Chapter 2: System Planning Considerations

Transportation planning involves several key considerations that are both necessary and part of common practice. This chapter reviews these considerations in the context of metropolitan development goals and the transportation objectives outlined in Chapter 1. The transportation objectives are aligned with federal emphasis areas that help guide the advancement of improvements to the transportation network and system and are informed by local input.

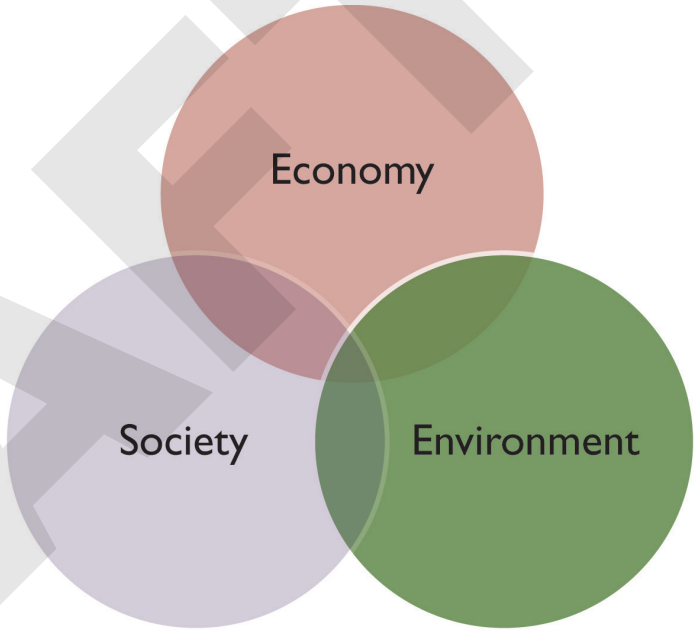
This chapter discusses system planning factors, including sustainability, resilience, and livability. It also covers federal environmental regulations and the necessary information for reviewing future transportation projects. Additional considerations include land use patterns, economic development, and current trends related to aging populations, mobility, public health, environmental justice, and equity.

The chapter will analyze operations and maintenance, transportation security, and emergency management. It will conclude with an overview of federal performance management in metropolitan transportation planning, highlighting the connection between goals and objectives and the implementation of plans.

Sustainability, Resilience, and Livability

Transportation plans across America illustrate a triple bottom line, emphasizing the need for balance between the use of critical resources—such as air, water, land, energy, and people—and their effects on the environment, economy, and community. This approach aims to ensure that these resources remain available for future generations. Education and funding are essential components for establishing sustainable practices.

Figure 2.1 – Elements of Sustainability



Sustainability

One aspect of this plan is to recognize ways to incorporate sustainable practices into the transportation system. Sustainability is about balancing needs. It is the equilibrium or ideal point where minimal negative effects occur to the environment, economy, and community. If our daily transportation practices – funding decisions, planning, designs, or operations – are off the mark, then aspects of the transportation system may be bearable in the present, but not ideal for future generations. Our transportation solutions might be equitable or viable, but they may not be sustainable. A key aspect of sustainability is conserving our resourc-

es for future generations to utilize and enjoy. Today's transportation network should sustain our critical resource reserves, so others can enjoy them in the future. This is why metropolitan areas are examining sustainability in their policies, operations, and decision-making to affect future generations in the best manner possible.

Resilience

A second aspect of this plan is to consider resilience. Resilience, as defined by the American Association of State Highway and Transportation Officials (AASHTO),[1] is "the ability to prepare and plan for, absorb, recover from, or more successfully adapt to adverse events." Addressing a more resilient transportation system moves beyond mitigating an event's impact on the transportation system. It also includes reducing the duration of that impact on the system, or maintaining some level of operations during an event or disruptor, such as flooding or a snow storm.

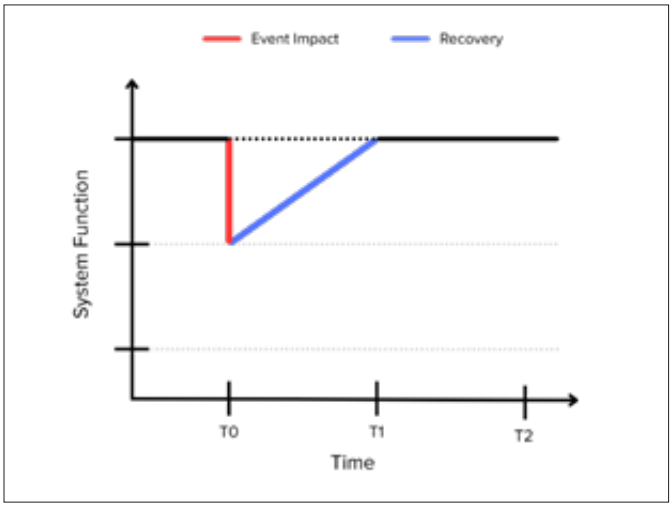
As an example, 2019 illustrated the resilience of our transportation system through redundant facilities. When U.S. 67/River Drive between Davenport and Bettendorf was closed for record flooding on the Mississippi River, other roadways were utilized for detours. Due to its importance as a major thoroughfare, U.S. 67/River Drive in Davenport was awarded a PROTECT grant in 2024 to improve the resilience of the corridor. The work will mitigate effects from future flooding and support the city's Mississippi River Flood Resiliency Plan, which focuses of raising roads, repairing streets, and improving traffic safety. Additionally, in 2023, the City of Davenport received a grant through the Federal Railroad Administration to construct an overpass to ensure access to the city's water treatment plant during times of flood, while eliminating a rail crossing and improving traffic safety.

An extreme weather resilience report was prepared by Bi-State Regional Commission in 2020 as part of a Federal Highway Administration pilot program on durability and vulnerability assessment. The report results are to be incorporated into the overall transportation planning process to begin to address a more resilient transportation system in the Quad Cities. The resilience triangle in the side bar illustrates an event or system disrupter as the red line, and the time to recover as the blue line. Shortening the impact and the duration of the disruption to a transportation facility or service is the goal of a more resilient transportation system.

Livability

A third aspect of this plan is making metropolitan areas more livable. Under the Livable Communities Act of 2009, U.S. Department of Housing and Urban Development (HUD) established a Partnership for Sustainable Communities with U.S. Environmental Protection Agency and U.S. Department of Transportation. The partnership established six livability principles as noted in the sidebar. A key point in this partnership is for better linkages between housing and transportation decisions and their effects. When housing and jobs are in close proximity, energy benefits can be realized in reduced travel costs and shorter travel times. Increased travel savings and decreased travel times offer a greater quality of life and opportunities for the consumer. The livability initiative has been further enhanced by recognizing the use of innovative tech-

Resilience Triangle



Source: sciencedirect.com (adapted from M. Bruneau, S.E. Chang, R.T. Eguchi, G.C. Lee, T.D. O'Rourke, A.M. Reinhorn, M. Shinouzuka, K. Tierney, W.A. Wallace, A framework to quantitatively assess and enhance the seismic resilience of communities, Earthquake Spectra, 19 (4) (2003), pp. 733-752)

1 *Adapted from Disaster Resilience: A National Imperative, National Research Council, 2012*

PROTECT

Promoting Resilient Operations for Transformative, Efficient, and Cost-saving Transportation Program

Under the Bipartisan Infrastructure Law (BIL), the PROTECT Grant program provides funding to ensure surface transportation resilience to natural hazards including climate change, sea level rise, flooding, extreme weather events, and other natural disasters through support of planning activities, resilience improvements, community resilience and evacuation routes, and at-risk coastal infrastructure.

nologies and collaborations that facilitate data-sharing, effective communications, and evidence-based decision-making. The effort is about optimizing travel movements, multi-modal system performance, and access using transportation systems management and operations strategies (TSMO). Examples of TSMO strategies include work zone management, traffic incident management, traveler information, access management, improved bicycle and pedestrian crossings, and connected and automated vehicle deployment.

When planning and constructing transportation projects, it is essential to consider various physical and social aspects of the environment. This chapter outlines key planning considerations that promote sustainability, resilience, and livability within the transportation system of the Quad Cities MPA. Additionally, it reviews the overall priorities for the transportation system and provides an overview of the national performance goals established by the U.S. Department of Transportation, as outlined in 23 USC §150(b), along with the guidelines to be followed.

Planning Considerations

When developing a sustainable, resilient, and livable transportation system, effects of transportation choices and projects must be considered. Evaluation of environmental effects has been mandated for projects using federal funds since 1969 in the National Environmental Policy Act (NEPA). Sustainability, resilience, and livability are not new. This founding principle of sustainability seeks to balance economic and community effects, as well as environmental effects. Can we afford a particular transportation choice or project? How will a project affect my city or neighborhood? In addition to federal requirements to review effects, many state-funded projects also require consideration of alternatives and effects as well. In addition to the NEPA aspects, financial planning and economic effects are also important considerations.

National Environmental Policy Act (NEPA)

Impact analysis usually happens in the early engineering stage of a project when the project's location is known, such as for a road, trail, or transit facility. If this analysis occurs earlier, significant changes may be necessary because the project's location could change, or regulatory approvals could expire. Most of the projects in this document are still in the planning stage, so impact analyses have not been done yet. However, project sponsors should start working with environmental and regulatory agencies early to ensure the best transportation projects. Essential factors to consider include water resources, land features, and historical or cultural aspects, which are referenced in this chapter. Also, human environment factors are part of a Title VI analysis and are shown in Appendix C.

Six Livability Principles

- Provide more transportation choices
- Promote equitable and affordable housing
- Enhance economic competitiveness
- Support existing communities
- Coordinate policies and leverage investment
- Value communities and neighborhoods

Source: The Role of Transportation Systems Management & Operations in Supporting Livability and Sustainability: A Primer, page 2, Federal Highway Administration, 2012 https://ops.fhwa.dot.gov/publications/fhwahop12004/c1.htm

For every project, assessing potential impacts on wetlands, air quality, communities, and other areas is crucial. According to the transportation Code of Regulations, specifically 49 CFR Parts 622 and 623, there are three classes of impact analysis: Class I—Environmental Impact Statements; Class II—Categorical Exclusions; and Class III—Environmental Assessments.

- **Environmental Impact Statements.** These are required for projects like new freeways, highways with four or more lanes, new rail transit systems, bus lanes, intercity rail on new rights-of-way, and new intermodal facilities requiring any of the previous actions.
- **Categorical Exclusions.** These include actions that do not have a significant environmental impact either individually or in total. These actions cover non-construction activities, highway resurfacing, routine maintenance, purchasing equipment, adding Intelligent Transportation Systems (ITS) to existing roads, improving safety on highways and railroads, upgrading rest areas and weigh stations, transit vehicle purchases, improving existing rail lines, bicycle paths within existing rights-of-way, and accessibility improvements.
- **Environmental Assessments.** These examine projects where the impact is unclear, which may lead to a Finding of No Significant Impact (FONSI) or the need for an Environmental Impact Statement (EIS).

In regard to the transportation efforts listed in this document, a substantial portion of funding will focus on maintaining the current transportation system. Such activities often qualify as a Categorical Exclusion and include upgrading existing roads, deploying Congestion Management Process (CMP) and ITS, replacing fleets, transit operations, and the use of existing rail lines for freight and passenger efforts. Projects needing an environmental assessment might include paving over gravel or sealcoat surfaces.

Major federally-funded projects on new routes generally require an EIS. For example, constructing a new river crossing or new rail lines on new rights-of-way would typically fall into this category. Projects that require an environmental assessment include adding lanes to existing roads within current rights-of-way and building new separated trail facilities.

Jurisdictions in the Quad Cities MPA are encouraged to follow federal guidance as part of environmental sustainability and consider the impacts of extreme weather and livability when reviewing projects. Early consultation with environmental and social resource agencies can lead to better outcomes and may identify significant issues in the project development process.

Project sponsors should follow the mitigation steps outlined in 40 CFR 1508.20.

There are various environmental, cultural, and social considerations in regard to planning in particular. These are described in the following sections.

Planning and Environment Linkages (PEL) is a strategic framework designed to enhance the efficiency of transportation project development. It assists agencies in expediting project delivery by fostering a collaborative and integrated decision-making process. PEL emphasizes the importance of considering the environmental, community, and economic impacts of proposed transportation improvements during the planning phase. This proactive approach ultimately aids in informing the environmental review process. The PEL process has been utilized in the Bi-State Region for large projects such as the new I-80 bridge.

Extreme Weather, Climate and Natural Hazards

In the Fifth U.S. National Climate Assessment2 (NCA5), "weather" is a short-term, daily occurrence while "climate" describes long-term trends related to averages and prevalence as well as the intensity of extremes. In 2020, Bi-State Regional Commission completed the *Quad Cities, Iowa/Illinois Extreme Weather and Transportation Resilience Report*. Bi-State was one of

Mitigation Actions

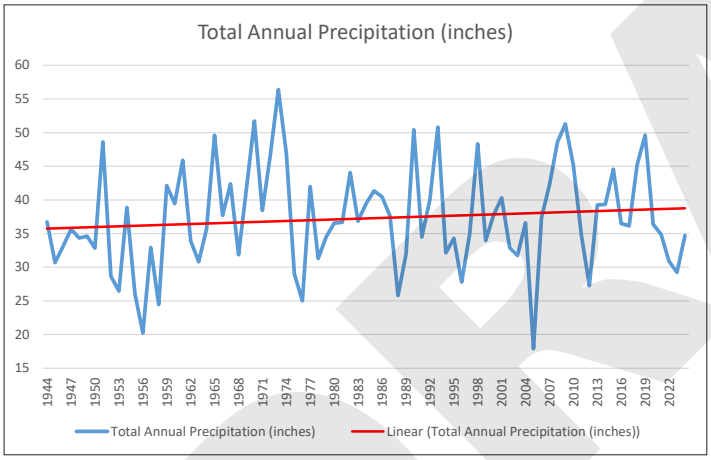
- Avoid an impact by not taking a certain action or parts of an action
- Minimize effects by limiting the degree or magnitude of the action and its implementation
- Correct the impact by repairing, rehabilitating, or restoring the affected environment
- Reduce or eliminate the impact over time by preservation and maintenance operations during the life of the action
- Compensate for the impact by replacing or providing a substitute resource or environment, such as wetland mitigation banks

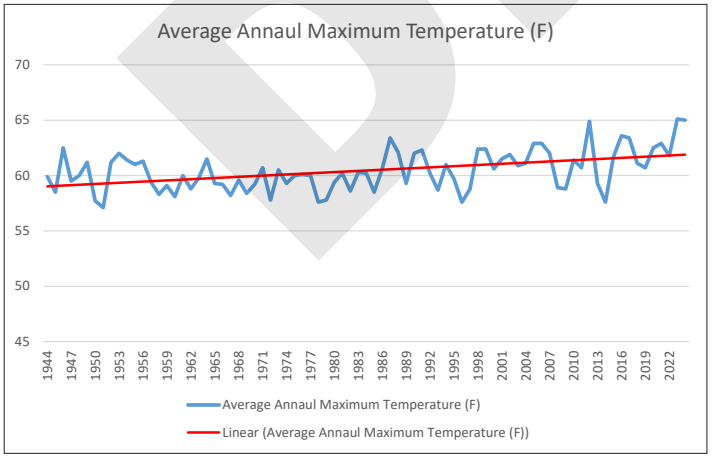
2 *https://nca2023.globalchange.gov/. Accessed April 14, 2025.*

11 pilot projects across the United States. The purpose of the project was to develop a path forward to discuss changing weather patterns over time, and resilience in the Quad Cities Long Range Transportation Plan and to build in-house capacity on the subject matter.

Empirical evidence indicates that global temperatures are rising. According to the NCA5, the Midwest is expected to see decreased severity and frequency of cold temperature waves, but increased severity and frequency of precipitation events, heat waves, and floods. Figure 2.2 shows the rising trend for annual precipitation at Moline, Illinois. In the short term, there will be benefits locally to improved air quality. In the long term, reductions in air pollutants are expected to slow the upward trend of precipitation and temperature patterns.

Figure 2.2 – Precipitation and Temperature Patterns





From a transportation risk management perspective, planning for increased storm intensities and extremes in temperature will provide for a more resilient transportation system. Extreme weather events may result in increased flooding; an increase in the frequency and severity of storms or other weather events, such as droughts and wildfires; effects to water availability and quality; and effects to crops. Effects to transportation infrastructure could include accelerated deterioration of roadways due to increased freeze-thaw cycles. Transportation network closures, detours or delays may become more frequent and will require increased stormwater management bridge inspections, repair of road and rail buckling, and shipping alternatives with reduced water levels in rivers that could affect the barge traffic. The photo to the [left/right] illustrates the effects of record Mississippi River flooding on principle arterial roads.

Mitigating these hazards through a redundant and well-designed transportation system will provide greater safety and security from both natural and man-made hazards. There is an array of adaptation strategies to provide effective solutions to extreme weather disruptions. Three main categories include adaptations based on control, advisory, or treatment, as shown in Figure 2.3. These will also reduce costly repairs and maintenance if considered as part of the overall project design. Both Rock Island and Scott Counties have a Federal Emergency Management Agency-approved hazard mitigation plan to utilize as a reference for project planning and design. Henry County developed

U.S. 67/River Drive, Davenport and Temporary Flood Barrier

Source: Bi-State Regional Commission. 2019

an update to its Hazard Mitigation Plan in partnership with Stark County in 2025. Hazards for the Quad Cities MPA are identified in these documents. Evacuation plans have also been prepared for these counties and include the MPA as part of preparedness efforts.

Figure 2.3 – Adaptation Strategies as Potential Solutions to Mitigate Extreme Weather Events

Source: Asam, S., Bhat, C., Dix, B., Bauer, J., & Gopalakrishna, D. (2015). Climate Change Adaptation Guide for Transportation Systems Management, Operations, and Maintenance. Federal Highway Administration. https://rosap.ntl.bts.gov/view/dot/42309

Natural/Cultural Resources

Air Quality

The Quad Cities MPA is designated "in attainment" for all air pollutants as of January 2021. Since the Fall 1998, Bi-State Regional Commission staff has coordinated a coalition of local government and private sector representatives committed to clean air and protection of citizen health in the Bi-State Region. The task force works toward voluntary emission reductions and education to address National Ambient Air Quality Standards (NAAQS). Over the last decade, the area has experienced a few summer days where ozone levels in the atmosphere had been considered unhealthy as a result of more stringent standards. Similarly, it has experienced winter episodes where fine particulates have been measured as unhealthy. Overall, the general air quality in the Quad Cities is considered good. In 2024, the standard for fine particulate matter (PM2.5) was reduced from 12 micrograms per cubic meter (µg/m3) to 9 µg/m3. At the time of writing in 2025, these more rigorous standards are under review.

Over the past 10 years, various education and outreach efforts have included:

- Diversification in fuel sources
- Electric bus utilization for public transit
- Transportation alternatives advertised on television, newspaper, and radio
- Public and private employer outreach projects and meetings

Bi-State Region Air Quality Task Force Mission Statement

- To maintain attainment status for ground level ozone through voluntary measures
- To provide a means of communication between public and private entities regarding voluntary ground level ozone improvement activities to share experiences and knowledge
- To support individual and ground-level voluntary ozone improvement activities such as public education and mobile and stationary source reduction initiatives

- QC Transit Web Portal as a single point for Quad Cities MPA public transit options
- Local government joint purchasing green initiatives for janitorial and food service supplies
- Expansion of multipurpose trail network and development of the QCTrails.org website
- Collaboration with Quad City Health Initiative
- Outdoor Air Quality Strategic Plan update
- Collaboration with Illinois and Iowa Clean Cities Coalitions
- Participation in Eastern Iowa Electric Vehicle Readiness Plan development and convening a meeting on charging infrastructure on interstate and primary highway corridors

These efforts among others will continue to aid voluntary emission reduction goals and contribute to improving air quality in the Quad Cities MPA over the long term. These efforts have cumulatively and continuously kept the Quad Cities MPA in attainment status.

In 2019, Bi-State received funding from the Quad Cities Community Foundation to host an alternative energy workshop. Solar and wind energy were featured as viable options in the Bi-State Region, and coincided with the State of Illinois' Future Energy Jobs Act to stimulate the development of renewable energy in the state. Diversifying energy sources will contribute to a more resilient and robust energy network and to cleaner air. Additionally, in 2022, an I-80 Convening Meeting with 100 attendees discussed issues related to electric

vehicle readiness along the interstate system in the Bi-State Region.

Water Resources

There are a number of water resources in the MPA including the Mississippi and Rock Rivers and their tributaries, as touched on in Chapter 1. The Federal Emergency Management Agency (FEMA) has mapped Rock Island and Scott Counties for flood zones. There are a number of communities protected by levees along the Mississippi River while others are not. It is important to examine how floodplains may affect and/or be affected by a project as well as opening natural areas to development. Rock Island County Soil and Water Conservation District (SWCD) suggests avoiding fragmentation of natural areas, including water resources due to new transportation projects.

The U.S. Army Corps of Engineers regulates navigable waterways and should be consulted as transportation project planning occurs. Additionally, there are numerous wetlands in the planning area. Wetlands can be identified using U.S. Fish and Wildlife National Wetland Inventory Maps. Rock Island County Soil and Water Conservation District indicates that the Rock River Valley is one of the last remaining contiguous corridors of riparian forest within the Illinois Quad Cities, particularly in the area of the Moline-East Moline border and between Coal Valley and Colona. This area offers significant benefits for water quality, floodwater storage and retention and recreation, and supports a number of rare and endangered wildlife species.

The U.S. Fish and Wildlife Service notes critical wetlands within the MPA as part of the resource agency consultation process. There are no wild and scenic rivers and no sole source aquifers designated in the MPA. Map 2.1 identifies water resources and hazards within the planning boundary that may affect alignment, materials, or design of a transportation project.

Water resources are affected by variable weather extremes, either related to too much water resulting in flooding or too little water resulting in drought. This can vary widely by year, but it is the long-term trends that urban design and transportation planning consider to reduce impacts on infrastructure and facilities. Data from the National Oceanic and Atmospheric Administration (NOAA) demonstrate an upward trend in the amount of precipitation between 1944 and 2022. This trend line shown in Figure 2.2 corresponds with a nearly five-inch increase in average annual precipitation during that time. As this statistic indicates, building across and near streams and rivers will require considering these trends as facilities are designed.

Endangered Species

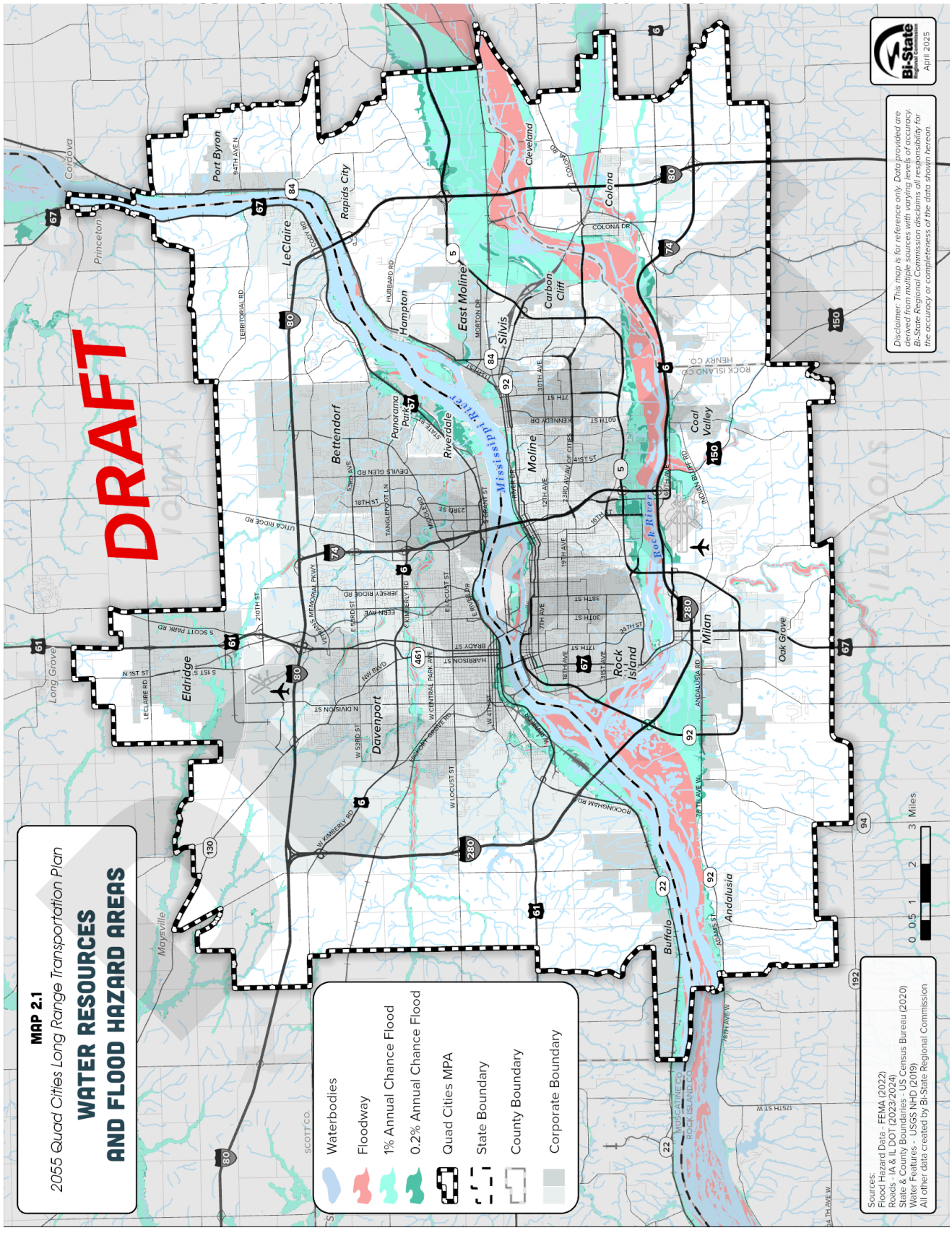
There are multiple known endangered species in the planning area. The U.S. Fish and Wildlife Service provides a website with a listing.[3] From a wildlife perspective, the Mississippi River is recognized as a "Nationally Significant Ecological Resource" by Congress. Area wetlands offer fish and wildlife habitats. The area is part of the Mississippi Flyway for migratory birds. Additionally, there are both cave bats and migratory bats that require special mitigation measures

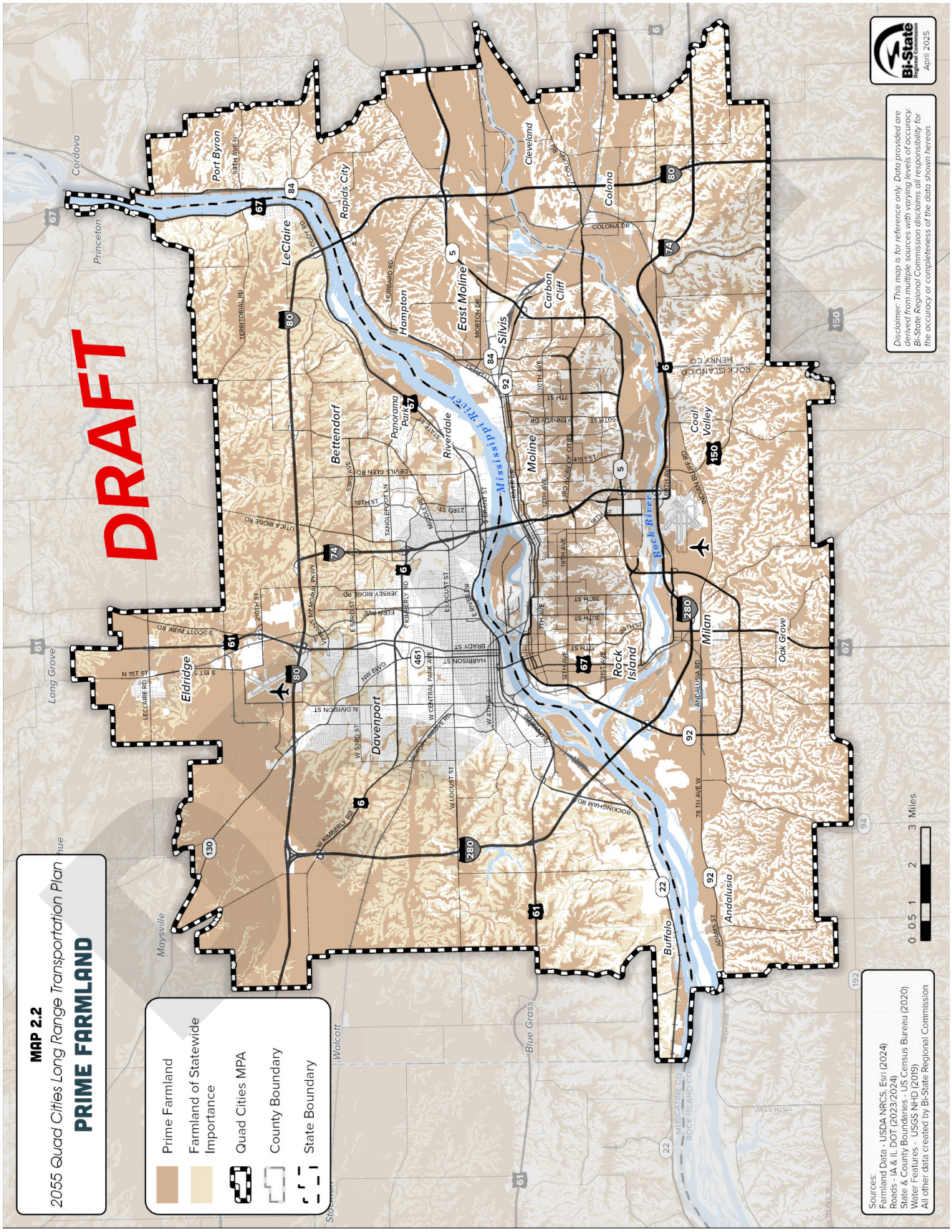
Regional Conservation Directory

Bi-State Regional Commission maintains a Conservation Directory, last updated in 2025, which provides contact information and explanations of federal, state, and local agencies and organizations associated with conservation practices. It can be viewed at https://bistateonline.org/planning-other-programs/comprehensive-land-use-environment

3 *https://www.fws.gov/program/endangered-species/species*

in certain transportation construction situations. A significant population of eagles can be found wintering in the Quad Cities Area. The river is also home to a tremendous variety of aquatic organisms. The river contains over 29 species of freshwater mussels above Lock and Dam 15, including the federally-listed endangered Higgin's eye pearly mussel. Three mussels are on the federal endangered species list. The I-74 Mississippi River Bridge replacement project required moving 140,000 mussels from the direct impact zone of the new bridge piers, and an additional relocation of mussels prior to demolition of the old bridge. Mussel relocation efforts related to the I-74 project will serve as a model for potential relocations associated with other river crossings in the region. Other federally-listed endangered species in the Quad Cities Area include at least ten plants, ten fish, five mammals, two insects, one reptile, and four birds.


MAP 2.1
2055 Quad Cities Long Range Transportation Plan
WATER RESOURCES AND FLOOD HAZARD AREAS
DRAFT
Waterbodies
Floodway
1% Annual Chance Flood
0.2% Annual Chance Flood
Quad Cities MPA
State Boundary
County Boundary
Corporate Boundary
0 0.5 1 2 3 Miles
Sources:
Flood Hazard Data - FEMA (2022)
Roads - IA & IL DOT (2023/2024)
State & County Boundaries - US Census Bureau (2020)
Water Features - USGS NHD (2019)
All other data created by Bi-State Regional Commission
Disclaimer: This map is for reference only. Data provided are derived from multiple sources with varying levels of accuracy. Bi-State Regional Commission disclaims all responsibility for the accuracy or completeness of the data shown hereon.
Bi-State Regional Commission
April 2025
Mississippi River
Rock River
Davenport
Bettendorf
Rock Island
Moline
East Moline
Silvis
Milan
Coal Valley
Carbon Cliff
Cleveland
Colona
Hampton
Rapids City
Port Byron
LeClaire
Eldridge
Princeton
Buffalo
Andalusia
Oak Grove
Riverdale
Panorama Park
Maysville
Long Grove
Cordova


MAP 2.2
2055 Quad Cities Long Range Transportation Plan
PRIME FARMLAND
DRAFT
Prime Farmland
Farmland of Statewide Importance
Quad Cities MPA
County Boundary
State Boundary
Mississippi River
Rock River
Davenport
Bettendorf
Moline
Rock Island
East Moline
Silvis
Carbon Cliff
Hampton
Rapids City
LeClaire
Port Byron
Cleveland
Colona
Coal Valley
Milan
Oak Grove
Andalusia
Buffalo
Eldridge
Riverdale
Panorama Park
Princeton
Cordova
Long Grove
Maysville
Walcott
Blue Grass
0 0.5 1 2 3 Miles
Sources:
Farmland Data - USDA NRCS, Esri (2024)
Roads - IA & IL DOT (2023/2024)
State & County Boundaries - US Census Bureau (2020)
Water Features - USGS NHD (2019)
All other data created by Bi-State Regional Commission
Disclaimer: This map is for reference only. Data provided are derived from multiple sources with varying levels of accuracy. Bi-State Regional Commission disclaims all responsibility for the accuracy or completeness of the data shown hereon.
Bi-State Regional Commission
April 2025

Farmland, Land Resources, and Landforms

The planning area is abundant with prime farmland, particularly along the periphery of the urban area, shown in Map 2.2. Agriculture is rooted in the history and traditions of the Quad Cities MPA. Both Rock Island and Scott Counties encourage development to be located within existing corporate limits to preserve farmland as part of their respective land development plans. Farmland determinations are often related to soil suitability, which can be obtained from the Natural Resources Conservation Service (NRCS) and county Soil and Water Conservation Districts (SWCD). Input received from the Rock Island County SWCD indicates transportation planning and NEPA analysis should address effects on highly productive agricultural soils – those classified as "prime" farmland by the United States Department of Agriculture.

In addition to soil suitability, slope is often a consideration in determining environmental effects. With the river valleys and bluffs, there are many areas with significant slope where erosion and runoff may be an issue in the planning area. Map 2.3 illustrates the topography of the Quad Cities MPA as a shaded relief map. The terrain within a project area may affect transportation facility design. Subsurface effects should also be reviewed. The Illinois Quad Cities has historically been undermined for coal, and there are other mining operations in the area, such as limestone quarries and mines.

Farmland in Scott County, Iowa

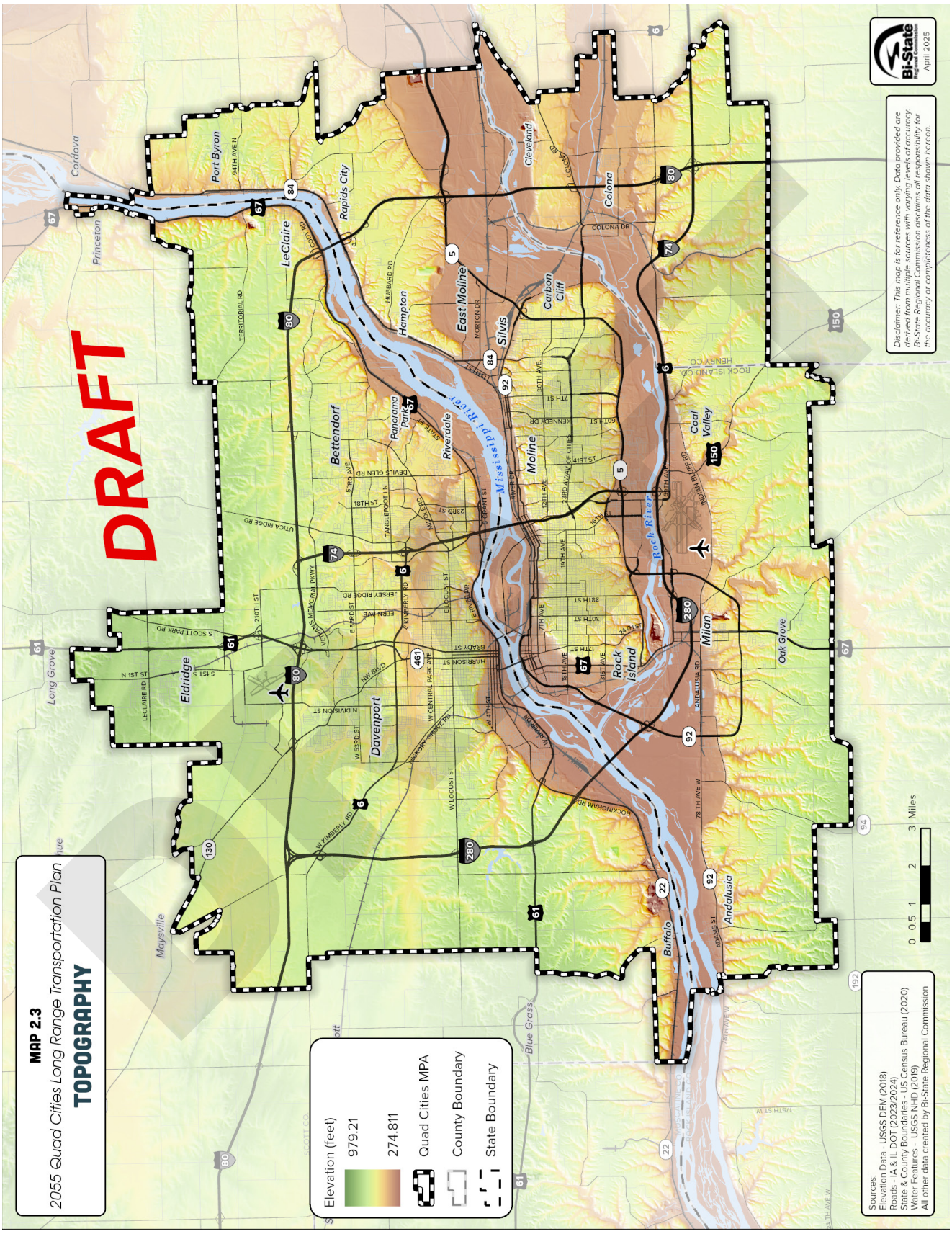
Source: Bi-State Regional Commission, 2015

Historic and Cultural Resources

The Quad Cities hosts a wealth of historic and cultural resources. Historically, the Quad Cities Area was home to a variety of indigenous people; therefore, archeologically-significant sites may affect transportation developments and other land uses. Native Americans historically lived along the shores of the area rivers and streams where remains of their culture can be found. There is a rich history of settlement as westward expansion of the United States created a crossroads of rail and river navigation in the heart of the Quad Cities MPA. The Rock Island Arsenal was the site of Civil War activities and hosts national cemeteries, and there are many fine examples of Victorian-era architecture, among others. Arsenal Island is also the site of the first railroad bridge built across the Mississippi River. The Government Bridge as it stands today, is the fourth iteration of a river crossing in that vicinity. Figure 2.4 shows how integration of a newer multipurpose trail within a historical setting can occur. Contact with either the Illinois or Iowa State Historic Preservation Office is often part of transportation project development to determine archeological or historic significance in the vicinity of a project.

Figure 2.4 – Mississippi River Trail and Fort Armstrong Avenue, Rock Island Arsenal at Government Bridge

Source: Bi-State Regional Commission 2015


DRAFT
MAP 2.3
2055 Quad Cities Long Range Transportation Plan
TOPOGRAPHY
Elevation (feet)
979.21
274.811
Quad Cities MPA
County Boundary
State Boundary
Mississippi River
Rock River
Davenport
Bettendorf
Moline
Rock Island
Milan
East Moline
Silvis
Carbon Cliff
Hampton
Rapids City
Port Byron
LeClaire
Eldridge
Riverdale
Panorama Park
Cleveland
Colona
Coal Valley
Oak Grove
Andalusia
Buffalo
Blue Grass
Maysville
Long Grove
Princeton
Cordova
0 0.5 1 2 3 Miles
Disclaimer: This map is for reference only. Data provided are derived from multiple sources with varying levels of accuracy. Bi-State Regional Commission disclaims all responsibility for the accuracy or completeness of the data shown hereon.
Bi-State Regional Commission
April 2025
Sources:
Elevation Data - USGS DEM (2018)
Roads - IA & IL DOT (2023/2024)
State & County Boundaries - US Census Bureau (2020)
Water Features - USGS NHD (2019)
All other data created by Bi-State Regional Commission

Planning Trends and Land Use Patterns

Using the area profile and understanding the trends shaping where we live and how we work, the Quad Cities Area can examine metropolitan and regional strengths and weaknesses. The area profile can also offer possibilities for positioning the Quad Cities Area for future development and for planning for those effects through the use and implementation of a multi-modal transportation system.

Aging and Mobility

More people are living longer. The average lifespan in 1900 was 47 years, increasing to 78.4 years in 2023, according to the U.S. Centers for Disease Control and Prevention. According to the U.S. Census Bureau's 2023 American Community Survey 5-Year Estimates, 16.8% of the U.S. population was age 65 and older. It is estimated that the proportion of people age 65 and older will increase 47% between 2022 and 2050. This growing aging population will have an impact on transportation infrastructure. Changes in work status, healthcare needs, disparities in health by race and ethnicity, geographic concentration, shrinking family/friends social network, and greater physical disabilities will influence how this age group will choose and use transportation.[4] As people age, older adults may develop physical, sensory, and cognitive limitations that often restrict their ability to drive, walk, or use public transportation. Pew Research indicates people in the United States 60 years and older spend half their waking hours alone or about 10 hours per day, and this is closely associated with living arrangements.[5] Opportunities for alternative transportation and neighborhoods with greater connectivity to essential services and parks/recreation may help reduce health impacts of social isolation. Recognition of these demographic changes can help shape transportation planning and investment to better serve our aging population.

Senior Mobility Via River Bend Transit

Source: Bi-State Regional Commission, 2015

The first of the Baby Boomers generation started to turn 65 years old in 2011. The "Baby Boomers" are defined as those born between 1946 and 1962. According to the 2018 American Community Survey, the "Baby Boomer" age group of approximately 45-64 accounted for 26.4% of the Quad Cities Area. Table 2.1 shows the projected U.S. population totals by age. From 2020 to 2050, the age group of 65 and over will have large population gains, along with the age cohorts of those aged 75-100+. The table also illustrates that the median age will slightly increase from 2020 to 2050.

4 *National Academies of Sciences, Engineering and Medicine, 2018.* Future Directions for the Demography of Aging: Proceedings of a Workshop

5 Livingston, G. (2019, July 3). *On average, older adults spend over half their waking hours alone.* Pew Research Center. https://www.pewresearch.org/short-reads/2019/07/03/on-average-older-adults-spend-over-half-their-waking-hours-alone/

Table 2.1 – Projected U.S. Population Totals by Age (in thousands)

Age	2020	2030	2040	2050	Percent Change 2020 to 2050
Under 20 years	82,447	84,118	85,990	87,183	6%
20 to 64	194,140	197,846	206,713	216,064	11%
65 years and over	56,052	73,138	80,827	85,675	53%
65-69	18,030	20,144	18,312	20,460	13%
70-74	14,759	18,542	17,567	17,744	20%
75-79	10,053	14,768	16,827	15,592	55%
80-84	6,508	10,609	13,690	13,317	105%
85-89	3,943	5,695	8,707	10,252	160%
90-94	2,017	2,455	4,269	5,817	188%
95-99	649	784	1,257	2,106	224%
100+	92	140	196	386	320%
Median age (years)	38.52	40.08	41.50	42.31	

Source: U.S. Census Bureau, Population Division. Projected 5-Year Age Groups and Sex Composition: 2017-2060.

Urban Activity and Land Use

Urban activity, land use, and the socio-economic profile of a metropolitan area are the fundamental components used to determine travel demand. Urban activity is described as things people do within towns and cities, and in turn, moving place to place to do this activity creates the demand for the transportation network, either roads, trails, transit routes, or sidewalks. Land use can be described in terms of character, intensity, and location of activities. Socio-economic data quantifies these activities through population, employment, dwellings, and school enrollment.

Land use patterns have important influences on transportation. Land use defines where people live and where they work, learn, or play. Land use patterns shape the nature of socio-economic data by reflecting urban and non-urban activity through population, employment, dwelling units, school enrollment, etc. Some locations represent areas with a greater density or concentration of urban activity: residential, commercial, industrial, institutional, or recreational land uses; or lesser density of activity that may include agriculture, parks, and open space. Transportation provides the link between land uses for the movement of goods from area to area.

For the Quad Cities Area, communities and counties guide their respective development using a general plan or comprehensive land use plan. These comprehensive plans establish land use policies and goals to control and direct future growth and development. In the last 10 to 15 years, the majority of the communities in the Quad Cities Area have updated, revised, or created a comprehensive land use plan. Many communities seek to balance new development and redevelopment. They promote infill in older areas of a community and support new development areas in and around corporate boundaries. Proposed development areas may overlap between communities, but for the majority of these areas, the plans are generally consistent for similar proposed land uses. Both Rock Island and Scott County comprehensive development plans encourage development to locate in or near municipalities with infrastructure and services. In unincorporated areas, development of productive farmland and environmentally-sensitive areas is discouraged.

Map 1.6 in Chapter 1 illustrates the existing land use compiled from parcel data from city, township, and county assessor information. Map 1.7 in shows future land use derived from county and communities' comprehensive plans within the planning area and direct conversations on future development areas. Table 1.3

in Chapter 1 outlines the urban activity description by land use type used in this plan. The land area within the MPA Planning Area represents 391.12 square miles.

Land use is controlled by local governments through their respective development codes/regulations, such as zoning, specialized overlay districts, subdivision, floodplain management, stormwater management, and erosion control ordinances. Coupled with a comprehensive plan, these tools help establish orderly land use patterns for residential areas, business districts, industrial parks, transportation facilities, and public facilities and services. They also help to maximize efficient use of the land and minimize conflicts between uses while protecting land use values and reducing public service costs.

Housing and Transportation

According to the 2024 and 2025 editions of the *Trend Report for Planners published by the American Planning Association, the aging housing stock and assuring affordable housing are challenges that require immediate action. Housing stock in the Quad Cities Region is older than the national average. According to 2023 ACS 5-year estimates, over 40% of the housing stock in the metro area was built prior to 1960. Whereas for the U.S. as a whole, that number was 25.7%. Older housing may require increased maintenance or repair costs, but many of the older neighborhoods in the Quad Cities Region remain established neighborhoods with walkable streets and are in closer proximity to many transit routes and downtown districts, which may result in shorter commute distances and times. A diverse stock of owner-occupied and renter-occupied housing units, as well as proactive inspections and rehabilitation initiatives, will encourage a healthy housing market throughout the region that allows multiple generations to take part in their community.*

Regional Economic and Service Centers

As noted above, urban activity influences the transportation system. The metropolitan area is attractive for living and working because of its employment, service, and recreational assets. Map 1.9 in Chapter 1 illustrates accessibility to major employers. It is important that populations that may be affected and/or traditionally underserved by the transportation system are given equitable opportunities to utilize the public transportation systems. These are populations where there are households with no vehicle, lower incomes, and a potential labor force based on age. Areas of most concern are those shaded areas where there is a higher concentration of people with needs for employment and less access to transportation. Map 1.10 illustrates areas with a higher population of 65 and older, individuals with disabilities, and households without a vehicle in comparison to major medical centers and service centers. The map identifies where mobility gaps may exist with these populations. These maps help identify areas within the metropolitan area where transportation system refinements or new facilities may be necessary to serve critical needs.

Public Health

Transportation systems and communities as a whole are recognizing trends between a community's transportation network and its correlation with the community's overall health. Bi-State Regional Commission is actively engaged with the Quad City Health Initiative (QCHI) and its Be Healthy QC committee to address the built environment as it relates to public health. Individuals that travel by foot or bicycle experience the benefits of physical activity, which in return can help to prevent weight gain, obesity, and diabetes, among other negative health-related risks. The prevalence of obesity in the Quad Cities is 42.7% (2024), which is up from 24.1% in 2002 (PRC Community Health Assessment 2024). In the 2024 Quad Cities Health Assessment, the leading cause of death in the Quad Cities is heart disease at 20.0%, followed by cancer at 17.8%. Be Healthy QC supports cross-sector conversations on health and transportation. In turn, Bi-State Regional Commission assists local governments with short and long-range planning for sidewalks and multipurpose trails and bicycle facilities, as well as assisting with Safe Routes to Schools planning and grant assistance

for implementation. Additionally, Bi-State Regional Commission administers a web-based trails website, www.QCtrails.org, for the bistate region and partners with QCHI on its promotion.

Accessibility to public transportation options and developing walkable communities can aid in an increase in active lifestyles for residents and encourage healthy patterns. Land use decisions that support transit-oriented development, "Complete Streets," and ADA accessibility provide a foundation for changing our urban area to increase connectivity and mobility of residents and visitors. In addition, an increase in active commuting patterns may lead to a positive effect on a community's air quality, prevent traffic injuries and death, decrease the cost of health insurance, and enhance the overall quality of life. Transportation safety is another aspect of public health, as just noted. Motor vehicle crashes are the leading cause of unintentional injury deaths measured between 2018 and 2020 representing 15.7%.[6] Chapter 4 discusses vehicle crashes and the related emphasis areas. Chapter 6 highlights crashes involving pedestrians and bicycles, pointing to a need to use urban design to incorporate both safety and physical activity access into how we move around the metro area.

Using 2023 ACS data, throughout the Quad Cities MPA, there are 0.1% that commute by bicycle, 2.4% that commute by walking (0.5% decrease from 2013), and 0.7% that commute by public transportation (0.4% decrease from 2013), for a total of 2.5% of the population that commutes using an alternative mode of transportation. In 2023, 8.4% worked from home. During the COVID-19 Pandemic, according to Pew Research Center in December 2020, 71% of workers nationally were working from home, and 54% preferred to continue to work from home after the pandemic. The ability to work from home was not as available to many low-income workers with 76% of lower income workers indicating their responsibilities of the job cannot be done from home.[7] While the shift may continue and reduce travel demand, there will continue to be a need for work places and those, in particular, that serve essential needs. Efforts to expand the availability and accessibility of sidewalks, trails, and transit continues to increase in the Quad Cities MPA, encouraging alternative modes of travel and increased physical activity. Promoting travel by walking or bicycling, and supplementing travel with transit, locally affects communities in a positive way through improved public health via increased safety and physical activity, more robust economies, and an improved environment. Further discussion of the Quad Cities MPA multipurpose trails and pedestrian network is outlined in Chapter 6. A more detailed outline of the Quad Cities MPA passenger transportation system is provided in Chapter 5.

Bicyclists on Mississippi River Trail at Ben Butterworth Parkway, Moline, Illinois

Source: Bi-State Regional Commission, 2015

The Quad Cities MPA and the Bi-State Region have increased efforts to promote alternative modes of transportation. This is being accomplished through the Air Quality Task Force, which meets quarterly, and the Bi-State Regional Trails Committee, which meets bi-monthly. From 2023 to 2025, the Bi-State Regional Commission partnered with the Iowa Association of Councils of Government (ICOG) and the Iowa Department of Health and Human Services on a 5-2-1-0 grant aimed at encouraging healthy choices. The grant funds are being used to expand recreational opportunities in Davenport, including new playground equipment, StoryWalks®, trail signage, picnic tables, and other initiatives designed to promote healthy choices.

6 *PRC Community Health Assessment 2024*

7 *Parker, K., Horowitz, J.M. and Minkin, R. How the Coronavirus Outbreak Has – and Hasn't – Changed the Way Americans Work, Pew Research Center, Social and Demographic Trends, December 9, 2020.*

Important Definitions Related to Resilience for Extreme Weather Vulnerability

Adaptation – Adjustment in natural or human systems in anticipation of or response to a changing environment in a way that effectively uses beneficial opportunities or reduces negative effects.

Asset – Refers to both physical transportation infrastructure – roads, bridges, rail, etc. - as well as support facilities – vehicles, intelligent transportation systems, ecosystem-related projects.

Exposure – Refers to whether an asset or system is located in an area experiencing direct effects of climate variability and extreme weather events. Exposure is a prerequisite for vulnerability.

Resilience – The ability to anticipate, prepare for and adapt to changing conditions, and withstand, respond to, and recover rapidly from disruptions.

Risk – A combination of the likelihood that an asset will experience a particular climate impact, and the severity or consequence of that impact.

Vulnerability – The degree to which a system is susceptible to, or unable to cope with adverse effects of climate change or extreme weather events.

Source: Federal Highway Administration (FHWA), Vulnerability Assessment and Adaptation Framework, Third Edition, December 2017

Resilience and Hazards Planning

From the 2020 FHWA extreme weather resilience pilot program, participants suggested growing local capacity understanding resilience, integrating available data into decision-making, valuing the cost of disruptions, taking a proactive approach to collaboration, and using the knowledge and data to inform the planning process.

Developing a transportation system that ensures security and reliability is vital for the sustainability and resilience of a community. Resilience refers to the ability to adapt to unexpected events while minimizing the risk of catastrophic failures. The sidebar provides definitions of key terms related to resilience. Important elements include enhancing the durability of transportation assets. Assessing risk and exposure, as well as identifying critical and vulnerable facilities, is essential for prioritizing assets and guiding investments.

The Quad Cities MPA could potentially experience an array of catastrophic events, man-made or natural, including:

- Transportation incident – highway, rail, waterway, or air
  - Hazardous chemical release
  - Crash/fire
- Fixed hazardous material release
  - Radiation incident at Exelon Nuclear Power Plant (Cordova, Illinois)
  - Other hazard chemical release
- Flood event
- Storm or weather incident with related power outages lasting more than 48 hours
- Terrorist action/threat or civil unrest

The 2020 *Quad Cities, Iowa/Illinois Extreme Weather and Transportation Resilience Report* highlights flooding as the most significant extreme weather event affecting the metropolitan region. Additionally, the report identifies other severe weather conditions, such as ice and snow, strong winds, freeze-thaw cycles, and extreme temperatures, as factors that can disrupt daily life.

Effective mobility is essential during natural disasters, making it crucial to provide transportation alternatives for residents and the transportation of goods under extreme conditions. A well-functioning transportation system serves as a backbone for a resilient community. Having redundancies in transportation infrastructure, such as a street grid and multiple bridge crossings, ensures that there are alternative routes available when certain facilities are compromised. For instance, in 2019, River Drive in Davenport was closed to through traffic for several months due to unprecedented flooding of the Mississippi River. Fortunately, alternative detours were available, which helped to mitigate travel disruptions during that period.

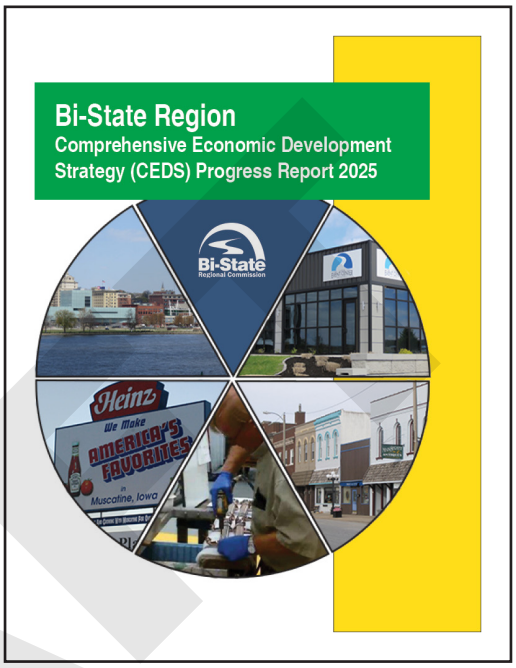
The Illinois Bi-State Region: A Preparedness Resource Guide for Evacuation Events document was developed for Henry, Mercer, and Rock Island Counties in 2014. This plan was preceded by the *Scott County Evacuation Plan* from 2008. In both cases, these counties have a guiding document in the event an evacuation would be necessary. Emergency planning is a regional planning effort considering the overflow of people and/or goods from one county to another during an evacuation. In the Quad Cities MPA, this means a two-state approach that was exemplified by joint Rock Island and Scott County efforts in addressing COVID-19 response and recovery. The framework of both plans is intended to allow for right-sizing of the evacuation based on the magnitude of the trigger or event, either local or regional.

In addition, Scott and Rock Island Counties completed minor updates to their multi-hazard mitigation plans in 2020. The *Scott County Multi-Jurisdictional Hazard Mitigation Plan* was fully updated in 2023. Rock Island County adopted the *Rock Island County Multi-Jurisdictional Local Hazard Mitigation Plan* in 2021, which was approved by Federal Emergency Management Agency (FEMA) in 2022. Rock Island County's hazard mitigation plan is planned to be updated 2026. Both plans enable communities to be proactive in their hazard mitigation planning by minimizing or eliminating potential risks to hazards, and also allows eligibility for certain FEMA funds. The plans also identify the planning areas' vulnerability to potential hazards.

Economic Development

The Quad Cities MPA within the Bi-State Region is one of over 320 Economic Development Districts around the country. Each year, economic development goals and projects are identified in the Comprehensive Economic Development Strategy (CEDS) document as part of progress reports. The full CEDS document is updated every five years, similar to the Long Range Transportation Plan. The vision is consistent in both documents and emphasizes resilience. One of the CEDS goals is to maintain and provide infrastructure, including technology that supports business growth and expansion. It also suggests promoting the redevelopment of blighted, underused, or vacant and environmentally-challenged sites with high market potential. These types of sites may require access improvements

Comprehensive Economic Development Strategy



The document can be viewed at https://bistateonline.org/economic-development/ceds-comprehensive-economic-development-strategy

either through roads, rail, or riverfront. This long-range transportation plan is aligned with the CEDS and represents economic development priorities of the Quad Cities MPA and greater Bi-State Region.

Other Impacts

When evaluating transportation project impacts, consideration should be given to other physical impacts, such as noise control, stormwater control, and man-made hazards. With the commercial and general aviation airports in the planning area, Runway Clear Zones have been designated with development height limitations in the vicinity of these facilities. Consultation with authorities at the Quad Cities International Airport and the Davenport Municipal Airport should occur if a project is adjacent or in proximity to either airport. Consultation with cities and counties related to their stormwater management regulations should be addressed. These regulations strive to limit runoff and erosion from occurring as a result of construction.

Nondiscrimination and Planning

Title VI of the Civil Rights Act of 1964 prohibits discrimination on the basis of race, color, or national origin in programs and activities receiving federal financial assistance. When evaluating transportation projects, consideration should be given to identifying and addressing, as appropriate, areas that have been disproportionately affected by transportation development decisions. Residential data for low-income and minority populations have been evaluated to ensure the benefits and burdens of transportation projects will be fairly distributed through 2055. Ongoing efforts should be made by state agencies, local governments, and transit systems to ensure planning processes are inclusive, and all individuals have the opportunity to engage in project development, can access language assistance resources, and are able to express their transportation needs. A Title VI Analysis outlining demographic data and language assistance measures currently being executed by Quad Cities MPA transit systems is included in Appendix C.

Appendix C provides an analysis identifying how proposed projects in the Quad Cities MPA may affect low income and minority individuals. Appendix C includes Maps C 1-12 identifying where the underserved populations reside in relation to existing and proposed facilities, such as roads, the routes offered by fixed-route public transportation systems, trails, and sidewalks throughout the Quad Cities MPA.

Demographic characteristics of the Quad Cities MPA are shown by race, ethnicity, and income in Maps 1.2, 1.3, and 1.4 in Chapter 1. These maps are used later in this plan to illustrate projects in relation to these populations, and provide information for decision-making where impacts can be assessed and mitigated as determined in the environmental review process and funding decision-making. Maps 1.9 and. 1.10 in Chapter 1 illustrate locations of vulnerable populations in relation to major employers, and essential services, respectively. Map 1.7 in Chapter 1 displays future land use proposed within the Quad Cities MPA. Existing land use is illustrated in Map 1.6 and was obtained from parcel level data (2023) from cities, townships, and counties within the MPA.

U.S. Department of Transportation Automation Principles

- Prioritize safety
- Remain technology neutral
- Modernize regulations
- Encourage consistent regulatory and operational environment
- Prepare proactively for automation
- Protect and enhance freedoms

Source: U.S. Department of Transportation, https://www.transportation.gov/av/3

Safety, Operations, and Security

Throughout Bi-State Regional Commission's 60 years as a Metropolitan Planning Organization (MPO), safety, operations, and security have been important aspects of transportation planning for the Quad Cities MPA. The MPA has prepared intersection crash reports, conducted crash analyses, and participated in interdisciplinary safety and security efforts between two states, two counties, and multiple municipalities as well as a federal military installation, the Rock Island Arsenal. These safety and security-related activities will continue to be important aspects of the transportation planning process in the future.

As new operational technologies have been introduced, including dynamic message signs, traffic cameras, and state traffic operations centers that provide traveler information, the Quad Cities has planned to integrate these technologies into its Intelligent Transportation System Architecture. Technological advancements continue to progress, particularly in relation to how automated vehicles will be incorporated into the transportation network. In 2018, the Federal Highway Administration (FHWA) published "Preparing for the Future of Transportation: Automated Vehicles 3.0," which focuses on three key elements: enhancing multi-modal safety, reducing policy uncertainty, and outlining a collaborative process with the U.S. Department of Transportation. The Metropolitan Planning Organization (MPO) will keep an eye on developments in this area to ensure that the Quad Cities Region is prepared for future implementations.

What is a Safe System Approach?

A Safe System Approach works by building and reinforcing multiple layers of protection to both prevent crashes from happening in the first place and minimize the harm caused to those involved when crashes do occur. It is a holistic and comprehensive approach that provides a guiding framework to make places safer for people.

Principles of a Safe System Approach

- Death and serious injuries are unacceptable
- Humans make mistakes
- Humans are vulnerable
- Responsibility is shared
- Safety is proactive
- Redundancy is crucial

Source: U.S. Department of Transportation, https://www.transportation.gov/safe-system-approach

Traffic Safety Action Plan

In spring 2025, Bi-State Regional Commission concluded a consultant-led *Traffic Safety Action Plan for the Quad Cities Region* and the satellite communities of Muscatine, Iowa, and Kewanee, Illinois. Funded through the federal Safe Streets and Roads for All (SS4A) program, the plan reviewed hundreds of crashes in the urban area alone through the lens of a Safe Systems Approach. The plan identified various types of crashes and proposed specific safety measures to address the contributing factors. Throughout the planning process, the consultants sought input from the public and the steering committee, resulting in a well-informed study that highlighted crash hotspots and areas where drivers and other road users feel uncomfortable or vulnerable. The plan outcome was identification of a high-injury network (HIN) and potential countermeasures to reduce fatal and serious injury crashes. A Vision Zero resolution was supported by the MPA to reach zero fatal and serious injury crashes by 2040. Chapter 4 addresses safety in more detail as well as the HIN. In the development of new projects and reconstruction or rehabilitation of existing facilities, safety will have a pivotal role in facility design, as well as enforcement of traffic laws, emergency response, and education.

Transportation System Management (TSM)

In September 1975, the Federal Highway Administration introduced a short-to-intermediate range planning process that considered a broad range of factors not previously addressed directly in the transportation planning process. In 1977, Bi-State Metropolitan Planning Commission, now known as Bi-State Regional Commission, developed a Transportation Systems Management (TSM) Plan for the Iowa-Illinois Quad Cities. The TSM was required by the Urban Mass Transit Administration.

Benefits of TSMO – Transportation Systems Management and Operations

- Improved quality of life
- Smoother and more reliable traffic flow
- Improved safety
- Reduced congestions
- Less wasted fuel
- Cleaner air
- Increased economic vitality
- More efficient use of resources (facilities & funding)

Types of TSMO Strategies/Solutions

- Work zone management
- Traffic incident management
- Special event management
- Transit management
- Freight management
- Traveler information
- Ramp management
- •Access management
- Improved bicycle and pedestrian crossings

Source: Federal Highway Administration, https://ops.fhwa.dot.gov/tsmo/

The goal for the TSM planning process was to "maximize the operational efficiency of the existing transportation system through the implementation of short and intermediate range, low capital-intensive improvements, which are consistent with the long-range transportation plan." The concepts of the TSM framework evolved into transportation systems management and operations (TSMO) and the Congestion Management Process (CMP).

Transportation Systems Management and Operations (TSMO) Transportation systems management and operations is a set of strategies to get the most performance from the existing transportation system at a relatively low cost. These strategies aim to balance supply and demand on the system and match solutions to the changing conditions. TSMO is a holistic examination of multiple modes and cross-jurisdictional relationships to achieve seamless interoperability. Many jurisdictions are utilizing a number of these strategies and solutions to address recurring and non-recurring congestion. Federal Highway Administration notes utilization of TSMO practices can be an alternative to addressing growing travel demand by adding lanes, new facilities, or to address physical constraints. It is another tool in the tool box for supporting mobility and connectivity.

Congestion Management Plan (CMP)

As outlined in a technical addendum to the long-range plan, the CMP activities involve local engineers and planners as they consider ways to mitigate congestion on the transportation network. Some CMP strategies may add capacity through additional lanes or new facilities to relieve congestion. However, operations management and maintenance activities may relieve congestion. These types of improvements are not listed separately in the plan, but are a component to optimizing travel demand.

Congestion relief plays an important role in plan preparation as part of the Surface Transportation Block Grant (STBG) Program evaluation process adopted by the Quad Cities MPO Transportation Policy Committee, a delegated authority by the Bi-State Regional Commission to plan and program federal transportation funding. The technical evaluation criteria weigh heavily on factors affecting congestion, and the process has been set as an example throughout the United States.

Safety impacts are another component of the project prioritization process for federal-aid STBG funds, which were renamed Surface Transportation Block Grant Program funds under the FAST Act. Nonrecurring congestion is often a result to traffic back-ups due to crashes. If the frequency of crashes and their severity can be reduced on the High-Injury-Network, then the result will be improved, uninterrupted traffic flow due to those crashes.

15th Street Rock Island, Iowa Bound Congestion

Source: Bi-State Regional Commission

In 1991, an interdisciplinary traffic safety group was formed in the Iowa Quad Cities, specifically in Scott County, through the Iowa Governor's Traffic Safety Bureau. The group, known as the Community Awareness of Roadway Safety (CARS) Group, has been dedicated to various aspects of traffic safety for over 25 years. Their efforts encompass a wide range of topics, including work zone enforcement, seat belt use, child safety seat usage, red light violations, crash reduction initiatives, river crossing safety and security coordination, incident management, evacuation planning, congestion management, low-clearance bridge safety, and improvements for bicyclists and pedestrians.

CARS has collaborated with the Departments of Transportation to implement 1/10th mile interstate markers along I-74. These markers help law enforcement

identify whether incidents occur in Iowa or Illinois at the Mississippi River crossing. Additionally, the group has been instrumental in deploying dynamic message signs and establishing intergovernmental agreements necessary for collaboration among multiple jurisdictions at the federal, state, and local levels. The 2025 *Traffic Safety Action Plan* called for regular traffic safety summits and another way to bring jurisdictions together to address systemic crash reduction that will help with congestion management.

Intelligent Transportation Systems (ITS)

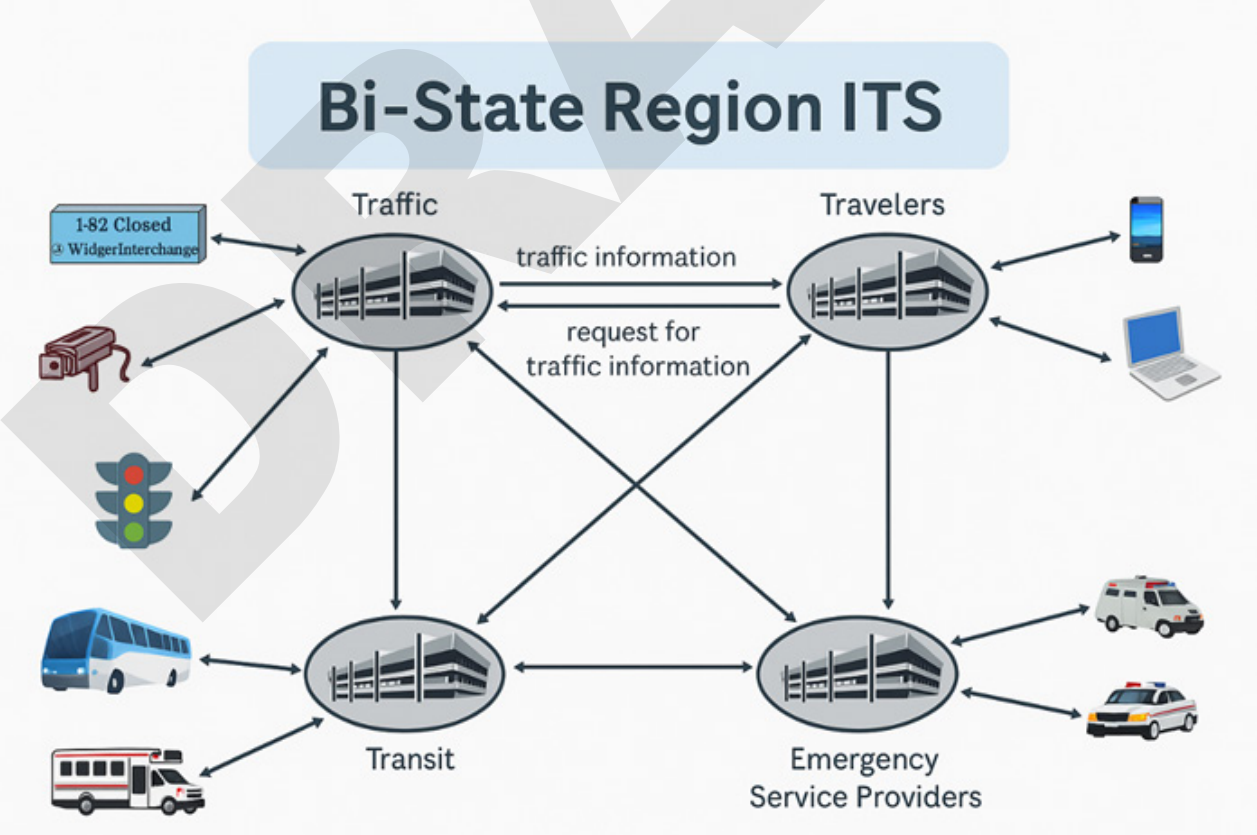
Intelligent Transportation Systems (ITS) encompass a broad range of advanced technologies that enhance the safety, efficiency, and sustainability of transportation systems. Within the Bi-State planning area, ITS provides critical support for multimodal mobility, real-time information sharing, incident response, and system performance monitoring. ITS deployments should be designed with inclusive access in mind providing real-time transit info to underserved populations, ADA-compliant interfaces, and ensuring broadband access doesn't create a digital divide in ITS benefits.

Regional Context and ITS Vision

The Bi-State Region's ITS vision is to leverage technology and data to build a safe, efficient, and interconnected transportation network that supports economic vitality, environmental sustainability, and equitable access for all users. Key goals of ITS in the Bi-State area include:

- Improving traffic flow and reducing congestion
- Enhancing traveler information and communications
- Supporting emergency and incident management
- Facilitating efficient transit operations
- Supporting data-driven decision-making for planning and operations

Figure 2.5 – Bi-State Region ITS

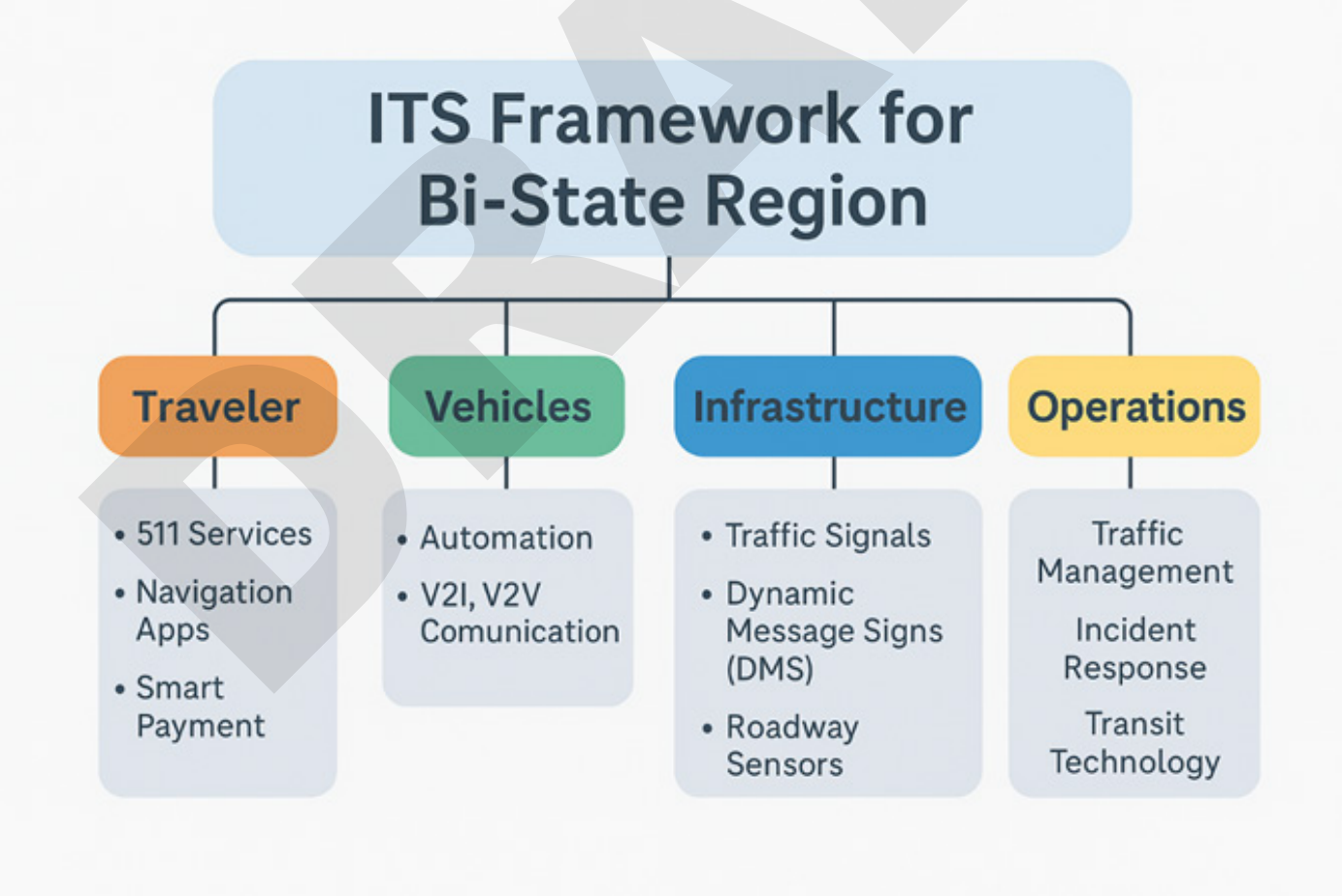


Existing ITS Infrastructure and Deployments

ITS infrastructure in the Bi-State region is deployed at both state and local levels. Key components include:

- **Traffic Signal Coordination.** Several key arterials, such as John Deere Road and Kimberly Road, utilize coordinated or adaptive signals to optimize travel times.
- **Dynamic Message Signs (DMS).** Located on I-74 and I-80 to provide real-time updates on travel times, incidents, and weather conditions.
- **Closed Circuit Television (CCTV) Cameras.** Installed and maintained by Iowa DOT and Illinois DOT for real-time monitoring of freeway and arterial traffic.
- **Transit ITS.** MetroLINK and Davenport CitiBus utilize Automatic Vehicle Location (AVL) systems and real-time arrival prediction tools via mobile apps and digital signage.
- **Emergency Vehicle Preemption (EVP).** Installed at various intersections to improve response times for police, fire, and EMS.
- **Traffic Management Centers (TMCs).** Operated by the Iowa and Illinois DOTs to monitor traffic, coordinate incident response, and disseminate traveler information.

Figure 2.6 – Framework for ITS in the Bi-State Region



Key Corridors with ITS Assets

Corridors with existing or proposed ITS enhancements include:

- **I-74 Corridor (Mississippi River Crossing).** Supports DMS, camera monitoring, and future connected vehicle readiness.
- **I-80 Corridor.** Focus area for freight ITS and weather monitoring systems.
- **John Deere Road.** Multi-jurisdictional arterial with signal coordination and potential adaptive signal pilot.
- **West Kimberly Road.** Identified for pedestrian-focused ITS improvements and signal upgrades.

Coordination with State and Local Partners

ITS in the Bi-State region benefits from strong partnerships with:

- Iowa DOT and Illinois DOT (District 6 & 2)
- City and County agencies operating traffic signals, emergency response, and public works systems
- Transit operators
- Emergency responders (fire, police, EMS)
- Freight and logistics stakeholders

Bi-State Regional Commission works to ensure cross-jurisdictional coordination in ITS planning and encourages consistent ITS architecture in line with state and federal frameworks.

ITS Architecture and Standards

The region aligns with both the Iowa Statewide ITS Architecture and the Illinois Statewide ITS **Architecture, ensuring regional consistency and eligibility for federal funding. These frameworks support interoperability, scalability, and integration of future systems.**

Future ITS Opportunities and Needs

BSRC and its partners are exploring expanded ITS strategies to meet future mobility demands:

- **Connected and Automated Vehicle (CAV) Readiness.** Fiber-optic infrastructure, roadside units (RSUs), and upgraded signals.
- **Smart Work Zones.** Real-time traveler info, speed compliance, and dynamic detour guidance.
- **Integrated Corridor Management (ICM).** Coordinated response and traffic control along high-volume corridors like I-74 and I-80.
- **Bicycle and Pedestrian ITS.** Smart crosswalks, flashing beacons, and detection systems for safety enhancements.
- **Freight Signal Priority (FSP).** Evaluating corridors where freight volumes would benefit from reduced signal delays.

ITS and Transportation Performance Management

ITS plays a key role in meeting national and regional performance targets:

- **Safety.** Faster incident detection and response reduce crash severity
- **Reliability.** Real-time traveler info and coordinated signals improve trip consistency
- **Mobility.** Dynamic route guidance and system monitoring improve flow
- **Asset Management.** Data from ITS can inform maintenance and investment strategies

Intelligent Transportation Systems are a critical component of the region's vision for a safe, efficient, and sustainable transportation future. BSRC will continue to facilitate regional ITS planning, support technology deployment, and advocate for data-driven improvements that benefit users across all modes.

Emergency Management

Transportation safety and security efforts are closely linked to the recent trend of formal planning within police, fire, emergency management services, and public works sectors. Following the September 11, 2001 terrorist attacks and the Hurricane Katrina disaster, federal and state regulations have made formal planning and operational procedures mandatory for nearly every emergency response agency at the federal, state, and local levels.

These planning initiatives include the adoption and training for the National Incident Management System (NIMS), which provides a framework for incident response utilized by emergency response agencies.

Other federally or state-mandated planning requirements include interoperable communication plans that outline the inventory and connectivity of emergency communication resources in a region. These plans also indicate how regional agencies should coordinate with federal and state agencies during a joint response. In the Bi-State Region, all agencies comply with NIMS, and many have participated in developing and implementing interoperable communications plans.

An important aspect of transportation security and safety is the establishment of both formal and informal mutual aid agreements among emergency response agencies. These agreements typically specify that nearby agencies will provide assistance to one another upon request, as long as doing so does not compromise their ability to serve their own communities. Often, these agreements stipulate that agencies will not charge each other for assistance or will set up a nominal reimbursement arrangement. Numerous such agreements are currently in place across the Bi-State Region.

Federal Performance Management

The Moving Ahead for Progress in the 21st Century Act (MAP-21) established performance-based metrics, which were further reinforced in subsequent federal transportation acts. These measures emphasize system safety, asset management, and efficiency. National performance goals were set, requiring each state and public transit system to implement relevant, reliable, and measurable metrics that demonstrate trends by establishing individual targets. These goals, which are broad statements of desired outcomes, are being integrated into the processes of state and transit systems to help identify necessary transportation improvements and select projects. The MPO has supported the targets set by Iowa and Illinois for safety, road and bridge assets, and system reliability, as well as the targets for transit safety and assets established by the three fixed-route public transit systems. Further information about the MPO's performance measure targets may be found in the Performance Measures Addendum to this plan.

Federal Performance Management Goals

The U.S. Congress establishes national performance goals for the Federal-aid Highway Program [23USC §150(b)]. They are:

- **Safety –** To achieve a significant reduction in traffic fatalities and serious injuries on all public roads
- **Infrastructure condition –** To maintain the highway infrastructure asset system in a state of good repair
- **Congestion reduction –** To achieve a significant reduction in congestion on the National Highway System (NHS)
- **System reliability –** To improve the efficiency of the surface transportation system
- **Freight movement and economic vitality –** To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development
- **Environmental sustainability –** To enhance the performance of the transportation system while protecting and enhancing the natural environment
- **Reduced project delivery delays –** To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices

In addition to the Federal Highway Administration's (FHWA) national performance goals, the Federal Transit Administration (FTA) has also developed performance measures relating to the following themes:

- **Transit Asset Management – To assist transit agencies with maintaining buses and rail systems in a State of Good Repair (SGR) and to preserve and expand transit investments**
- **Transit Safety – To prevent public transportation accidents by integrating safety into all aspects of a transit system's activities**

States are required to integrate the performance measures identified by FHWA, but are allowed to establish additional performance measures as well. States will invest resources to achieve individual targets that will collectively make progress toward national goals. Once the state finalizes their targets, each Metropolitan Planning Organization (MPO) has 180 days to set performance targets in relation to the performance measures of their own or support the state ones. Coordination among state departments of transportation, MPOs, and relevant public transportation providers is necessary when setting targets in order to ensure consistency to the maximum extent possible. State and MPO targets (if developed) should be included in the Statewide Transportation Plan. The implemented performance measures increase accountability and transparency of the federal-aid highway program and improve project decision making.

Road safety targets address number of fatalities, fatality rate, number of serious injuries, serious injury rate, and non-motorized fatalities and serious injuries on all roads, including roadways that are not federally classified. Transit safety includes measures of number of fatalities, number of injuries, and both a fatality and an injury rate per total vehicle revenue mile. Transit safety measures also include safety events and system reliability.

Performance measures for asset management for roads and bridges focus on the interstate system, and non-interstate National Highway System (NHS) in good or poor condition. They also look at the percentage of interstate and non-interstate NHS percentage of person-miles traveled that are reliable, and the truck travel time reliability (TTTR) index.

The Quad Cities MPO has supported the respective system targets set by the States of Iowa and Illinois and the Bettendorf Transit, Davenport CitiBus, and MetroLINK transit systems. The Quad Cities MPO performance measures addendum to this plan provides a compilation of the most recent targets and outlines the federal performance measures program more fully. It is intended to be updated periodically, and support of the states' and transit systems targets are taken to the Transportation Policy Committee based on the cycle of required target-setting at the state and transit system level. The MPO supports the performance targets through the programming of projects, technical assistance in the project development phase, intergovernmental cooperation, and data collection.

Other Ways to Support Performance Management

While there are various federally-established performance measures for transportation system management, it is important to acknowledge that evaluating additional activities can significantly contribute to performance advancement for the metropolitan area. The term "support" encompasses a broad range of initiatives. In terms of safety, the MPO has developed the *Quad Cities Strategic Highway Safety Plan* (2021) as a resource for local jurisdictions to identify high-crash areas or corridors where approaches, such as engineering, enforcement, emergency response, or education, may be effectively implemented. This plan delineates key focus areas for efforts aimed at reducing crashes. In 2025, the *Traffic Safety Action Plan*, as previously discussed in this chapter, highlighted a range of crash types occurring on roadways in the Quad Cities. The assessment proposed safety countermeasures for specific locations and corridors identified within the High Injury Network.

The overarching federal safety goal applies across all roadways, and the local traffic safety plans will serve as a vital tool in setting priorities for crash reduction, ultimately striving to lower fatalities and serious injuries. The MPO is actively engaged in the longstanding Community Awareness of Roadway Safety (CARS) group that convenes regularly to foster discussions on traffic safety and coordination. Collaborative dialogues between the departments of transportation and local officials regarding proactive strategies for addressing high-density crash corridors or hotspots are essential for advancing these projects as priorities and facilitating timely implementation. These discussions have been facilitated at traffic safety summits, and conversations and action-based strategies to reduce fatal and serious injury crashes will continue.

Additionally, enhancements at intersections and along corridors that coincide with transit routes will contribute positively to transit safety. For road improvement initiatives, the MPO has instituted an STBG programming process that evaluates projects based on criteria

including safety, congestion management, and pavement conditions, with safety considerations playing a crucial role in the project ranking process.

For roadway condition and reliability, local jurisdictions may cooperate on projects that are within their respective jurisdictions and on the non-interstate NHS routes. The MPO supports local governments in the metro area with grant applications for planning and construction funds, and provides data to help justify funding applications. The *Quad Cities, Iowa/Illinois Extreme Weather and Transportation Resilience Report* identifies areas where travel disruptions may occur due to extreme weather and informs decision-making when improvements are planned for the NHS system.

One of the key objectives of this plan is system preservation. For roads and bridges, the MPO's STBG programming process utilizes condition data to evaluate projects that apply for this specific funding source within the metro area. The rating criteria prioritize system preservation over project expansion.

The items noted above support the federal performance management system, as well as this plan's transportation objectives that are outlined in Chapter 1, including:

- Increase accessibility and mobility options
- Increase transportation safety
- Emphasize system preservation
- Engage in efficient system management and operation
- Enhance connectivity and integration between modes
- Protect and enhance the environment
- Support economic vitality
- Increase security
- Address system resilience