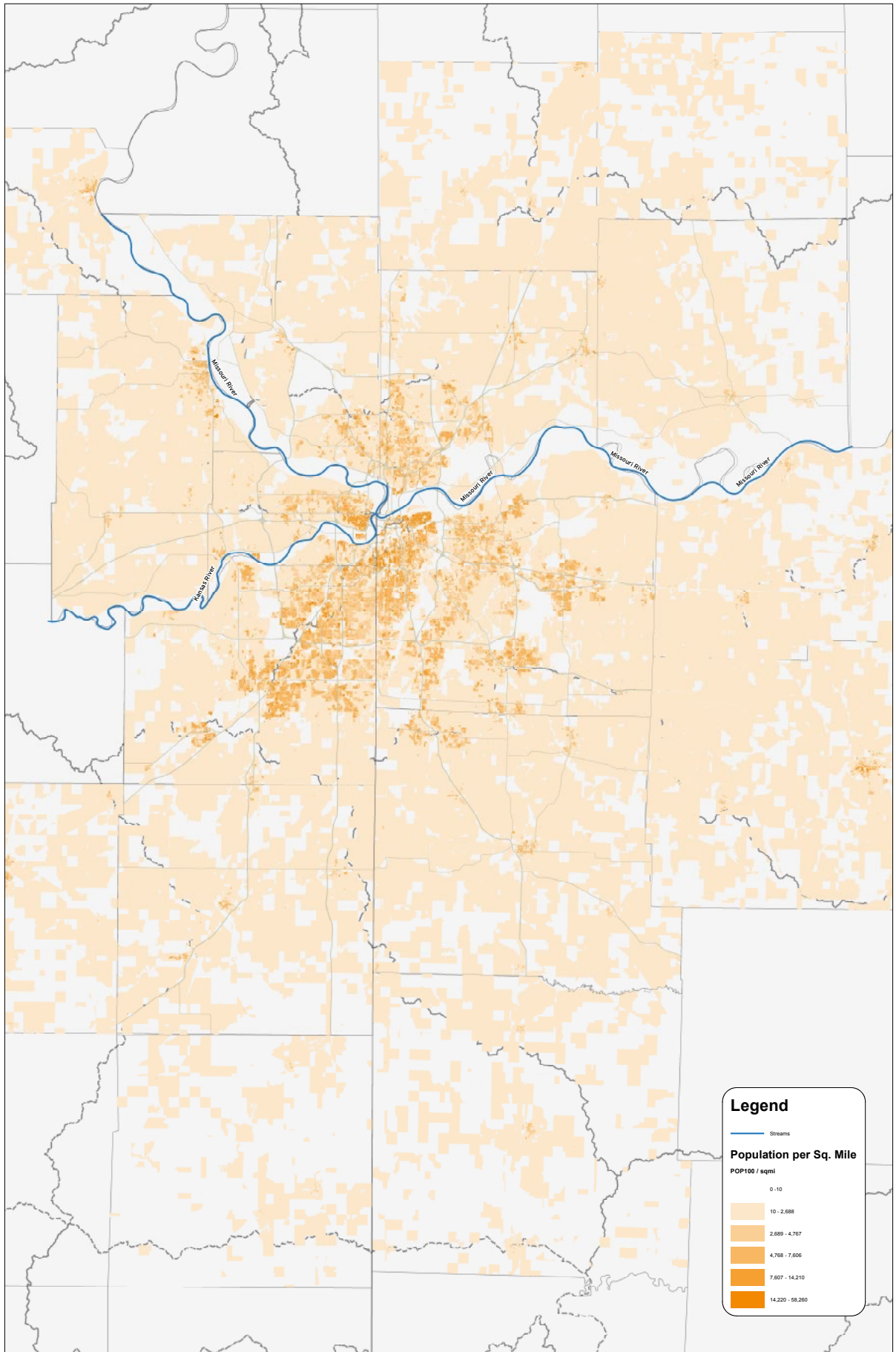
Regional Activity Centers and Corridors



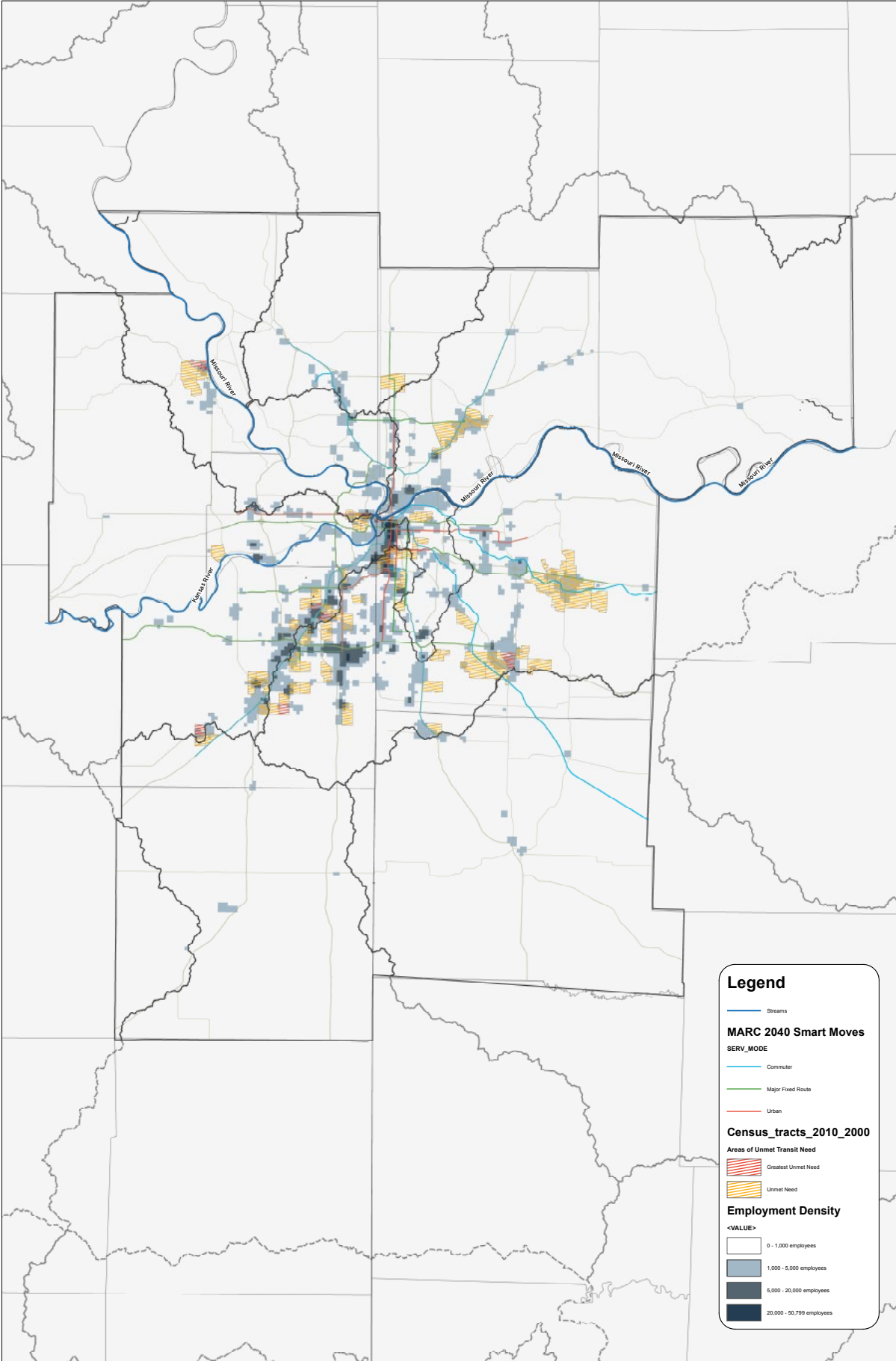
Regional Planned and Existing Land Use



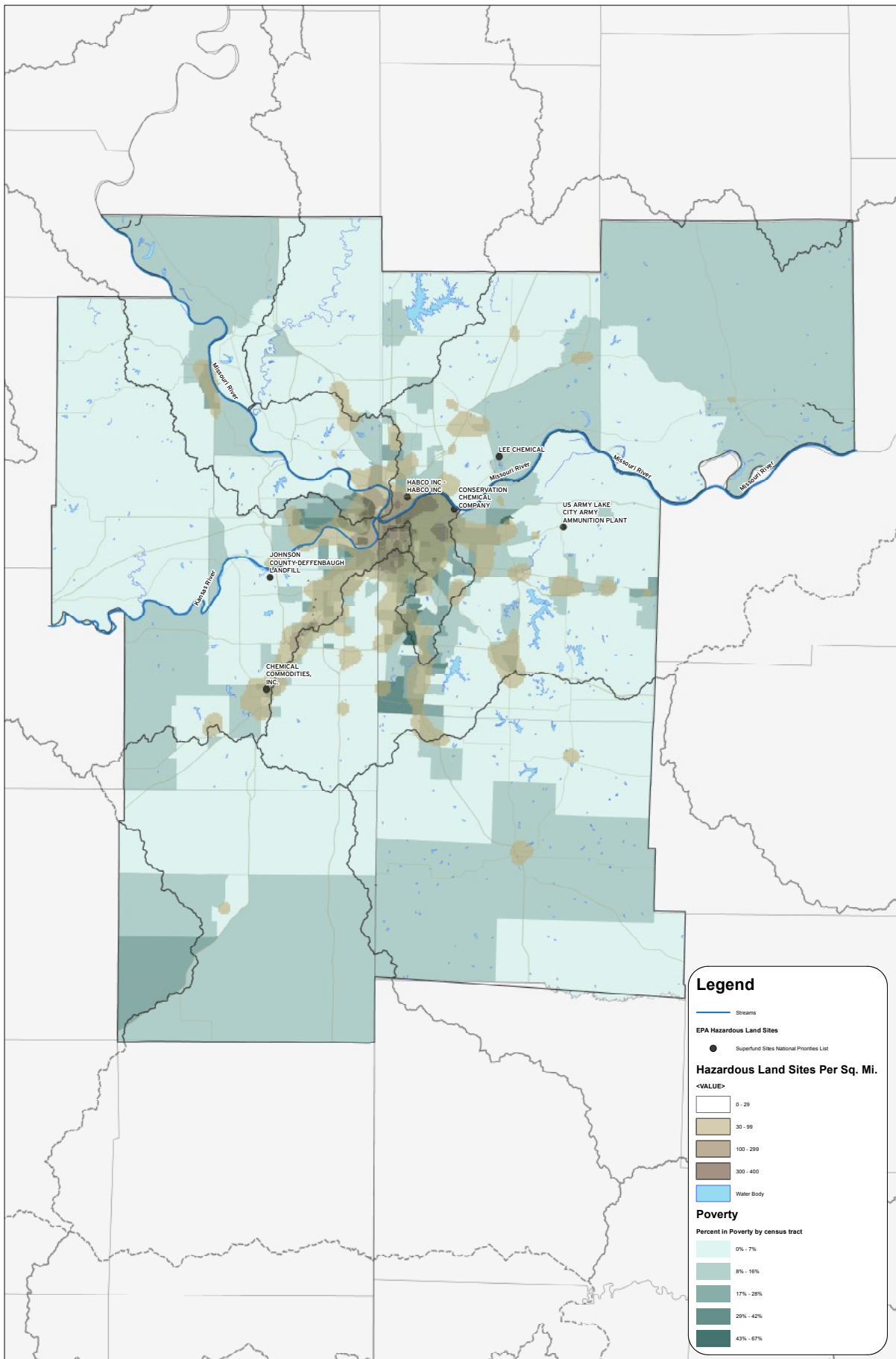
Regional Planned and Existing Land Use: Commercial, Office, and Industrial



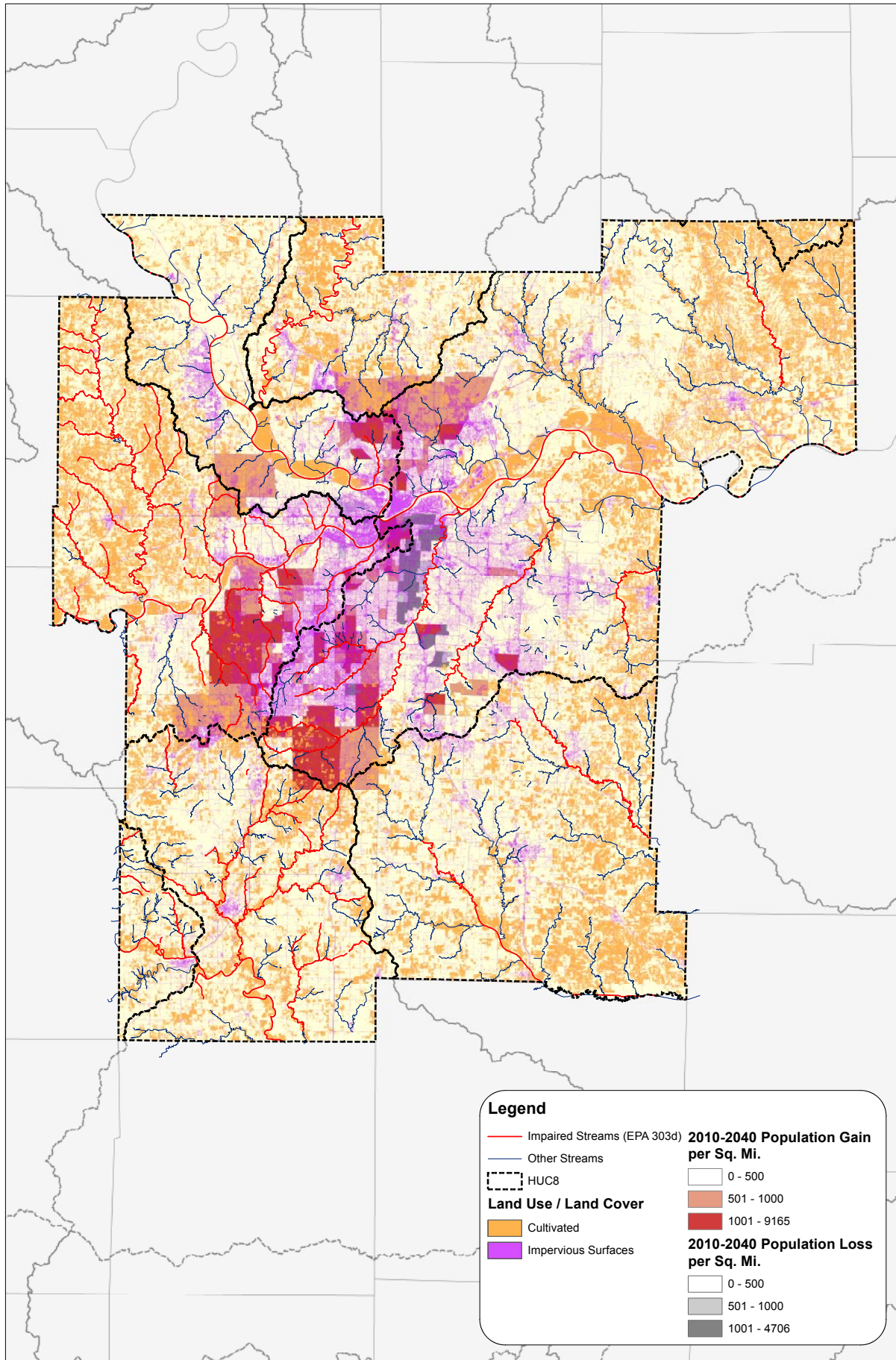
Regional Population Centers and Density



Regional Ratio of Jobs to Transit Need



Regional Environmental Justice: Poverty and Brownfields

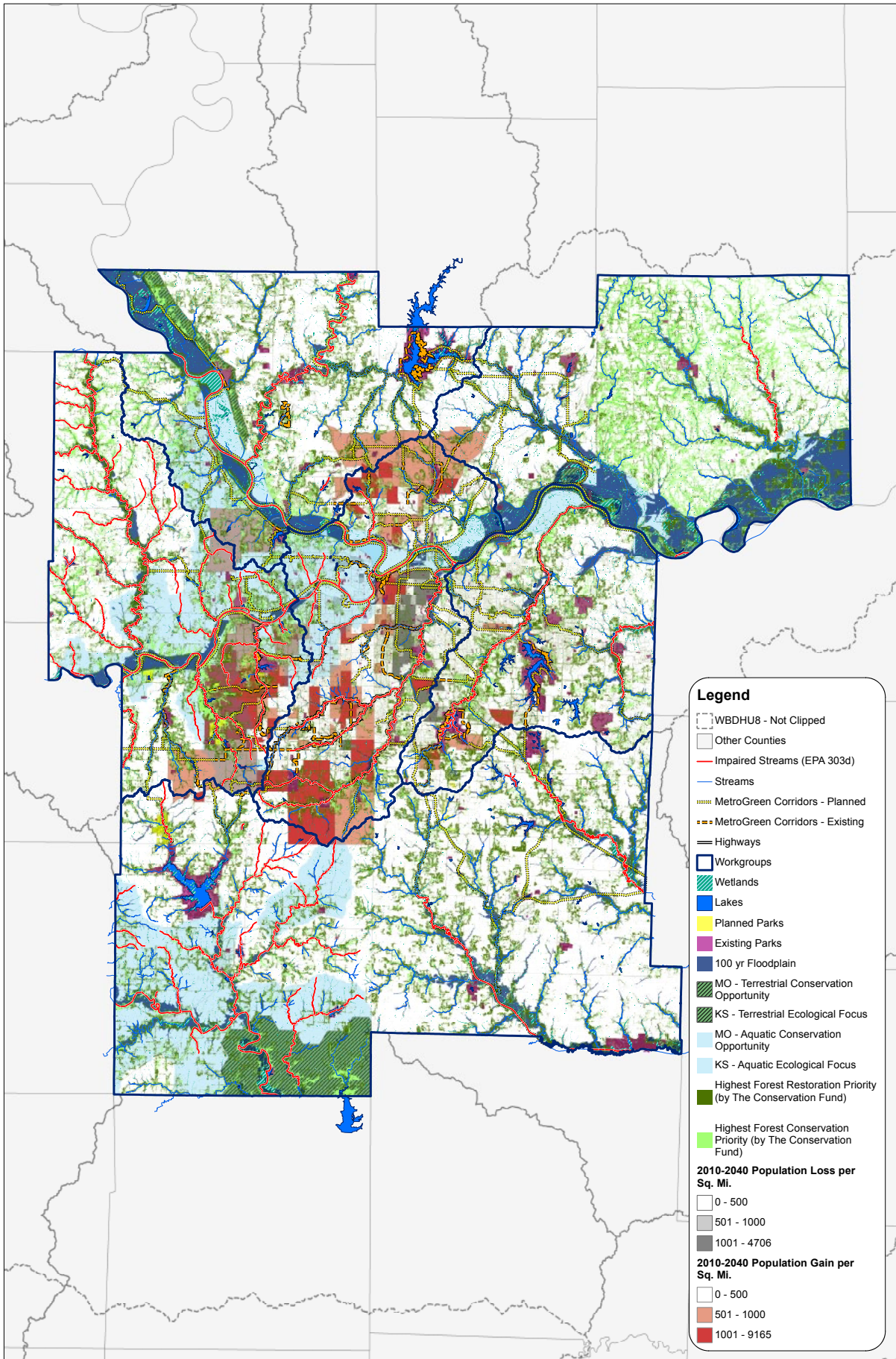


**Legend**

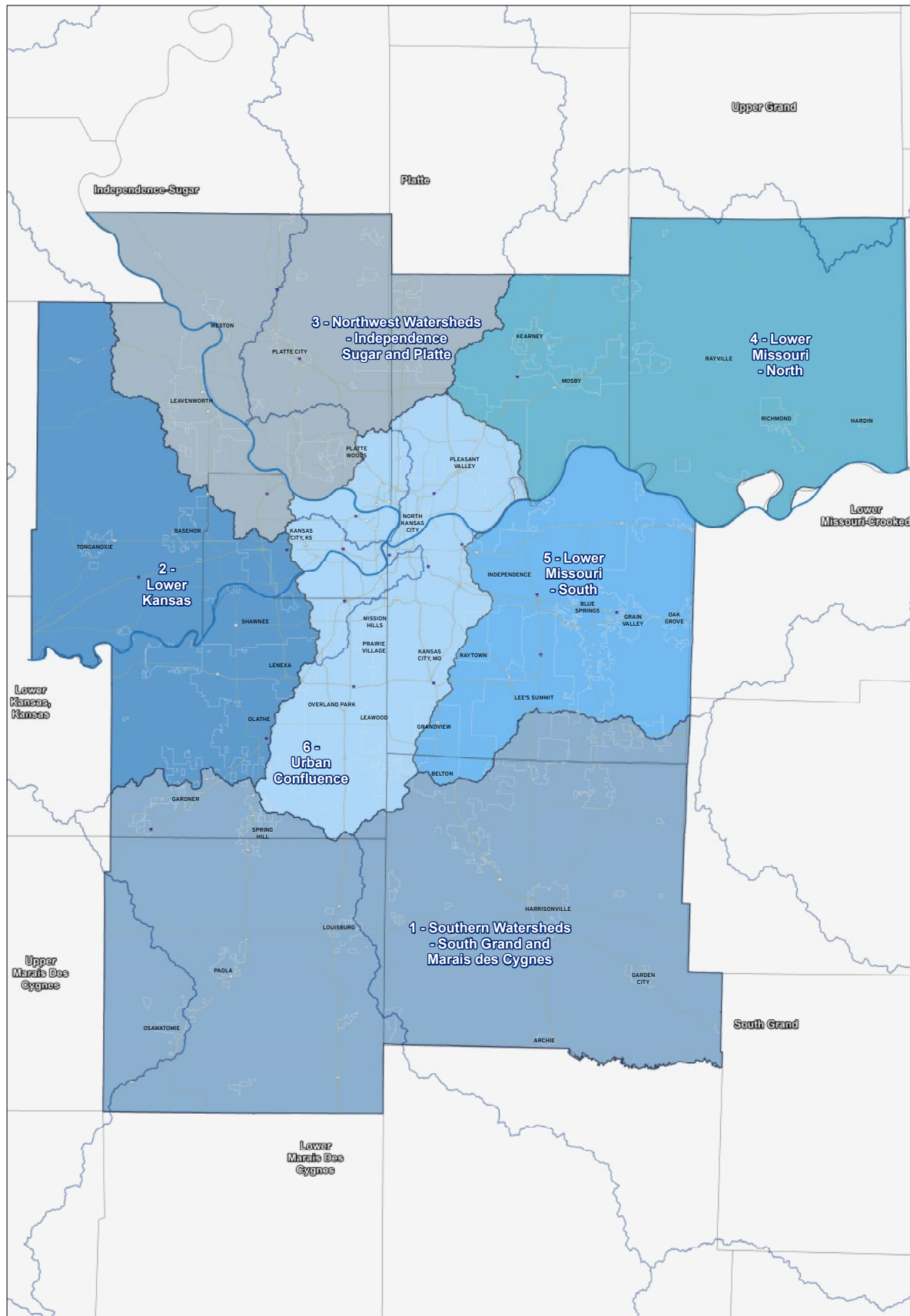
- Impaired Streams (EPA 303d)
- Other Streams
- - - HUC8
- Land Use / Land Cover**
  - Cultivated
  - Impervious Surfaces
- 2010-2040 Population Gain per Sq. Mi.**
  - 0 - 500
  - 501 - 1000
  - 1001 - 9165
- 2010-2040 Population Loss per Sq. Mi.**
  - 0 - 500
  - 501 - 1000
  - 1001 - 4706

Regional Confluence of Human Development and Ecological systems

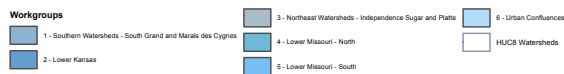




Regional Green Infrastructure Study of Opportunities and Constraints



**Watershed Breakout Groups**



Watershed boundaries by which workshop attendees were grouped

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### Watershed #1 and #4

Attendees: Robin Polk, civil engineering - water quality

John Warren, ASP enterprise – storm water/civil engineering products

Leah Medley, EPA Local, Region 7 – watershed scale

James Harpool, Evergreen Realty, architect -> developer – making sustainable places, water  
Water quality + retention, implementable strategies

Robyn DeYoung, EPA headquarters – air quality, climate change, green roofs

Facilitators: Elise Hubbard and Sam DeJong, BNIM

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## WATER

### Priority Goal 1: Improve health of rivers and streams

**Strategy 1: Assess and restore priority streamways**

**Strategy 2: Education across all sectors**

*Additional water-related comments and values:*

- Water is a **limited resource**
- **Limiting development to specified districts** away from streams was discussed as a strategy appropriate to rural areas
- **Analysis of critical areas** and **identification of pollution sources** are necessary first steps to assessing and restoring the priority streamways
- Rural areas can **learn from the mistakes of urban areas**.
- Water related **assets** in this watershed: the Big Blue River, the use of ditches instead of curbs for storm water management

## LAND

### Priority Goal 2: Improve/maintain local habitat using natural systems

**Strategy 1: Increase native species diversity, distribution, and population viability**

**Strategy 2: Identify sources of pollutants and work to eliminate discharge**

*Additional Land comments and values:*

- Riparian corridors and natural water treatment facilities represent **the intersection between land and water** protection.
- Would like more information on **what is in the drinking water**
- Need to address **agricultural pollutants** – pesticides versus organic pollutants
- Maintain diversity of habitat and wildlife – important to **allow wildlife to remain** in area
- Organizing the overall method of implementation: Use the **natural versus built environment as a framework** for evaluating goals and strategies
- Land **Assets** in this watershed: wildlife, the natural setting/access to nature, and trail connections

**MARC GI Stakeholder Workshop 11/15/16**  
**Watershed #1 and #4**

**AIR AND ATMOSPHERE**

**Priority Goal 1 Increase microclimate regulation**

**Strategy 1: Regulate non-native plantings and promote existing natural plantings**

**Priority Goal 2: Decrease energy consumption from transportation.**

**Strategy 1: use of development requirements and incentives for new construction**

**Strategy 2: Measure and address energy use through the transport of goods**

*Additional Air comments and values:*

- **Atmosphere** was cited as a bigger concern than energy for rural areas. Native plantings were recognized as an important tool in mitigating this issue.
- **Energy costs will never be cheaper** than they are now. Energy use from transportation was focused on. Stakeholders should look at public transit opportunities, but also the energy consumption associated with the transport of goods (i.e. trucking, etc.).
- **City development requirements** are an implementation opportunity in this area.
- Atmospheric **assets** in this watershed: dark streets mean starry skies at night.

**WRAP UP QUESTIONS AND OVERARCHING COMMENTS**

- **Key Components**
  - **Cities need to take the lead** by creating models for implementation, and incentivizing private implementation.
  - A major challenge is the political fragmentation of the watershed. The watershed needs a **regionally unified identity** that is self-validating
    - → 2 states – 4 counties – 1 watershed
- Other challenges:
  - Funding is limited
  - Public knowledge
    - Need to keep the public informed and make efforts accessible
  - Rural areas require different sets of strategies than urban areas
  - Exploring partnerships at the rural and urban scale
  - There are challenges associated with creating new policy
  - How can rural communities address maintenance once projects are completed?
- What is the Hook?
  - Building public demand
  - Marketing of this vision needs to be ‘sexy’
    - The Green infrastructure cannot be framed as just “GI”, it needs to be about Kansas City, the Midwest – who we are.
  - Schools and public spaces are change agents
  - We need to have unified goals across the region. Maybe recreation is a unifying goal.

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**Watershed #1 and #4**

- Cities and developers need to understand that incentives won't make a bad project good – still need solid market and project analysis.
- Tools for making information accessible
  - We need to put information where people are looking for it and use words that resonate with people
  - Developers and other stakeholders need to be educated on what exactly the cost effectiveness is of implementing these strategies into their projects. The city can take the lead on this with demonstration projects. For example, how do we show people a model residential development and how that model can be successful?

**MARC GI Stakeholder Workshop 11/15/16**  
**No. 2--Little Blue, west-central watershed**

Attendees:

Joan Leavens – Shawnee Mission School District

KDOT

Martin Rivarola – MARC, Transportation

Facilitators: Phaedra Svec and James Baker, BNIM

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**WATER**

**Priority Goal 1: Improve health of rivers and streams**

**Strategy 1: Establish effective ordinances, policies and regulations for new and existing construction/development**

**Strategy 2: Develop network network of integrated, multi-benefit projects**

**Priority Goal 2: Improve and maintain natural water flow patterns**

**Strategy 1: Identify floodplain priorities**

**Strategy 2: Increase water absorption and restore appropriate water flow patterns**

**3<sup>rd</sup> Goal – Improve storm and wastewater infrastructure**

- Strategy 1: integrate capital improvements between storm water and wastewater
- Incentivize, promote, implement multipurpose water management infrastructure to jointly address public health, environmental health, and sustainable regional development

*Additional water-related comments and values.*

**Infrastructure Integration:**

- Integrating capital improvement planning was identified as a high priority, both in terms of integrating infrastructure types, such as integrating waste- and stormwater infrastructure, but also spatially, such as measuring and addressing the upstream impact on downstream water resources.
- To most effectively implement the priority strategies, each project must ideally provide multiple benefits that jointly address goals for public health, environmental health, and sustainable regional development.
- Identifying and developing a set of policies to deal with unincorporated areas was identified as a high priority. Currently there are few regulations, and little incentive to preserve stream quality in these areas.

**People and capacity building**

- **Education at all ages and levels** is key: youth + community + university + professional. Education cuts across all the major goals and connects the goal of improving the health of streams and waterways to a strategy of developing effective ordinances and policies by developing broader

**MARC GI Stakeholder Workshop 11/15/16**  
**No. 2--Little Blue, west-central watershed**

political support for such policies. Locals, contractors, etc. need to be knowledgeable of best practices

- Developing a **regional guide and strategy** needs four aspects: education, consensus, enforcement, and implementation
- Financial feasibility of implementation depends on **developing partnerships for cost sharing**.

**LAND**

**Priority Goal 1: Promote green infrastructure as a quality of life amenity**

**Strategy 1: Increase partnerships between cross sector orgs....including public/private**

**Strategy 2: Defining GI that functions as an amenity as enhancing health and the wellbeing of the spirit.**

**Priority Goal 2: Improve prairie and woodland health**

**Strategy 1: Increase pace of conservation through targeted acquisitions or conservation easements**

**Strategy 2: Proactive regulation and management: Develop zoning ordinances and incentives that prioritize conservation**

*Additional Land comments and values:*

**Infrastructure -- BMP & Landscape Management**

- **Need proper maintenance protocol.** MARC could help with developing educating wide range of people and managers about regional standards.
- **Support incorporating innovations in maintenances practice.** Improving maintenance policies as new knowledge and technology appears is important. The group cited precedents such as the use of new road de-icing materials and techniques.
- Developing funding and practices that work beyond the original capital investment to place and invest in long term maintenance of GI infrastructure as it is developed.

**People – Layers of Regional Health**

*Various levels of partners can improve different aspects of regional health depending on their tools, etc.*

- **Elected officials** can improve quality of life with safer parks, can improve connections to GI that improve healthy lifestyles, improve equitable physical access to food and parks, influence the effect of water quality on children, and address health inequality associated with the exposure of schools, etc. to highways.
- **Agencies** can improve connections to GI, equitable physical access to healthy food and greenspace, and address health inequality
- **Community members** can embrace healthy lifestyles that connect with GI

**AIR AND ATMOSPHERE**

**Priority Goal 1 Increase microclimate regulation**

**Strategy 1: Promote the planning and maintenance of street trees**

**MARC GI Stakeholder Workshop 11/15/16**  
**No. 2--Little Blue, west-central watershed**

**Strategy 2: Improve the density of parking and reduce surface lots or improve planning and shading for parking areas**

**Strategy 3: Promote green roofs, building shading and landscaping strategies to reduce heat island effects**

**Priority Goal 2: Decrease total energy consumption/ produce more green energy.**

**Strategy 1: Replicate existing programs that address energy consumption**

**Strategy 2: Introduce and promote energy efficiency education and rebate programs**

*Additional Air comments and values:*

**Infrastructure**

- Air and atmosphere was closely related to the issue of food deserts in this watershed. Focusing attention on using GI to solve two problems -- energy consumption and access to healthy food – was cited as an opportunity.
- Implementing demonstration projects by dispersing funds directly towards such projects on public properties or schools was cited to quickly begin implementation and to generate nodes which can be connected by future green corridors.

**People**

- Addressing the lack of urgency amongst constituencies is was cited as a challenge. Many people are disconnected from their environment and infrastructure, and therefore don't care about the issues. Education is a key component of addressing this challenge.

**Capacity**

- Reconciling federal and local funding and addressing the fact that limits ('strings') are attached to many funding sources.
- Replicating and scaling up existing successful programs was cited as a priority. The Cromwell solar leasing program in Kansas

**WRAP UP QUESTIONS AND OVERARCHING COMMENTS**

- Want more information on:
  - Asthma/hospitalization rates
  - Food deserts
  - Funding – mapping sources and locations
  - Bike paths
  - Mapping vehicle and pedestrian crashes
  - Safe routes to school
  - Unincorporated areas – especially around streams



## MARC GI Stakeholder Workshop 11/15/16

### Group 3

Attendees:

Facilitators: Aaron Ross and Dan Eddie, BNIM

#### **Water Protection**

Priority Goals and Strategies. Most critical?

1. Improve Health of rivers and streams
  - a. Establish effect ordinances, policies and regulations for new construction and redevelopment
  - b. Implement programs that educate property owners/ managers about watershed and proper use and disposal of common pollutants
  - c. Develop regional landscape design and maintenance guidelines to support healthy soils and water quality.
2. Develop the capacity to go beyond implementing green infrastructure
  - a. Full life cycle
3. Goals
  - a. Improve health of rivers and streams
  - b. Improve and Maintain natural flow patterns
  - c. Maintain clean drinking water supply
4. Additional Goals
  - a. Headwater protection
  - b. Planned zoning prior to development
  - c. Beyond implementation-maintenance
    - i. Education, planning and training
  - d. Water reuse
  - e. Primary water treatment on site

#### **Land Protection**

Priority Goals and Strategies. Most critical?

1. Promote green infrastructure as a quality of life amenity
  - a. Prioritize green infrastructure projects in areas with the greatest need
  - b. Increase partnerships between cross sector organizations
    - i. Engage the Non-Profit
  - c. Incentivize implementing land protection and green infrastructure programs
2. Increase native species diversity distribution and population (in all habitat types)
  - a. Education and outreach
  - b. Cultural understanding
  - c. Provide more public examples of successful implementation
3. Important to have incentive or punishment
  - a. Helps engrain into the culture

## MARC GI Stakeholder Workshop 11/15/16

### Group 3

4. Community- level ideas, rather than just individual
5. Hard to implement in low income areas
6. Current detachment with nature that removes intuitive need/ want to implement
7. Educate doesn't explicitly mean regard or sensitivity to broader systems
8. Developers see it as hoops to jump through rather than positive opportunities of projects
9. Knowledge of incentives and agencies
  - a. Accessibility voluntarily and not
10. How do we engage politicians and who do we engage? (most effective route and scale)
11. Increase landowner education and outreach about proper use of pesticides
  - a. Integrated pest management
12. Brownfield management, reuse and development. How do we rezone and remediate?
13. Native planting planted and maintained by those who are able and qualified
  - a. Want people to see the right example and engage professionals to implement on an individual scale
  - b. Grownative.org
14. Planting as an exhibition, display as complex beauty and natural appreciation
15. How do we push hard enough to make change and don't turn people off
16. Non-profit engagement easier and more impact than municipality
17. Art engagement again
  - a. Nelson actively working to look at sustainable ways of providing "green lawn"

### Energy & Atmosphere

1. Overarching idea- all goals need to be pointed together towards same target
2. Research and understanding of air quality as it pertains to burning vs. not
  - a. Area examples and time of year
3. Supporting of existing ordinances and capacity to enforce them (reduction of staff)
4. Non-profits!
5. Make public aware, but focus should be on municipalities and industry
6. Universal adoption
7. Regular meetings to engage with industry and energy
  - a. Thought partnership to steer commercial business movement

### Discussion about challenges and Value

1. Incentives
2. Education
3. Everyone plays by the same rules
4. Default to implementation, have made a lot of plans over time with little getting done
5. Are there things or projects already going on that are successful
  - a. "The Thing" - natural resource that sparks movement, economic opportunities etc.
    - i. Prototype green residential development
    - ii. Proof of concept or case study
    - iii. Does it all and is an attractor to the public, developers, environmentalists
      1. Example in south east
      2. Prairie Crossing, IL – Grey's Lake

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**Group 3**

6. Typical issues- Developer openness
7. Development example case study education
  - a. 2 year prior to project and funding engagement
8. Push regulation, education, culture

**MARC GI Stakeholder Workshop 11/15/16**  
**No. 5--Little Blue, east-central watershed**

Attendees:

Dennis Randolph, Director PW, Grandview  
Andrew Robertson, Engineer at CFS Engineers  
George Byer, Engineer City of Lee's Summit  
Jim Holly, Blue Springs Director of Community Development  
Andy Sauer, Burns McDonnell, SW Engineer  
Larry O'Donnell, Little Blue Watershed Coalition  
Mary Hunt, Independence, Long Range Planner

Facilitators: Claudia Browne, Biohabitats & Emily Thompson, BNIM

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## **WATER**

*Overall, the group thought that Goals 1&2 were interrelated and separating them would perpetuate silo thinking: they would prefer if there was a combination goal for the top 2 goals*

### **Priority Goal 1: Stormwater quality**

**Strategy 1: Implement programs that involve participatory education of managers/property owners/officials about watershed and proper use and disposal of common pollutants.**

**Strategy 2: Prioritize opportunities along primary stormwater pathways for permeable pavement, rain gardens, and LID development strategies.**

### **Priority Goal 2: Stormwater quantity**

**Strategy 1: Increase water absorption to promote natural water flow patterns.**

(Jim and Andy noted need for more on site runoff management, particularly for most frequent rainfall events not just peak storm events.)

**Strategy 2: Promote/allow/incentivize innovative integrated wastewater management approaches.**

### **3<sup>rd</sup> Goal -- Water Supply**

- Drinking water quality was also a priority they cared about, but they noted no one thinks about it because their water is from centralized supply. **There is a widespread lack of awareness of water as a result. More public information about water and watershed** is needed (Little Blue River Watershed group has some materials..)

*Additional water-related comments and values.*

#### **Resource Management: Lake resources & stream flow management:**

- Unlike some of the other watersheds, this area has large lakes managed for flood control which also provide added opportunities. Periodic pre-flood releases are made when rain predictions indicate pending large storms. There is an opportunity **to improve lake management** (Longview Lake, Jocomo, and Blue Springs Lake) so timing/amount of releases mimic natural flow regimes (e.g., stream management plan) to maximize downstream benefits coordinate with USACE

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**No. 5--Little Blue, east-central watershed**

(Corps). Many of the poorer populations are at the downstream end of the streams and would be recipient of improved upstream flow and sediment management.

- Long-term lake health depends on **better upstream tributary management**. Sediment accumulation in lakes could be reduced upstream (*who pays for that? Would they be willing to offset maintenance by paying upstream landowners to improve buffer 2gmt..?*)
- Coordinated stream management effort is challenging because of multiple owners, eg in KS, landowners can own the stream beds.

**People and capacity building**

- Need to **emphasize the EJ and people issues**. Environmental movement started out as EJ, and has gotten away from it and needs to go back to it.
- **Access and enjoyment are key**. Look at copying Lenexa's Rain to Recreation program? If disadvantaged communities can't get to lakes or streams they won't care about them and want to support them. *\_Don't underestimate the importance of trails and transportation linkages to access parks for making the case.*
- KC is starting a **Green Stewards non-profit** for disadvantaged youth to provide **job training** and "career lattice" (Christine's term). This NGO could be used in other cities (like Conservation Corps?). Noted that some city qualifications for entry-level jobs are too high (e.g., CDL license) and are an obstacle for a pathway to jobs. So, this program is trying to bridge the gap and provide work experience. MARC could help.
- Need dedicated source of revenue. Discussed utility tax and fees (*some communities are looking at combining water and transportation*) Considering utility rate cap (based on income?) since affordability is an issue.
- Complete an EPA 9-pt **Watershed Plan**, so then can get EPA 319 grant money to address impaired waters of Little Blue.
- Education is key and should emphasize how **protecting communities starts with protecting the resources**. **Cultural shift** needed because currently, land is seen as the value and water is seen as a waste.
- Lee's Summit has one rain garden that they **highlight as demonstration area**. Need to know where more on-the-ground examples are since "Seeing is believing"
- Used to have an effective Jackson **County Stormwater Commission** which disappeared due to change in politicians. Wonder if they should try to bring it back?

**LAND**

**Priority Goal 1: Promote green infrastructure as a quality of life amenity**

**Strategy 1: Increase partnerships between cross sector orgs....including public/private**

**Strategy 2: Promote GI projects in areas of the greatest need.**

**Strategy 3: Promote green job training...**

**Priority Goal 2: Improve floodplain functions**

**Strategy 1: Increase pace of conservation through targeted acquisitions or conservation easements**

*Additional Land comments and values:*

## MARC GI Stakeholder Workshop 11/15/16

### No. 5--Little Blue, east-central watershed

#### Infrastructure -- BMP & Landscape Management

- **Need proper maintenance protocol. MARC could help with developing educating wide range of people and managers about regional standards** for BMP/land care and performance (stewardship). (like Easy Step?)
- Need framework for **more oversight with revenue stream for maintenance**. Challenge is lack of funding and staff for maintaining the BMPs. In KS, they have to get annual renewal of their BMPs to get fee assessment and if they want to get credit have to show inspection and review each year. Also, maintenance by HOAs is an issue due to changing ownerships.
- Maintenance waste: Discussed issue of **pollutant accumulation** due to first flush through the BMP treatments. Where do sediment and debris wastes go and who manages?
- **Design**. Engineers think it would be helpful to have a standards spec-level design detail for key BMPs for street treatments, eg bioretention. KC has millions in BMPs they are putting in funded by stormwater utility fee driven by US Consent Decree. Many of the rain gardens and landscape swales are becoming more manicured because people think prairie is messy (*need to make it a positive like through monarch planting signage?*), so **more education and outreach to reframe and promote native species** them is needed. (eg through monarch and pollinator patches).
- Many general BMP manuals exist but **construction oversight** is critical. Largest permeable pavement parking lot is a failure in Olathe because of one word change from “sod” to “seed”. Construction PM thought he’d “save city money” but large rain event followed and sediment runoff filled in the pavers completely. Savings of \$8k became spending of \$>250k and still have never found a way to clean out...
- **Monitoring and maintenance** of BMPs to confirm effectiveness is also critically important to ensure BMPs are performing ok. HOAs are not effective managers because of ownership changes.
- Landscaping best practices (such as increased carbon/organic matter) help increase absorptive capacity of land *and can recharge aquifer*. (But one of best areas for that just paved over by Oak Ridge Meadow so how to prevent from happening again?) **Promote improved landscape practices in good aquifer recharge zones where subsurface storage could occur eg to support river base flow in stressed stream reaches.**

#### Land Use Policies

- Buffers. Lee’s Summit has found 50’ **buffer is one of most valuable strategies** over last 10 years. But, still have a lot of pre-existing areas built out without the buffers so not a silver bullet. Independence also has buffer program where widths vary with stream order size. Buffers may not work everywhere, as sometimes seen as a taking.
- Streets. A **street program strategy** offers opportunity to improve eg, ~25-30% of roads are slated for repairs over next 25-30 years. So, **need green program (not standards) to guide what and where and how they are done...through DOTs?**
- **Conservation lands** and land use planning. “**Land is the lynchpin**” Andy Sauer. Acquisition, parks, easements, compensation strategies all valuable: otherwise land values drive a lot of decisions and challenges.
- We’ve given people a false set of security. We’re all in potential flood zones. **Educate and expand idea that flooding can occur anywhere** (not just in floodplain).

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**No. 5--Little Blue, east-central watershed**

**Capacity Building -- Elected officials and funding**

*Much discussion on this topic- so see also Water People and capacity building..*

- Jackson County trains their County Planning Commissioners. Maybe this type of **elected official training** should be expanded to include GI, so decision makers better understand value.
- Problems arise when developers sell projects to planning commissioners or community showing a lot of green space, then back off and then they modify plans to remove GI elements. Possibly need **consistent review standards (e.g., regional GI checklist?) or minimum % of site in green space?** If not regional, developers threaten to move projects, and officials allow variances to accommodate them.

**AIR AND ATMOSPHERE**

**Priority Goal 1: Decrease total energy consumption in the region**

**Strategy 1: Promote green roofs, building shading, landscaping**

**Strategy 2: Measure and improve facility/site performance in dense urban areas**

**Strategy 3: Introduce and promote energy efficiency education and rebate programs**

**Priority Goal 2: Reduce air pollution.**

**Strategy 1: Enhance infrastructure for public transit**

**Strategy 2: Reduce emissions in populated areas**

**Strategy 3: Increase regional ability to measure air quality**

**ALSO** Increase the amount of energy produced by renewables through group purchasing/leasing/

*Additional Air comments and values:*

Infrastructure

- Examples of efficiency in region and cost savings. Lee's Summit street lighting system uses fewer bulbs than elsewhere, because they have rigorous replacement program. They offset upfront costs compared to KC (installs double the lights in assuming one will burn out and the other will be backup (so double the use)).
- Smart building controls are available for efficiency and could be expanded.

People

- 19% of our lives spent in traffic –quality of life issue
- People don't understand connection between where their energy and water comes from and how they are linked. Andy noted **nexus with GHG emissions** since 30% of water utility budget (in KC?) goes to energy to move and treat the water, and that the power is supplied by coal. Now starting to use life cycle analysis and switch to more efficient pumps.
- Could use citizen science to support monitoring (*smartphone programs can be used to get participation, digital democracy*)

Capacity

- MDOT needs to help with the air issue.

**MARC GI Stakeholder Workshop 11/15/16**  
**No. 5--Little Blue, east-central watershed**

**WRAP UP QUESTIONS AND OVERARCHING COMMENTS**

The issue is broader than GI, it is healthy cities. GI is one small part of solution. Need to show public value, purpose.

Always bring the values back to benefits to people.

Build examples to show people (include partners such as County Extension). Do projects and the money will follow. Andy Sauer has a lot of demo areas. Promote GI and integrated planning in City Councils.

Knowledge transfer. Build leadership in middle level professionals. National League of Cities is good venue to talk with engineers.

Lead people to experts and places using more **easy to find connections** like FB group and social media. to share information about the **state of the practice**...more real time.

Metrics could include:

- acres of impervious surface controlled by some GI/BMP (Green Acres in Philly)
- % of site that is permeable or natural plantings
- # of trees or percent forest
- Similar to KC's health measures at regional scale (County health data is missing)

**Location specific opportunities**

- Lakes and their upstream tributaries
  - Longview Lake, Jocomo, and Blue Springs Lake
- Little Blue corridor
- Indian Creek in Johnson County "failing quickly"



**MARC GI Stakeholder Workshop 11/15/16**  
**Group #6a (north)**

Attendees:

Jason Brody – KCDC  
Karie Kneller – Planner, Louis Berger  
Will Murphy – Civil Engineer, ASP Enterprise  
Cale Doornbos – Landscape Architect, SWT Design  
Roberta Vogel-Leutung – EPA Region 7  
Cacena Campbell  
Ginny McCanese – Westport Garden Club, Native Plant Initiative  
Kaitlyn Service – Transportation Planner, Marc  
Susan Meyer – Johnson County  
Kristin Riott – Bridging the Gap

Facilitators: Thomas Morefield, BikeWalk KC & Amanda Santoro, BNIM

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## **WATER**

### **Priority Goal 1: Maintain Clean Drinking Water**

**Strategy 1: Coordinate ordinances and policies to reduce runoff pollution**

**Strategy 2: Explore and define the intersection between affordable drinking water and effective storm water**

#### *Additional water-related comments and values:*

- Water is partially engineered – i.e. It is both natural and artificial. Urban core areas cannot fully restore historical natural systems, so green infrastructure strategies must adapt accordingly.
- High risk flood areas are also our community’s productive, industrial spaces. How do we think about risk and green infrastructure in that context?
- Finding the intersection between drinking water and storm water is an opportunity to improve efficiency: runoff and pollution are a linking concern here.
- Drinking water is especially important for vulnerable communities. Clean drinking water strategies should include equity within their scope.
- Challenges to runoff quality include the industrial uses in the productive waterways/bottom lands and pollution from agricultural uses.
- First identify the problem, then need to educate that there is a problem. When pervious surface was removed and infrastructure installed on Mission Mall site, flooding in surrounding neighborhoods was reduced. Example of how people respond to a real impact of infrastructure on their quality of life.
- Green infrastructure makes places more habitable for people. It has a human value beyond role with natural functions
- Rising water bills are a real challenge for low income residents in this watershed.

## **LAND**

### **Priority Goal 1: Improve habitat quality and connectivity**

**Strategy 1: Utilize vacant lots that overlap with conservation priority areas**

**MARC GI Stakeholder Workshop 11/15/16**  
**Group #6a (north)**

**Strategy 2: Improve education about the value of native plantings**

*Additional Land comments and values:*

- We need to ask ourselves which LAND is most important – not which goal. Floodplains, vacant lots, and vulnerable population centers were cited as priority targets. Need to create policies based on place-based priorities. Identify priority lands. Then identify priority projects. Then implement targeted solutions.
- Need context and habitat specific land solutions.
- Many vacant lands overlap conservation priority areas. These vacant lots are an opportunity.
- Linking corridors to GI is important.
- Land strategies can be multi-function. Corridors can provide connectivity for people, interconnected habitat zones, pollination areas, stormwater management, etc.
- Education cannot do everything – NEED action. However, we also need to combat certain perceptions – such that native plants are weeds – that work as obstacles to implementation and maintenance of GI.
- Demonstrate value of green infrastructure projects. Education alone insufficient, but if a project can be built that demonstrates value, people can see and interact and understand why to replicate.
- Re-examine where funding can come from: for example, we spend \$300 per year per lot just on mowing vacant parcels. How can we divert that funding to projects that reduce those costs and meet other goals?
- Issue: Private land in suburban/exurban areas. Rapid conversion of agricultural land to private, suburban development.
- Green infrastructure strategies for land vary widely through this watershed areas. Private development pressure and land consumption issues on the fringe very different from legacy brownfield issues in the core.
- Challenge: Land Use decisions are made by local jurisdictions, but require regional action to achieve some sustainable outcomes.

**ENERGY AND ATMOSPHERE**

**Priority Goal 1: Improve Air Quality and health**

**Strategy 1: Increase and protect regional forestry**

**Strategy 2: Decrease vehicle miles traveled regionally**

*Additional Air comments and values:*

- The group suggested a **Trees and Transit** approach to air quality management: Increase urban forestry to improve air filtration of existing pollutants, and reduce vehicle miles to reduce the generation of air pollution
- Trees have air quality benefits, carbon storage benefits, and economic benefits
- Increase air quality with native plantings
- Transit is not a viable option for many people – it doesn't go to many of the job centers, and it doesn't go any further out than Olathe. Projects such as implanting vanpools to suburban centers and imagining a light rail down Metcalf were suggested. A multi-center approach with dense suburban nodes

**MARC GI Stakeholder Workshop 11/15/16**  
**Group #6a (north)**

- Air Quality strategy should be to reduce vehicle miles traveled (VMT) – transit and development patterns impact VMT.

**WRAP UP QUESTIONS AND OVERARCHING COMMENTS**

- **Key Components**
  - **Challenges**
    - Developers need to be incentivized to be on board
    - Education could be improved
    - Vague outcomes
    - The idea that we must reinvent the wheel
    - Make the economic case for green infrastructure
    - Focus on vulnerable communities
    - Where can public and private actors work together?
    - Missing: Climate Change
  - **Tools**
    - The region needs an accessible toolbox as a checklist for business people with the following information:
      - Typologies, cities, regional
      - Policy
      - Funding
      - BMPs
    - Different jurisdictions need carrot + stick policies to align regionally
    - Pilot projects in focus areas are need to get the ball rolling
      - Vision + Integrated Implementation + On the Ground Projects
    - Strategies are nested. Some initiatives cover a lot of different goals and strategies, and some areas provide opportunity for multiple strategies to coordinate. – “overlapping bubbles”
    - Context specific solutions: There is a different suite of strategies for an exurban development area than a disinvested brownfield in the urban core.
  - **Opportunity locations**
    - Light rail on Metcalf
    - Anything south (?) of state line is an immediate priority due to the development pressure
    - Middle core of blue river
    - Look at MARC’s priority transportation corridors. Focused investment, sustainable development, density, infrastructure improvements are all important components of green infrastructure.

## MARC GI Stakeholder Workshop 11/15/16

### Group #6b

#### Attendees:

Brett, hiking enthusiast  
Kathy, Kansas City Native Plant Initiative  
Joy, Parks enthusiast  
Jeff, interested in BMP's and storm water  
Laura, UMKC – neighborhoods and equity  
Ginny, interest in landscape conservation  
Neila, water  
April, Parks Department

Facilitators: Jeremy Knoll and Alison Pericich, BNIM

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## WATER

### Priority Goal 1: Advocacy for water

**Strategy 1: Improve education related to water science, the importance of water, and best practices across all ages and sectors**

### Priority Goal 2: Improve the health of rivers and streams.

**Strategy 1: Establish effective new ordinances, polies and regulations for development.**

#### *Additional water-related comments and values:*

- Improving the **engagement, connection, and awareness** of stakeholders and the public was cited as crucial. Simple solutions to include more experiential education were encouraged. The goal should be to make water and water education *accessible*.
- **Water is valuable and should be celebrated.** Lenexa's rain initiative was cited as a strong precedent for connecting people to water.
- However, we cannot stop with education. **The framework must be action oriented.** Education doesn't necessarily lead to action. People know a lot of about water but often still don't act. Sometimes someone (we) must go ahead and build it, and THEN educate others why it was done.
- There is an issue of balancing economy and ecology. A potential solution to that is showing that everyone is a stakeholder because everyone lives downstream.
- **Flooding is an equity issue:** vulnerable populations are disproportionately impacted by flood risk.
- Current regulations act as barriers rather than solutions. We need to **re-conceptualize future regulations as tools to help people do the right thing** instead of as barriers against activities.
- **Interested Partners:** Blue River Water Solutions, MDC, Johnson County Stormwater.

## LAND

### Priority Goal 1: Promote green infrastructure as a quality of life amenity

**Strategy 1: Provide opportunities that connect people to nature**

## MARC GI Stakeholder Workshop 11/15/16

### Group #6b

#### **Priority Goal 1: Utilize vacant lots that overlap with conservation priority areas**

**Strategy 1: Improve vacant lot management**

**Strategy 2: Grow the organizational capacities of place-based groups/initiatives**

#### **Priority Goal 3: Increase native species diversity, distribution, and population viability**

*Additional Land comments and values:*

- Many vacant lots overlap with conservation priority areas. Land is an asset, so the question becomes how do we *use* vacant land positively? Vacancy management needs to be improved to more quickly connect place based organizations and developers with the resources needed to use vacant lots positively.
- Cities and land banks need to analyze existing policy to identify barriers and opportunities to utilizing vacant lands. Educating communities about opportunities and processes, and connecting them to the resources they need is about *revealing the possibility* of both vacant lots and GI.
- Everything is interconnected in an ecosystem. Repairing an ecosystem requires recognizing the relationships between the connected elements, such as the links between native and invasive species, the evolution of life alongside native plant species, and floodplains as an intersection between land and water issues.
- Agriculture in Region 6 is more about *urban* agriculture than regional agriculture.

## **ENERGY AND ATMOSPHERE**

#### **Priority Goal 1: Emphasize access to multimode (bike, hike, drive, bus, streetcar, walk) transportation and educate about opportunities to improve policy**

**Strategy 1: Improve the connectivity and safety of multimodal transportation infrastructure**

**Strategy 2: Shift the regional culture to foster multimodal transportation**

#### **Priority Goal 2: Improve shading and air quality filtration with the use of street trees and native plantings**

**Strategy 1: increase the number of street trees and native plantings planted along streetscapes and in parking lots.**

*Additional Air comments and values:*

- The group suggested a **Trees and Transit** approach to air quality management: Increase urban forestry to improve air filtration of existing pollutants, and reduce vehicle miles to reduce the generation of air pollution
- Increase air quality with native plantings
- Need to use policy to make investments in multimodal infrastructure more profitable to leverage private investments.
- Public transit is an equity issue. Stakeholders need to be educated on how to suggest new routes that connect vulnerable or dependent populations to important destinations, including job centers.
- Streets have a considerable impact on the environment. Runoff from streets contaminates water sources. Reconsidering how we treat and design streets is important moving forward.

## MARC GI Stakeholder Workshop 11/15/16

### Group #6b

Finding new solutions to replace salting roads as a de-icing strategy was cited as an example priority.

- Increasing renewable resources and reducing energy consumption through improved building efficiency were discussed as ways to achieve a 'self-sustaining city' energy goal. Opportunities for policy to increase building efficiency primarily involve incentives such as pro-rating and reverse metering.

### WRAP UP QUESTIONS AND OVERARCHING COMMENTS

- Barriers already exist to implementing Green infrastructure. **Policies and regulations need to offer solutions rather than more barriers.** Cities need to re-evaluate their relationships with development and adjust their policies accordingly to provide opportunities for action.
- Cities can **use public infrastructure as a starting point** to synthesize, educate, and change culture
  - **Example: Streetscapes** are a strong opportunity for high impact public demonstration of the implementation of water management, native plantings, and other strategies for improving quality of life with improved air quality, ease of movement, etc.
  - **Example: Return on Investment** - City led green infrastructure projects need to be economical to demonstrate that green infrastructure can have a reasonable return on investment. We can also incentivize developers to improve infrastructure and educate them on the resources and opportunities available.
  - The **Green Impact zone** is a strong example of COMMUNITY – Not individual – effort in successful implementation.
- **Tools:**
  - We need champions in every industry
  - Connecting people with nature through recreation is a strong option for increasing awareness and access to GI
    - Need a weekly list of “what’s happening in KC”
    - Need an updated map of trails and paths, spaces of recreation, and GI related events
  - Education needs to be visual and simplified, with a problem-solution organization.
- **Process**
  - Inform
  - Advocate
  - Champion
  - Implement

**MARC GI Stakeholder Workshop 11/15/16  
Group #6c (south)**

Attendees:

Facilitators: Alecia Kates and Andrea Repinsky, MARC

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**WATER**

**Priority Goal 1: Connect People to Water**

**Strategy 1: Acquire and assemble conservation land to provide access**

**Strategy 2: Publicize access points, especially using events or festivals as outreach tools**

**Strategies 3: Develop partnerships between organizations to implement provision and publication strategies**

**Priority Goal 2: Improve health of rivers and streams**

**Strategy 1: Assess and restore priority stream ways**

**Strategy 2: Establish effective ordinances, policies, and regulations for development**

**Strategy 3: Provide landscape design best practices for homeowners and HOA's**

*Additional water-related comments and values.*

**Infrastructure:**

- Addressing the role of development within flood zones in improving natural water flow patterns was cited as important. Suggested considering strategies for increasing the use of native plantings and permeable pavement to increase water absorption.
- Suggested prioritizing 500-year flood plains as targets for greenways and natural systems. Supported the use of setbacks and zoning to prevent new development in flood plains.

**People and capacity building**

- **Access is key to improving relationship.** Reconnecting people to water is key to gaining buy-in from constituencies. The group suggested improving physical access to water bodies for recreation and as a residential amenity.
- Education is key: More education is needed about how natural water systems function – how changes in hydrology occur and upstream impacts on downstream water bodies. The group also recommended general population education about the sources and cost of drinking water, as well as real data on water quality.

**LAND**

**Priority Goal 1: Promote green infrastructure as a quality of life amenity**

**Strategy 1: Increase partnerships between cross sector orgs....including public/private**

**Strategy 2: Improve perceptions of and access to agriculture as an amenity**

**Strategy 3: Promote green job training**

**Priority Goal 2 Improve healthy ecosystem functions**

**Strategy 1: I.D. and publicize the economic and noneconomic value of natural functions.**

**Strategy 2: Combine local and regional efforts by working with planning and zoning departments to develop regionally consistent policies**

## MARC GI Stakeholder Workshop 11/15/16

### Group #6c (south)

**Strategy 3: Incentivize re-vegetation of riparian buffers and reforestation in strategic and priority locations to protect and connect.**

#### **Priority Goal 3: Improve healthy ecosystem habitat**

**Strategy 1: Work with DOT's to develop appropriate habitat landscapes**

**Strategy 2: Conserve and restore prairie, woodland, aquatic, and wetland habitat in priority locations**

#### *Additional Land comments and values:*

##### **Ecosystem restoration**

- There was a lot of discussion about combining and reorganizing the goal structure by whether the goal is about land function vs land habitat (vs individual goals for each habitat type)
- Eradicating invasive species was cited as intrinsically connected to habitat health. The group suggested creating and publishing both a 'noxious weed' list and a 'species of concern' list for the Kansas City region to inventory local invasive species.
- MoDOT right of ways and school grounds should be marked as priority locations for habitat restoration and conservation on a regional level.

##### **People & Capacity Building**

## **AIR AND ATMOSPHERE**

#### **Priority Goal 1: Decrease total energy consumption in the region**

**Strategy 1: Promote green roofs, building shading, landscaping**

**Strategy 2: Introduce and promote building energy efficiency education and regulations**

#### **Priority Goal 2: Improve Air Quality**

**Strategy 1: Enhance infrastructure for public transit, biking and walking, especially via transit oriented development**

**Strategy 2: Promote green spaces and urban forestry in priority areas.**

#### **Priority Goal 2: Improve microclimate regulation**

**Strategy 1: Improve requirements for shade, surface reflectivity and greenspace**

**Strategy 2: improve the density of parking and reduce surface lots**

**Strategy**

#### *Additional Air comments and values:*

##### Infrastructure

- Improvements in air quality may automatically follow from pursuing air and microclimate goals, largely because the strategies are multi-benefit that also improve air quality.
- Parking was discussed as a major barrier to energy and atmosphere goals. The fact that parking is highly accessible throughout the city makes driving the most appealing transportation option.



**MARC GI Stakeholder Workshop 11/15/16**  
**Group #6c (south)**

This increases energy consumption during transport and negatively impacts air quality. Additionally, the parking lots themselves are major generators of the heat island effect.

People

- Many of the dominant building practices in the region are antiquated. Innovative building strategies from ten years ago are still innovative today and should be incorporated into standard practice. This could be accomplished through improved professional education and regional guidelines or regulations
- It was noted that integration of water and energy strategies could be an effective method of accomplishing goals for both.

**WRAP UP QUESTIONS AND OVERARCHING COMMENTS**

Barriers to integrating regional information

- Regional information sharing is not a priority, perceived as a luxury
- Need a single data source for maps, projects, contacts, etc.
- Need education and outreach to ensure organization staff consistently use regional data
- Regional data needs to be universally accessible, via a public dashboard, but also through professional resources
- There is a lack of coordination among school districts
- Many business and landownership decisions that are made outside the region (ie by absentee landlords or corporate owners)
- There was some concern as to whether partnerships and regional planning are enough. The group considered the benefits of a well-funded regional authority (metro green infrastructure utility) with stronger capabilities to guide coordination.
- Need to calculate and communicate the monetized economic value of green infrastructure for economic development and private sector ROI.

# WATER PROTECTION

Directions (30 minutes):

- Discuss the following proposed Goals as a group and write in any additional ideas for your group.
- Discuss the following proposed Strategies as a group and write in any additional ideas for your group.
- Prioritize the top strategies in each goal that are relevant or important to your watershed area.
- Then as a group select your top strategy from each goal based on identification of opportunities and partners.
- Mark places to implement strategies on maps and note additional information needed.

Issue: Stormwater quality is degraded from pollutant runoff and soil erosion

## |||| Goal: Improve health of rivers and streams

Strategies:

- ||| Establish effective ordinances, policies, and regulations for new construction and redevelopment.
  - ||| Develop a network of living infrastructure approaches that connect communities to natural amenities.
  - Prioritize opportunities along primary stormwater pathways for permeable pavement, rain gardens and low-impact development strategies.
  - ||| Assess and restore priority streamways.
  - ||| Develop voluntary incentive programs for integrated, on-site strategies that conserve and reuse water.
  - └ Implement programs that educate property owners/ managers about watershed protection and proper use and disposal of common pollutants
  - Develop regional landscape design and maintenance guidelines to support healthy soils and water quality.
  - ||| Other: I.D. Good sources & protect them
  - || Education across all age groups
  - ||| I.D. both point & non point
- Top Strategy:** pollution sources
- 

Issue: Stormwater is not held in the local watershed and floods areas within the watershed and downstream

## └ Goal: Improve and maintain natural water flow patterns

Strategies:

- || Identify floodplain priorities within the watershed area.
- ||| Increase water absorption and promote native plant use to restore appropriate water patterns.
- + Work with the State to acquire water rights in priority locations
- └ Promote/Allow/Incentivize innovative, integrated wastewater management strategies based on water quantity
- Prioritize distributed stormwater management in vulnerable neighborhoods and areas particularly prone to flooding
- Other:  
  
| use of stream buffers and Waters of the U.S. federal regulations

**Top Strategy:**

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# LAND PROTECTION

Directions (45 minutes):

- Discuss the following proposed Goals as a group and write in any additional ideas for your group.
- Discuss the following proposed Strategies as a group and write in any additional ideas for your group.
- Prioritize the top strategies in each goal that are relevant or important to your watershed area.
- Then as a group select your top strategy from each goal based on identification of opportunities and partners.
- Mark places to implement strategies on maps and note additional information needed.

Issue: The same strategies that calm traffic, clean and slow water and improve connected habitat can also improve the quality of life in neighborhoods.

## ||| Goal: Promote green infrastructure as a quality of life amenity

Strategies:

- | Prioritize green infrastructure projects in areas with the greatest need.
- Provide opportunities for green job training - planting and maintenance of green infrastructure.
- | Develop urban agriculture on vacant lots with rainwater collection systems and provide greater access to healthy food in food desert areas.
- Increase information on the community benefits of active living, gardening, and nature-based play and recreation.
- Reduce prevalence of obesity, diabetes and heart disease through access to outdoor recreational areas.
- | Provide opportunities for biophilia (love of living things) that connect people to nature.
- Provide outdoor areas for cultural community events
- Increase partnerships between cross sector organizations including: public health, policymakers, parks departments, planning departments, housing agencies, gardening organizations, extension services, school districts, and nature centers to increase access to natural areas and other green spaces for people of all ages, income levels, and abilities

**Top Strategy:**

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Issue: Loss of diverse forests due to development encroachment, conversion to agriculture, altered fire regime, and fragmentation

## ||| Goal: Improve healthy prairie and woodland functions

Strategies:

- Increase regional data on prairie.
- Incentivize re-vegetation of riparian buffers and reforestation in strategic and priority locations to protect and connect.
- | Work with zoning boards/planning departments to incentivize redevelopment and reduce conversion of natural lands.
- | Expand open space conservation through targeted identification and acquisition efforts focused on priority forests.
- Provide technical assistance for proper forest management riparian zone protection (fencing/fires/timber harvest/invasive species management).
- Other:

- | Develop High functioning habitat then develop into managing and protecting resources
- | Multiple use preservation
- | Identify Sources of sediment pollution
- | Incentivize infill + discourage sprawl
- | integrate healthy prairie function and agriculture

**Top Strategy:**

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Issue: Loss of floodplain & riparian forests due to altered water function, development encroachment, fragmentation and loss of connectivity

\_\_\_\_\_ **Goal: Improve floodplain functions**

Strategies:

- Assess dike removal and structural modifications to restore floodplain forest hydrology.
- Encourage expansion of riparian buffer protection programs.
- Increase pace of conservation through targeted acquisition or conservation easements focused on priority floodplain and riparian forests.
- Identify collaborative projects to achieve integrated ecologically-sound floodplain/ stream/ wetland management.
- Increase organizational capacity through partnerships.
- Other:

**Top Strategy:**

\_\_\_\_\_

Issue:

| \_\_\_\_\_ **Goal: I.D. healthy high functioning areas and protect**

Strategies:

- 
- | keep what you have, fix what you lost
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**Top Strategy:**

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# LAND PROTECTION

Directions (45 minutes):

- Discuss the following proposed Goals as a group and write in any additional ideas for your group.
- Discuss the following proposed Strategies as a group and write in any additional ideas for your group.
- Prioritize the top strategies in each goal that are relevant or important to your watershed area.
- Then as a group select your top strategy from each goal based on identification of opportunities and partners.
- Mark places to implement strategies on maps and note additional information needed.

Issue:

**Goal: Extend native grassland in priority locations to improve habitat**

Strategies:

- Restore remnant and reconstructed prairies in priority locations.
- Work with DOTs to develop appropriate grassland and pollinator habitat landscapes.
- Provide extension services for sustainable agriculture efforts.
- Develop invasive species task force network to create and implement strategic regional approach to management.
- Other:

**Top Strategy:**

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Issue: Loss of wetland habitat and connectivity due to altered hydrology, drainage, land conversion, and fragmentation.

**Goal: Increase healthy wetlands**

Strategies:

- Increase regional data on wetlands.
- Restore and protect wide variety of wetland types in coordination with stream and floodplain protection. **Prioritize where existing ecoservices**
- Work with States to understand population objectives for wetland dependent species (e.g., amphibians)
- Manage wetlands to enhance ecosystem services and processes (e.g., sediment trapping) **RESTORE**
- Other:

**|| avoid focus on sediment trapping**

**Top Strategy:**

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Issue: Fish habitat impaired by channel modifications, changed sediment movement and contamination.

— **Goal:** Increase healthy aquatic habitat

Strategies:

- └ Improve fish passage through design and installation of retrofits and naturalize stream channels.
- Increase education and awareness of aquatic invasive species management.
- Improve lake/pond water quality.
- └ Remediate brownfields, reduce health risks and redevelop land appropriately.
- Other:

**Top Strategy:**

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Issue:

└ **Goal:** Keep what you have, restore what was lost

| Reducing toxins

Strategies:

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**Top Strategy:**

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# LAND PROTECTION

Directions (45 minutes):

- Discuss the following proposed Goals as a group and write in any additional ideas for your group.
- Discuss the following proposed Strategies as a group and write in any additional ideas for your group.
- Prioritize the top strategies in each goal that are relevant or important to your watershed area.
- Then as a group select your top strategy from each goal based on identification of opportunities and partners.
- Mark places to implement strategies on maps and note additional information needed.

Issue: Loss of diverse native species, reduced habitat for migratory species; increased competition/reduced populations due to invasive species.

|| **Goal:** Increase native species diversity, distribution, and population viability (in all habitat types)

Strategies:

- Increase landowner education and outreach about proper use of pesticides.
- Support increased research of select indicator species habitat needs.
- Incentivize and expand use of habitat conservation credit programs.
- Develop and promote backyard habitat practices.
- Re-introduce imperiled species (where available from recovery groups) in target sites.
- Identify undeveloped land for use in connecting riparian corridors, parks and boulevards, activity centers, food production, and other uses.
- Other:

**Top Strategy:**

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Issue: Soil nutrient health needs to be protected and/or stabilized and amended while drought resilience measures are incorporated into practice.

| **Goal:** Enhance regional agriculture

Strategies:

- Conserve prime agricultural soils.
- Promote agricultural management practices to improve soil stabilization and drought planning.
- Expand outreach of local agricultural associations and soil and water conservation districts about ecologically sound land management practices.
- Improve the availability of farm fresh foods in the metro area.
- Provide educational opportunities for community members on the benefits of healthy food and support local food growing.
- | Inspire and empower communities to use community gardens.
- Other:

**Top Strategy:**

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Issue: Weed control chemicals threaten pollinating insect populations

**Goal: Manage invasive species**

Strategies:

- Promote ecologically sound agricultural management practices for weed control.
- Develop invasive species task force network to create and implement strategic regional approach to management.
- Other:

**Top Strategy:**

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Issue:

**Goal: Improve/maintain local habitat using natural systems**

Strategies:

- | — Inclusive + Secluded
- | — Incentive redevelopment that incorporates green infrastructure
- Natural systems to help filter quality - prairie & Wetlands
- 
- 
- 

**Top Strategy:**

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# ENERGY & ATMOSPHERE

Directions (30 minutes):

- Discuss the following proposed Goals as a group and write in any additional ideas for your group.
- Discuss the following proposed Strategies as a group and write in any additional ideas for your group.
- Prioritize the top strategies in each goal that are relevant or important to your watershed area.
- Then as a group select your top strategy from each goal based on identification of opportunities and partners.
- Mark places to implement strategies on maps and note additional information needed.

Issue: Regional air quality, particularly in urban areas, is degraded due to coal-fired power production and traffic congestion as well as other point-sources of pollution.

## \_\_\_ Goal: Improve air quality

Strategies:

- \_\_\_ Increase regional ability to measure air quality accurately against multiple factors.
- \_\_\_ Reduce emissions in populated areas by reducing traffic congestion and improving green spaces.
- \_\_\_ Prioritize air quality projects and education programs in underserved neighborhoods.
- \_\_\_ Enhance infrastructure for public transit, carpooling, biking and walking.
- \_\_\_ Develop rebate or exchange programs to reduce emissions from gas powered landscape equipment.
- \_\_\_ Other:

**Top Strategy:**

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Issue: Plant materials capture and store atmospheric carbon and use them as building blocks.

## \_\_\_ Goal: Increase carbon storage

Strategies:

- \_\_\_ Prioritize connected greenways that correspond to the corridors with the worst air quality.
- \_\_\_ Provide education and data about the value of native plants and tree species in sequestering carbon.
- \_\_\_ Enhance regional forestry and chip/lumber/compost processing markets to make use of urban tree waste before it decomposes and releases stored carbon.
- \_\_\_ Increase number of street trees with appropriate native species that have the greatest potential for carbon storage. Also increase tree maintenance and replacement programs.
- \_\_\_ Other:

**Top Strategy:**

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Issue: When the sun's heat strikes hardscape surfaces and buildings the heat radiates and reflects into air conditioned spaces, increasing the demand for cooling energy. At an urban scale, the collective impact can increase the temperature of the urban macro-climate and divert weather cells.

**Goal: Improve microclimate regulation**

Strategies:

- Prioritize native planting, pocket prairie restoration and green space preservation projects.
- Improve requirements for shade, surface reflectivity, and green space in model zoning requirements.
- Improve the density of parking and reduce surface lots (or improve plant requirements and shading for parking areas).
- Develop model planting and tree maintenance guidelines that improve the life-span of urban trees.
- Other:

| Can't bring in non-native plants

| Incentivize

**Top Strategy:**

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Issue:

**Goal:**

Strategies:

- 
- | Alternate NPG demonstration
- 
- 
- | City takes the lead on what is required for development, even showing on their property
- 
- 

**Top Strategy:**

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# ENERGY & ATMOSPHERE

Directions (30 minutes):

- Discuss the following proposed Goals as a group and write in any additional ideas for your group.
- Discuss the following proposed Strategies as a group and write in any additional ideas for your group.
- Prioritize the top strategies in each goal that are relevant or important to your watershed area.
- Then as a group select your top strategy from each goal based on identification of opportunities and partners.
- Mark places to implement strategies on maps and note additional information needed.

Issue: The urban heat island effect increases energy consumption in buildings within the heat island zone.

## — Goal: Decrease total energy consumption in the region

Strategies:

- Introduce and promote energy efficiency education and rebate programs to reduce energy consumption of buildings.
- Measure and improve building performance in dense urban areas.
- Promote green roofs, building shading, and landscaping strategies to reduce urban heat islands.
- Other:

| LEED + Envision Program  
| Sourcing building materials locally

**Top Strategy:**

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Issue: Distributed renewable energy reduces regional reliance on centralized coal-fired power and improves regional air quality and water demand.

## — Goal: Increase the amount of energy produced from renewable sources

Strategies:

- Show areas where the wind rose is adequate for wind power.
- Share model ordinance language with local municipalities to encourage solar access.
- Develop a portfolio or roof-top solar programs in the area and develop regional coops for group purchasing/leasing.
- Other:

**Top Strategy:**

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Issue:

|| **Goal:** Addressing energy consumption  
Strategies: from mobile sources &  
— Transportation

**Top Strategy:**

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# WATER PROTECTION

Directions (30 minutes):

- Discuss the following proposed Goals as a group and write in any additional ideas for your group.
- Discuss the following proposed Strategies as a group and write in any additional ideas for your group.
- Prioritize the top strategies in each goal that are relevant or important to your watershed area.
- Then as a group select your top strategy from each goal based on identification of opportunities and partners.
- Mark places to implement strategies on maps and note additional information needed.

Issue: Stormwater quality is degraded from pollutant runoff and soil erosion

## ||| Goal: Improve health of rivers and streams

Strategies:

- ||| Establish effective ordinances, policies, and regulations for new construction and redevelopment.
- ||| Develop a network of living infrastructure approaches that connect communities to natural amenities.
- ||| Prioritize opportunities along primary stormwater pathways for permeable pavement, rain gardens and low-impact development strategies.
- || Assess and restore priority streamways.
- ||| Develop voluntary incentive programs for integrated, on-site strategies that conserve and reuse water.
- ||| Implement programs that educate property owners/ managers about watershed protection and proper use and disposal of common pollutants
- || Develop regional landscape design and maintenance guidelines to support healthy soils and water quality.
- Other:
  - | Develop best practices
  - | partnerships for funding
  - | K-12 Education

**Top Strategy:**

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Issue: Stormwater is not held in the local watershed and floods areas within the watershed and downstream

## ||| Goal: Improve and maintain natural water flow patterns

Strategies:

- ||| Identify floodplain priorities within the watershed area.
- ||| Increase water absorption and promote native plant use to restore appropriate water patterns.
  - Work with the State to acquire water rights in priority locations
  - Promote/Allow/Incentivize innovative, integrated wastewater management strategies
  - Prioritize distributed stormwater management in vulnerable neighborhoods and areas particularly prone to flooding
  - Other:

**Top Strategy:**

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Watershed Area: \_\_\_\_\_

Issue: The degraded quality of drinking water due to pollutant runoff and contamination

||| **Goal: Maintain clean drinking water supply**

Strategies:

- ||| Designate drinking water source area protection zones & include "at risk" areas.
- | Prioritize the protection of watersheds serving underserved populations.
- | Implement programs that educate property owners/ managers about watershed protection and proper use and disposal of common pollutants
- | Institute special/targeted waste collection programs
- ||| Develop and support the education and enforcement of protective water quality standards
- Other:
- | Education

**Top Strategy:**

\_\_\_\_\_

Issue: Integrated capital improvement

| **Goal:** between stormwater + wastewater

- | Multi-purpose water management & Infrastructure: pub.health, env. health, & sustainable regional development
- 
- | promote inter-agency planning on the watershed scale
- | Prioritize funding
- | Stream way acquisition
- | Promote partnerships for cost sharing
- 

**Top Strategy:**

\_\_\_\_\_

# LAND PROTECTION

Directions (45 minutes):

- Discuss the following proposed Goals as a group and write in any additional ideas for your group.
- Discuss the following proposed Strategies as a group and write in any additional ideas for your group.
- Prioritize the top strategies in each goal that are relevant or important to your watershed area.
- Then as a group select your top strategy from each goal based on identification of opportunities and partners.
- Mark places to implement strategies on maps and note additional information needed.

Issue: The same strategies that calm traffic, clean and slow water and improve connected habitat can also improve the quality of life in neighborhoods.

## ||| Goal: Promote green infrastructure as a quality of life amenity

Strategies:

- Prioritize green infrastructure projects in areas with the greatest need.
- Provide opportunities for green job training - planting and maintenance of green infrastructure.
- | Develop urban agriculture on vacant lots with rainwater collection systems and provide greater access to healthy food in food desert areas.
- || Increase information on the community benefits of active living, gardening, and nature-based play and recreation.
- | Reduce prevalence of obesity, diabetes and heart disease through access to outdoor recreational areas.
- | Provide opportunities for biophilia (love of living things) that connect people to nature.
- Provide outdoor areas for cultural community events
- ||| Increase partnerships between cross sector organizations including: public health, policymakers, parks departments, planning departments, housing agencies, gardening organizations, extension services, school districts, and nature centers to increase access to natural areas and other green spaces for people of all ages, income levels, and abilities

**Top Strategy:**

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Issue: Loss of diverse forests due to development encroachment, conversion to agriculture, altered fire regime, and fragmentation

## — Goal: Improve healthy prairie and woodland functions

Strategies:

- Increase regional data on prairie.
- || Incentivize re-vegetation of riparian buffers and reforestation in strategic and priority locations to protect and connect.
- ||| Work with zoning boards/planning departments to incentivize redevelopment and reduce conversion of natural lands.
- || Expand open space conservation through targeted identification and acquisition efforts focused on priority forests.
- Provide technical assistance for proper forest management riparian zone protection (fencing/fires/timber harvest/invasive species management).
- Other:

**Top Strategy:**

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Watershed Area: \_\_\_\_\_

Issue: Loss of floodplain & riparian forests due to altered water function, development encroachment, fragmentation and loss of connectivity

**||** **Goal: Improve floodplain functions**

Strategies:

- Assess dike removal and structural modifications to restore floodplain forest hydrology.

**|||** Encourage expansion of riparian buffer protection programs.

**|||** Increase pace of conservation through targeted acquisition or conservation easements focused on priority floodplain and riparian forests.

**||** Identify collaborative projects to achieve integrated ecologically-sound floodplain/ stream/ wetland management.

- Increase organizational capacity through partnerships.

— Other:

**Top Strategy:**

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Issue:

**\_\_\_\_\_ Goal:**

Strategies:

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**Top Strategy:**

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# LAND PROTECTION

Directions (45 minutes):

- Discuss the following proposed Goals as a group and write in any additional ideas for your group.
- Discuss the following proposed Strategies as a group and write in any additional ideas for your group.
- Prioritize the top strategies in each goal that are relevant or important to your watershed area.
- Then as a group select your top strategy from each goal based on identification of opportunities and partners.
- Mark places to implement strategies on maps and note additional information needed.

Issue:

## Goal: Extend native grassland in priority locations to improve habitat

Strategies:

- Restore remnant and reconstructed prairies in priority locations.
- Work with DOTs to develop appropriate grassland and pollinator habitat landscapes.
- Provide extension services for sustainable agriculture efforts.
- Develop invasive species task force network to create and implement strategic regional approach to management.
- Other:

Top Strategy:

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Issue: Loss of wetland habitat and connectivity due to altered hydrology, drainage, land conversion, and fragmentation.

## Goal: Increase healthy wetlands

Strategies:

- Increase regional data on wetlands.
- Restore and protect wide variety of wetland types in coordination with stream and floodplain protection.
- Work with States to understand population objectives for wetland dependent species (e.g., amphibians)
- Manage wetlands to enhance ecosystem services and processes (e.g., sediment trapping)
- Other:

Top Strategy:

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Issue: Fish habitat impaired by channel modifications, changed sediment movement and contamination.

## **Goal: Increase healthy aquatic habitat**

Strategies:

- ┆ Improve fish passage through design and installation of retrofits and naturalize stream channels.
- Increase education and awareness of aquatic invasive species management.
- ┆ Improve lake/pond water quality.
- ┆ Remediate brownfields, reduce health risks and redevelop land appropriately.
- Other:

**Top Strategy:**

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# LAND PROTECTION

Directions (45 minutes):

- Discuss the following proposed Goals as a group and write in any additional ideas for your group.
- Discuss the following proposed Strategies as a group and write in any additional ideas for your group.
- Prioritize the top strategies in each goal that are relevant or important to your watershed area.
- Then as a group select your top strategy from each goal based on identification of opportunities and partners.
- Mark places to implement strategies on maps and note additional information needed.

Issue: Loss of diverse native species, reduced habitat for migratory species; increased competition/reduced populations due to invasive species.

**|||| Goal: Increase native species diversity, distribution, and population viability (in all habitat types)**

Strategies:

- |||| Increase landowner education and outreach about proper use of pesticides.
- Support increased research of select indicator species habitat needs.
- Incentivize and expand use of habitat conservation credit programs.
- Develop and promote backyard habitat practices.
- Re-introduce imperiled species (where available from recovery groups) in target sites.
- ||| Identify undeveloped land for use in connecting riparian corridors, parks and boulevards, activity centers, food production, and other uses.
- Other:

**Top Strategy:**

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Issue: Soil nutrient health needs to be protected and/or stabilized and amended while drought resilience measures are incorporated into practice.

**— Goal: Enhance regional agriculture**

Strategies:

- Conserve prime agricultural soils.
- Promote agricultural management practices to improve soil stabilization and drought planning.
- Expand outreach of local agricultural associations and soil and water conservation districts about ecologically sound land management practices.
- Improve the availability of farm fresh foods in the metro area.
- Provide educational opportunities for community members on the benefits of healthy food and support local food growing.
- Inspire and empower communities to use community gardens.
- Other:

**Top Strategy:**

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Issue: Weed control chemicals threaten pollinating insect populations

— **Goal: Manage invasive species**

Strategies:

- Promote ecologically sound agricultural management practices for weed control.
- Develop invasive species task force network to create and implement strategic regional approach to management.
- Other:

**Top Strategy:**

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# ENERGY & ATMOSPHERE

Directions (30 minutes):

- Discuss the following proposed Goals as a group and write in any additional ideas for your group.
- Discuss the following proposed Strategies as a group and write in any additional ideas for your group.
- Prioritize the top strategies in each goal that are relevant or important to your watershed area.
- Then as a group select your top strategy from each goal based on identification of opportunities and partners.
- Mark places to implement strategies on maps and note additional information needed.

Issue: Regional air quality, particularly in urban areas, is degraded due to coal-fired power production and traffic congestion as well as other point-sources of pollution.

## || Goal: Improve air quality

Strategies:

- | Increase regional ability to measure air quality accurately against multiple factors.
- || Reduce emissions in populated areas by reducing traffic congestion and improving green spaces.
- Prioritize air quality projects and education programs in underserved neighborhoods.
- | Enhance infrastructure for public transit, carpooling, biking and walking.
- | Develop rebate or exchange programs to reduce emissions from gas powered landscape equipment.
- Other:

Top Strategy:

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Issue: Plant materials capture and store atmospheric carbon and use them as building blocks.

## | Goal: Increase carbon storage

Strategies:

- Prioritize connected greenways that correspond to the corridors with the worst air quality.
- | Provide education and data about the value of native plants and tree species in sequestering carbon.
- Enhance regional forestry and chip/lumber/compost processing markets to make use of urban tree waste before it decomposes and releases stored carbon.
- ||| Increase number of street trees with appropriate native species that have the greatest potential for carbon storage. Also increase tree maintenance and replacement programs.
- Other:

Top Strategy:

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Watershed Area: \_\_\_\_\_

Issue: When the sun's heat strikes hardscape surfaces and buildings the heat radiates and reflects into air conditioned spaces, increasing the demand for cooling energy. At an urban scale, the collective impact can increase the temperature of the urban macro-climate and divert weather cells.

**Goal: Improve microclimate regulation**

Strategies:

- └ Prioritize native planting, pocket prairie restoration and green space preservation projects.
- └ Improve requirements for shade, surface reflectivity, and green space in model zoning requirements.
- └ Improve the density of parking and reduce surface lots (or improve plant requirements and shading for parking areas).
- └ Develop model planting and tree maintenance guidelines that improve the life-span of urban trees.
- └ Other:

**Top Strategy:**

Issue:

**Goal: Address transportation impact**

Strategies: - improve alternative options for transportation (carpooling, transit, etc)

**Top Strategy:**

# ENERGY & ATMOSPHERE

Directions (30 minutes):

- Discuss the following proposed Goals as a group and write in any additional ideas for your group.
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- Prioritize the top strategies in each goal that are relevant or important to your watershed area.
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Issue: The urban heat island effect increases energy consumption in buildings within the heat island zone.

## |||| Goal: Decrease total energy consumption in the region

Strategies:

- |||| Introduce and promote energy efficiency education and rebate programs to reduce energy consumption of buildings.
- Measure and improve building performance in dense urban areas.
- ||| Promote green roofs, building shading, and landscaping strategies to reduce urban heat islands.
- Other:

| Catalyst projects:

central Olathe food desert  
Indian Creek  
School grounds  
Food, rec, composting  
safe routes to school

Top Strategy:

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Issue: Distributed renewable energy reduces regional reliance on centralized coal-fired power and improves regional air quality and water demand.

## || Goal: Increase the amount of energy produced from renewable sources

Strategies:

- Show areas where the wind rose is adequate for wind power.
- ||| Share model ordinance language with local municipalities to encourage solar access.
- ||| Develop a portfolio or roof-top solar programs in the area and develop regional coops for group purchasing/leasing.
- Other:

Top Strategy:

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Issue:

\_\_\_ **Goal:**

Strategies:

| Solar roadways

—

| Using school yards for  
— demonstration projects

—

| Precedent? Cromwell solar  
— leasing program in Lawrence

—

—

**Top Strategy:**

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# WATER PROTECTION

Directions (30 minutes):

- Discuss the following proposed Goals as a group and write in any additional ideas for your group.
- Discuss the following proposed Strategies as a group and write in any additional ideas for your group.
- Prioritize the top strategies in each goal that are relevant or important to your watershed area.
- Then as a group select your top strategy from each goal based on identification of opportunities and partners.
- Mark places to implement strategies on maps and note additional information needed.

GIS --> Storm and Sanitary pipe

Issue: Stormwater quality is degraded from pollutant runoff and soil erosion

## \_\_\_ Goal: Improve health of rivers and streams

Strategies:

- III \_\_\_ Establish effective ordinances, policies, and regulations for new construction and redevelopment. **preservation of existing veg.**
- I \_\_\_ Develop a network of living infrastructure approaches that connect communities to natural amenities.
- I \_\_\_ Prioritize opportunities along primary stormwater pathways for permeable pavement, rain gardens and low-impact development strategies.
- \_\_\_ Assess and restore priority streamways.
- \_\_\_ Develop voluntary incentive programs for integrated, on-site strategies that conserve and reuse water.
- II \_\_\_ Implement programs that educate property owners/ managers about watershed protection and proper use and disposal of common pollutants
- II \_\_\_ Develop regional landscape design and maintenance guidelines to support healthy soils and water quality.

**Develop capacity for maintenance of BMPS, exceptions for aesthetics**

**Develop regional landscape design**

**Funding mechanism**

**Example development documented process and costs, use as propaganda advertisement to other developers and public entities**

Issue: Stormwater is not held in the local watershed and floods areas within the watershed and downstream

## \_\_\_ Goal: Improve hydrology

Strategies:

- I \_\_\_ Understand floodplain priorities within the watershed area.
- I \_\_\_ Promote native plant use to restore appropriate water patterns for the ecological region
- I \_\_\_ Work with the State to acquire water rights in priority locations
- I \_\_\_ Promote/Allow/Incentivize innovative, integrated wastewater management strategies
- \_\_\_ Prioritize distributed stormwater management in vulnerable neighborhoods and areas particularly prone to flooding
- \_\_\_ Other:

**Top Strategy:**

---

Issue: The degraded quality of drinking water due to pollutant runoff and contamination

\_\_\_\_\_ **Goal: Maintain clean drinking water supply**

Strategies:

- Designate drinking water source area protection zones & include "at risk" areas.
  - Prioritize the protection of watersheds serving underserved populations.
  - Implement programs that educate property owners/ managers about watershed protection and proper use and disposal of common pollutants
  - Institute special/targeted waste collection programs
  - Develop and support the education and enforcement of protective water quality standards
  - Other:
    - zoning
    - knowing where to dispose of paints and toxics
    - GI maintenance
- New jobs: storm water, roads, parks, economic and community development
1. headwater protection
  2. education about gray vs. green (materials, maintenance, opportunities)
  3. Coalescing/matching data from community to community (Helps all)
  4. Green Building permits- Developers move to the front of the line if they adopt certain "green practices"
  5. Riparian Zone protection
  6. Bio-mimicry collect/ store

Issue:

\_\_\_\_\_ **Goal:**

Strategies:

- Proper residential disposal policy. How do we find out about this?
- Vector Control
  - Develop the capacity to execute
- Grow Native- mango
- De-siloing: cross-sectionally addressing issues between disciplines. Potential for economic development
- What's precious?
- Nashville
- Short term cost vs. long term cost
- Develop capacity
- Accurate Maps
- Communities, municipalities, Government, etc. are in the same understanding about water protection
- Everyone knows and understands what G.I. mean in terms of water protection
- More individual neighborhood education classes and programs. A neighborhood block at a time.
- Cooperate with municipalities on community education

\_\_\_\_\_ **Top Strategy:**

# LAND PROTECTION

Directions (45 minutes):

- Discuss the following proposed Goals as a group and write in any additional ideas for your group.
- Discuss the following proposed Strategies as a group and write in any additional ideas for your group.
- Prioritize the top strategies in each goal that are relevant or important to your watershed area.
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- Mark places to implement strategies on maps and note additional information needed.

Issue: The same strategies that calm traffic, clean and slow water and improve connected habitat can also improve the quality of life in neighborhoods.

## Goal: Promote green infrastructure as a quality of life amenity

Strategies:

- Prioritize green infrastructure projects in areas with the greatest need.
- II — Provide opportunities for green job training - planting and maintenance of green infrastructure.
- I — **Green works KC**  
Develop urban agriculture on vacant lots and provide greater access to healthy food in food desert areas **non-profits and the northland rural organics**
- Increase information on the community benefits of active living, gardening, and nature-based play and recreation.
- Reduce prevalence of obesity, diabetes and heart disease through access to outdoor recreational areas.
- Provide opportunities for biophilia (love of living things) that connect people to nature.
- I — Provide outdoor areas for cultural community events
- II — Increase partnerships between cross sector organizations including: public health, policymakers, parks departments, planning departments, housing agencies, gardening organizations, extension services, school districts, and nature centers to increase access to natural areas and other green spaces for people of all ages, income levels, and abilities
- Other:

**Top Strategy:**

---

Issue: Loss of diverse forests due to development encroachment, conversion to agriculture, altered fire regime, and fragmentation

## Goal: Improve healthy prairie and woodland functions

Strategies:

- Increase regional data on prairie. **not needed**
- Incentivize re-vegetation of riparian buffers and reforestation in strategic and priority locations to protect and connect.
- I — Work with zoning boards/planning departments to incentivize redevelopment and reduce conversion of natural lands.
- I — Expand open space conservation through targeted identification and acquisition efforts focused on priority forests.
- Provide technical assistance for proper forest management riparian zone protection (fencing/fires/timber harvest/invasive species management).
- Other:

**integrate wealth and NGO's with exercise opps. like garden clubs.**

**Infill incentive? actually use TIFF as intended**

**Top Strategy:**

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Issue: Loss of floodplain & riparian forests due to altered water function, development encroachment, fragmentation and loss of connectivity

\_\_\_\_\_ **Goal: Improve floodplain functions**

Strategies:

- I \_ Assess dike removal and structural modifications to restore floodplain forest hydrology. **and low head dams**
- III \_ Encourage expansion of riparian buffer protection programs.
- II \_ Increase pace of conservation through targeted acquisition or conservation easements focused on priority floodplain and riparian forests.

**head waters use of clean water state revolving funds**

- \_ Identify collaborative projects to achieve integrated ecologically-sound floodplain/ stream/ wetland management.
- \_ Increase organizational capacity through partnerships. **what types? Shirling Santuary**
- \_ Other:

**Disconnect storm drain to encourage street runoff, create pocket park to increase exercise and community.**

**Pop-up drain pipes carrying water away from foundation over to rain gardens in low income housing**

**Top Strategy:**

\_\_\_\_\_

Issue:

\_\_\_\_\_ **Goal:**

Strategies:

- \_ **target green infrastructure maintenance as a jobs building opportunity.**
- \_
- \_
- \_
- \_
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**Top Strategy:**

\_\_\_\_\_

# LAND PROTECTION

Directions (45 minutes):

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- Prioritize the top strategies in each goal that are relevant or important to your watershed area.
- Then as a group select your top strategy from each goal based on identification of opportunities and partners.
- Mark places to implement strategies on maps and note additional information needed.

Issue:

**Goal: Extend native grassland in priority locations to improve habitat**

Strategies:

- Restore remnant and reconstructed prairies in priority locations. **questionable priorities**
- II** — **Parks Dept. funding maintenance**
- Work with DOTs to develop appropriate grassland and pollinator habitat landscapes. **I-35 corridor project; In progress**
- Provide extension services for sustainable agriculture efforts. **already exists**
- II** — Develop invasive species task force network to create and implement strategic regional approach to management.
- I** — Other: **NPI: organization that can install and maintain Education Programs**

**Top Strategy:**

---

Issue: Loss of wetland habitat and connectivity due to altered hydrology, drainage, land conversion, and fragmentation.

**Goal: Increase healthy wetlands**

Strategies:

- Increase regional data on wetlands.
- II** — Restore and protect wide variety of wetland types in coordination with stream and floodplain protection.
- I** — Work with States to understand population objectives for wetland dependent species (e.g., amphibians) **Increase across the board**
- I** — Manage wetlands to enhance ecosystem services and processes (e.g., sediment trapping) **forebays**
- Other:

**Top Strategy:**

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Issue: Fish habitat impaired by channel modifications, changed sediment movement and contamination.

\_\_\_\_ **Goal: Increase healthy aquatic habitat**

Strategies:

- Improve fish passage through design and installation of retrofits and naturalize stream channels.
- II — Increase education and awareness of aquatic invasive species management. **expand MDC efforts**
- Improve lake/pond water quality. **watershed management**
- I — Remediate brownfields, reduce health risks and redevelop land appropriately.
- Other:

**create and integrate native bumps into RFPs on light brown fields**

**Increase education on adoption of IPM**

**Top Strategy:**

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Issue:

\_\_\_\_ **Goal:**

Strategies:

- **Re-Use Existing Brownfields First**
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**Top Strategy:**

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# LAND PROTECTION

Directions (45 minutes):

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- Mark places to implement strategies on maps and note additional information needed.

Issue: Loss of diverse native species, reduced habitat for migratory species; increased competition/reduced populations due to invasive species.

**Goal: Increase native species diversity, distribution, and population viability (in all habitat types)**

Strategies:

— Increase landowner education and outreach about proper use of pesticides.

not that useful

Support increased research of select indicator species habitat needs.

— Incentivize and expand use of habitat conservation credit programs.

I — Develop and promote backyard habitat practices.

I — Re-introduce imperiled species (where available from recovery groups) in target sites. **impractical**

II — Identify undeveloped land for use in connecting riparian corridors, parks and boulevards, activity centers, food production, and other uses.

— Other:

**Top Strategy:**

---

Issue: Soil nutrient health needs to be protected and/or stabilized and amended while drought resilience measures are incorporated into practice.

**Goal: Enhance regional agriculture**

Strategies:

— Conserve prime agricultural soils. **easements**

I — Promote agricultural management practices to improve soil stabilization and drought planning.

I — Expand outreach of local agricultural associations and soil and water conservation districts about ecologically sound land management practices. **running pretty well**

I — Improve the availability of farm fresh foods in the metro area.

— Provide educational opportunities for community members on the benefits of healthy food and support local food growing. **outside of scope**

— Inspire and empower communities to use community gardens. **support existing systems**

— Other:

**Top Strategy:**

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Issue: Weed control chemicals threaten pollinating insect populations

\_\_\_\_\_ **Goal: Manage invasive species**

Strategies:

- Promote ecologically sound agricultural management practices for weed control.
- II — Develop invasive species task force network to create and implement strategic regional approach to management.
- Other:

**Top Strategy:**

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Issue:

\_\_\_\_\_ **Goal:**

Strategies:

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**Top Strategy:**

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# ENERGY & ATMOSPHERE

Directions (30 minutes):

- Discuss the following proposed Goals as a group and write in any additional ideas for your group.
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- Prioritize the top strategies in each goal that are relevant or important to your watershed area.
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- Mark places to implement strategies on maps and note additional information needed.

Issue: Regional air quality, particularly in urban areas, is degraded due to coal-fired power production and traffic congestion as well as other point-sources of pollution.

## \_\_\_ Goal: Improve air quality

Strategies:

- I \_\_\_ Increase regional ability to measure air quality accurately against multiple factors.
- \_\_\_ Reduce emissions in populated areas by reducing traffic congestion and improving green spaces.
- \_\_\_ Prioritize air quality projects and education programs in underserved neighborhoods.
- \_\_\_ Enhance infrastructure for public transit, carpooling, biking and walking.
- II \_\_\_ Develop rebate or exchange programs to reduce emissions from gas powered landscape equipment.
- \_\_\_ Other:

If the undeserved neighborhoods have the least amount of cars, and can't afford to buy green products (energy star and better windows) then the education doesn't work.

But education in all communities about air quality and how you can vote to change regulation will help.

Research into mower emissions vs. emissions from prescribed burns

Top Strategy:

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Issue: Plant materials capture and store atmospheric carbon and use them as building blocks.

## \_\_\_ Goal: Increase carbon storage

Strategies:

- I \_\_\_ Prioritize connected greenways that correspond to the corridors with the worst air quality.
- \_\_\_ Provide education and data about the value of native plants and tree species in sequestering carbon.
- \_\_\_ Enhance regional forestry and chip/lumber/compost processing markets to make use of urban tree waste before it decomposes and releases stored carbon.
- I \_\_\_ Increase number of street trees with appropriate native species that have the greatest potential for carbon storage. Also increase tree maintenance and replacement programs. **not native for street trees**
- \_\_\_ Other:

Revisit local park and green way. plans for target ed acquisition.

Prairies! are pumps

Top Strategy:

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Issue: When the sun's heat strikes hardscape surfaces and buildings the heat radiates and reflects into air conditioned spaces, increasing the demand for cooling energy. At an urban scale, the collective impact can increase the temperature of the urban macro-climate and divert weather cells.

## Goal: Improve microclimate regulation

Strategies:

- | — Prioritize native planting, pocket prairie restoration and green space preservation projects.
- | — Improve requirements for shade, surface reflectivity, and green space in model zoning requirements.
- | — Improve the density of parking and reduce surface lots (or improve plant requirements and shading for parking areas).
- | — Develop model planting and tree maintenance guidelines that improve the life-span of urban trees.

**partner with how green infrastructure contributes to community savings.**

**Top Strategy:**

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# ENERGY & ATMOSPHERE

Directions (30 minutes):

- Discuss the following proposed Goals as a group and write in any additional ideas for your group.
- Discuss the following proposed Strategies as a group and write in any additional ideas for your group.
- Prioritize the top strategies in each goal that are relevant or important to your watershed area.
- Then as a group select your top strategy from each goal based on identification of opportunities and partners.
- Mark places to implement strategies on maps and note additional information needed.

Issue: The urban heat island effect increases energy consumption in buildings within the heat island zone.

## \_\_\_ **Goal:** Decrease total energy consumption in the region

Strategies:

- I \_\_\_ Introduce and promote energy efficiency education and rebate programs to reduce energy consumption of buildings.
- I \_\_\_ Measure and improve building performance in dense urban areas.
- \_\_\_ Promote green roofs, building shading, and landscaping strategies to reduce urban heat islands.
- \_\_\_ Other:

**Top Strategy:**

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Issue: Distributed renewable energy reduces regional reliance on centralized coal-fired power and improves regional air quality and water demand.

## \_\_\_ **Goal:** Increase the amount of energy produced from renewable sources

Strategies:

- \_\_\_ Show areas where the wind rose is adequate for wind power.
- I \_\_\_ Share model ordinance language with local municipalities to encourage solar access.
- I \_\_\_ Develop a portfolio or roof-top solar programs in the area and develop regional coops for group purchasing/leasing.
- \_\_\_ Other:

partner with local energy producers to deploy solar, et. al

**Top Strategy:**

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Watershed Area: 3

# WATER PROTECTION

Directions (30 minutes):

- Discuss the following proposed Goals as a group and write in any additional ideas for your group.
- Discuss the following proposed Strategies as a group and write in any additional ideas for your group.
- Prioritize the top strategies in each goal that are relevant or important to your watershed area.
- Then as a group select your top strategy from each goal based on identification of opportunities and partners.
- Mark places to implement strategies on maps and note additional information needed.

Issue: Stormwater quality is degraded from pollutant runoff and soil erosion

## || Goal: Improve health of rivers and streams

Strategies:

- || Establish effective ordinances, policies, and regulations for new construction and redevelopment.
- Develop a network of living infrastructure approaches that connect communities to natural amenities.
- || Prioritize opportunities along primary stormwater pathways for permeable pavement, rain gardens and low-impact development strategies.
- Assess and restore priority streamways.
- || Develop voluntary incentive programs for integrated, on-site strategies that conserve and reuse water.
- Implement programs that educate property owners/ managers about watershed protection and proper use and disposal of common pollutants
- || Develop regional landscape design and maintenance guidelines to support healthy soils and water quality.

Other:

Landscaping to retain water and civil works to retain water and allow quick reference for designers.

Develop dedicated source of revenue such as a stormwater utility

**Top Strategy:**

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Issue: Stormwater is not held in the local watershed and floods areas within the watershed and downstream

## || Goal: Improve and maintain natural water flow patterns

Strategies:

- || Identify floodplain priorities within the watershed area.
- || Increase water absorption and promote native plant use to restore appropriate water patterns.
- Work with the State to acquire water rights in priority locations
- Promote/Allow/Incentivize innovative, integrated wastewater management strategies
- Prioritize distributed stormwater management in vulnerable neighborhoods and areas particularly prone to flooding

Other:

Inflow to large lakes includes too much sediment; Outflow lakes before storm events.

Develop dedicated source of revenue such as a stormwater utility

**Top Strategy:**  
**Water absorption locally**

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Issue: The degraded quality of drinking water due to pollutant runoff and contamination

**||| Goal: Maintain clean drinking water supply**

Strategies:

- ⌊| Designate drinking water source area protection zones & include "at risk" areas.
- || Prioritize the protection of watersheds serving underserved populations.
- | Implement programs that educate property owners/ managers about watershed protection and proper use and disposal of common pollutants
- Institute special/targeted waste collection programs
- | Develop and support the education and enforcement of protective water quality standards
- Other:

**Top Strategy:**

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Issue:

**\_\_\_ Goal:**

Strategies:

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\_\_\_ Drainage/flooding issues spurs interest  
Pollution dangers, swimmable and fishable  
Lack showcase for Green Infrastructure  
Wild growth vs grass lawns aesthetic debate

Regional Stormwater Management Entity -  
public and political champions to change  
mindset

**Top Strategy:**

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# LAND PROTECTION

Directions (45 minutes):

- Discuss the following proposed Goals as a group and write in any additional ideas for your group.
- Discuss the following proposed Strategies as a group and write in any additional ideas for your group.
- Prioritize the top strategies in each goal that are relevant or important to your watershed area.
- Then as a group select your top strategy from each goal based on identification of opportunities and partners.
- Mark places to implement strategies on maps and note additional information needed.

Issue: The same strategies that calm traffic, clean and slow water and improve connected habitat can also improve the quality of life in neighborhoods.

## ||| Goal: Promote green infrastructure as a quality of life amenity

Strategies:

- Prioritize green infrastructure projects in areas with the greatest need.
- Provide opportunities for green job training - planting and maintenance of green infrastructure.
- Develop urban agriculture on vacant lots with rainwater collection systems and provide greater access to healthy food in food desert areas.
- Increase information on the community benefits of active living, gardening, and nature-based play and recreation.
- Reduce prevalence of obesity, diabetes and heart disease through access to outdoor recreational areas.
- Provide opportunities for biophilia (love of living things) that connect people to nature.
- Provide outdoor areas for cultural community events
- Increase partnerships between cross sector organizations including: public health, policymakers, parks departments, planning departments, housing agencies, gardening organizations, extension services, school districts, and nature centers to increase access to natural areas and other green spaces for people of all ages, income levels, and abilities

**Top Strategy:**

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Issue: Loss of diverse forests due to development encroachment, conversion to agriculture, altered fire regime, and fragmentation

## — Goal: Improve healthy prairie and woodland functions

Strategies:

- Increase regional data on prairie.
- Incentivize re-vegetation of riparian buffers and reforestation in strategic and priority locations to protect and connect.
- Work with zoning boards/planning departments to incentivize redevelopment and reduce conversion of natural lands.
- Expand open space conservation through targeted identification and acquisition efforts focused on priority forests.
- Provide technical assistance for proper forest management riparian zone protection (fencing/fires/timber harvest/invasive species management).
- Other:

**Top Strategy:**

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Issue: Loss of floodplain & riparian forests due to altered water function, development encroachment, fragmentation and loss of connectivity

**Goal: Improve floodplain functions**

Strategies:

- Assess dike removal and structural modifications to restore floodplain forest hydrology.
- | — Encourage expansion of riparian buffer protection programs.
- | — Increase pace of conservation through targeted acquisition or conservation easements focused on priority floodplain and riparian forests.
- | — Identify collaborative projects to achieve integrated ecologically-sound floodplain/stream/ wetland management.
- | — Increase organizational capacity through partnerships.
- Other:

**Top Strategy:**

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Issue:

**Goal:**

Strategies:

- GI for streets program
- 
- Rainwater collection and reuse
- Increase info on community benefits
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**Top Strategy:**

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# LAND PROTECTION

Directions (45 minutes):

- Discuss the following proposed Goals as a group and write in any additional ideas for your group.
- Discuss the following proposed Strategies as a group and write in any additional ideas for your group.
- Prioritize the top strategies in each goal that are relevant or important to your watershed area.
- Then as a group select your top strategy from each goal based on identification of opportunities and partners.
- Mark places to implement strategies on maps and note additional information needed.

Issue:

## **Goal:** Extend native grassland in priority locations to improve habitat

Strategies:

- Restore remnant and reconstructed prairies in priority locations.
- Work with DOTs to develop appropriate grassland and pollinator habitat landscapes.
- Provide extension services for sustainable agriculture efforts.
- Develop invasive species task force network to create and implement strategic regional approach to management.
- Other:

**Top Strategy:**

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Issue: Loss of wetland habitat and connectivity due to altered hydrology, drainage, land conversion, and fragmentation.

## **Goal:** Increase healthy wetlands

Strategies:

- Increase regional data on wetlands.
- Restore and protect wide variety of wetland types in coordination with stream and floodplain protection.
- Work with States to understand population objectives for wetland dependent species (e.g., amphibians)
- Manage wetlands to enhance ecosystem services and processes (e.g., sediment trapping)
- Other:

**Top Strategy:**

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Issue: Fish habitat impaired by channel modifications, changed sediment movement and contamination.

## —||| **Goal:** Increase healthy aquatic habitat

Strategies:

- └| Improve fish passage through design and installation of retrofits and naturalize stream channels.
- └| Increase education and awareness of aquatic invasive species management.
- └| Improve lake/pond water quality.
- └| Remediate brownfields, reduce health risks and redevelop land appropriately.
- Other:

**Top Strategy:**

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# LAND PROTECTION

Directions (45 minutes):

- Discuss the following proposed Goals as a group and write in any additional ideas for your group.
- Discuss the following proposed Strategies as a group and write in any additional ideas for your group.
- Prioritize the top strategies in each goal that are relevant or important to your watershed area.
- Then as a group select your top strategy from each goal based on identification of opportunities and partners.
- Mark places to implement strategies on maps and note additional information needed.

Issue: Loss of diverse native species, reduced habitat for migratory species; increased competition/reduced populations due to invasive species.

**Goal:** Increase native species diversity, distribution, and population viability (in all habitat types)

Strategies:

- Increase landowner education and outreach about proper use of pesticides.
- Support increased research of select indicator species habitat needs.
- Incentivize and expand use of habitat conservation credit programs.
- Develop and promote backyard habitat practices.
- Re-introduce imperiled species (where available from recovery groups) in target sites.
- Identify undeveloped land for use in connecting riparian corridors, parks and boulevards, activity centers, food production, and other uses.
- Other:

**Top Strategy:**

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Issue: Soil nutrient health needs to be protected and/or stabilized and amended while drought resilience measures are incorporated into practice.

**Goal:** Enhance regional agriculture

Strategies:

- Conserve prime agricultural soils.
- Promote agricultural management practices to improve soil stabilization and drought planning.
- Expand outreach of local agricultural associations and soil and water conservation districts about ecologically sound land management practices.
- Improve the availability of farm fresh foods in the metro area.
- Provide educational opportunities for community members on the benefits of healthy food and support local food growing.
- Inspire and empower communities to use community gardens.
- Other:

**Top Strategy:**

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Issue: Weed control chemicals threaten pollinating insect populations

\_\_\_\_\_ **Goal: Manage invasive species**

Strategies:

- Promote ecologically sound agricultural management practices for weed control.
- Develop invasive species task force network to create and implement strategic regional approach to management.
- Other:

**Top Strategy:**

\_\_\_\_\_

Issue:

\_\_\_\_\_ **Goal:**

Strategies:

- Backyard habitat
- Identify undeveloped land for use in connections
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**Top Strategy:**

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# ENERGY & ATMOSPHERE

Directions (30 minutes):

- Discuss the following proposed Goals as a group and write in any additional ideas for your group.
- Discuss the following proposed Strategies as a group and write in any additional ideas for your group.
- Prioritize the top strategies in each goal that are relevant or important to your watershed area.
- Then as a group select your top strategy from each goal based on identification of opportunities and partners.
- Mark places to implement strategies on maps and note additional information needed.

Issue: Regional air quality, particularly in urban areas, is degraded due to coal-fired power production and traffic congestion as well as other point-sources of pollution.

## ||| Goal: Improve air quality

Strategies:

- | — Increase regional ability to measure air quality accurately against multiple factors.
- || — Reduce emissions in populated areas by reducing traffic congestion and improving green spaces.
- | — Prioritize air quality projects and education programs in underserved neighborhoods.
- | — Enhance infrastructure (and access) for public transit, carpooling, biking and walking.
- Develop rebate or exchange programs to reduce emissions from gas powered landscape equipment.
- Other:
  - | Citizen science air monitoring
  - | Involve MODOT in stakeholder strategy alignment

Top Strategy:

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Issue: Plant materials capture and store atmospheric carbon and use them as building blocks.

## || Goal: Increase carbon storage

Strategies:

- | — Prioritize connected greenways that correspond to the corridors with the worst air quality.
- Provide education and data about the value of native plants and tree species in sequestering carbon.
- | — Enhance regional forestry and chip/lumber/compost processing markets to make use of urban tree waste before it decomposes and releases stored carbon.
- || — Increase number of street trees with appropriate native species that have the greatest potential for carbon storage. Also increase tree maintenance and replacement programs.
- Other:

Top Strategy:

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Issue: When the sun's heat strikes hardscape surfaces and buildings the heat radiates and reflects into air conditioned spaces, increasing the demand for cooling energy. At an urban scale, the collective impact can increase the temperature of the urban macro-climate and divert weather cells.

## — **Goal: Improve microclimate regulation**

Strategies:

- Prioritize native planting, pocket prairie restoration and green space preservation projects.
- Improve requirements for shade, surface reflectivity, and green space in model zoning requirements.
- Improve the density of parking and reduce surface lots (or improve plant requirements and shading for parking areas).
- Develop model planting and tree maintenance guidelines that improve the life-span of urban trees.
- Other:

**Top Strategy:**

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# ENERGY & ATMOSPHERE

Directions (30 minutes):

- Discuss the following proposed Goals as a group and write in any additional ideas for your group.
- Discuss the following proposed Strategies as a group and write in any additional ideas for your group.
- Prioritize the top strategies in each goal that are relevant or important to your watershed area.
- Then as a group select your top strategy from each goal based on identification of opportunities and partners.
- Mark places to implement strategies on maps and note additional information needed.

Issue: The urban heat island effect increases energy consumption in buildings within the heat island zone.

## |||| Goal: Decrease total energy consumption in the region

Strategies:

- ||\_ Introduce and promote energy efficiency education and rebate programs to reduce energy consumption of buildings.
- |\_ Measure and improve building performance in dense urban areas (and streetlighting).
- └ Promote green roofs, building shading, and landscaping strategies to reduce urban heat islands.
- \_ Other:

Top Strategy:

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Issue: Distributed renewable energy reduces regional reliance on centralized coal-fired power and improves regional air quality and water demand.

## || Goal: Increase the amount of energy produced from renewable sources

Strategies:

- \_ Show areas where the wind rose is adequate for wind power.
- \_ Share model ordinance language with local municipalities to encourage solar access.
- |\_ Develop a portfolio or roof-top solar programs in the area and develop regional coops for group purchasing/leasing.
- \_ Other:

Top Strategy:

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# WATER PROTECTION

Directions (30 minutes):

- Discuss the following proposed Goals as a group and write in any additional ideas for your group.
- Discuss the following proposed Strategies as a group and write in any additional ideas for your group.
- Prioritize the top strategies in each goal that are relevant or important to your watershed area.
- Then as a group select your top strategy from each goal based on identification of opportunities and partners.
- Mark places to implement strategies on maps and note additional information needed.

Issue: Stormwater quality is degraded from pollutant runoff and soil erosion

## ||| Goal: Improve health of rivers and streams

Strategies:

- ||| Establish effective ordinances, policies, and regulations for new construction and redevelopment.
- ||| Develop a network of living infrastructure approaches that connect communities to natural amenities.
- ||| Prioritize opportunities along primary stormwater pathways for permeable pavement, rain gardens and low-impact development strategies.
- | Assess and restore priority streamways.
- || Develop voluntary incentive programs for integrated, on-site strategies that conserve and reuse water.
- ||| Implement programs that educate property owners/ managers about watershed protection and proper use and disposal of common pollutants
- ||| Develop regional landscape design and maintenance guidelines to support healthy soils and water quality.
- Other:

**Top Strategy:**

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Issue: Stormwater is not held in the local watershed and floods areas within the watershed and downstream

## || Goal: Improve and maintain natural water flow patterns

Strategies:

- || Identify floodplain priorities within the watershed area.
- ||| Increase water absorption and promote native plant use to restore appropriate water patterns.
- Work with the State to acquire water rights in priority locations
- ||| Promote/Allow/Incentivize innovative, integrated wastewater management strategies
- || Prioritize distributed stormwater management in vulnerable neighborhoods and areas particularly prone to flooding
- Other:
  - | infrastructure asset management

**Top Strategy:**

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Issue: The degraded quality of drinking water due to pollutant runoff and contamination

**||| Goal: Maintain clean drinking water supply**

Strategies:

- ||| Designate drinking water source area protection zones & include "at risk" areas.
- || Prioritize the protection of watersheds serving underserved populations.
- ||| Implement programs that educate property owners/ managers about watershed protection and proper use and disposal of common pollutants
- Institute special/targeted waste collection programs
- ||| Develop and support the education and enforcement of protective water quality standards
- Other:
  - | develop water quality projections for future
  - || mitigate agricultural pollutants
  - | reduce energy pollutants

**Top Strategy:**

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Issue:

**| Goal: using education to make sure the public is not actively working against plans/designs that support goals.**

Strategies:

- | Goal: I.D. 3 levels of effort:
  1. Big, long term picture
  - joint efforts (5-20 yrs)
  2. mid Range regional efforts
  - (1-5 yrs)
  3. Small-scale, quick & easy
  - -low hanging fruit to kickstart local efforts
  - -immediate results to encourage public, motivate stakeholders
- | Improve the health and wellbeing of People
  - strategy: connective network
  - connect trails and bike paths
  - rooftop green infra
  - community gardens
  - utilize vacant land
  - k-12 education
  - use impervious surface areas and wide street corridors as priority targets

**Top Strategy:**

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# LAND PROTECTION

Directions (45 minutes):

- Discuss the following proposed Goals as a group and write in any additional ideas for your group.
- Discuss the following proposed Strategies as a group and write in any additional ideas for your group.
- Prioritize the top strategies in each goal that are relevant or important to your watershed area.
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Issue: The same strategies that calm traffic, clean and slow water and improve connected habitat can also improve the quality of life in neighborhoods.

## ||| Goal: Promote green infrastructure as a quality of life amenity

Strategies:

- Prioritize green infrastructure projects in areas with the greatest need.
- Provide opportunities for green job training - planting and maintenance of green infrastructure.
- Develop urban agriculture on vacant lots with rainwater collection systems and provide greater access to healthy food in food desert areas.
- Increase information on the community benefits of active living, gardening, and nature-based play and recreation.
- Reduce prevalence of obesity, diabetes and heart disease through access to outdoor recreational areas.
- Provide opportunities for biophilia (love of living things) that connect people to nature.
- Provide outdoor areas for cultural community events
- Increase partnerships between cross sector organizations including: public health, policymakers, parks departments, planning departments, housing agencies, gardening organizations, extension services, school districts, and nature centers to increase access to natural areas and other green spaces for people of all ages, income levels, and abilities

**Top Strategy:**

---

Issue: Loss of diverse forests due to development encroachment, conversion to agriculture, altered fire regime, and fragmentation

## || Goal: Improve healthy prairie and woodland functions

Strategies:

- Increase regional data on prairie.
- || Incentivize re-vegetation of riparian buffers and reforestation in strategic and priority locations to protect and connect.
- || Work with zoning boards/planning departments to incentivize redevelopment and reduce conversion of natural lands.
- Expand open space conservation through targeted identification and acquisition efforts focused on priority forests.
- Provide technical assistance for proper forest management riparian zone protection (fencing/fires/timber harvest/invasive species management).
- Other:

**Top Strategy:**

---

Issue: Loss of floodplain & riparian forests due to altered water function, development encroachment, fragmentation and loss of connectivity

## || **Goal: Improve floodplain functions**

Strategies:

- Assess dike removal and structural modifications to restore floodplain forest hydrology.
- Encourage expansion of riparian buffer protection programs.
- └ Increase pace of conservation through targeted acquisition or conservation easements focused on priority floodplain and riparian forests.
- || Identify collaborative projects to achieve integrated ecologically-sound floodplain/stream/ wetland management.
- Increase organizational capacity through partnerships.
- Other:

**Top Strategy:**

---

# LAND PROTECTION

Directions (45 minutes):

- Discuss the following proposed Goals as a group and write in any additional ideas for your group.
- Discuss the following proposed Strategies as a group and write in any additional ideas for your group.
- Prioritize the top strategies in each goal that are relevant or important to your watershed area.
- Then as a group select your top strategy from each goal based on identification of opportunities and partners.
- Mark places to implement strategies on maps and note additional information needed.

Issue:

## Goal: Extend native grassland in priority locations to improve habitat

Strategies:

- Restore remnant and reconstructed prairies in priority locations.
- └ Work with DOTs to develop appropriate grassland and pollinator habitat landscapes.
- └ Provide extension services for sustainable agriculture efforts.
- Develop invasive species task force network to create and implement strategic regional approach to management.
- Other:

Top Strategy:

---

Issue: Loss of wetland habitat and connectivity due to altered hydrology, drainage, land conversion, and fragmentation.

## Goal: Increase healthy wetlands

Strategies:

- Increase regional data on wetlands.
- └ Restore and protect wide variety of wetland types in coordination with stream and floodplain protection.
- Work with States to understand population objectives for wetland dependent species (e.g., amphibians)
- └ Manage wetlands to enhance ecosystem services and processes (e.g., sediment trapping)
- Other:

Top Strategy:

---

Issue: Fish habitat impaired by channel modifications, changed sediment movement and contamination.

**Goal: Increase healthy aquatic habitat**

Strategies:

- Improve fish passage through design and installation of retrofits and naturalize stream channels.
- | — Increase education and awareness of aquatic invasive species management.
- | — Improve lake/pond water quality.
- Remediate brownfields, reduce health risks and redevelop land appropriately.
- Other:

**Top Strategy:**

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Issue:

| **Goal: multifunctional ecosystem services within blue river corridor**

Strategies:

- 
- | — portfolio of strategies to improve urban ecologies (dealing with yards, streets, etc)
- 
- | — agricultural land management for sustainability
- 
- 

**Top Strategy:**

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# LAND PROTECTION

Directions (45 minutes):

- Discuss the following proposed Goals as a group and write in any additional ideas for your group.
- Discuss the following proposed Strategies as a group and write in any additional ideas for your group.
- Prioritize the top strategies in each goal that are relevant or important to your watershed area.
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- Mark places to implement strategies on maps and note additional information needed.

Issue: Loss of diverse native species, reduced habitat for migratory species; increased competition/reduced populations due to invasive species.

— **Goal: Increase native species diversity, distribution, and population viability (in all habitat types)**

Strategies:

- Increase landowner education and outreach about proper use of pesticides.
- Support increased research of select indicator species habitat needs.
- Incentivize and expand use of habitat conservation credit programs.
- Develop and promote backyard habitat practices.
- Re-introduce imperiled species (where available from recovery groups) in target sites.
- Identify undeveloped land for use in connecting riparian corridors, parks and boulevards, activity centers, food production, and other uses.
- Other:

**Top Strategy:**

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Issue: Soil nutrient health needs to be protected and/or stabilized and amended while drought resilience measures are incorporated into practice.

— **Goal: Enhance regional agriculture**

Strategies:

- Conserve prime agricultural soils.
- Promote agricultural management practices to improve soil stabilization and drought planning.
- Expand outreach of local agricultural associations and soil and water conservation districts about ecologically sound land management practices.
- Improve the availability of farm fresh foods in the metro area.
- Provide educational opportunities for community members on the benefits of healthy food and support local food growing.
- Inspire and empower communities to use community gardens.
- Other:

**Top Strategy:**

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Issue: Weed control chemicals threaten pollinating insect populations

\_\_\_\_ **Goal: Manage invasive species**

Strategies:

- Promote ecologically sound agricultural management practices for weed control.
- Develop invasive species task force network to create and implement strategic regional approach to management.
- Other:

**Top Strategy:**

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Issue:

\_\_\_\_ **Goal:**

Strategies:

- 
- 
- | financial incentives to reduce pesticide use.
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**Top Strategy:**

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# ENERGY & ATMOSPHERE

Directions (30 minutes):

- Discuss the following proposed Goals as a group and write in any additional ideas for your group.
- Discuss the following proposed Strategies as a group and write in any additional ideas for your group.
- Prioritize the top strategies in each goal that are relevant or important to your watershed area.
- Then as a group select your top strategy from each goal based on identification of opportunities and partners.
- Mark places to implement strategies on maps and note additional information needed.

Issue: Regional air quality, particularly in urban areas, is degraded due to coal-fired power production and traffic congestion as well as other point-sources of pollution.

## || Goal: Improve air quality

Strategies:

- Increase regional ability to measure air quality accurately against multiple factors.
- + Reduce emissions in populated areas by reducing traffic congestion and improving green spaces.
- Prioritize air quality projects and education programs in underserved neighborhoods.
- || Enhance infrastructure for public transit, carpooling, biking and walking.
- Develop rebate or exchange programs to reduce emissions from gas powered landscape equipment.
- Other:

**Top Strategy:**

---

Issue: Plant materials capture and store atmospheric carbon and use them as building blocks.

## | Goal: Increase carbon storage

Strategies:

- | Prioritize connected greenways that correspond to the corridors with the worst air quality.
- Provide education and data about the value of native plants and tree species in sequestering carbon.
- | Enhance regional forestry and chip/lumber/compost processing markets to make use of urban tree waste before it decomposes and releases stored carbon.
- ||| Increase number of street trees with appropriate native species that have the greatest potential for carbon storage. Also increase tree maintenance and replacement programs.
- Other:

**Top Strategy:**

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Issue: When the sun's heat strikes hardscape surfaces and buildings the heat radiates and reflects into air conditioned spaces, increasing the demand for cooling energy. At an urban scale, the collective impact can increase the temperature of the urban macro-climate and divert weather cells.

**||| Goal: Improve microclimate regulation**

Strategies:

- + Prioritize native planting, pocket prairie restoration and green space preservation projects.
- | Improve requirements for shade, surface reflectivity, and green space in model zoning requirements.
- | □ Improve the density of parking and reduce surface lots (or improve plant requirements and shading for parking areas).
- | Develop model planting and tree maintenance guidelines that improve the life-span of urban trees.
- Other:

**Top Strategy:**

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Issue:

**| Goal: Intersection of Transportation and Green infrastructure:**

Strategies: **and Green infrastructure:**

|\_ where are the corridors that public transit and interlinks of trails can be a co-beneficial within GI

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**Top Strategy:**

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# ENERGY & ATMOSPHERE

Directions (30 minutes):

- Discuss the following proposed Goals as a group and write in any additional ideas for your group.
- Discuss the following proposed Strategies as a group and write in any additional ideas for your group.
- Prioritize the top strategies in each goal that are relevant or important to your watershed area.
- Then as a group select your top strategy from each goal based on identification of opportunities and partners.
- Mark places to implement strategies on maps and note additional information needed.

Issue: The urban heat island effect increases energy consumption in buildings within the heat island zone.

## Goal: Decrease total energy consumption in the region

Strategies:

- Introduce and promote energy efficiency education and rebate programs to reduce energy consumption of buildings.
- Measure and improve building performance in dense urban areas.
- Promote green roofs, building shading, and landscaping strategies to reduce urban heat islands.

Other: Transit- streetcar, light rail, etc

Integrated, multi-scalar land use and transportation planning to decrease Vehicle miles traveled

Top Strategy:

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Issue: Distributed renewable energy reduces regional reliance on centralized coal-fired power and improves regional air quality and water demand.

## Goal: Increase the amount of energy produced from renewable sources

Strategies:

- Show areas where the wind rose is adequate for wind power.
- Share model ordinance language with local municipalities to encourage solar access.
- Develop a portfolio or roof-top solar programs in the area and develop regional coops for group purchasing/leasing.

Other:

Top Strategy:

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Watershed Area: \_\_\_\_\_

Issue:

**Goal:** Decrease per capita  
vehicle miles traveled  
within region

Strategies:

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**Top Strategy:**

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Issue:

**Goal:** trees, esp. within  
formerly industrial areas  
to improve air quality,  
decrease heat island  
and improve livability  
of dense urban  
environments

Strategies:

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**Top Strategy:**

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# WATER PROTECTION

Directions (30 minutes):

- Discuss the following proposed Goals as a group and write in any additional ideas for your group.
- Discuss the following proposed Strategies as a group and write in any additional ideas for your group.
- Prioritize the top strategies in each goal that are relevant or important to your watershed area.
- Then as a group select your top strategy from each goal based on identification of opportunities and partners.
- Mark places to implement strategies on maps and note additional information needed.

Issue: Stormwater quality is degraded from pollutant runoff and soil erosion

## ||| Goal: Improve health of rivers and streams

Strategies:

- ||| Establish effective ordinances, policies, and regulations for new construction and redevelopment.
- | — Develop a network of living infrastructure approaches that connect communities to natural amenities.
- Prioritize opportunities along primary stormwater pathways for permeable pavement, rain gardens and low-impact development strategies.
- || — Assess and restore priority streamways.
- | — Develop voluntary incentive programs for integrated, on-site strategies that conserve and reuse water.
- | — Implement programs that educate property owners/ managers about watershed protection and proper use and disposal of common pollutants
- | — Develop regional landscape design and maintenance guidelines to support healthy soils and water quality.
- Other:
  - | Monitor non-human community in aquatic habitats
  - | Health index and score card

**Top Strategy:**

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Issue: Stormwater is not held in the local watershed and floods areas within the watershed and downstream

## || Goal: Improve and maintain natural water flow patterns

Strategies:

- || Identify floodplain priorities within the watershed area.
- ||| Increase water absorption and promote native plant use to restore appropriate water patterns.
  - Work with the State to acquire water rights in priority locations
  - Promote/Allow/Incentivize innovative, integrated wastewater management strategies
- || Prioritize distributed stormwater management in vulnerable neighborhoods and areas particularly prone to flooding
  - Other:
    - | Expand stream setback/buffer
    - | Placing greenways/natural systems in floodplains
    - | expand & restore wetlands
    - | education on changing hydrology

**Top Strategy:**

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Issue: The degraded quality of drinking water due to pollutant runoff and contamination

**Goal: Maintain clean drinking water supply**

Strategies:

- |\_| Designate drinking water source area protection zones & include "at risk" areas.
- |\_| Prioritize the protection of watersheds serving underserved populations.
- |\_| Implement programs that educate property owners/ managers about watershed protection and proper use and disposal of common pollutants
- |\_| Institute special/targeted waste collection programs
- |\_| Develop and support the education and enforcement of protective water quality standards
- |\_| Other: Improve education about bottled water
  - | Testing for toxins not always tested for by water suppliers (i.e. PCBs, POCs)
  - | Regional water quality testing with a published score card

**Top Strategy:**

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Issue:

**Goal: connect people to water**

Strategies:

- |\_| Events and festivals
- |\_| acquire and assemble conservation lands (provide the access)
- |\_| publicize stream access
- |\_| Private systems (like Chi Wilderness)
- |\_| partnerships between organizations
- |\_| Residential amenities integrating streams and wetlands into neighborhoods

**Top Strategy:**

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# LAND PROTECTION

Directions (45 minutes):

- Discuss the following proposed Goals as a group and write in any additional ideas for your group.
- Discuss the following proposed Strategies as a group and write in any additional ideas for your group.
- Prioritize the top strategies in each goal that are relevant or important to your watershed area.
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Issue: The same strategies that calm traffic, clean and slow water and improve connected habitat can also improve the quality of life in neighborhoods.

**Goal: Promote green infrastructure as a quality of life amenity**

Strategies:

- Prioritize green infrastructure projects in areas with the greatest need.
- Provide opportunities for green job training - planting and maintenance of green infrastructure.
- Develop urban agriculture on vacant lots with rainwater collection systems and provide greater access to healthy food in food desert areas.
- Increase information on the community benefits of active living, gardening, and nature-based play and recreation.
- Reduce prevalence of obesity, diabetes and heart disease through access to outdoor recreational areas.
- Provide opportunities for biophilia (love of living things) that connect people to nature.
- Provide outdoor areas for cultural community events
- Increase partnerships between cross sector organizations including: public health, policymakers, parks departments, planning departments, housing agencies, gardening organizations, extension services, school districts, and nature centers to increase access to natural areas and other green spaces for people of all ages, income levels, and abilities

**Top Strategy:**

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Issue: Loss of diverse forests due to development encroachment, conversion to agriculture, altered fire regime, and fragmentation

**Goal: Improve healthy prairie and woodland functions**

Strategies:

- Increase regional data on prairie.
- Incentivize re-vegetation of riparian buffers and reforestation in strategic and priority locations to protect and connect.
- Work with zoning boards/planning departments to incentivize redevelopment and reduce conversion of natural lands.
- Expand open space conservation through targeted identification and acquisition efforts focused on priority forests.
- Provide technical assistance for proper forest management riparian zone protection (fencing/fires/timber harvest/invasive species management).
- Other:
  - | Monitor ecosystem functions to measure improvement
  - | Quantify performance of existing solutions

**Top Strategy:**

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Watershed Area: \_\_\_\_\_

Issue: Loss of floodplain & riparian forests due to altered water function, development encroachment, fragmentation and loss of connectivity

**||| Goal: Improve floodplain functions**

Strategies:

**|** Assess dike removal and structural modifications to restore floodplain forest hydrology.

**|** Encourage expansion of riparian buffer protection programs.

**|||** Increase pace of conservation through targeted acquisition or conservation easements focused on priority floodplain and riparian forests.

**|** Identify collaborative projects to achieve integrated ecologically-sound floodplain/stream/ wetland management.

**|** Increase organizational capacity through partnerships.

**\_** Other:

**|** Prioritize prairie habitat conservation to strategically address flood control

**Top Strategy:**

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Issue:

**|| Goal:** Consolidate overall goals into 2 parts:  
1. Increase ecosystem functions  
2. Increase healthy habitat

Strategies:

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**Top Strategy:**

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# LAND PROTECTION

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- Discuss the following proposed Strategies as a group and write in any additional ideas for your group.
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Issue:

|||| **Goal: Extend native grassland in priority locations to improve habitat**

Strategies:

- | || Restore remnant and reconstructed prairies in priority locations.
- | || Work with DOTs to develop appropriate grassland and pollinator habitat landscapes.
- Provide extension services for sustainable agriculture efforts.
- | Develop invasive species task force network to create and implement strategic regional approach to management.
- Other:

| Identify/establish funding sources for habitat development

**Top Strategy:**

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Issue: Loss of wetland habitat and connectivity due to altered hydrology, drainage, land conversion, and fragmentation.

|| **Goal: Increase healthy wetlands**

Strategies:

- | Increase regional data on wetlands.
- | || Restore and protect wide variety of wetland types in coordination with stream and floodplain protection.
- | — Work with States to understand population objectives for wetland dependent species (e.g., amphibians)
- | | Manage wetlands to enhance ecosystem services and processes (e.g., sediment trapping)
- Other:

**Top Strategy:**

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Issue: Fish habitat impaired by channel modifications, changed sediment movement and contamination.

## — **Goal:** Increase healthy aquatic habitat

Strategies:

- | Improve fish passage through design and installation of retrofits and naturalize stream channels.
- || Increase education and awareness of aquatic invasive species management.
- | Improve lake/pond water quality.
- L Remediate brownfields, reduce health risks and redevelop land appropriately.
- Other:

| monitor species in aquatic habitat

**Top Strategy:**

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# LAND PROTECTION

Directions (45 minutes):

- Discuss the following proposed Goals as a group and write in any additional ideas for your group.
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- Prioritize the top strategies in each goal that are relevant or important to your watershed area.
- Then as a group select your top strategy from each goal based on identification of opportunities and partners.
- Mark places to implement strategies on maps and note additional information needed.

Issue: Loss of diverse native species, reduced habitat for migratory species; increased competition/reduced populations due to invasive species.

**||| Goal: Increase native species diversity, distribution, and population viability (in all habitat types)**

Strategies:

- Increase landowner education and outreach about proper use of pesticides.
- | Support increased research of select indicator species habitat needs.
- | — Incentivize and expand use of habitat conservation credit programs.
- Develop and promote backyard habitat practices.
- Re-introduce imperiled species (where available from recovery groups) in target sites.
- | — Identify undeveloped land for use in connecting riparian corridors, parks and boulevards, activity centers, food production, and other uses.
- Other:

**Top Strategy:**

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Issue: Soil nutrient health needs to be protected and/or stabilized and amended while drought resilience measures are incorporated into practice.

**||| Goal: Enhance regional URBAN agriculture**

Strategies:

- | — Conserve prime agricultural soils.
- | — Promote agricultural management practices to improve soil stabilization and drought planning.
- | — Expand outreach of local agricultural associations and soil and water conservation districts about ecologically sound land management practices.
- | — Improve the availability of farm fresh foods in the metro area.
- | — Provide educational opportunities for community members on the benefits of healthy food and support local food growing.
- Inspire and empower communities to use community gardens.
- | — Other address food deserts
- | Look at how federal funding priorities impact our regional agriculture
- | bring federal incentives (USDA) \$\$ to small, urban farmers
- | Increase technical assistance and incentives for alternative crops/products

**Top Strategy:**

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Issue: Weed control chemicals threaten pollinating insect populations

     **Goal:** Manage invasive species

Strategies:

- Promote ecologically sound agricultural management practices for weed control.
- Develop invasive species task force network to create and implement strategic regional approach to management.
- Other:
  - | create a 'noxious weed' list and a 'species of concern' list for the KC area

**Top Strategy:**

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Issue:

    **Goal:** Collapse Goals into 1 single goal:  
Increase native species diversity and population viability AND manage invasive species

Strategies:

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**Top Strategy:**

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# ENERGY & ATMOSPHERE

Directions (30 minutes):

- Discuss the following proposed Goals as a group and write in any additional ideas for your group.
- Discuss the following proposed Strategies as a group and write in any additional ideas for your group.
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Issue: Regional air quality, particularly in urban areas, is degraded due to coal-fired power production and traffic congestion as well as other point-sources of pollution.

## ||| Goal: Improve air quality

Strategies:

— Increase regional ability to measure air quality accurately against multiple factors.

| | Reduce emissions in populated areas by reducing traffic congestion and improving green spaces.

| | Prioritize air quality projects and education programs in underserved neighborhoods.

| | Enhance infrastructure for public transit, carpooling, biking and walking.

| | Develop rebate or exchange programs to reduce emissions from gas powered landscape equipment.

— Other:

| Prioritize forestry in areas with high levels of fine particulates

| encourage mixed use development (to reduce car dependence)

**Top Strategy:**

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Issue: Plant materials capture and store atmospheric carbon and use them as building blocks.

## ||| Goal: Increase carbon storage

Strategies:

↓ | Prioritize connected greenways that correspond to the corridors with the worst air quality.

| Provide education and data about the value of native plants and tree species in sequestering carbon.

| | Enhance regional forestry and chip/lumber/compost processing markets to make use of urban tree waste before it decomposes and releases stored carbon.

| | Increase number of street trees with appropriate native species that have the greatest potential for carbon storage. Also increase tree maintenance and replacement programs.

| Other: Prioritize prairie as a very effective carbon storage sink - more effective than trees

**Top Strategy:**

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Issue: When the sun's heat strikes hardscape surfaces and buildings the heat radiates and reflects into air conditioned spaces, increasing the demand for cooling energy. At an urban scale, the collective impact can increase the temperature of the urban macro-climate and divert weather cells.

||| **Goal: Improve microclimate regulation**

Strategies:

- || Prioritize native planting, pocket prairie restoration and green space preservation projects.
- ||| Improve requirements for shade, surface reflectivity, and green space in model zoning requirements.
- || Improve the density of parking and reduce surface lots (or improve plant requirements and shading for parking areas).
- | Develop model planting and tree maintenance guidelines that improve the life-span of urban trees.
- Other:

Develop ordinances to address required shading and parking lots

use forested water bodies and riparian corridors for micro climate cooling

make parking less convenient to encourage transit/walking

**Top Strategy:**

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Issue:

—| **Goal: How does using fire/ burns**

Strategies: to manage vegetation effect local air quality?

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**Top Strategy:**

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# ENERGY & ATMOSPHERE

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Issue: The urban heat island effect increases energy consumption in buildings within the heat island zone.

## || Goal: Decrease total energy consumption in the region

Strategies:

- | Introduce and promote energy efficiency education and rebate programs to reduce energy consumption of buildings.
- Measure and improve building performance in dense urban areas.
- || Promote green roofs, building shading, and landscaping strategies to reduce urban heat islands.
- | Other: Improve education
- | Update antiquated building practices with innovative strategies from the last 10 years
- | reduce average building sizes, especially for single family residential
- | provide homeowners with better data/projections on heating/cooling costs of larger homes

**Top Strategy:**

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Issue: Distributed renewable energy reduces regional reliance on centralized coal-fired power and improves regional air quality and water demand.

## — Goal: Increase the amount of energy produced from renewable sources

Strategies:

- | Show areas where the wind rose is adequate for wind power.
- | Share model ordinance language with local municipalities to encourage solar access.
- || Develop a portfolio or roof-top solar programs in the area and develop regional coops for group purchasing/leasing.
- Other:
  - | look into thermal as a potential energy source?
  - | integration of water and energy goals

**Top Strategy:**

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Issue:

| **Goal:** Improve understanding  
and education about regional

Strategies: climate patterns

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| understanding how urban heat  
island / the metro  
climate interacts with  
larger regional climate  
patterns

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**Top Strategy:**

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