

Introduction

Resiliency is a fundamental pillar of the JUMPO 2050 MTP. To create a robust and adaptive plan, the region must be prepared to face the challenges of extreme weather events, natural disasters, and other threats to security. By fostering collaboration with local partners, leveraging innovative solutions and data, and prioritizing sustainable practices, the MPO can build a transportation network that not only endures impacts but also provides reliability for all users. The following section outlines the strategies to enhance system resiliency as well as safety and security through proactive measures.

Resiliency

Resiliency is particularly important in a coastal region. Understanding the unique vulnerabilities of the region's infrastructure is the first step toward creating a more adaptive network. To better acknowledge the region's vulnerability, the MPO has taken proactive steps to quantify how to measure resiliency. The following sections highlight the MPO's continuous efforts toward monitoring and addressing resiliency related to infrastructure and priorities.

Transportation Resiliency Action Committee

The Transportation Resiliency Action Committee (TRAC) was created in 2019 with the goal of strengthening mobility and improving community resiliency.⁹ The group comprises representatives from MCB Camp Lejeune, Albert J. Ellis Airport, Onslow County Emergency Service, FHWA, NCDOT, Eastern Carolina RPO, JUMPO, and various departments from the City of Jacksonville (Fire, Public Service, and Planning). Together, the group established the following objectives:

- Reduce the frequency and duration of regional isolation.
- Reduce the frequency and duration of local isolation from strategic points of interest.
- Identify and implement operation systems that improve mobility.

The goal of the TRAC is to use publicly available data to create an easily replicable framework. The TRAC was tasked to systematically determine which transportation improvements—if implemented—would substantially reduce the frequency and duration of isolation in the transportation network. The three considerations the group analyzed included:

- **Frequency** | How often does a stream overtop the road?
- **Criticality** | How critical is a crossing to the transportation network?
- **Duration** | When a crossing does occur, how long does the road remain impassible?

Analysis Framework

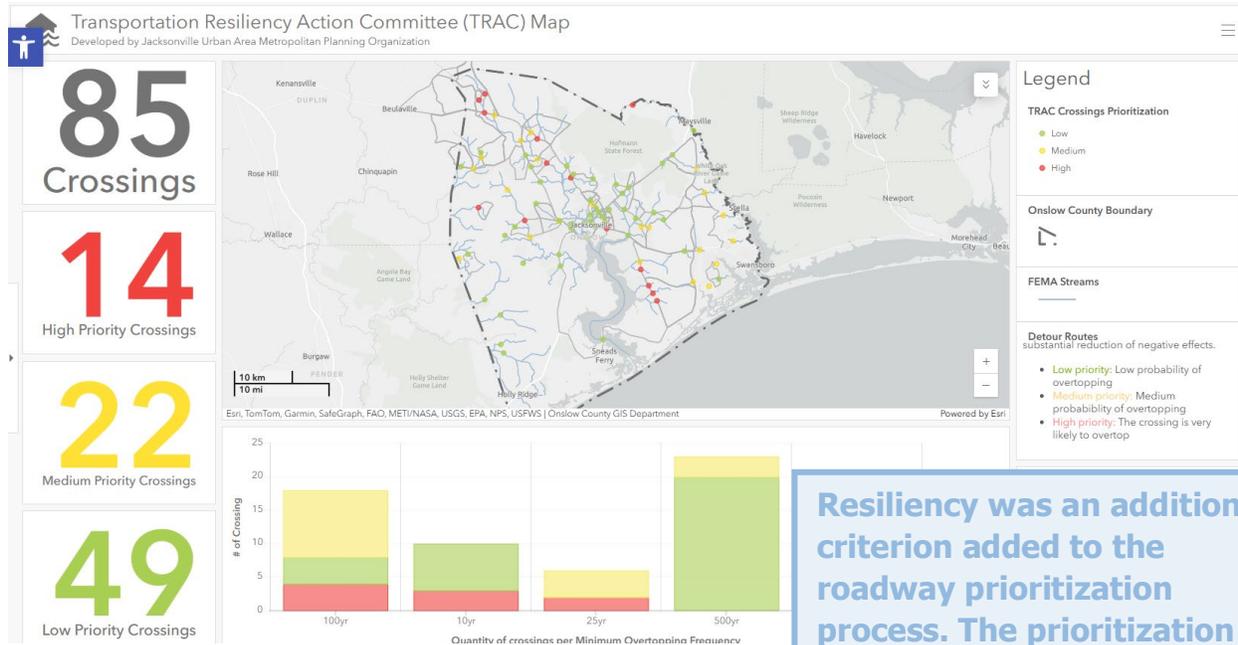
The TRAC focused the study on NCDOT-owned and -maintained roads. The roads were subdivided by classification: regional corridors or arterials, major collector roads, and minor collector roads. The TRAC used Federal Emergency Management Agency (FEMA) data to identify streams intersecting the NCDOT roads. This resulted in identifying 158 crossings in Onslow County. The TRAC decided to strategically focus on 85 priority drainage crossings.

⁹ <https://jumpo-nc.org/resiliency/>

Prioritization

The analysis resulted in a list of crossing priorities. Initially, the TRAC identified 14 high-priority crossings, 22 medium-priority crossings, and 49 low-priority crossings. The intent of prioritizing the list allowed a focused approach to discuss possible improvements at these crossings with NCDOT through STIP or maintenance projects. The MPO compiled a virtual dashboard for the public to review (see Figure 45). The dashboard is linked below:

FIGURE 45: TRANSPORTATION RESILIENCY ACTION COMMITTEE MAP



Resiliency was an additional criterion added to the roadway prioritization process. The prioritization process is further detailed in Chapter 3.

Relevant Recommendations

The following JUMPO 2050 MTP recommendations overlap with the priority intersections identified by the Transportation Resiliency Action Committee:

TABLE 25: 2050 MTP PROJECTS OVERLAPPING WITH PRIORITY INTERSECTIONS

| ID | Name | From | To | Type |
|--------------|----------------------------|-------------------------------------|----------------------------|-----------------------|
| AM-01 | US 17 (Wilmington Hwy) | Onslow Pines Rd | High Hill Rd | Access Management |
| AM-02 | US 17 BUS (Marine Blvd) | US 258/NC 24 BUS (Richlands Hwy) | US 17 (Marine Blvd) | Access Management |
| AM-03 | NC 24 (Lejeune Blvd) | NC 24 BUS (Johnson Blvd) | NC 172 | Access Management |
| AM-05 | Gum Branch Rd/Bell Fork Rd | Western Blvd | NC 24 (Lejeune Blvd) | Access Management |
| AM-08 | Gum Branch Rd | Williamsburg Pkwy | Indian Dr | Access Management |
| AM-13 | NC 24 | NC 172 | Belgrade-Swansboro Rd | Access Management |
| IS-01 | NC 24 | Onslow County Boundary | NC 24 (Lejeune Blvd) | Upgrade to Interstate |
| R-01 | NC 111(Catherine Lake Rd) | Haw Branch Rd | Albert J. Ellis Airport Rd | Realignment |
| W-02 | NC 53 (Burgaw Hwy) | US 258/NC 24 (Richlands Hwy) | Holly Shelter Rd | Widening |
| W-03 | Gum Branch Rd | Ramsey Rd | Rhodestown Rd | Widening |
| W-05 | NC 53 (Burgaw Hwy) | Holly Shelter Rd | Onslow County Boundary | Widening |
| W-14 | US 17 (South Marine Blvd) | Richlands Hwy | Chaney Ave | Widening |
| W-17 | US 17 (Wilmington Hwy) | US 17 BUS (Marine Blvd) | US 17 (Marine Blvd) | Widening |

Safety and Security

Safety and security are important components of any long-range transportation plan and prominent goals of the JUMPO 2050 MTP. The following section outlines the considerations that should be assessed during project planning, design and environmental review, and construction phases. The transportation network needs to anticipate risk and proactively prepare the region to create a safer, more resilient transportation system.

In this context, “**safety**” refers to protecting an individual traveler. This could include motorists, bicyclists, pedestrians, or transit users. Including multimodal recommendations that address safety is a priority for the region. Similarly, “**security**” refers to the integrity of the transportation network. The inclusion of security manifests in the JUMPO 2050 MTP as considering threats and minimizing unforeseen failures in the transportation system throughout the region. Transportation security can include the consideration of both emergency services and evacuation routes.

Planning Considerations

The following planning considerations outline the guidelines that elevate safety as a core component of the MTP. These considerations include engineering, education, enforcement, and emergency services.

Engineering

The JUMPO 2050 MTP provides a multimodal approach to improving safety through planning and engineering. The corridor and intersection recommendations were strategically crafted to improve traffic flow while addressing safety for all users. The general engineering strategies to maximize safety include:

- Incorporating complete street elements and design guidelines
- Implementing corridor-based access management strategies
- Identifying high-priority intersections for safety treatments
- Continuing to construct a network of connected bicycle and trail facilities
- Designing streets to maximize pedestrian safety
- Configuring streets to better accommodate truck freight
- Maintaining standards for bridges and railroad crossings

Education

Education activities that focus on certain age groups can encourage the safe interaction between all mode users. Programs can be tailored to promote safety at various education levels including school curricula, community activities, local partnerships, task force groups, or local government-sponsored events.

JUMPO’s pedestrian safety campaigns such as Alert Eyes, Save Lives, local radio spots and social media blasts running throughout October, pedestrian safety month, and ads in the city’s utility bill insert, have aided in reminding both motorists and pedestrians to follow the rules of the road and to be proactive in their travel. The MPO should continue to explore opportunities to partner in education and enforcement campaigns to promote lifelong safety habits.

Safe Routes to School (SRTS) is an example of a successful education campaign. The SRTS program identifies tools and training, conducts safety research, and supports locally initiated strategies to get children to and from school safely by biking or walking.



Enforcement

Education and enforcement opportunities are often coordinated. Activities to monitor the behavior of all roadway users may include coordination with law enforcement, creating a dedicated safety task force, or collaborating with partner organizations to promote safety. At the state level, enforcement initiatives, and grant opportunities include Booze It & Lose It, Click It or Ticket, BikeSafe North Carolina, 5 to Drive, and Speed a Little, Lose a Lot. The Governor’s Highway Safety Program aims to promote efforts to reduce fatalities and crashes in North Carolina. The grant opportunities address issues related to impaired driving, pedestrian safety, bicycle safety, speeding, and distracted driving. These programs support North Carolina’s Vision Zero initiative.

Emergency Services

Prompt emergency response is crucial to reducing the severity of injuries and minimizing disruptions to travel flow. A key consideration of the JUMPO 2050 MTP is to improve emergency response times by creating an interconnected and redundant network to provide route choice and alleviate congestion. Other considerations that the MPO should coordinate with member jurisdictions include improvements to signal timing, ITS, and other technology-based treatments to improve safety.



Transportation Security

Transportation security planning identifies strategies to mitigate imminent and unforeseen threats. While general transportation security strategies can be planned at the regional level, implementation will be most effective at the local scale. In the Jacksonville region, critical considerations include coastal evacuation routes, protection and maintenance of critical infrastructure, and protection and safeguarding of freight corridors.

The JUMPO 2050 MTP outlines the important aspects of the regional approach to providing security related to the movement of people and goods. Security measures typically fall into four overarching categories:



Prevention

Prevention limits access to support the safety and security of the transportation system. By limiting access, situations can be contained to avoid further disrupting the entire system.



Protection

Protection focuses on vulnerable aspects of the transportation system, including bridges, rail, and other critical corridors. Protection and prevention efforts are often closely coordinated.



Recovery

Recovery refers to the initial response during an event and the long-term activities supporting the return to normal operation. Recovery involves proactively identifying actions and pre-coordination to achieve minimal disruption during an event.



Redundancy

Redundancy identifies alternative routes on the transportation system and promotes an interconnected transportation network. Creating redundancy in a network also applies to active modes of transportation, including bicycles, pedestrians, transit, and rail corridors.

Evacuation Route Improvements

Evacuation routes are designated collaboratively between local officials, county officials, and the North Carolina Emergency Management Department. The North Carolina Department of Public Safety (NCDPS) developed a color-coded map, Know Your Zone, to showcase the evacuation system for areas most at risk of hurricanes.¹⁰ Chapter 2 outlines the designated evacuation routes in the region including:

- US 17
- US 258
- NC 34
- NC 50
- NC 53
- NC 111
- NC 172
- NC 210
- Belgrade/Swansboro Rd

The 2050 MTP corridor and intersection recommendations include safety and operational improvements to promote redundancy in the system.

Emergency Response and Fire Protection

In the study area, emergency management is the responsibility of Jacksonville Fire & Emergency Services (JFES) and the Onslow County Department of Emergency Services.

Jacksonville Fire & Emergency Services is an all hazard, emergency response department and has four fire stations that responds to 5,000 emergency calls for service annually. Through prevention, readiness, and response, JFES protects the community from threats and hazards. Jacksonville Fire & Emergency Services includes five specialty teams:



- Hazardous Materials (HazMAT) Response
- Technical Rescue
- Tactical Medical Response
- Fire Investigation Unit
- Unmanned Aircraft Systems (UAS)

The Emergency Services Department of Onslow County coordinates with four volunteer rescue squads and 19 volunteer fire departments. The services provided by the Emergency Services Department include:

- **E-911 Communication Center** | Onslow County’s Public Safety Answering Point that receives prioritizes, and dispatches accordingly.
- **Emergency Management Office** | The office offers comprehensive emergency planning and coordination between emergency communications; local, state, and federal emergency response agencies; and municipal and private sector agencies.
- **Emergency Medical Services** | Onslow County’s EMS is the county's primary provider of emergency medical services.
- **Fire Rescue Services** | The Fire Rescue Division consists of Emergency Responders, a Fire Marshal, and a Fire Rescue Division Chief.



The departments work together to create unified emergency services during major incidents, weather emergencies, and/or other unforeseen threats.

¹⁰ <https://www.ncdps.gov/our-organization/emergency-management/emergency-preparedness/know-your-zone>

The region should collaborate on an emergency and security management plan in coordination with Jacksonville Transit, OUTS, MCB Camp Lejeune, Onslow County’s Sheriff’s Office, and other local agencies. The plan would include identifying threats and vulnerabilities, inventorying mitigation strategies, preparing a communication plan, and creating response actions based on responsibilities.

Recommendations

The safety and security of the transportation system were key considerations during the development and financial constraints of corridor and intersection projects. The following projects were identified to address safety and security concerns:

TABLE 26: MTP PROJECTS ADDRESSING SAFETY AND SECURITY CONCERNS

| ID | Name | From | To | Type |
|--------------|-------------------------------|-------------------------------------|--------------------------------|-----------------------|
| AM-01 | US 17 (Wilmington Hwy) | Onslow Pines Rd | High Hill Rd | Access Management |
| AM-02 | US 17 BUS (Marine Blvd) | US 258/NC 24 BUS (Richlands Hwy) | US 17 (Marine Blvd) | Access Management |
| AM-03 | NC 24 (Lejeune Blvd) | NC 24 BUS (Johnson Blvd) | NC 172 | Access Management |
| AM-05 | Gum Branch Rd/Bell Fork Rd | Western Blvd | NC 24 (Lejeune Blvd) | Access Management |
| AM-06 | NC 24 BUS (Johnson Blvd) | US 17 BUS (Marine Blvd) | NC 24 (Lejeune Blvd) | Access Management |
| AM-09 | NC 24 (West Corbett Ave) | Belgrade-Swansboro Rd | Front St | Access Management |
| AM-11 | US 17 (Wilmington Hwy) | NC 210 | Dixon Estates Rd | Access Management |
| AM-13 | NC 24 | NC 172 | Belgrade-Swansboro Rd | Access Management |
| AM-14 | US 258 (Richlands Hwy) | Koonce Fork Rd | South Wilmington St | Access Management |
| AM-15 | US 258 (Richlands Hwy) | Pony Farm Rd | Rhodes town Fire Department Rd | Access Management |
| IS-01 | NC 24 | Onslow County Boundary | NC 24 (Lejeune Blvd) | Upgrade to Interstate |
| M-02 | NC 111 (Catherine Lake Rd) | US 258 (Richlands Hwy) | Fowler Manning Rd | Modernization |

| ID | Name | From | To | Type |
|-------------|---------------------------|------------------------------|----------------------------|-------------|
| R-01 | NC 111(Catherine Lake Rd) | Haw Branch Rd | Albert J. Ellis Airport Rd | Realignment |
| W-02 | NC 53 (Burgaw Hwy) | US 258/NC 24 (Richlands Hwy) | Holly Shelter Rd | Widening |
| W-05 | NC 53 (Burgaw Hwy) | Holly Shelter Rd | Onslow County Boundary | Widening |
| W-06 | NC 172 | US 17 | NC 210 | Widening |
| W-07 | NC 210 | Old Folkstone | North Shore Dr | Widening |
| W-13 | NC 50 (Ocean Rd) | US 17 (Wilmington Hwy) | NC 210 | Widening |
| W-14 | US 17 (South Marine Blvd) | Richlands Hwy | Chaney Ave | Widening |
| W-15 | NC 50 (W Ocean Rd) | Holly Ridge ETJ | US 17 (Ocean Hwy) | Widening |