



Cabarrus Rowan Community College- Photo from Rowan Chamber of Commerce

Safety Measures

Safety has long been a primary concern of transportation system management, maintenance, and system expansion.

SAFETEA-LU placed a greater emphasis on safety at the planning systems (MTP) level with essentially three components:

1. Under 23 CFR 450.306(a)(3) that MPO's increase the security of the transportation system for motorized and non-motorized users;
2. Under 23 CFR 450.306(h) that the metropolitan transportation planning process should be consistent with the Strategic Highway Safety Plan, as specified in 23 USC 148, and other transit safety and security planning and review processes, plans, and programs as appropriate;

3. Under 23 CFR 450.322(h) that the metropolitan transportation plan should include a safety element that incorporates or summarizes the priorities, goals, countermeasures, or projects for the MPO contained in the Strategic Highway Safety Plan required under 23 USC 148.

The goal of the Strategic Highway Safety Plan is to reduce the number of fatalities and to decrease the economic impact from highway-related crashes. As projects are planned and developed, elements from the SHSP should be incorporated and linked back to the planning systems level in the CR MPO.

Such improvements are reflected in the Transportation Improvement Program as well as in the day-to-day work of field operations. Within the 2026-2035 TIP, NCDOT has the following spot safety projects programmed for the CR MPO:

Table 6-1 Safety Improvement Measures

Roadways	Proposed Safety Improvement
NC 24/NC 27 and Pine Bluff Road	Intersection improvements
NC 49 from Morehead Drive to Cedar Drive	Access management
George Liles Parkway Interchange with I-85	Lighting Interchange
Roberta Road and Main Street	Intersection/Roundabout improvements
Poplar Tent Road and Harris Road	Intersection improvements
Poplar Tent Road and Eva Drive/Rock Hill Church Road	Intersection improvements
Dale Earnhardt Blvd and Cannon Blvd	Intersection improvements
US 29 and Bruton Smith Blvd	Pedestrian Signal improvements
NC 49 and Zion Church Road	Intersection improvements
NC 24/27 and Bethel School Road	Intersection improvements
Old Concord/Salisbury Road and Irish Potato Road	Intersection/Roundabout improvements
US 29 and NC 152	Intersection improvements
Cannon Farm Road and NC 153	Intersection/Roundabout improvements
Winecoff School Road and Winecoff Elementary School	Pedestrian accommodations
NC 152 from Patterson Street to the county line	Pavement markings
NC 152 and NC 153	Intersection improvements
NC 49 and Old Airport Road	Intersection improvements
Robinson Church Road and Peach Orchard Road	Shoulder improvements
Salisbury Avenue and Andrews Street	Traffic signal and pedestrian improvements
Jake Alexander Blvd and Morlan Park Road	Intersection improvements
Old Concord Road from Jake Alexander Blvd to the county line	Pavement markings
Old Concord Road from Martin Luther King Blvd South	Traffic signal and pedestrian improvements
Brenner Avenue and Jake Alexander Blvd	Intersection/Roundabout improvements

The Cabarrus-Rowan Congestion Management Process (CMP) examines the current and planned future roadway network, identifies causes of congestion, and explores options for reducing congestion. In addition to examining capacity constraints, it identifies methodologies for improving system efficiency and providing modal choices.

Safety is a consideration in the CMP, partly because roadway incidents are a significant source of traffic congestion. NCDOT implements a regional safety program through coordination between Division 9 and 10, the office of the Area Traffic Engineer, law enforcement, and the Cities of Salisbury, Kannapolis, and Concord. The CMP and MTP recommend continued use of incident management patrols,

coordination with law enforcement agencies, and implementation of safety and mobility projects by the MPO and the NCDOT to respond to safety trends and issues. Additional MPO and NCDOT strategies aimed at increasing the efficiency of the transportation system without adding additional capacity to the roadways include:

- Expansion of transit operations
- Advance Traveler Information Systems and Variable Message Signs (VMS)
- Improvements to the Concord and Salisbury Signal Systems

Safety can be measured in a number of ways. Transportation Planners tend to think about safety in terms of specific roadways. It is also

important to understand the overall safety conditions of the system of roadways. The NC Department of Motor Vehicles (DMV) collects many types of safety and accident attributes at the county and municipal level. The CR MPO is fortunate that the planning boundary coincides with the county lines for Rowan and Cabarrus, and there are 4 municipalities with over 10,000 in population in the MPO.

Moreover, NCDOT provides rankings to show relative progress of safety initiatives within counties and cities in comparison to their jurisdictional cohorts. For example, by combining a number of factors such as crash severity, crash rates based on population, registered vehicles, and estimated vehicle miles traveled, NCDOT projected that Rowan County went from a ranking of 42nd in 2007 to a ranking of 62nd in 2012 to 46th in 2016 to 32nd in 2020 to 38th in 2023 among the 100 counties in NC.

Cabarrus showed slight decline from 75th in 2007 to 66th in 2012 to 55th in 2016 to 62nd in 2020 to 64th in 2023. For those same factors, NCDOT ranked the City of Salisbury at 26th among municipalities greater than 10,000 in 2023 down to 16th in 2020, down to 10th in 2016, up from 22nd in 2012 and 17th in 2007. The City of Concord actually increased from 21st to 13th in 2012 and down to 26th in 2016 to 25th in 2020 to 25th in 2023 and the City of Kannapolis improved slightly from 36th to 40th in 2012 to 45th in 2016 down to 32nd in 2020 to 41st in 2023. It should be noted that a lower rank is actually a positive indication that a city or county's safety trends are improving relative to the overall population.

With respect to measuring safety on specific roadways and intersections, NCDOT provides a wealth of data on crashes and accidents. Some of the NCDOT safety measures include accident rates, the severity index, and exposure. The 1990 NCDOT "Traffic Accident Analysis Manual" defines a severity index with a formula that is used to measure the mix of accident severity in a group of accidents at a specific location. The severity index is unique to a

particular intersection and can be used to calculate the EPDO Index (Equivalent Property-Damage-Only Index). This index is more relevant to comparing intersections or corridors because it includes the vehicle exposure measure or number of times vehicles are exposed to the paths of other vehicles' paths.

The severity index for NCDOT Division 10 was 3.65 and 3.95 for NCDOT Division 9. These numbers represent an average of accident severity for the larger regions that include the 2 counties of the CR MPO. Surrounding urban areas in the Metrolina Region have used the EPDO Index to define and highlight high accident locations. An index score of 360 translates to an unusually high number of accidents that resulted in relatively large amounts of property damage. The MPO requested accident data on several key intersections within the Urban Area and has ranked them accordingly.

Table 6-1 lists the key intersections as recommended by MPO jurisdictions with several safety improvement measures

Appendix 6-1 Transportation Safety Analysis provides a detailed analysis of vehicle, bicycle and pedestrian crash data, trends and targeted safety improvements.

Local Measures

In order to assist the state of North Carolina in meeting its goal of reducing the number of fatalities and decreasing the economic impact from crashes, jurisdictions within the CR MPO are pursuing a number of initiatives including additional street lighting, crosswalks and pedestrian signals, bicycle and pedestrian signage, sidewalk construction, access management, and median installation.

A couple of the towns are currently pursuing Safe Routes to Schools (SRTS) funding through the NCDOT Division offices to enhance pedestrian safety for elementary school children. In addition, several cities have agreed to close at-grade railroad crossings, planning and construction for grade separated crossings, and improvements to existing at-grade railroad crossings as part of the North Carolina Sealed Corridor Program.

The City of Kannapolis also received a competitive Safe Streets and Roads for All (SS4A) grant and has selected a consultant to complete a Safety Action Plan. This Plan should enable the City to pursue additional federal grant opportunities for infrastructure improvements related to safety. In tandem, the MPO assembled a list of critical intersections (14) with some overlap to the STIP. In addition, the MPO has received presentations from the Traffic Safety Unit of NCDOT on an annual basis and is contemplating a state funded Safety Action Plan, schedule to be determined. All of these local efforts are intended to reduce potential conflicts and avoid future crashes and fatalities, which is consistent with the State's overall safety goal.

The 2055 MTP will further support this goal by carrying many of these local measures into project development and implementation. Safety is often a hidden and immeasurable cost to the transportation system that can be borne by consumers of all modes of transportation. Conversely, investment in safety measures can result in hidden and immeasurable benefits to those same consumers. The CR MPO will continue to partner locally or with NCDOT in those efforts that will enhance safer roads, routes, crossings, and ultimately reduce crashes system wide.

Security

Highway

The Strategic Highway Network (STRAHNET) system of public highways provides access, continuity, and emergency transportation of military personnel and equipment. The 61,000-mile system, designated by the Federal Highway Administration in partnership with Department of Defense, comprises about 45,400 miles of Interstate and defense highways and 15,600 miles of other highways. STRAHNET is complemented by about 1,700 miles of connectors—additional highway routes linking more than 200 military installations and ports to the network. Most large military convoys use the Strategic Highway Network. STRAHNET roadways are designated for use in times of rapid mobilization and deployment of armed forces.

In the Cabarrus-Rowan Urban Area there is one STRAHNET route: I-85. This route has been listed in the MPO's Local Priority List for improvement by NCDOT thru the TIP. The MPO and City of Concord staff have participated in the Cabarrus County Highway Incident Team meetings where representatives from the local Emergency Management Systems, police and fire departments, and NCDOT Incident Management Assistance Program (IMAP) to discuss accidents, disasters, and major events at Charlotte Motor Speedway. During the major races (fall and spring) at the Speedway, special evacuation plans are devised and implemented to accommodate the huge flow of traffic accessing and departing the Speedway complex. In addition to these plans, intersection improvements and TIP capacity projects, the MPO should consider the following recommendations for improving security on the MPO's streets and highways.

Transit

Authority for emergency response activities and the use of community resources and services to respond to large scale emergencies is granted by various legislation that includes the Robert T. Stafford Disaster and Emergency Assistance Act (Federal Level), North Carolina General Statute 166A Emergency Management Act (State Level), Cabarrus County Emergency Operations Plan (County Level) and Concord City Code.

The purpose of the CK Rider Emergency Action Plan is to identify how CK Rider will work with local government's emergency operations and procedures. The plan will detail CK Rider's framework for response to disasters based on the management concepts contained within the National Incident Management System.

The National Incident Command System (NIMS) is intended to standardize response to emergencies involving City Departments and other jurisdictions or multiple agencies. The system is intended to be flexible and adaptable to the needs of all emergency responders.

Emergency response agencies use basic principles and components of emergency management, including the Incident Command System, multi-agency or inter-agency coordination and established mutual aid systems.

NIMS is a nationally used, standardized, on-scene emergency management concept which allows incidents of all sizes to be organized in a common structure regardless of jurisdictional boundaries. NIMS uses standard incident command structures (ICS), Multi-agency Coordination, and Public Information) to provide the national framework for incident response.

All jurisdictions served by CK Rider, use the incident command system. In order for ICS to be used at all incidents, the first emergency responder on scene will always take the following basic actions:

- establish Incident Command Post, (ICP);
- size up the incident;
- determine the ICS organization elements required;
- request additional resources necessary to mitigate the incident;
- delegate authority within the ICS organizational structure; and
- develop Incident Action Plan, incorporating the incident objectives and strategies.

Incident Command System Functions

The five functions of the ICS organization are command, operations, planning, logistics, and administration.

Command is responsible for directing, ordering, and/or controlling resources by virtue of explicit legal, agency or delegated authority.

Operations is responsible for the coordinated tactical response of all field operations through an Incident Action Plan.

Planning is responsible for the collection, evaluation, documentation, and use of information about the development of the incident.

Logistics is responsible for resources and materials in support of the incident.

Finance/Administration is responsible for all

financial and cost analysis aspects of the incident, and/or administrative functions.

Principles

NIMS can be used to manage incidents of all sizes. The organizational structure adapts to any emergency or incident to which emergency response agencies would expect to respond. The system can grow as an incident grows or contract as the incident needs decrease. The system has basic components in organization, terminology and procedures.

Unified Command

This form of ICS allows all agencies with responsibility for the incident to manage an incident by establishing a common set of incident objectives and strategies.

Span-of-Control

Manageable span-of-control within ICS is a limitation on the number of personnel who can effectively be supervised or directed by an individual supervisor. The ordinary span-of-control range is between three and seven personnel.

Pre-designated Incident Facilities

These are a common set of titles given to different facilities used in managing an incident such as command post, staging or heli-spot. The determination of the types and locations of facilities to be used will be based upon the requirements of the incident.

Transit-Related Roles in Local Emergency Management

During a local disaster or emergency, CK Rider Transport may be called upon to fulfill various functions. The majority of these will be coordinated through the Transportation Emergency Support Function section of the EOC. These functions can include:

- Evacuation of local residents during flooding, fires, hazardous material spills, bomb threats, or other emergency conditions.

- Transportation of citizens during mass inoculations;
- Transport of emergency workers and volunteers to and from an emergency staging site;
- Use of air conditioned/heated buses as temporary shelters/respice facilities for emergency workers and victims, especially valuable during a fire or hazardous-material response effort;
- Monitoring of road conditions; determine safe travel routes,
- Windshield damage surveys
- Providing supplemental vehicles for police or other local agency.
- Providing transportation for testing and vaccinations during COVID

The individual nature of a disaster prevents this list from being all-inclusive, nor does it indicate that CK Rider will be able to perform these missions during all emergencies. CK Rider will need to assess its resources, capabilities, and the potential needs and hazards that are likely to be faced within the cities it serves. Working with local governments and emergency response personnel, CK Rider can determine the function that they are best able to fulfill.

Basically, CK Rider will be asked to provide assistance in minor emergencies or those which have little or no effect on the normal level of service and those situations of a greater magnitude which result in service disruptions. Each situation will have different implications on CK Rider’s internal priorities. In most situations, the continued safety and operation of the system will take precedence, though if CK Rider is not operating more resources will be available

Transit Recommendations

The City of Concord and CK Rider Transportation partner in the Transit Watch Program, a new public awareness and education campaign patterned after the successful “Neighborhood Watch” program initiated in our community. Promoting transit as a community partner and safe haven, Transit

Watch targets transit employees, passengers and neighborhood residents with a call for active involvement in staying alert and working together to maintain a safe transit environment.

The Transit Watch program is part of a nationwide initiative developed by the U.S. Department of Transportation’s Federal Transit Administration (FTA). In structuring the program, the FTA worked with industry partners, including the American Public Transportation Association (APTA), the Community Transportation Association of America (CTAA), the Amalgamated Transit Union (ATU), and the Transportation Security Administration (TSA).

The program will consist of signs in strategic locations throughout the public transit system, such as businesses served, city web page, and at selected bus stops. Brochures will also be available system wide for free distribution to riders as well as the general public.

Additionally, the Transit Watch brochure includes the following detailed information:

- How to identify a suspicious package
- How to identify suspicious behavior or activities
- What to do in the event of a transit emergency or evacuation
- Personal emergency numbers and contacts for quick reference
- Overall emergency preparedness tips for individuals and families

All CK Rider transit revenue service vehicles are equipped with onboard digital audio and video surveillance systems, with 9-10 cameras providing full coverage both inside and outside each vehicle. This system can be access in real time, or stored video can be removed from each vehicle at a later time and downloaded for viewing and assessment. This system contributes significantly to the safety & security of the customers that use CK Rider. The MPO has participated in replacing the CK Rider fleet thru the STBGP direct allocation funds.