

## Freight Resiliency

Kansas City Regional Freight  
Study

# CONNECTED FREIGHT KC 2050

*A Plan in Action*



Prepared for:

**Mid-America Regional Council**

In coordination with

**Lawrence-Douglas County  
Metropolitan Planning  
Organization**

And

**Pioneer Trails Regional Planning  
Commission**

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## Acronyms and Abbreviations

DOT	Department of Transportation
GHG	Greenhouse Gas
GMC	Goods Movement Committee
IJA	Infrastructure Investment and Jobs Act
MARC	Mid-America Regional Planning Council
MPO	Metropolitan Planning Organization
TAMP	Transportation Asset Management Plan

# 1. Overview

The Mid-America Regional Council (MARC) launched a Resiliency Transportation Plan, titled Natural Hazards Transportation Risk Assessment. The initial phase of this project involves identifying and understanding stakeholder needs and has not yet established overall resiliency outcomes and initiatives. Consequently, the Connected Freight KC 2050 Plan is not intended to precede the MARC Resiliency Plan in defining roles, responsibilities, and recommendations for improving regional multimodal mobility resiliency. The Connected Freight KC 2050 Plan provides recommendations to integrate freight components into the Natural Hazards Transportation Risk Assessment as it develops. These components include a roadmap to identify freight stakeholders, their roles and responsibilities to ensure freight movement, and necessary elements that can impact efficient freight movement as part of the MARC Natural Hazards Transportation Risk Assessment.

## 2. Mid-America Regional Council Freight Resiliency Definition and Goals

MARC adopted a definition for resilience which includes social, economic, and environmental systems to cope with hazardous events, trends or disturbances, responding or reorganizing in ways that maintain the organization's essential function, identify, and structure, while also maintaining the capacity for adaptation, learning and transformation.

### 2.1. Transportation Resilience Definition

- Systems of communication are coordinated and accessible.
- Critical assets for basic activities and mobility are prioritized in an equitable manner for the most vulnerable areas.
- Emergency preparedness plans are equitably tailored to each community's infrastructure and population while balancing the regional vision of resilience.
- Transportation infrastructure is designed for regional hazards and climate change.

### 2.2. Resilience Goals

- **Access to Opportunity:** Support a connected system that enables access to all activities, allowing people to succeed by removing transportation barriers. Aligning the transportation system to resiliency by maintaining and enhancing transportation connectivity through minimizing impacts from disruptions.

- **Public Health and Safety:** Foster healthy communities and individuals by providing safe and secure places to live, walk, bike, ride the bus, and drive with clean air to breathe. Transportation system alignment to resilience includes focusing on safety and security that has direct co-benefits of enhancing resilience by protecting and saving all segments of the population from extreme weather and climate impacts.
- **Healthy Environment:** Prioritize and support investments that reduce pollution and greenhouse gas emissions (GHG) in addition to preserving and restoring ecosystem health. GHG emissions that drive climate impacts at the local and global level will be considered for mitigation to the extent feasible along with heat island impacts and other key environmental concerns in the MARC Transportation Resiliency Plan.
- **Transportation Choices:** Provide a range of transportation choices for communities across the region to allow for ease of travel as well as public health and environmental benefits. Fostering of mode choice will improve system redundancy and provide options for emergency evacuations and management.
- **Economic Vitality:** Maintain a multimodal transportation system that supports the efficient movement of people and goods and promotes economic development. The supply chain should be considered when moving towards goals defined in the MARC Transportation Resiliency Plan.

## 3. Transportation Resiliency Plan: Natural Hazards Transportation Risk Assessment

### 3.1. Natural Hazards Transportation Risk Assessment Goals

- Secure basic activities and equitable mobility (access to communication, clean water, food, and shelter).
- Create a community resilience communication platform.
- Create a comprehensive risk assessment of extreme weather and climate hazards related to transportation infrastructure. Extreme weather and climate hazards include flooding, extreme heat, severe winter weather, tornadoes, drought, and severe thunderstorms.
- Prioritize maintaining operation of assets related to equitable transportation and overall community resilience during hazardous events (rails, bridges, highways, levees, sidewalks, key transit service, and other critical infrastructure).
- Identify near-term investments for maintenance and design of new capital projects that considers extreme weather and climate hazards.
- Create an adaptation strategy that utilizes recent socioeconomic, climate, asset condition data, and scenario modelling.

- Create an extreme weather and climate action plan, integrated with other MARC resources, which can be utilized by each jurisdiction in the region.

## 3.2. Natural Hazards Transportation Risk Assessment

The MARC Transportation Resiliency Plan started with a survey designed to gather insights into how the transportation system can better prepare for, respond to, and recover from unexpected disruptions, such as extreme weather, natural disasters, and other emergency events. The survey focused on study area citizens and businesses and had two parts.

- Part 1 used multiple-choice questions to obtain information on how the population travels around the region, impacts of disruptions, garnering the current state of resiliency and preparedness, personal experiences and suggestions.
- Part 2 included an interactive mapping exercise that prompted the user to identify where their commute has been impacted by climate-related events.

MARC's goal is to support the region's ability to limit transportation system disruptions and reduce climate hazard impacts on vulnerable populations. Currently, the Natural Hazards Transportation Risk Assessment defined a resilient transportation system as *flexible, equitable, robust, and proactive*.

# 4. Freight Resiliency and Planning Coordination

## 4.1. Overview

The federal Infrastructure Investment and Jobs Act (IIJA) created a requirement for state DOTs to create State Freight Plans. These plans are required to address resiliency of the freight transportation system, including strategies to decrease the severity of extreme weather and natural disaster impacts on freight mobility (49 USC 70202). In addition, state departments of transportation (DOT) are directed to consider current and future environmental conditions in their Transportation Asset Management Plans (TAMP) and integrate these considerations into their transportation planning and programming processes. Because these various plans are foundational to most planning agencies, it is important to consider potential gaps that do not directly address freight planning or goods movement, such as:

- Undefined goals for freight network resiliency outcomes.
- Stakeholder collaboration within and beyond planning jurisdictions.
- Lack of data and information documenting planning and communication breakdowns during disaster responses.

- Operationalizing resiliency concepts, including methods for identifying freight resiliency projects and forecasting the anticipated benefits to the network.

Due to these oversights, there are challenges associated with understanding how freight fits into resiliency planning. Therefore, it is important for planning agencies to determine processes for defining and integrating resiliency as a component of freight and goods movement. Strategies include considering freight early in the planning process to help incorporate relative principles into the resiliency planning framework. For instance, freight considerations can be addressed by conducting community surveys that provide valuable insights into how freight should be considered in resiliency planning.

## 4.2. Coordination

Stakeholder engagement is crucial to resiliency planning. Internal government and external parties must be engaged. Internal stakeholders include state, local, metropolitan planning organization (MPO) staff, and committees responsible for MARC Natural Hazards Transportation Risk Assessment creation and implementation. External stakeholders comprise the Goods Movement Committee (GMC), which provides insights into extreme weather impacts on infrastructure and supply chain operations. The Natural Hazards Transportation Risk Assessment should outline extreme weather responses, capital planning processes for freight projects, and a responsibilities matrix for delivery of infrastructure projects. Interactions with the GMC will offer valuable feedback on extreme weather scenarios, recovery methods, and historical impacts on infrastructure. Stakeholder meetings, including interactions with the GMC and regional freight stakeholders should be considered in association with the following Natural Hazards Transportation Risk Assessment key milestones:

- Project Understanding and Survey Results
- Review of Risk Assessment Methodology
- Refinement of Risk Assessment Methods
- Review of Strategies
- Risk Assessment Results
- Review of Final Plan

## 5. Freight Resiliency Recommendations for Resiliency Improvement Plan

An integral part of the MARC Resiliency Improvement Plan involves a comprehensive collection of recommendations and suggestions aimed at fortifying the region's infrastructure and supply

chain against extreme weather conditions. These strategies emphasize the importance of collaboration between public and private entities, the use of up-to-date resources, and a thorough understanding of roles and responsibilities. Addressing both short-term and long-term resiliency challenges will help improve the overall resilience of study area infrastructure and the supply chain.

## 5.1. Recommendations

- **Stakeholders:** Organize a complete collection of interested freight parties representing the private and public sectors, project-term and long-term durations related to resiliency of the infrastructure and supply chain owners, economic development groups, and all levels of government.
- **Tools/Models/Databases:** Understanding and use of the latest Resiliency Improvement Plan project related tools, models, and databases used nationwide ([Integrating Natural Hazard Resilience into the Transportation Planning Process](#) handbook)
- **Responsibility Matrix:** Create and get buy-in on a resiliency responsibility matrix covering infrastructure and supply chain considerations. This matrix will need to illustrate the study area's regional stakeholders, and their role related to ensuring transportation system resiliency. Understanding of agency-specific roles will assist the public to better understand resiliency in the region and responsible parties.
- **Freight Topic:** Include freight in development of the MARC Resiliency Improvement Plan. Freight plays a major role in MARC's economy and workforce, thus understanding resiliency challenges and impact on the freight supply chain is important.
- **Resiliency Coverage:** The MARC Resiliency Improvement Plan project will focus on resiliency challenges associated with system infrastructure owned and operated by state and local governments. Awareness of supply chain resiliency considerations and direct project involvement by supply chain owners (private sector) in the MARC Resiliency Improvement Plan project will benefit both private and public stakeholders by identifying and addressing common challenges, ownership responsibilities and roles, practical short-term and long-term solutions.