Agenda Item No. 3.02

Chicago Metropolitan Agency for Planning

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MEMORANDUM

To: Climate Committee
From: CMAP Staff
Date: Monday, January 10, 2025
Subject: Transportation Resilience Improvement Plan
Purpose: Update on the Transportation Resilience Improvement Plan
Action Requested: For information

CMAP seeks to update the Climate Committee on the development of the Transportation Resilience Improvement Plan (TRIP) for northeastern Illinois. CMAP will share the results and methods used to conduct the first climate vulnerability assessment for the region's transportation system, with a focus on the asset-level and transit rider vulnerability analyses.

Project overview

Northeastern Illinois is feeling the effects of climate change. More intense storms are worsening flooding, making roads impassable, causing transit service delays, and damaging critical infrastructure. Temperatures are on the rise, resulting in more frequent and intense heatwaves that can harm people as they travel and disrupt transit operations. These impacts are projected to become more frequent and intense across the region.

As the federally designated metropolitan planning organization for northeastern Illinois, CMAP seeks to improve the region's transportation network's resilience to extreme weather and climate change. CMAP is developing a Transportation Resilience Improvement Plan (TRIP) that will identify transportation assets vulnerable to climate change and prioritize them for investment.

The TRIP will inform transportation planning and decision making at CMAP and throughout the region. It also will meet the Federal Highway Administration's Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation (PROTECT) program requirements for a resilience improvement plan. The TRIP positions northeastern Illinois to compete for PROTECT funds as well as other resilience funds.

Risk-based vulnerability assessment

The first phase of developing the TRIP is to assess the climate risks of the transportation system by:

- Evaluating recent trends and latest projections to understand future climate change
- Identifying which components of the transportation system are most likely to be impacted by climate-related events
- Determining clusters of transportation assets and climate risk across the region
- Assessing where extreme heat poses the most risk to riders

Key findings

The risk-based vulnerability assessment found that flooding poses the biggest threat, impacting all transportation infrastructure, service operations, and users.

- Of the road miles studied, 34 percent have high or very high risk, meaning they could experience up to two or more feet of flooding during a 500-year flood event by mid-century.
- Bus stops are also vulnerable, with 64 percent of CTA bus stops and 47 percent of Pace bus stops exposed to flooding.
- When looking at the region's commuter rail, 36 percent of CTA stations and 31 percent of Metra stations are at risk of flooding.
- Regional trails are particularly vulnerable to flooding, since many of them follow waterways.

Extreme heat and severe storms impact service operations and active transportation users. These hazards also threaten rail infrastructure, electrical service, and backup power.

Not all transit riders are equally affected by heat.

- Heat vulnerability is influenced by extreme temperatures, social and health vulnerabilities, and other transit stop conditions.
- When accounting for these risk factors, more than half of bus stops and rail stations have high or very high transit rider vulnerability. Urban areas of the region demonstrate higher vulnerability than non-urban areas, with higher concentrations in Chicago's south and west sides.

What's next

Having performed a vulnerability assessment, the project's next phase is the development of the regional Transportation Resilience Improvement Plan. The vulnerability assessment will support regional transportation resilience planning by informing the identification and prioritization of resilience projects that will, in turn, be eligible for increased federal resilience funding. CMAP and regional partners can also use the assessment results to inform more immediate transportation planning and programming activities that increase climate resilience throughout northeastern Illinois. The assessment data is available on CMAP's Data Hub and as a map to help identify projects, inform project selection, and incorporate into local planning activities.