Executive summary

What is TRIP?

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 also on the rise, resulting in more frequent and intense heat waves that can disrupt transit and harm both travelers and transportation workers. In the future, these impacts are projected to become more frequent and intense across the region.

As the federally designated metropolitan planning organization for northeastern Illinois, the Chicago Metropolitan Agency for Planning (CMAP) seeks to improve the transportation network's resilience to extreme weather and climate change. To do this, CMAP developed this Transportation Resilience Improvement Plan (TRIP) to identify vulnerabilities in the regional transportation system and highlight how to make the system more resilient to extreme weather and climate change.

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

How is northeastern Illinois' transportation system vulnerable?

Flooding is one of the biggest climate-related risks to the transportation system. Flooding impacts all forms of transportation and can cause damage to physical assets, disrupt operations, and threaten the safety of users. About a third of the region's highway miles and roughly half of its bus and train stops are at high or very high risk from flooding.

Extreme heat can damage infrastructure (such as cracked pavement or rail buckling), and impact electrical services and backup power. Heat also poses particular risk to people, including both transportation users and outdoor workers who keep the system running. Those who are dependent on transit face particular risks from extreme heat, as they lack transportation alternatives and often walk to and wait outside for transit.

Severe storms and extreme cold also bring notable risks to the transportation system, although not quite to the same extent of flooding and extreme heat. While more moderate in nature, the risks posed by increased frequency of freeze-thaw cycling must also be recognized.

How can the system become more resilient?

Investments can be made throughout the region's transportation system to make it more resilient. To this end, TRIP highlights 60 unique resilience projects identified by partner agencies and evaluated by CMAP to prioritize for investment to increase system resilience. With their inclusion in a federally approved resilience improvement plan, these projects become more competitive for PROTECT grants and eligible for a reduced cost-share. CMAP further refined the project list to identify the 20 highest priority projects to help CMAP and the region focus their support for potential project funding and coordination.

TRIP identifies and describes 21 project resilience strategies. These strategies are an assortment of structural, nature-based, and hybrid strategies that can increase flood or heat resilience.

Finally, TRIP highlights 32 organizational resilience strategies that partner agencies and stakeholders can adopt to embed resilience into common decision-making practices with the goal of lowering barriers to resilience.

Photo from a flood event in May 2020. Source: CMAP