CAMBRIDGE SYSTEMATICS

Think Forward

MARC Resilience Improvement Plan Steering Committee Meeting #1

presented to

presented by

Cambridge Systematics, Inc.

Introductions

- MARC staff
- Steering Committee members
- Consultant team

MARC Role and Previous Resilience Activities

- MARC is addressing transportation resilience through various efforts
  - Identify 3 key ones
- Moving further into this space, building on past work
- Developing a full resilience analysis and plan is not a federal requirement
  - Not many MPOs have done this yet
  - More competitive for federal funds for projects

MARC – *together with our local partners* – is embarking on a plan to identify and assess our transportation system RISKS and VULNERABILITIES.

Purpose of Today's Workshop

For the project team:

Provide overview of MARC Resilience Improvement Plan (RIP)

Obtain affirmation of project methodology and progress to date

Obtain inputs for resilience definition, project goals, and scope

For workshop participants:

Understand MARC's approach to develop the RIP

Be familiar with concepts of resilience

Validate and provide inputs on what resilience means to you and how would you like it to be incorporated into current practices.

Workshop Agenda

- Project Introduction
- Define Resilience
- Integrate Resilience into Current Processes
- Establishing Resilience Goals and Objectives
- Preliminary Priorities for Resilience Improvement Plan
- Stakeholder Engagement and Communication
- Schedule and Next Steps

Project Introduction

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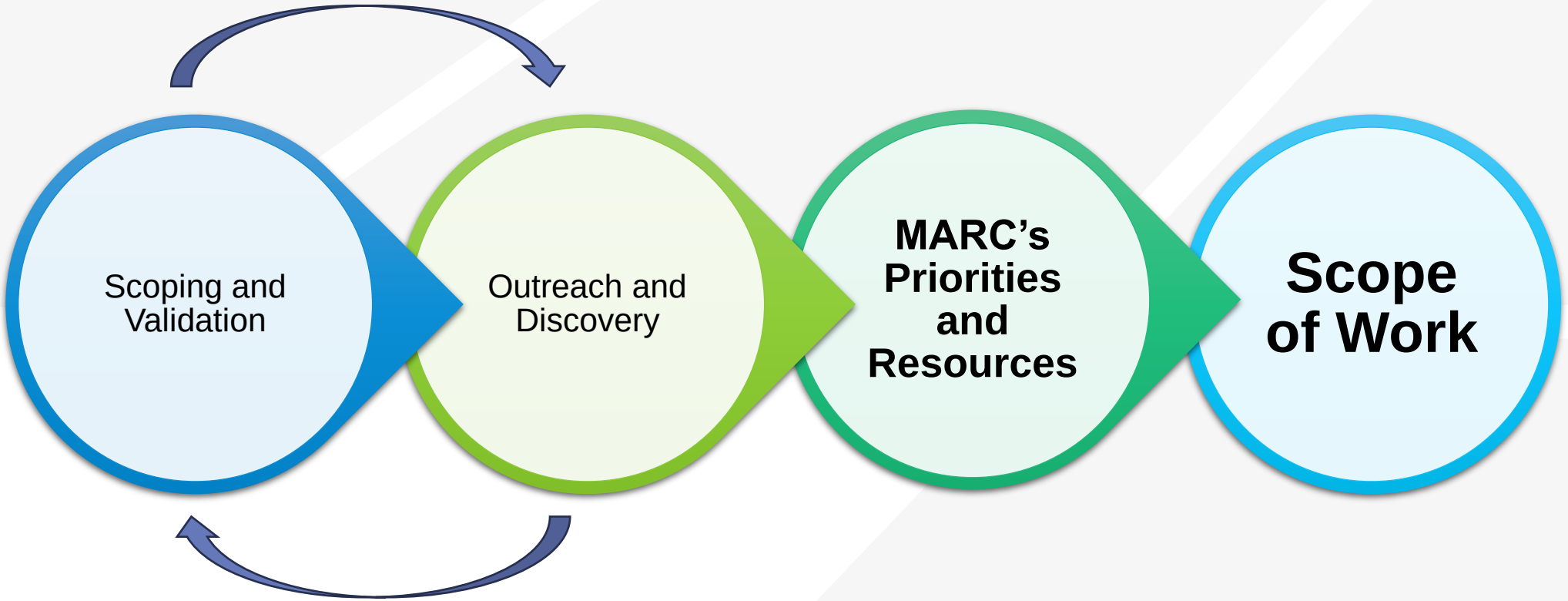
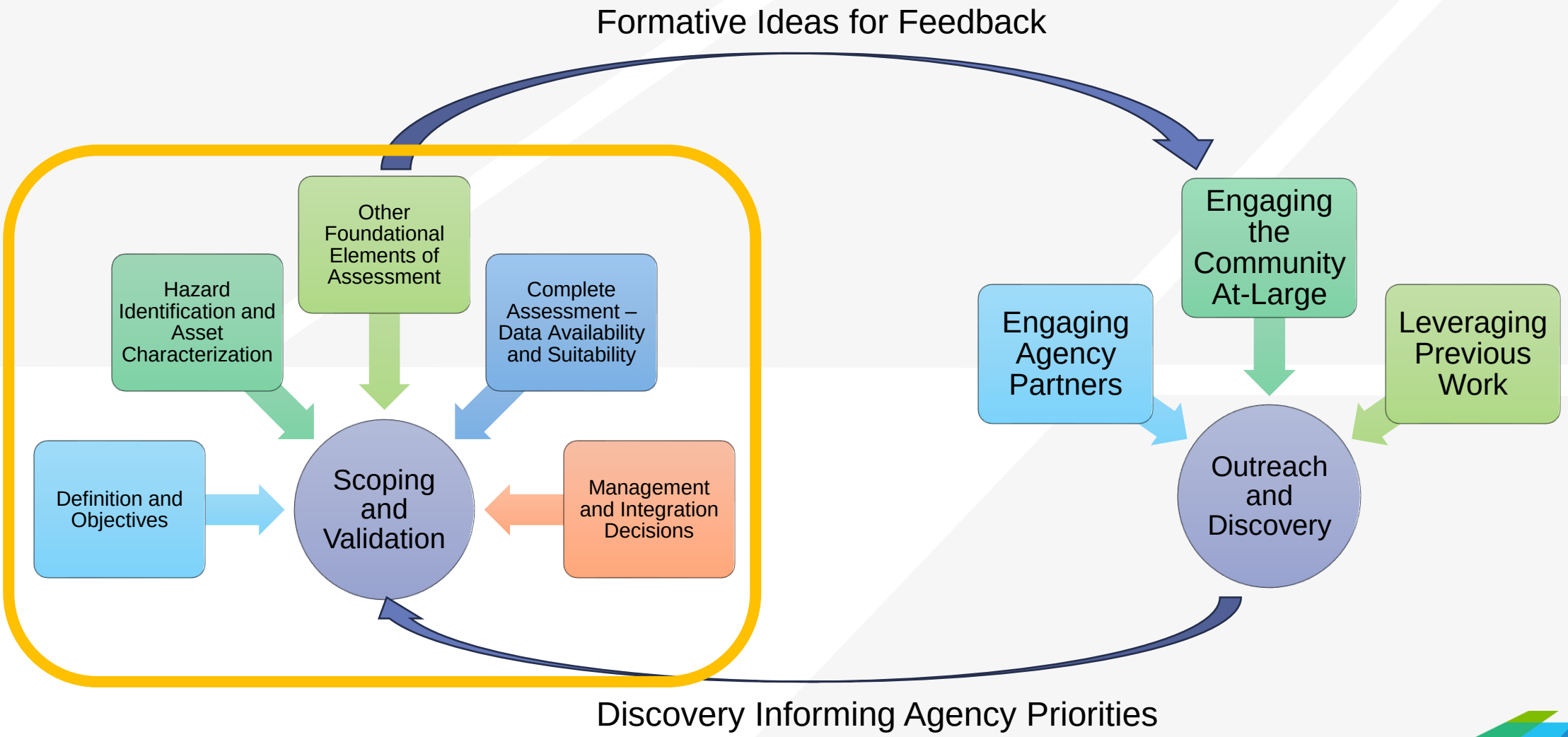
Assessment and Framework Steps



Project Approach



Project Phasing Approach

Discovery

- Leverage previous work
- Establish definitions and objectives
- Identify hazards and asset characterization
- **Engage agency partners**
- **Community survey**

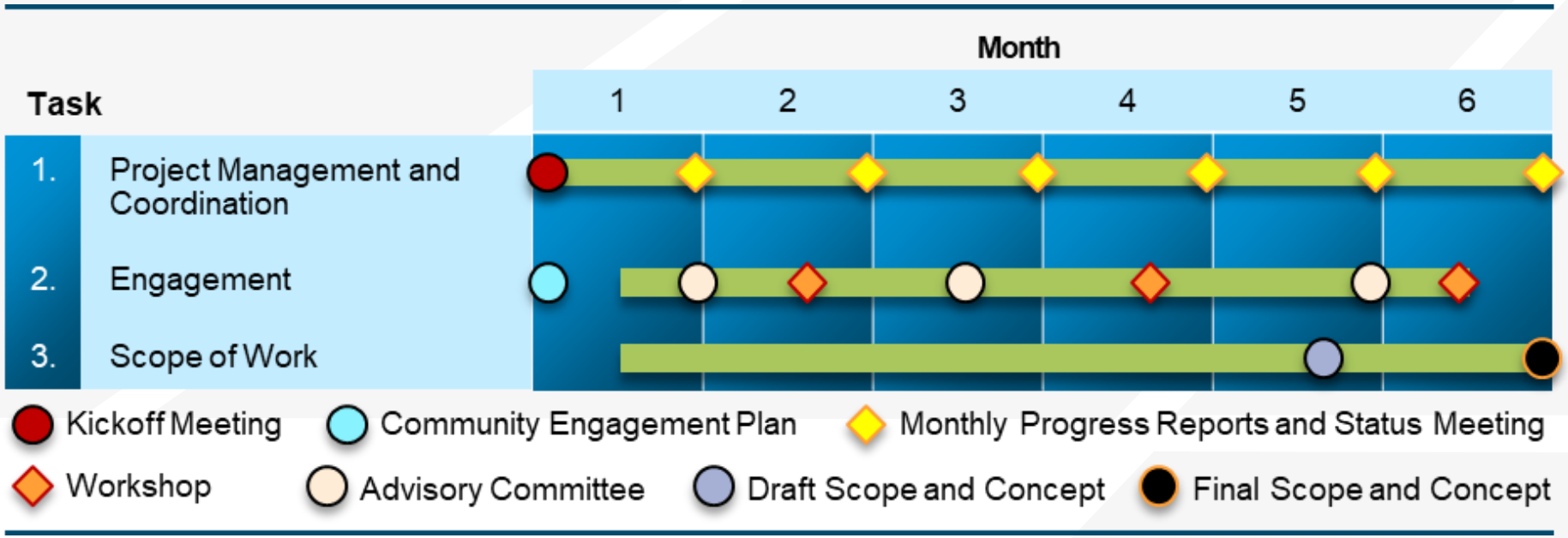
Strategy

- Early assessment – data availability
- Compare against agency priorities
- **Focus groups targeted by geographic vulnerabilities**

Grant Application

- Identify opportunities
- Design schedule, deliverables
- **Submission – partner support**

Proposed Project Timeline



This schedule is flexible. We anticipate discussing the timeline in detail with MARC during the kickoff meeting and will adapt it to meet your needs and existing schedules.

Define Resilience

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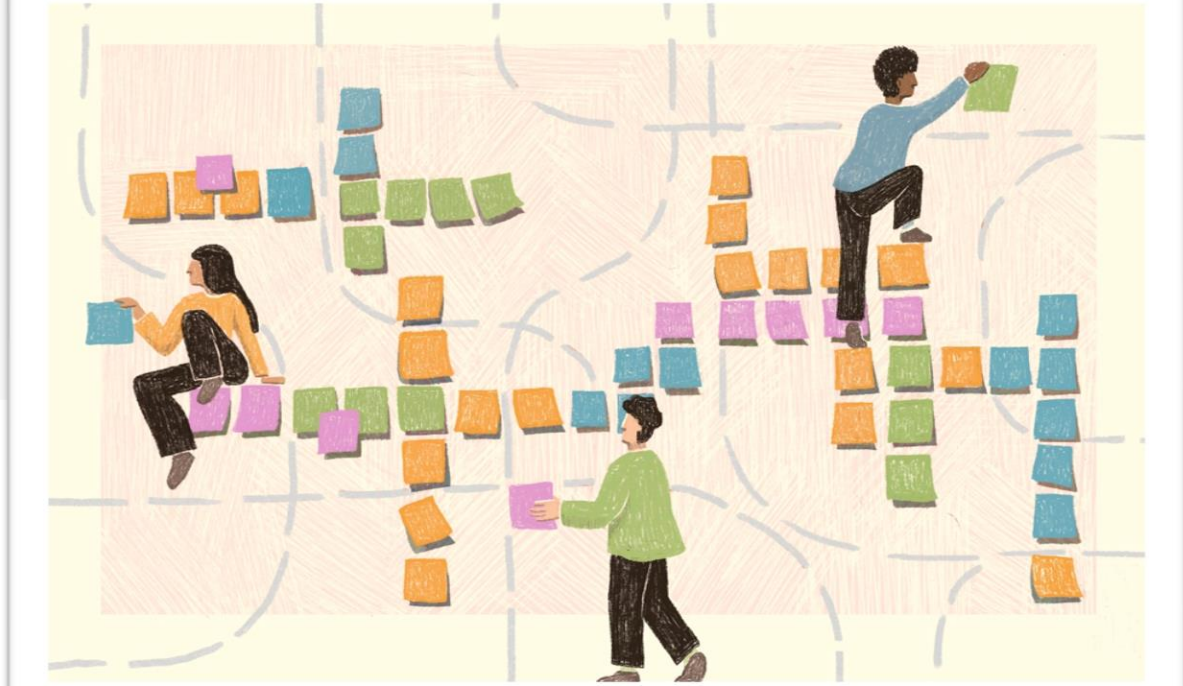
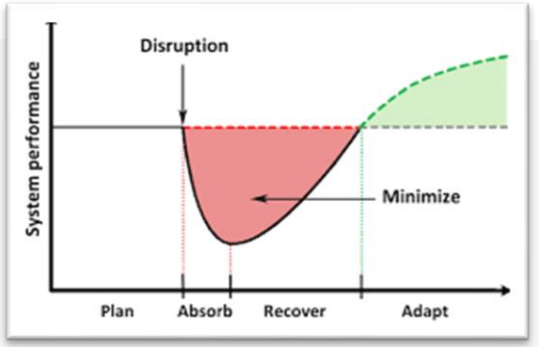
Understanding what Resilience mean to the community can help identify goals for our plan



Resilience Defined by National Sources

- *The ability to **anticipate**, **prepare for**, and **adapt to** changing conditions and **withstand**, **respond to**, and **recover rapidly** from disruptions. (FHWA)*
- *The ability to **prepare and plan for**, **absorb**, **recover from**, or more successfully **adapt to** adverse events. (AASHTO)*
- *The ability to **prepare and plan for**, **absorb**, **recover from**, or more successfully **adapt to** actual or potential adverse events. (TRB, NCHRP)*



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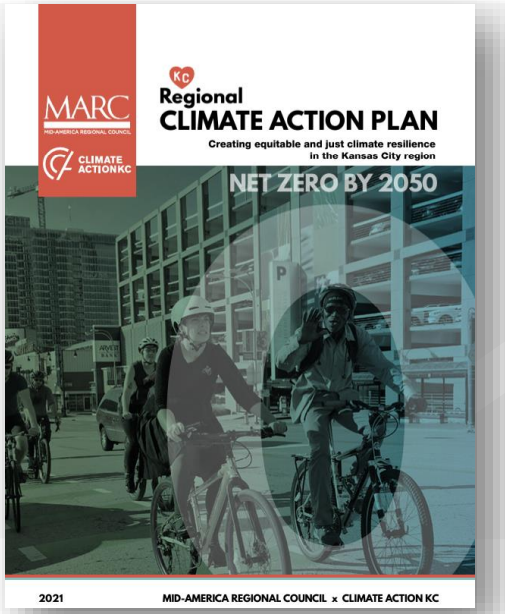
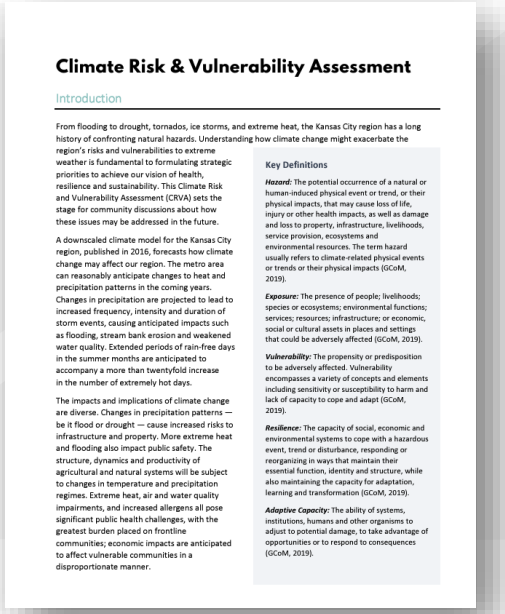
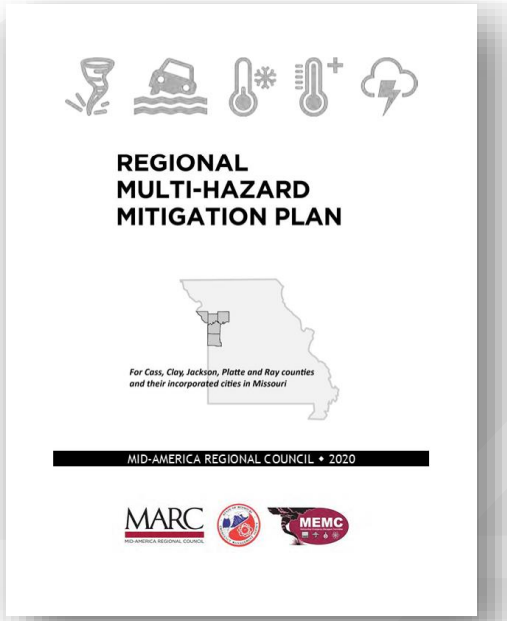
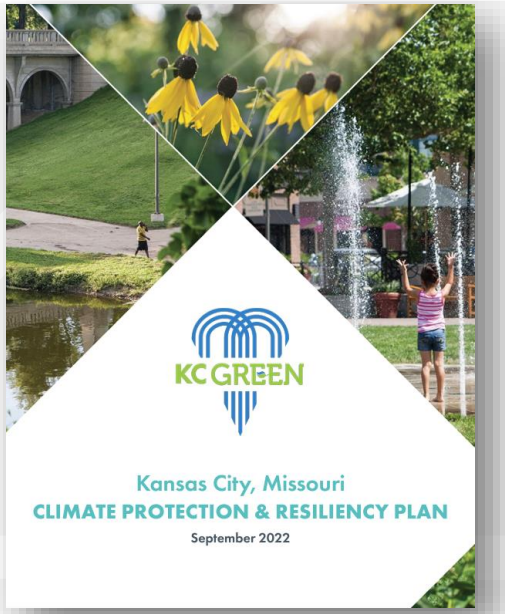
Resilience in Local & Regional Plans









Resilience: *the capacity of social, economic and environmental systems to cope with a hazardous event, trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity and structure, while also maintaining the capacity for adaptation, learning and transformation. (GCoM, 2019)*

Resilience: *The ability and extent to which systems can prepare for and plan for, absorb, respond to, recover from, and adapt to the effects of climate-related shocks and chronic stressors.*

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The transportation infrastructure in Kansas City Region is at risk of various natural hazards…

Major flooding events along roadways

Extreme Heat and droughts

Extreme winter weather such as icy roads and snowfall

Are there specific known vulnerabilities present in your region?

How do these hazards impact the transportation system and travel in your region?

What is transportation resilience for your community?

Strong enough to withstand the impact with minimal damage?

Remain functional to support emergency operation?

Provide access to critical community facilities to support emergency preparation?

Re-open quickly after natural disasters?

Others?

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Integration into planning or agency business processes

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Incorporation into Regional Planning

Project Screening and Prioritization

Scenario Planning and Performance-based Investing

Project Design and Development

Regional Project Prioritization – Resilience (Boston)

			SAFETY SCORING											SYSTEM PRESERVATION SCORING								CAPACITY MANAGEMENT SCORING															ECONOMIC VITALITY SCORING							
Project Name	Estimated Project Cost (2018 Dollars)	Annual Average Daily Traffic	Safety	EPDO	EPDO per 100,000,000 vehicles (Risk)	Cost per EPDO (Cost/Benefit)	Risk Group	Cost/Benefit Group	Project Impact Group	Top 200 Crash Location (Total EPDO)	HSIP Cluster (Total EPDO)	HSIP Bicycle Cluster (Bike-involved EPDO)	HSIP Pedestrian Cluster (Ped-involved EPDO)	System Preservation and Modernization	Cost per Index Point (000s)	Percent Resilience Related	Structurally Deficient Bridges	Weighted IRI	Total Project Roadway-miles	Total Project Lane-miles	Weighted Deficiency Index	Capacity Management and Mobility (Autos)	MPO-identified Express Highway Bottleneck Location	MPO-identified Arterial Bottleneck Location	Capacity Management and Mobility (Buses)	Regional and Local Bus Trips (Daily)	Total Regional Bus Trips (Daily)	Total Local Bus Trips (Daily)	Number of Regional Bus Routes Served	Number of Local Bus Routes Served	Capacity Management and Mobility (Peds/Bikes)	Nonmotorized Total	Pedestrian Improvements	Bicycle Improvements	Improves Transit Access	Economic Vitality	Total points	Mostly Serves Existing Area of Concentrated Development	Partly Serves Existing Area of Concentrated Development	Facilitates New Development	Provides Vehicle Acess to Target Development Area	Provides Transit Acess to Target Development Area	Provides Bicycle Acess to Target Development Area	Provides Pedestrian Acess to Target Development Area
Route 60 Improvements (Medford, Arlington) est	$40,000,000	20,400	high	3360	16637	$11,905	1	1	2		2		5	high	$12	0.3		252	8.2	16.3	3374	medium		moderate	high	508		508		8	high	4	2	1	1	medium	2					1		1
Improvements to Sweetser Circle (Routes 16/99) (Everett) est	$22,000,000	45,000	high	641	1439	$34,321	1	1	2					high	$18	0	1	274	1.7	5.4	1237	medium		moderate	high	497		497		8	medium	1	1			high	7	2		1	1	1	1	1
Widening on Route 1 (Malden, Revere, Saugus)	$172,500,000	115,000	high	2063	1812	$83,616	1	2	1					medium	$34	0.3		191	8.7	34.8	5081	high	severe		high	168	168		4		medium	2	1	1		medium	4	2		1	1			
Southeast Expressway Modification (Southampton) (Boston)	$143,750,000	225,000	high	4662	2093	$30,834	1	1	1				1	medium	$59	0		121	4.5	31.8	2417	high	severe		high	464	250	214	6	4	low					medium	2	2						

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Equity and Resilience

- MARC has done a lot of work on equity. We want to make everyone aware that MARC is being intentional here
- MARC's approach to equity in other work
- Why: Justice 40, focus of PROTECT, MARC equity focus
- Plant ideas
- Provide examples
  - Yingfei has examples/table (insert as separate slide)

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Equitable Resilience

Agency	Equitable Resilience Highlights
Southeast Michigan Council of Governments (SEMCOG)	SEMCOG is conducting a pilot project to integrate equity into their Flood Risk Tool by examining how roadway flooding affects access to hospitals, schools, and grocery stores for historically disadvantaged communities. An expansion of the pilot's results to the broader SEMCOG area, along with the inclusion of a transit analysis, is currently in progress.
Boston MPO (CTPS)	CTPS has made considerable gains in examining extreme weather impacts on socially vulnerable populations, these include the Climate Resilience Program that looks at how extreme weather impacts the transportation/infrastructure systems; it prioritizes disadvantaged communities; the Urban Heat Relief Project that focuses on reducing dangerous heat exposure for people walking or biking in high-risk communities, and the Climate Resilience Guidance for Planners that includes resilient transportation projects designed to address the needs of socially vulnerable areas. Its Strategies for Environmental Outreach and Engagement study seeks to determine the most effective engagement strategies and platforms for environmental and climate action in the region.
Vermont Agency of Transportation (VTrans)	Vtrans has a Transportation Equity Framework and has incorporate equity into a number of resilience initiatives. The VTrans Resilience Improvement Plan uses Social Vulnerability Index when prioritizing resilience needs.
New Orleans Regional Planning Commission (NORPC)	NORPC's Lower St. Bernard Parish, LA Roadway Network & Resilience Study includes a stakeholder and public participation plan that designed for engaging socially vulnerable population. In addition, NORPC considers equity for the project prioritization in its MTP and supports low-income and minority transit users through engagement and O-D mapping.
Mid-America Regional Council (MARC)	MARC has made considerable progress in climate resilience for socially vulnerable populations. They created a social vulnerability assessment through the lends of extreme and urban heat, flooding and tornadoes. In addition, they have done considerable work for engagement on community resilience.
California Department of Transportation (Caltrans)	Caltrans has established a number of climate and community resilience initiatives including the Transportation Equity Index, the Climate Action Plan for Transportation Infrastructure, the SB1 grants provided to local governments and communities to assess risks and increase resilience, and the draft Climate Resilience Improvement Plan. Caltrans' resilience improvement plan includes equity-centered actions across adaptation policy documents, including using the Transportation Equity Index to prioritize resilience investment.
Albemarle County, Virginia	Albemarle County has developed a Framework for an Equitable and Resilient Community for the AC44 Comprehensive Plan update that prioritizes equity and resilience and key principles.

Have you seen any communities that are disproportionally impacted by a natural hazard? (look at Community Resilience questions)

How can our vulnerable community members be supported more proactively?

Establish Resilience Goals and Objectives

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Regional Vision

CONNECTEDKC 2050
REGIONAL TRANSPORTATION PLAN

Greater Kansas City is a region of opportunity.
Its robust economy, healthy environment and social capacity support the creativity, diversity and resilience of its people, places and communities.

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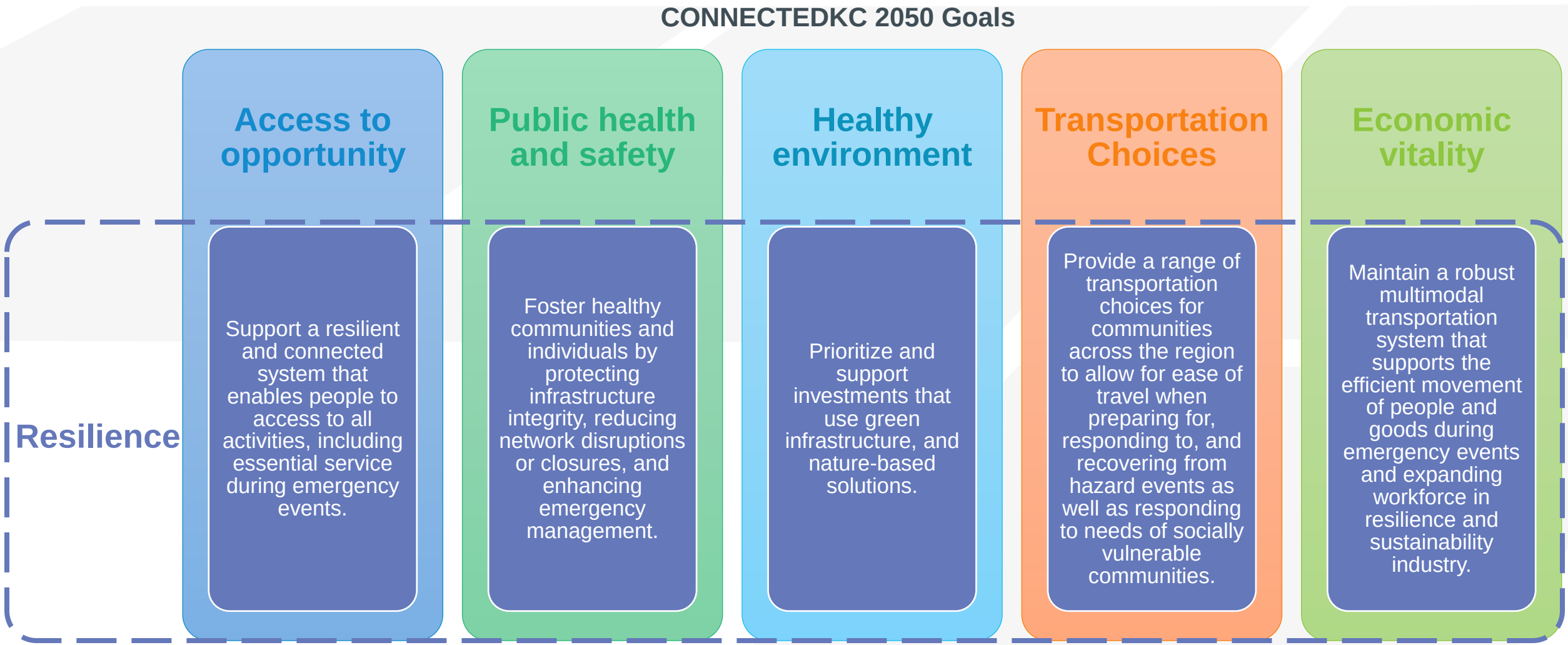
Resilience Supports KC Regional Goals



Example MPO Resilience Goals - (resiliency as a standalone goal) Should come before the dialogue?

Boston MPO *"improve the resiliency of transportation facilities to climate impacts, especially those that serve disadvantaged populations that are more vulnerable to these impacts"*

Rockingham Planning Commission, NH "*The region's transportation system is adaptive and resilient to climate change and natural and other hazards*"

Cheyenne MPO "*Design transportation facilities and networks so they are secure and resilient to impacts from manmade or natural disasters*"

What should the primary focus of MARC's resilience goal be? (i.e. hazards, assets, maintenance, improvements, equity, communications, etc.)

Integration into MARC planning and partner agencies' business processes

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Incorporation into Regional Planning

Project Screening and Prioritization

Scenario Planning and Performance-based Investing

Project Design and Development

Regional Project Prioritization – Resilience

- Add MARC's approach to prioritize projects

Preliminary Priorities for Resilience Improvement Plan

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Sketch Resilience Improvement Plan Scope

Add hazards & risks here from initial findings

- Hazards – priority hazards – what are they?
  - MARC hazard mitigation plan: which of these are important from a transp perspective.
- Assets – show example of how assets are prioritized
- Planning Horizons – Suseel has image for this discussion

Are these the right hazards to prioritize in the Resilience Improvement Plan?

Are these the right assets to analyze in the Resilience Improvement Plan?

What time horizon should be analyzed in the Resilience Improvement Plan?

Stakeholder Engagement and Communication

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Engagement Approach

Steering Committee

- Visioning
- Hazards, Risks and Vulnerabilities
- Data Suitability, Management and Integration Direction

Regional Survey

To be hosted on Informational Webpage:
https://www.marc.org/regional-transportation-resiliency-plan

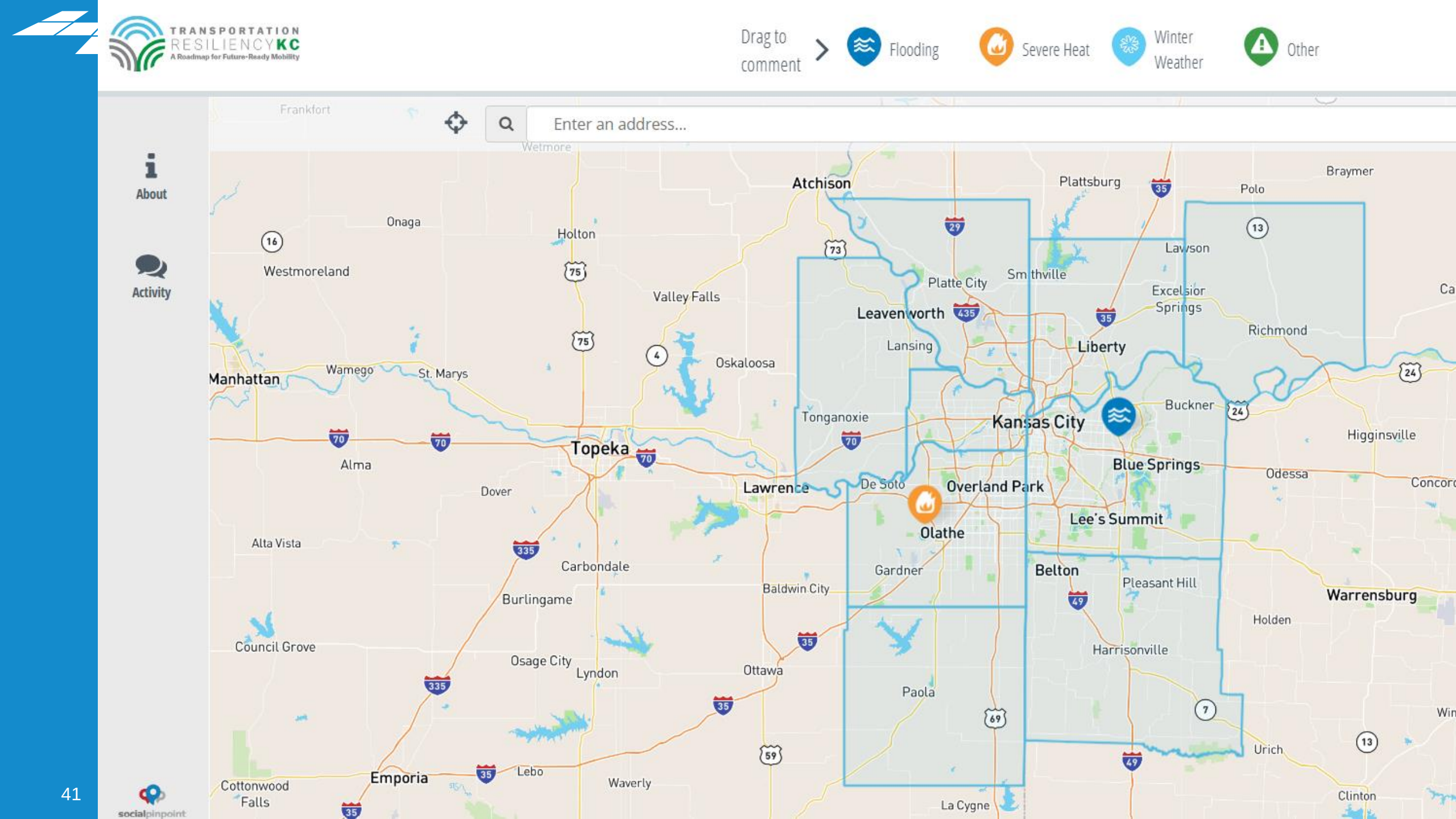
Most affected focus groups

- Identify 3-5 geographic areas of vulnerability
- Host group discussions with Community-based organizations on specific risks faced and relevant resilience strategies and outcomes

Share your thoughts about the resilience of your daily travel.

Community Survey

- Targeting launch early December
- Simple survey and mapping
- Identify impact of disruptions
  - Frequency, cause
- » Perceived preparedness
- » We ask for your partnership in sharing and encouraging participation!


TRANSPORTATION RESILIENCYKC
A Roadmap for Future-Ready Mobility
Drag to comment
Flooding
Severe Heat
Winter Weather
Other
Enter an address...
About
Activity
Atchison
Plattsburg
Braymer
Polo
Onaga
Holton
Westmoreland
Lawson
Platte City
Smithville
Excelsior Springs
Leavenworth
Valley Falls
Richmond
Lansing
Liberty
Manhattan
Wamego
St. Marys
Oskaloosa
Buckner
Tonganoxie
Kansas City
Higginsville
Topeka
Alma
Blue Springs
Odessa
Dover
Lawrence
De Soto
Overland Park
Olathe
Lee's Summit
Alta Vista
Carbondale
Gardner
Belton
Pleasant Hill
Baldwin City
Warrensburg
Burlingame
Holden
Council Grove
Osage City
Lyndon
Ottawa
Harrisonville
Paola
Urich
Emporia
Lebo
Waverly
Cottonwood Falls
La Cygne
Clinton
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Schedule and Next Steps

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How are you addressing resilience in your community?