



## MEMORANDUM

**To:** Climate Committee  
**From:** CMAP Staff  
**Date:** Thursday, April 11, 2024  
**Subject:** Transportation Resilience Improvement Plan  
**Purpose:** Update Climate Committee on the Transportation Resilience Improvement Plan (TRIP)  
**Action Requested:** For information

---

---

The Transportation Resilience Improvement Plan (TRIP) is a multi-year project to identify and prioritize major vulnerable transportation assets, identify and prioritize investments to build resilience and reduce climate risks, inform transportation planning and decision-making, and propose equitable and inclusive resilience investments.

### **Project overview**

CMAP is working with a consultant team led by ICF. The planning process to develop the TRIP is divided into two phases:

- Phase 1: Risk-based assessment to identify system- and asset-level climate vulnerabilities (February 2023 – July 2024)
- Phase 2: Plan development to develop a list of priority resilience investments and recommendations to improve resilience practices (July 2024 – December 2025)

Throughout the planning process, the project team is engaging stakeholders through a project steering committee, stakeholder workshops, interviews, and collaboration with the Community Alliance for Regional Equity (CARE).

### **Progress and near-term deliverables**

The project team has significantly advanced the Phase 1 risk-based assessment, including the system-level analysis and development of methodology to run the asset-level analysis.

### ***System-level analysis***

The purpose of the system-level analysis is to evaluate the potential climate sensitivities of each of the major asset categories represented in the region's transportation system. The results of this analysis inform the selection of a subset of specific assets and hazards to assess in the asset-level analysis.

To conduct the system-level analysis, ICF rated the sensitivity of each of the transportation asset categories to five climate hazards on a low, medium, and high scale across two dimensions: the sensitivity of the physical infrastructure, and the sensitivity of service operations and user experience.

These results were vetted with stakeholders during a workshop on August 30, 2023, and refined based on feedback received.

**Table 1. Summary system-level analysis results for northeastern Illinois**

	Extreme Heat		Extreme Cold		Flooding (urban, riverine, coastal)		Freeze/thaw cycling		Severe storms (rain, snow, ice, wind)	
	I	S	I	S	I	S	I	S	I	S
Roadways	M	L	L	L	H	H	M	L	M	M
Bridges and culverts	M	L	L	L	H	H	M	L	L	M
Roadway facilities <sup>1</sup>	L	M	L	M	L	L	N/A	N/A	L	M
CTA & Metra rail lines and stations	H	M	H	M	H	H	M	L	M	H
CTA & Metra rail facilities <sup>2</sup>	M	M	L	M	M	M	N/A	N/A	M	M
CTA & Pace bus service and stops <sup>3</sup>	M	H	L	M	L	H	N/A	L	L	H
CTA & Pace bus facilities <sup>4</sup>	L	M	L	M	L	L	N/A	N/A	M	M
Electrical services and backup power	H	H	M	M	L	L	N/A	N/A	M	M
Bicycle and pedestrian facilities	M	H	L	M	H	H	L	L	M	H

**I** = Physical infrastructure sensitivity rating

**S** = Service operations and user experience sensitivity rating

**N/A** = Asset category/operation is unaffected by the hazard

<sup>1</sup> Roadway facilities include any buildings, vehicles, and equipment that are used to maintain and repair roadways. Service impacts to roadway facilities include impacts to roadway facility workers.

<sup>2</sup> CTA and Metra rail facilities include any buildings, vehicles, and equipment that are used to maintain the CTA and Metra rail trains, lines, and stations. This includes switch yards. Service impacts for this category include impacts to rail facility workers.

<sup>3</sup> CTA and Pace bus service and stops include the Pace ADA paratransit service. Impacts to bus routes that are a result of damage or disruption to the road are considered under the roadways category. Service impacts to CTA bus service and stops include impacts to workers/operators as well as passengers.

<sup>4</sup> CTA and Pace bus facilities include any buildings, vehicles, and equipment that are used to maintain the CTA and Pace buses, routes, and stops. Service impacts to this category include impacts to bus facility workers.

## ***Asset-level analysis***

Based on the findings of the system-level analysis, the following asset category and hazard pairs were selected to be evaluated in the asset-level analysis:

- Extreme heat and CTA/Metra rail lines and stations
- Extreme heat impacts on vulnerable transit riders
- Extreme cold and CTA/Metra rail lines and stations
- Flooding and roadways, bridges, culverts, CTA/Metra rail lines and stations, and bicycle and pedestrian facilities

The asset-level analysis is a geospatial analysis that scores each asset against a set of exposure, social vulnerability, and criticality indicators. The scores will offer insights on the most appropriate locations to target for resilience investments based on both the risk of the asset and/or system to climate change and the importance of the asset and/or service to the traveling public and vulnerable communities.

During this reporting period, the project team has collected data and developed the methodology for the asset-level analysis, with feedback from the steering committee and CARE. The team analyzed climate hazards using observed climate data and future projections from an ensemble of climate models. This analysis will help CMAP and regional partners understand how climate hazards have and will continue to change in northeastern Illinois and incorporate those changes into the asset-level analysis. In addition, the team developed a flood inundation layer to incorporate into the asset-level analysis. The new flood data provides a planning-level understanding of future flood depths for the year 2050.

## ***Next steps***

The project team will refine the methodology for the asset-level analysis and vet results with stakeholders at a workshop later this spring. CMAP anticipates publishing the risk scores and documentation in summer 2024. In the short term, CMAP will incorporate the risk scores into the scoring methodology for the Surface Transportation Program (STP) Shared Fund and Regionally Significant Projects (RSPs).