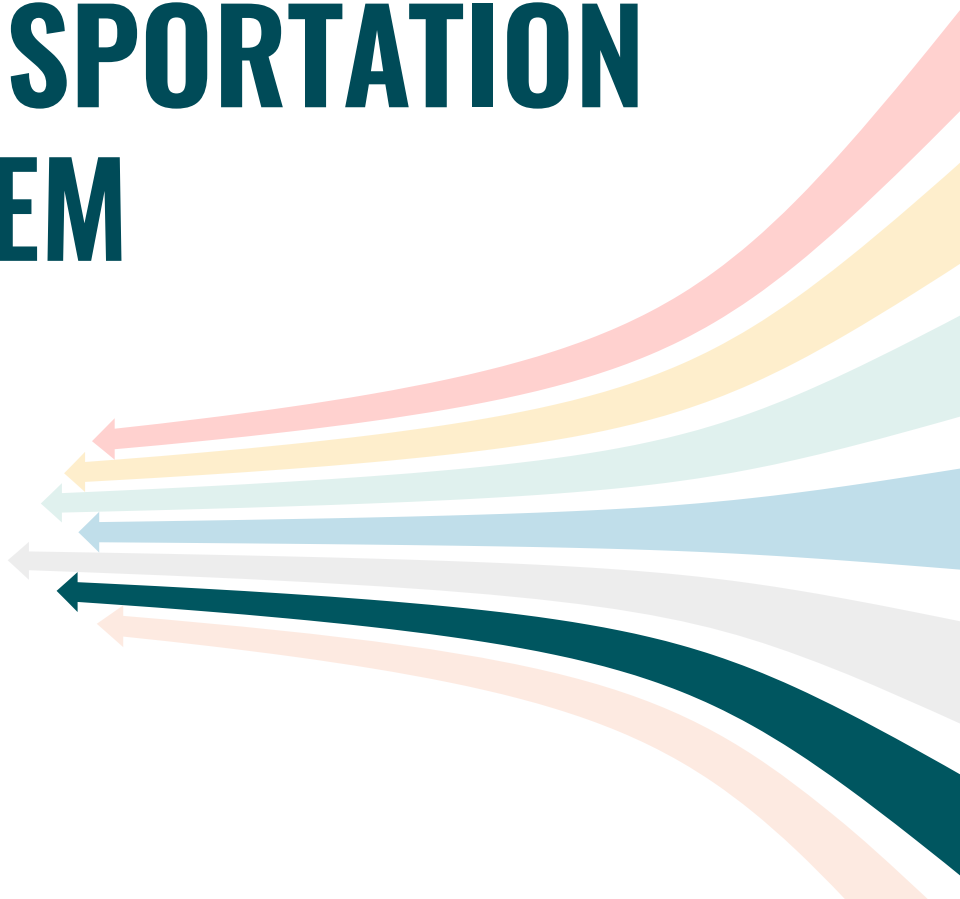
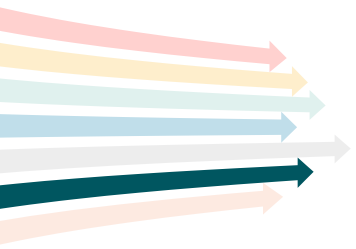




5

STEWARDSHIP OF THE TRANSPORTATION SYSTEM



5.1 BACKGROUND

What is Stewardship?

Keeping the transportation system in good repair is a top priority for local leaders and the public—widely seen as the most basic duty of transportation agencies. Potholes each spring are visible reminders of the challenge, while aging buses and facilities quietly strain agencies working to provide reliable service and plan for growth.

Local agencies face infrastructure needs that far exceed available funding after decades of deferred

maintenance. If current low-density growth continues, the region projects a \$1.3 billion shortfall just to keep up with the existing infrastructure. Compounding the challenge, project costs are often judged only by their upfront price tag, which often ignores the long-term operations and maintenance burden. These realities have pushed system preservation to the forefront of regional transportation planning efforts like Metro Area Travel Improvement Study (MTIS) and ConnectGO.

Why Stewardship?

Building new and or expanding roads, bridges, railroad tracks, ports, and transit stations is expensive. Keeping those assets in working order for as long as possible makes the initial investment less of a burden over time. Preventive maintenance is generally less expensive than emergency repairs or complete replacements. Addressing small issues before they become major problems can save significant amounts of money in the long run.

In addition to the cost savings from maximizing the life of transportation infrastructure, communities benefit from a well-maintained system in the following ways:

- **Safety:** Regular maintenance ensures that roads, bridges, railways, sidewalks, trails and other infrastructure are safe for public use. Neglecting maintenance can lead to accidents, structural failures, and loss of life.
- **Economic Growth:** Efficient transportation networks facilitate the movement of goods and people, which is essential for commerce and economic development. Poor infrastructure can lead to delays, increased costs, and reduced competitiveness.
- **Efficiency and Reliability:** Well-maintained infrastructure reduces travel time and fuel consumption, leading to more efficient and reliable transportation systems. This reliability is crucial for businesses that depend on timely delivery of goods and a boost to the traveling public's quality of life.
- **Environmental Impact:** Properly maintained infrastructure can reduce environmental damage. Well-kept roads and bridges that provide access to all modes of transportation can minimize vehicle emissions by reducing traffic congestion and improving fuel efficiency.
- **Resilience:** Maintaining infrastructure helps communities withstand and recover from natural disasters and other emergencies. Robust transportation systems are essential for emergency response and evacuation efforts.



- **Public Health:** Efficient transportation systems can reduce pollution and improve access to healthcare facilities, thereby contributing to better public health outcomes.
- **Social Balance:** Reliable transportation infrastructure ensures that all members of society, including those in rural or underserved areas, have access to essential services, employment opportunities, and education.

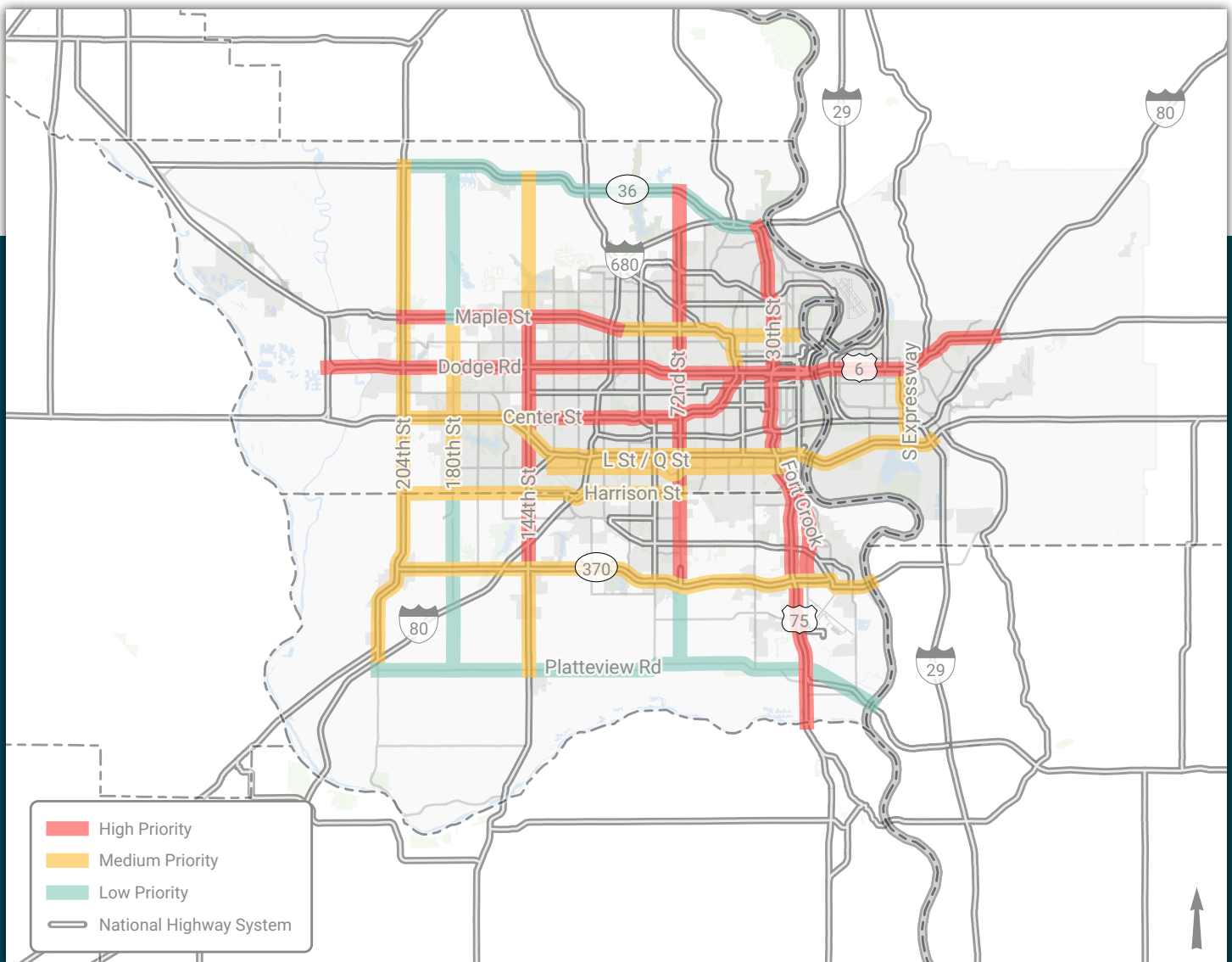
As the region plans for the year 2050, it is impossible to ignore the potential for existing and emerging technologies to change how goods and people move through the region. Today, planners and engineers recognize the value that technology investments like a modern traffic signal system can play in reducing congestion and keeping the economy moving. Likewise, as state and local leaders consider the impacts of emerging technologies such as autonomous vehicles, it's important to weigh both the benefits and burdens of such shifts and the uncertainty that currently exists in planning for such changes. However, these planning efforts provide an opportunity to reconsider our traditional approaches to mitigating congestion in the region while ensuring that adequate resources exist to maintain the system of today and tomorrow.



How is Stewardship Measured?

System Preservation in the MTIS

Figure 5.1: MTIS Study Area Corridor Map



The Metro Area Travel Improvement Study (MTIS) was a collaborative effort between the Nebraska Department of Transportation (NDOT) and the Metropolitan Area Planning Agency (MAPA) to develop a comprehensive strategy for freeways, major roadways, and the transit system within the The Metro Area Travel Improvement Study (MTIS) was a collaborative effort between the Nebraska Department of Transportation (NDOT) and the Metropolitan Area Planning Agency (MAPA) to develop a comprehensive strategy for freeways, major roadways, and the transit system within the Omaha-Council Bluffs region. This effort implemented a performance-based planning approach for the first time in the MAPA region and provided community leaders with new tools to analyze future needs and compare different strategies. Additionally, the focus on major roadway corridors as shown in Figure 1 allowed MAPA and its partners to compare and monitor regionally significant corridors across state lines and set performance targets for an entire regional system.

MTIS, conducted in three phases from 2013-2019, took stock of current baseline conditions for travel reliability and infrastructure in the region. Targets were established for these measures, and weighting criteria were applied in evaluating project scenarios. Many of these measures are similar to the final FHWA and FTA performance measures which were ultimately determined by the rulemaking process. As such the scenario planning process in MTIS provided a baseline for the FHWA and FTA measures to understand the scale of many of these congestion and system preservation issues at the regional level.

Performance Targets

To plan for the region's system preservation needs, the Metro Travel Improvement Study (MTIS) inventoried the condition of pavements and bridges on the National Highway System (NHS) roadways as well as other major roadways that serve as MAPA's Regional Priority Corridors. This network accounts for approximately 46% of the total freeway, arterial, and collector lane mileage in the study area, but represents the vast majority of Vehicle Miles Travelled for drivers in the region, as well as the highest levels of truck traffic in the region. Additionally, utilizing the NHS as the basis for this network aligned the MTIS with the federal performance measures that were instituted during the development of the study. Appendix B includes a more detailed profile of the condition of the transportation system, and Appendix E provides more detailed information about MAPA's support to state DOT pavement and bridge condition measures.

Performance of pavement and bridge conditions on the National Highway System are measured and reported by the State DOTs, reporting progress towards 2 and 4 year targets, to the USDOT. MAPA chooses to support these targets, by reviewing and programming all Interstate and National Highway System projects within its boundary that are included in the DOTs' Transportation Improvement Programs. MAPA also supports its member jurisdictions who are responsible for pavement and bridges on the local, or off-system NHS.

Current regional targets for system preservation can be found in Appendix E.



Safety and Stewardship

The obvious connection between safety and system preservation is that infrastructure in poor condition can be dangerous. Crumbling pavement and deteriorated bridge structures can be hazardous to the

traveling public, so it is important to complete regular maintenance to prevent incidents. Performing this maintenance can put workers in danger, though, as they are vulnerable while completing jobs near traffic.

“Construction workers and road maintenance personnel are highly vulnerable in work zones, where traffic is often moving in close proximity. The workers being injured and killed are the ones who voluntarily put their lives at risk to maintain our roadways.”

-2025 Comprehensive Safety Action Plan

From 2018 through 2022, according to state crash data, about three percent of fatal and serious injury crashes in the region occurred in or around a work zone. The regional Comprehensive Safety Action Plan

recommends several actions for improving safety for workers, including roadway shoulder improvements, digital warning signage, and ongoing training.

The Baseline - Where We Are Today

Pavement Conditions

Pavements deteriorate over time due to ongoing traffic, severe weather, and other factors. Both the Iowa and Nebraska Departments of Transportation (Iowa DOT and NDOT) conduct routine assessments of the NHS pavements to monitor the condition of the

system. Using the guidance provided by the Federal Highway Administration, pavement conditions on the MAPA NHS system were calculated using data collected in 2024.

Figure 5.2: Pavement Condition on the National Highway System

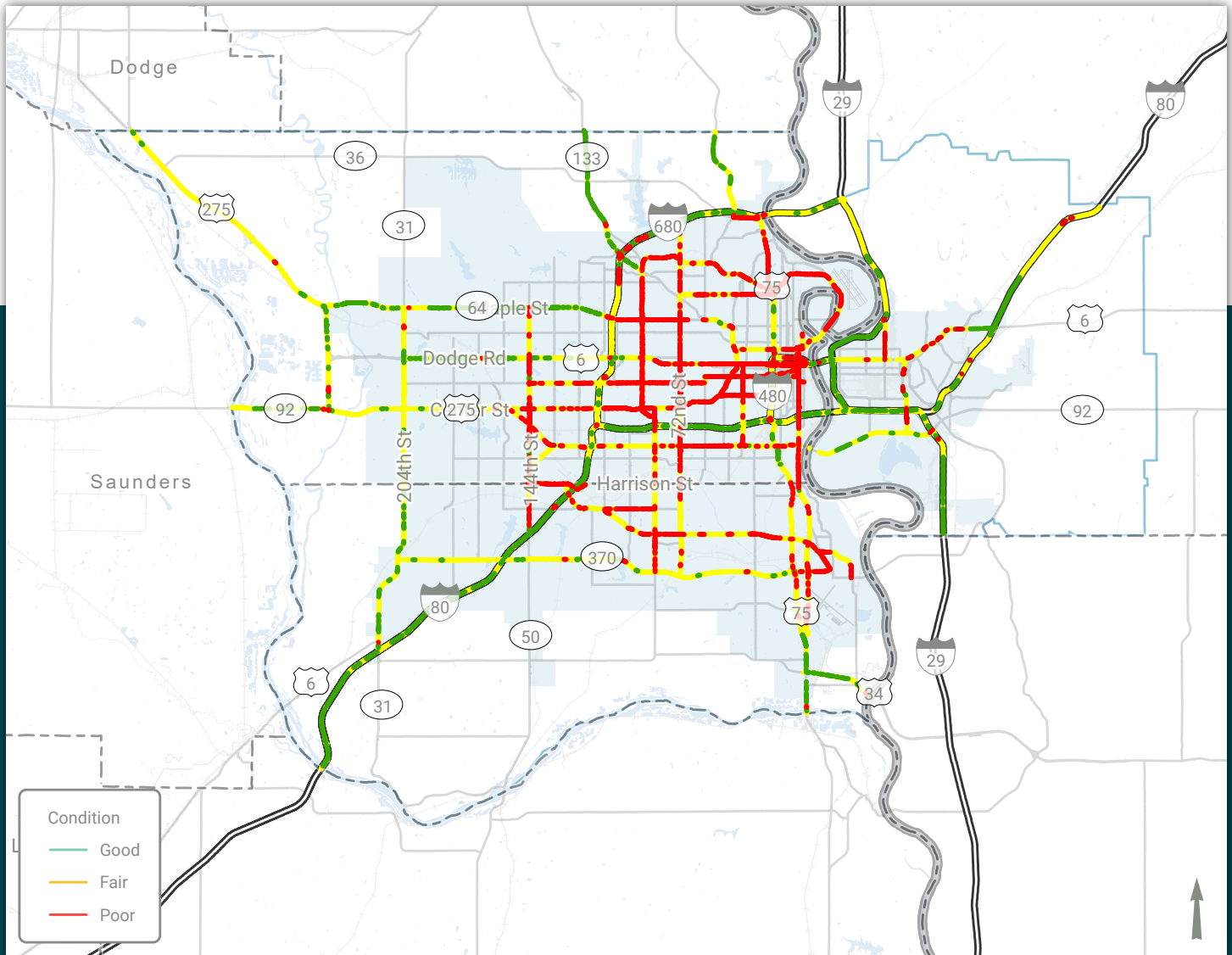
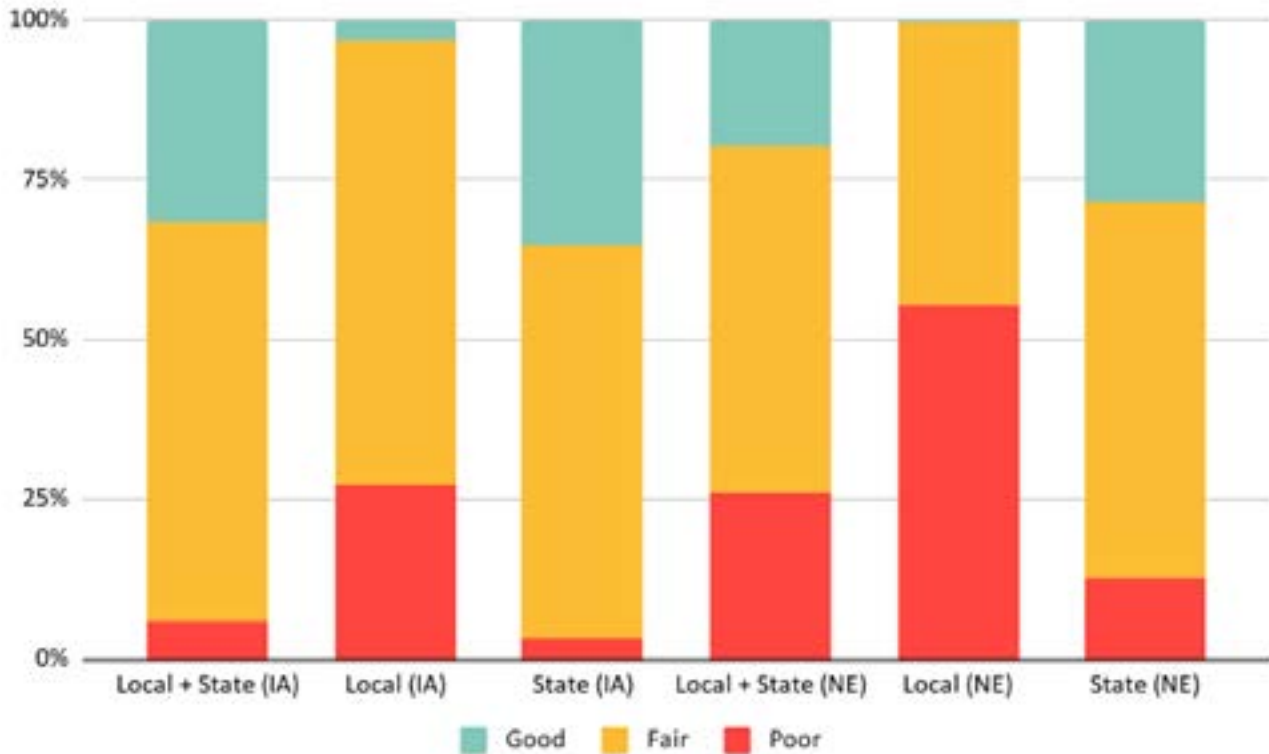


Figure 2 shows that the interstate highway system is generally in good condition, but the state highway and local NHS system are predominately in fair or poor condition. The distribution of pavement condition

between state and local jurisdictions is highlighted in Figure 3, which shows the percentage of lane-miles by road ownership in each state.

Figure 5.3: Pavement Condition on the National Highway System



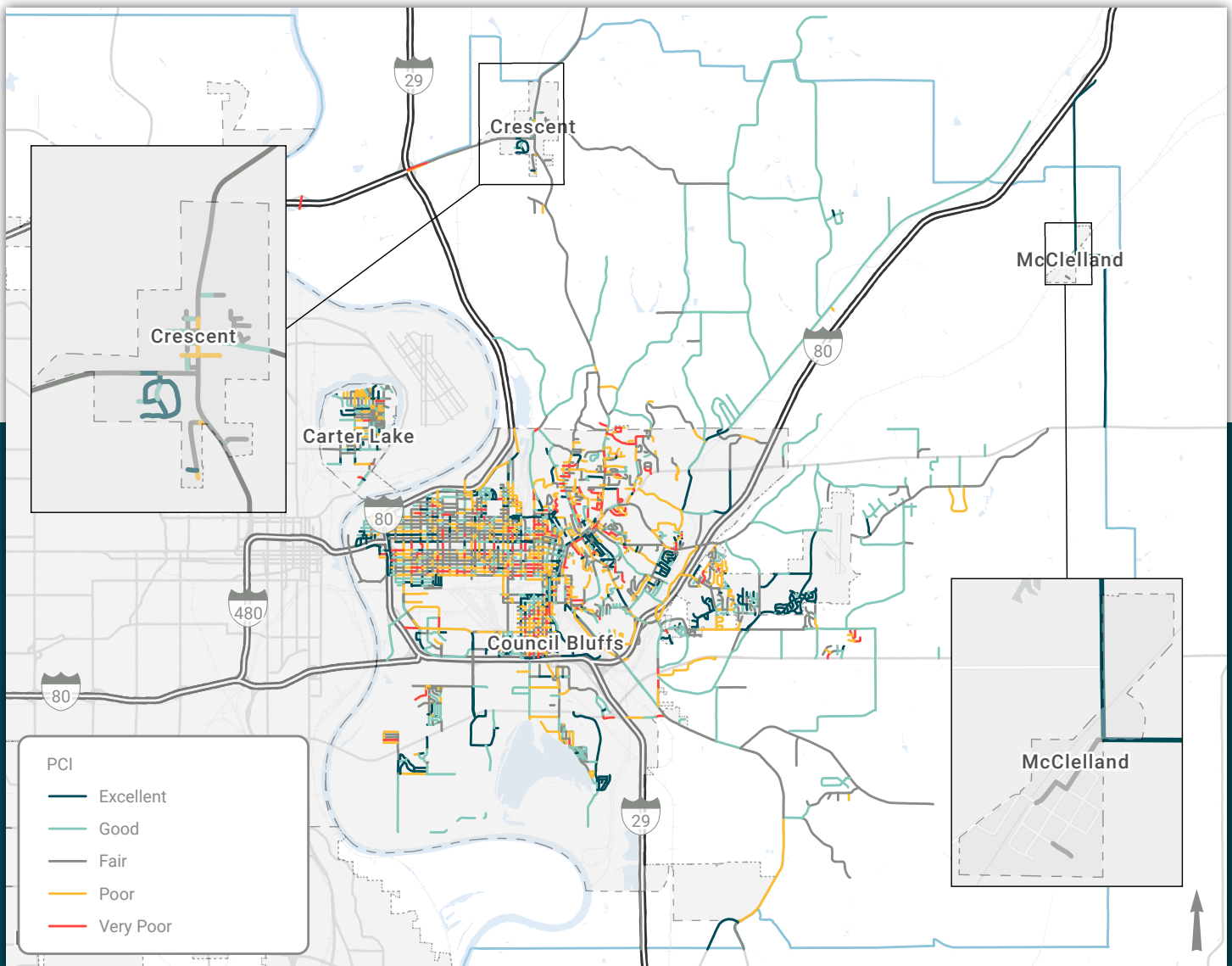
Iowa Pavement Management

In addition to the required reporting used to develop the FHWA Pavement Condition, Iowa DOT utilizes two separate Pavement Condition Indices (PCI), one for use on higher speed roadways, and a second (CityPCI) which removes the IRI-distress component within slower-speed, urbanized areas. MAPA is a member of the Iowa Pavement Management Program Users Group, and is working to develop proficiency in use of the Deighton Total Infrastructure Management (dTIMS) system to help local communities establish Pavement Management Programs (PMP). Along with Iowa DOT, the City of

Council Bluffs uses dTIMS to manage their PMP, which includes the local-NHS roadways within the Iowa-portion of the MAPA region.

Local system pavement condition is collected every two years within the Iowa-portion of the MAPA region, and is provided for public use through the IPMP Web Portal visualization tool, and for analysis and download in the Iowa Pavement Management Program Data Exploration Interface. The local road pavement conditions are shown in Figure 4.

Figure 5.4: Iowa Local Road Pavement Condition (2024)



Nebraska Pavement Management

As with Iowa, Nebraska maintains their own pavement condition measure, the Nebraska Serviceability Index (NSI). NDOT uses the Pavement Optimization Program software to identify candidate road projects on the NHS, and provides annually to

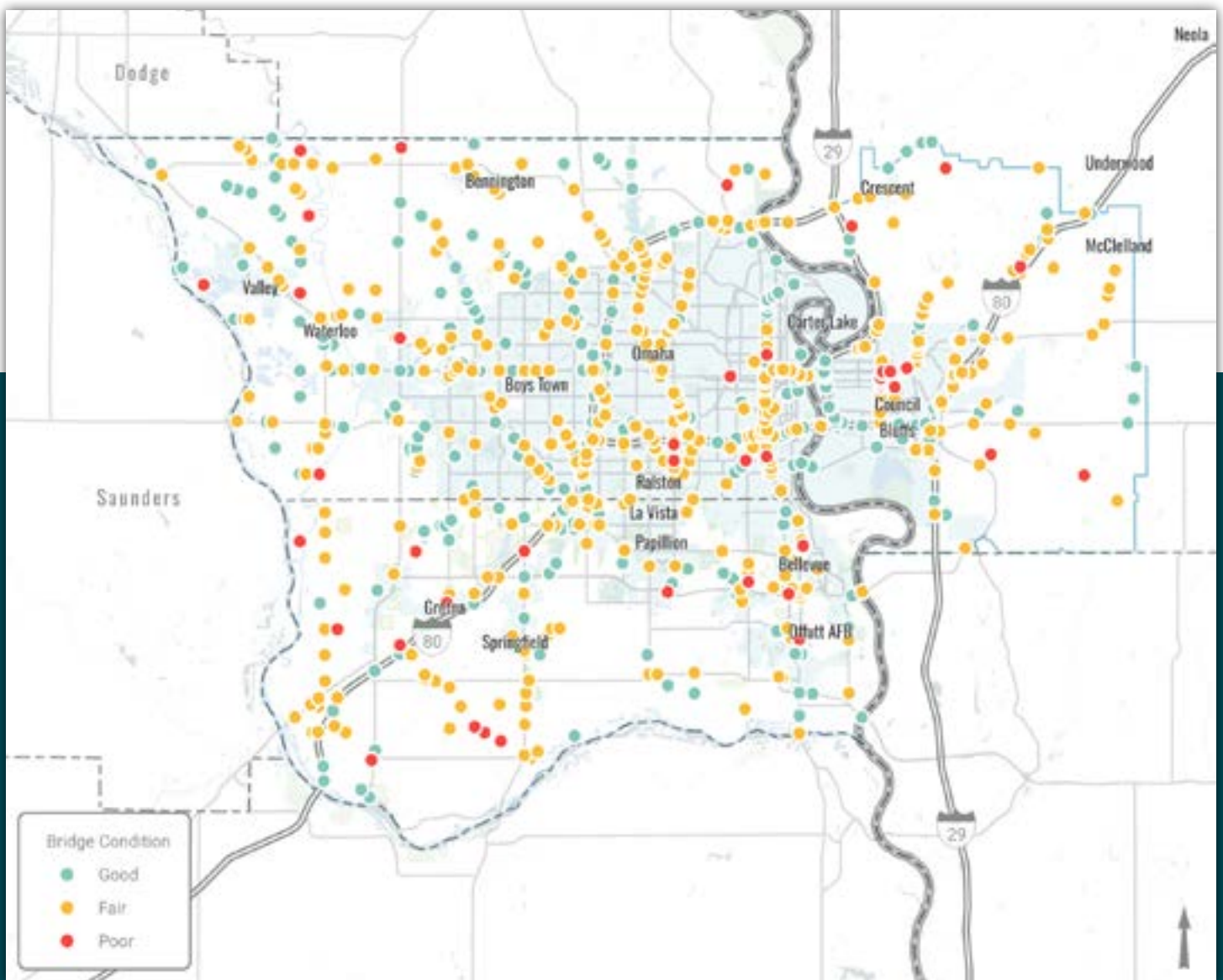
each MPO a 10-year life cycle cost analysis listing candidate projects by year, with an estimated cost for the recommended preservation strategy on the local NHS. Additional details about the current 10-year analysis can be found later in this chapter.

Bridge Conditions

Within the MAPA region there are more than 880 bridges on public roadways which are maintained by the Nebraska and Iowa DOTs or local jurisdictions.

Figure 5 below presents the current condition of these bridges (2025 NBI) using the FHWA designation of Good, Fair, or Poor.

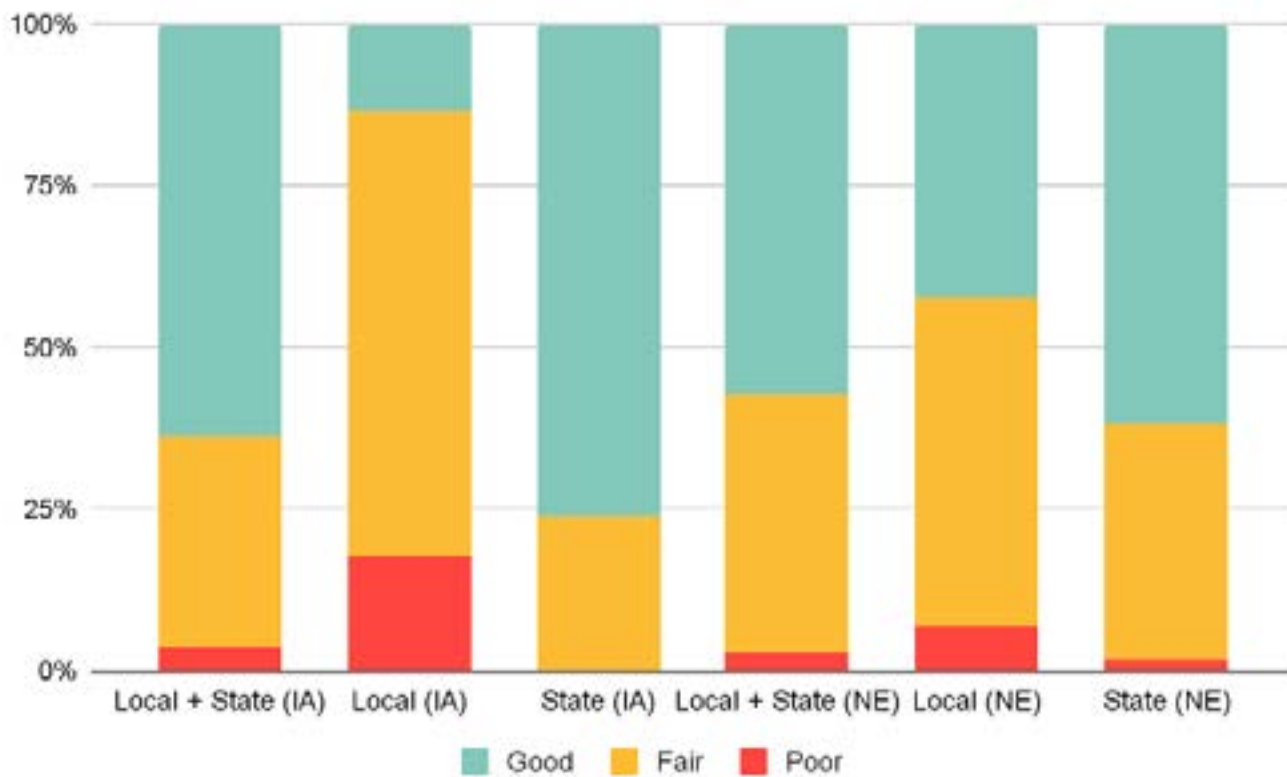
Figure 5.5: MAPA Regional Bridge Conditions



MAPA supports the Iowa and Nebraska Departments of Transportation bridge condition performance targets on the National Highway System (NHS). While a majority of the bridges within the region are owned and maintained by local jurisdictions, a smaller, but no less important subset of these bridges are on

the NHS. These bridges, often on roadways which have been relinquished (Nebraska) or transferred to jurisdictions (Iowa) from rural highway or freeway sections, are aging and in need of repair or replacement. Figure 6 presents a breakdown of bridge condition by state and road ownership.

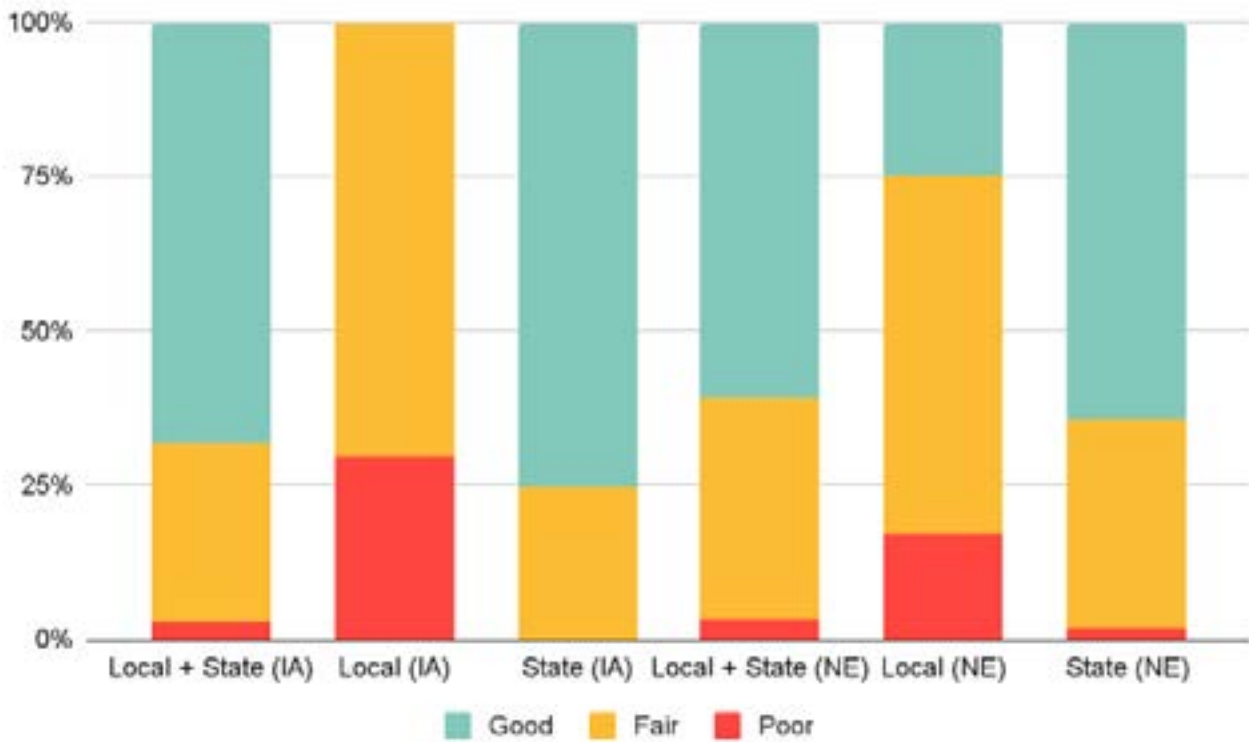
Figure 5.6: MAPA Regional Bridge Conditions By Road Owner



Of the region's 880 bridges, just over 40% of them are on the NHS. Figure 7 below shows the condition by state and road ownership of the bridges on the NHS system. Local jurisdictions are responsible for

49 of these bridges, and by deck area, both Iowa and Nebraska local jurisdictions have a higher percentage of poor and fair condition bridges.

Figure 5.7: MAPA NHS Bridge Conditions By Road Owner



5.2 STRATEGIES TO IMPROVE TRANSPORTATION SYSTEM STEWARDSHIP

State DOT Asset Management Planning

As a Metropolitan Planning Organization (MPO) responsible for serving the transportation management area (TMA) - a designation by the Department of Transportation of an urbanized area with a population over 200,000 as defined by the Bureau of the Census - MAPA, through the metropolitan transportation planning (MTP) process, includes the development and approval of an annual Transportation Improvement Program (TIP) in consultation with the Nebraska and Iowa Departments of Transportation (DOT). However, the federal regulations that govern MAPA's transportation planning process (23 CFR 134(k)(4)) state that DOTs are ultimately responsible for selecting projects on NHS corridors.

(B) National highway system projects.

Projects carried out within the boundaries of a metropolitan planning area serving a transportation management area on the National Highway System shall be selected for implementation from the approved TIP by the State in cooperation with the metropolitan planning organization designated for the area.

Because states play a key role in selecting projects on the NHS and prioritizing investments in these corridors, the DOT asset management programs are very important to making progress towards improved pavement and bridge conditions in the MAPA region. Both Iowa DOT and NDOT have extensive asset management programs that monitor pavement conditions on the NHS. MAPA has adopted both Iowa DOT and NDOT's NHS pavement and bridge performance targets as part of its performance management process.

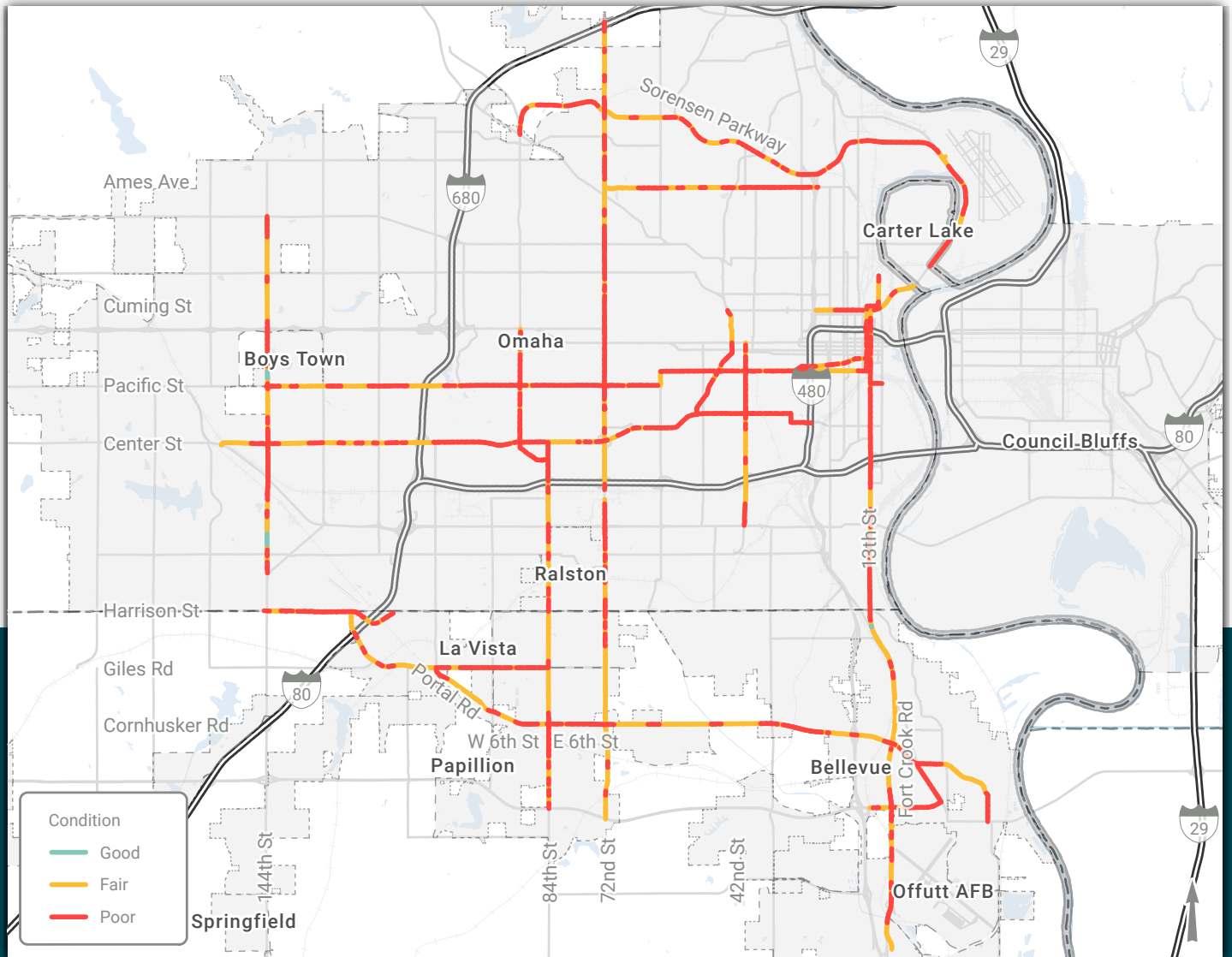
Coordination with Local Agencies

Nebraska NHS Pavement and Bridge Condition

NDOT has provided a suggested 10-year pavement and bridge candidate list for roads on the local NHS system within Nebraska. This program of projects entails concrete repairs as applicable, and asphalt overlays for the entire local NHS system with associated preservation or bridge rehabilitation/replacement projects. While these projects come at a cost to local jurisdictions, opportunities exist to also improve the existing network to accommodate changes in use and travel patterns of all users. For example, the MAPA STBG-funded Portal Road/6th Street Improvements projects will provide roadway expansion in a largely-developed portion of Sarpy County which includes the Cities of La Vista and Papillion and a small portion of unincorporated Sarpy County, which is challenged by geographical barriers from the flood mitigation network. Conversely, opportunities exist to repurpose legacy highway corridors such as Fort Crook Road and 13th Street, which see lower automobile traffic volumes following the US-75 construction and expansion. Safety studies along corridors such as Ames Avenue will also likely shape future MAPA regional NHS corridor improvements. The latest pavement candidate project list addresses the corridors shown in Figure 8.



Figure 5.8: NDOT 10-Year Local NHS Pavement Candidate Project Locations



The estimated cost for this 10-year pavement program is nearly \$120M. The breakdown by community is shown in Figure 9 below. The proposed schedule supports NDOT progress towards

pavement condition performance targets utilizing current pavement degradation curves and procedures outlined in the 2022 NDOT Transportation Asset Management Plan (TAMP).

Figure 5.9: NDOT 10-Year Local NHS Pavement Candidate Project Summary

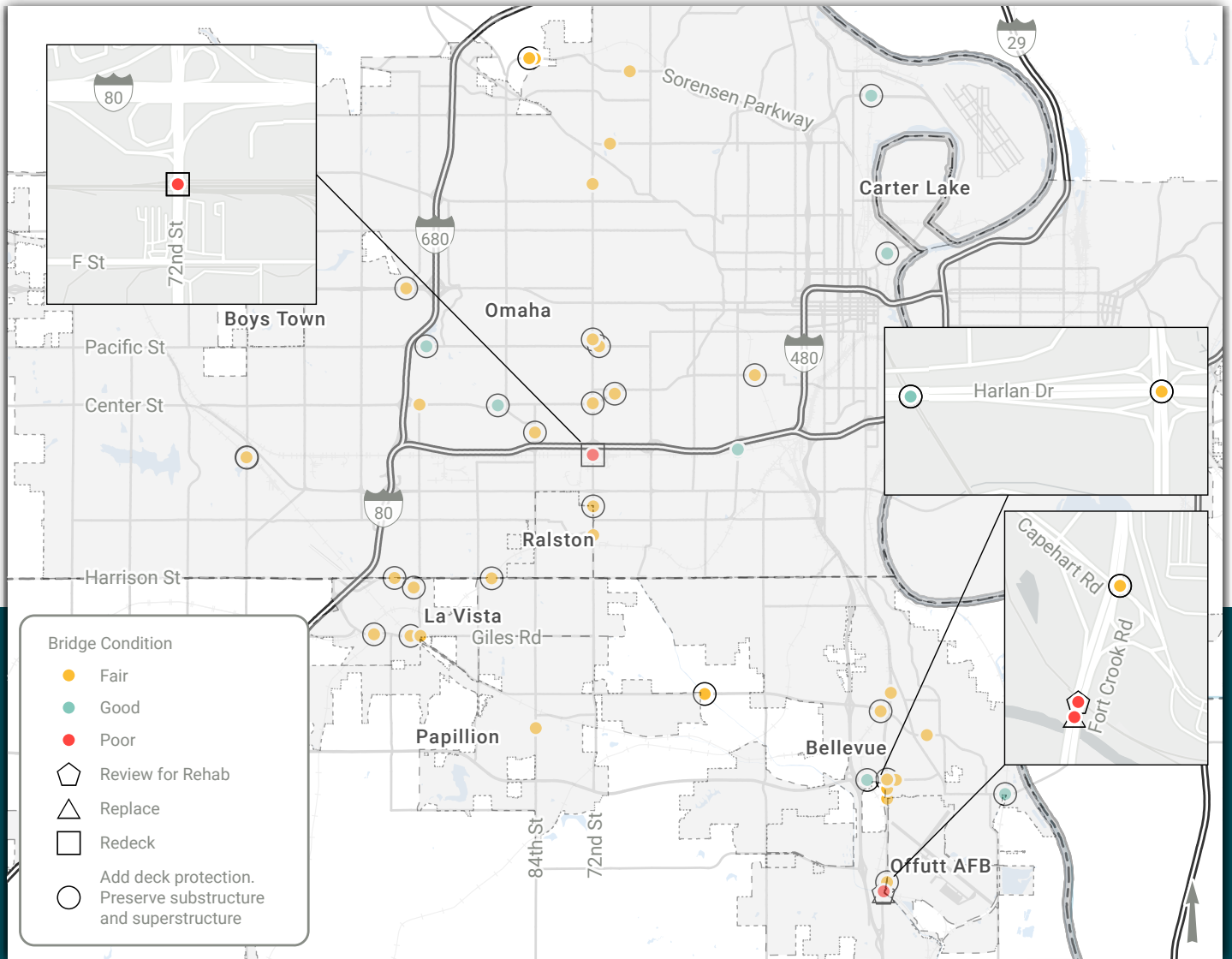
Jurisdiction	Estimated Lane-Miles	Estimated Total Cost
Bellevue	61.4	\$15,438,220
La Vista	18.7	\$6,132,000
Omaha	286.2	\$83,234,154
Omaha/La Vista	19.3	\$6,950,370
Papillion	26.8	\$7,312,555
Ralston	2.0	\$409,640
Grand Total	414.3	\$119,476,939

The NDOT Bridge Division provides MPOs an annual assessment of local NHS bridge conditions and preliminary strategies for maintenance or rehabilitation/replacement. Unlike the pavement management process, NDOT has not targeted a year for these improvements but is coordinating closely with local jurisdictions to ensure that these improvements

occur along with other planned highway work. This coordination provides a strong foundation for maintaining the NHS system and gives local communities important information to plan these improvements along with other local needs. The bridges and associated strategies are identified in Figure 10.



Figure 5.10: NDOT Preliminary Bridge Strategies for Local NHS Bridges



Local Asset Management Planning

The status of asset management activities varies significantly at the local level in the MAPA region. Communities in Nebraska, in particular, utilize different approaches to collecting pavement data and making local asset management decisions. The City of Omaha utilizes engineering firms to collect Pavement Surface and Evaluation Rating (PASER) through visual inspections while the Cities of Papillion, La Vista, and Bellevue all utilize vehicle-collected pavement condition data to prioritize their street maintenance programs. Other communities rely on the field observations of local street maintenance staff and citizen complaints to identify and respond to issues that arise.

In Iowa, communities in MAPA's region benefit from Iowa DOT's Pavement Management Program (IPMP). In the past, this program collected pavement data every two years for all federal-aid eligible roadways across the state. Going forward MPOs like MAPA can contribute funding to participate in the two-year data collection cycle, or continue to receive updated data every four years. The most recent data collected for

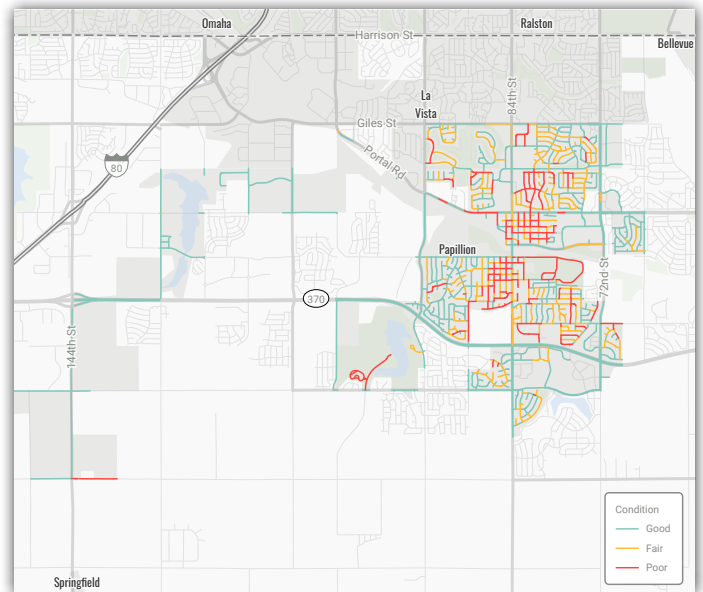
non-NHS roadways in Iowa was collected in 2024, with the next planned cycle in 2026.

The lack of uniform pavement data collection for communities in the MAPA region presents a challenge to understanding and monitoring trends on non-NHS roadways. One potential solution is to develop a regional program of pavement data collection to give community leaders better tools to make pavement management decisions. This type of program could supplement local pavement management programs already in place, and provide a unified set of data to track over time. Through the ConnectGO initiative, MAPA and its project partners are also working to better understand the current levels of spending on maintenance and preservation activities at the local level to benchmark local spending against national best practices. One such strategy is developing metrics for spending per lane mile by community in the region. This performance measure is useful in being responsive to both increases in spending along with increases in the size of the roadway network.



Papillion - Pavement Management Program

Through the Papillion Pavement Condition Index (PCI) Report, the City of Papillion documented its pavement condition using the national standard of PCI. The City is responsible for 301.6 lane miles comprising 268 miles of concrete roadways, 32 miles of asphalt, and 1.6 miles of gravel roads. Currently, the asphalt streets in the city are in Fair condition overall, and the concrete roads are in Satisfactory condition as a whole, with 19% of streets total in Fair or below condition. Using predictive modeling of road deterioration it is forecasted through Pavement Maintenance Management System (PAVER) metrics that during the next 5 years, the percentage of roads in Fair or Poor condition will jump to 28% with current replacement and maintenance schedules. The City of Papillion is focused on keeping its currently decent streets in good condition through regular maintenance and is looking



to implement new methods of repair to rehabilitate failing street surfaces.

Traffic Signal Infrastructure & Coordination

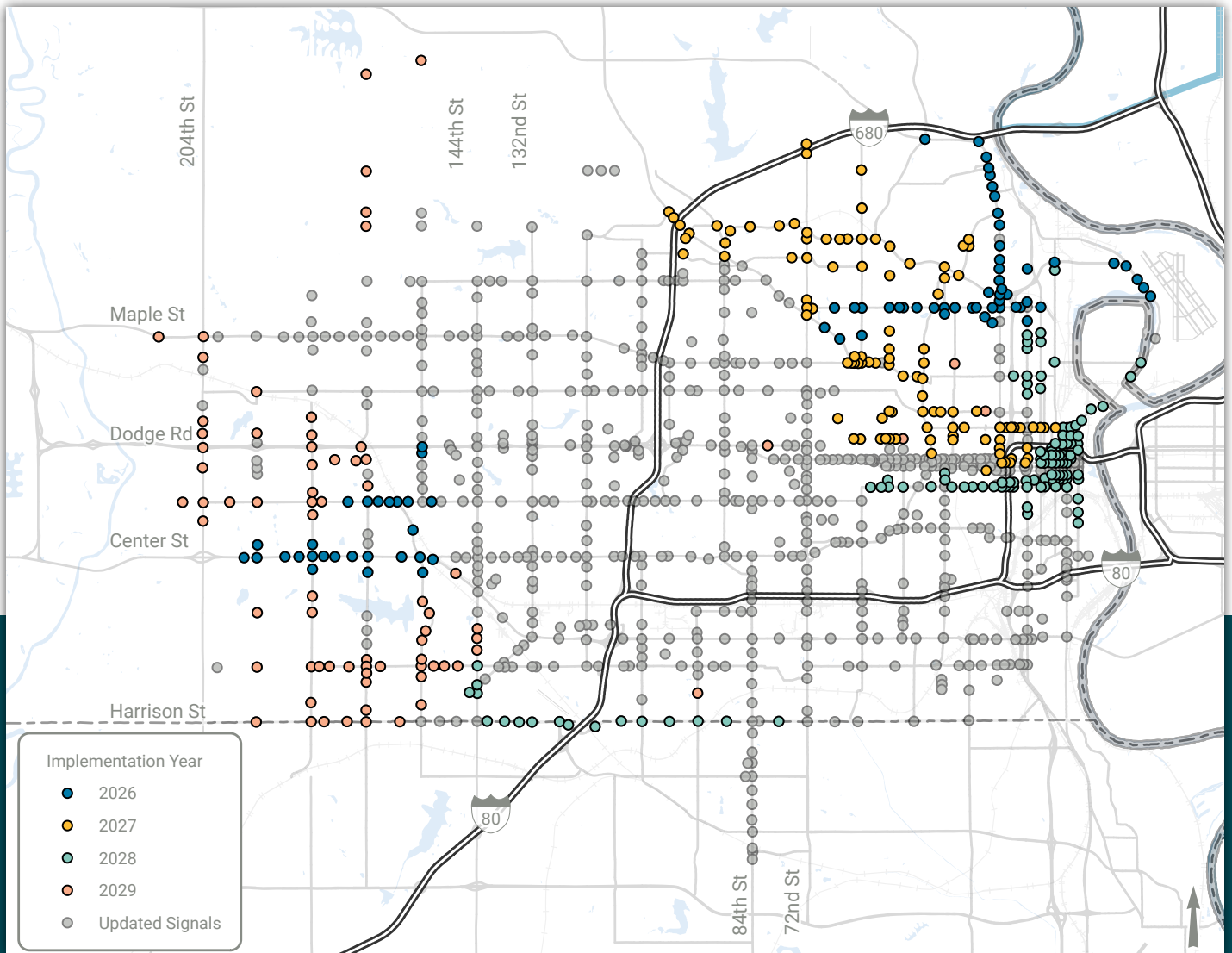
Signalized intersections are incredibly important aspects of the transportation system, improving the safety of the traveling public significantly. While they are one of the most recognizable and visible symbols of “transportation”, they are often not recognized as the complex system of computers, sensors and communications technology that are a vital piece of transportation infrastructure. Notably, the City of Omaha (MAPA’s largest local jurisdiction) undertook a Signal System Master Plan that planned 10 phases of updates to the City’s traffic signal controllers and interconnecting traffic signals to enhance the City’s signal coordination.

Omaha secured Congestion Mitigation and Air Quality (CMAQ) funding to advance all 10 phases of its Traffic Signal Master Plan and conduct new coordination studies on key corridors. By better timing interconnected signals, the City can cut delays for motorists and truck drivers, especially during peak hours. Recommended in the Metro Travel

Improvement Study, these low-cost signal upgrades maximize existing infrastructure and offer relief along major corridors where capital projects are far more expensive. Metro Transit continues to work in coordination with the City of Omaha to identify route optimization through targeted signal optimization. Metro Transit staff conduct periodic on-board observations to better understand the nature of delay.

Overall, investments in traffic signal infrastructure are highly cost-effective and help maximize communities’ existing investment in the roadways. As compared to widening projects, improvements to traffic signal technology and coordination can improve the flow of traffic during peak periods when the system is strained. Of the nearly 1,000 traffic and pedestrian signals maintained by the City of Omaha, over half of the project phases have been completed, and the remaining signal modernization will be complete by 2029 (Figure 11).

Figure 5.11: City of Omaha Traffic Signal Infrastructure Modernization



Upgrading traffic signals is a smart, low-cost way to keep people moving without the disruption of major capital roadway expansion projects which often require right-of-way coordination and greater environmental clearances. Studies show that better coordination and adaptive signals can cut delays by up to 15% while making the most of existing infrastructure. These improvements have strong support from the public and local leaders across the region, but it's important to balance the benefits for drivers and freight with safe, reliable access for people walking, biking, and using other non-motorized options.

Upgrading signals also prepares the region for future technology. Automakers and regulators are advancing vehicle-to-vehicle (V2V) and vehicle-to-infrastructure (V2I) communication, where cars share real-time data with each other and the roadway. Highway 370, named "Nebraska's Smartest Corridor" in 2019, is already testing this technology. These upgrades position local corridors to keep pace with the transportation innovations coming in the next 20 years. The signal network represents an opportunity for additional coordination between state and local entities throughout the region.

Congestion Management Process

As the region's Transportation Management Area, MAPA leads the Congestion Management Process (CMP)—a data-driven framework that guides how the region will address traffic and keep people moving. Built into the long-range transportation plan, the CMP brings together local partners to track performance,

share data, and coordinate strategies. By considering all modes of travel, it helps communities make smarter, safer investments to reduce congestion and improve the efficiency of the regional transportation system.

Congestion Management Process Network

The CMP Network identifies regionally significant roadways and segments which are experiencing rapid growth in multimodal users. Figure 12 below shows the MAPA 2050 CMP network, composed of:

- The National Highway System (Interstate and Non-Interstate)
- The MAPA Priority Corridors
- Existing and Proposed High-Ridership Transit Routes
- The Total Mobility System Network
- Multimodal Connection and Expansion Study Area

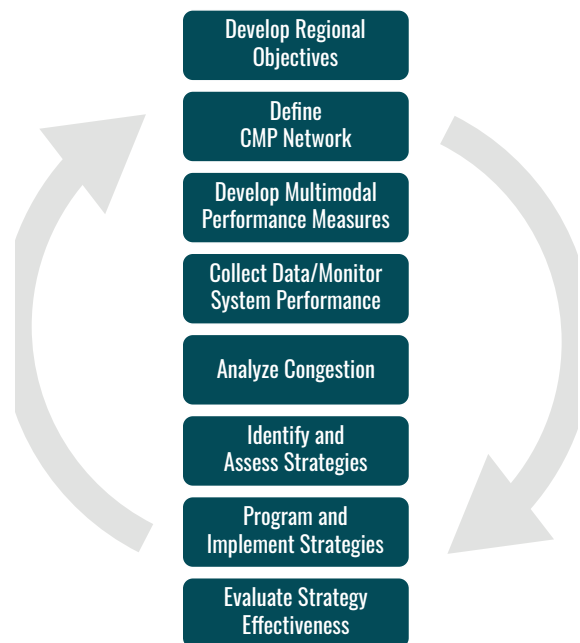
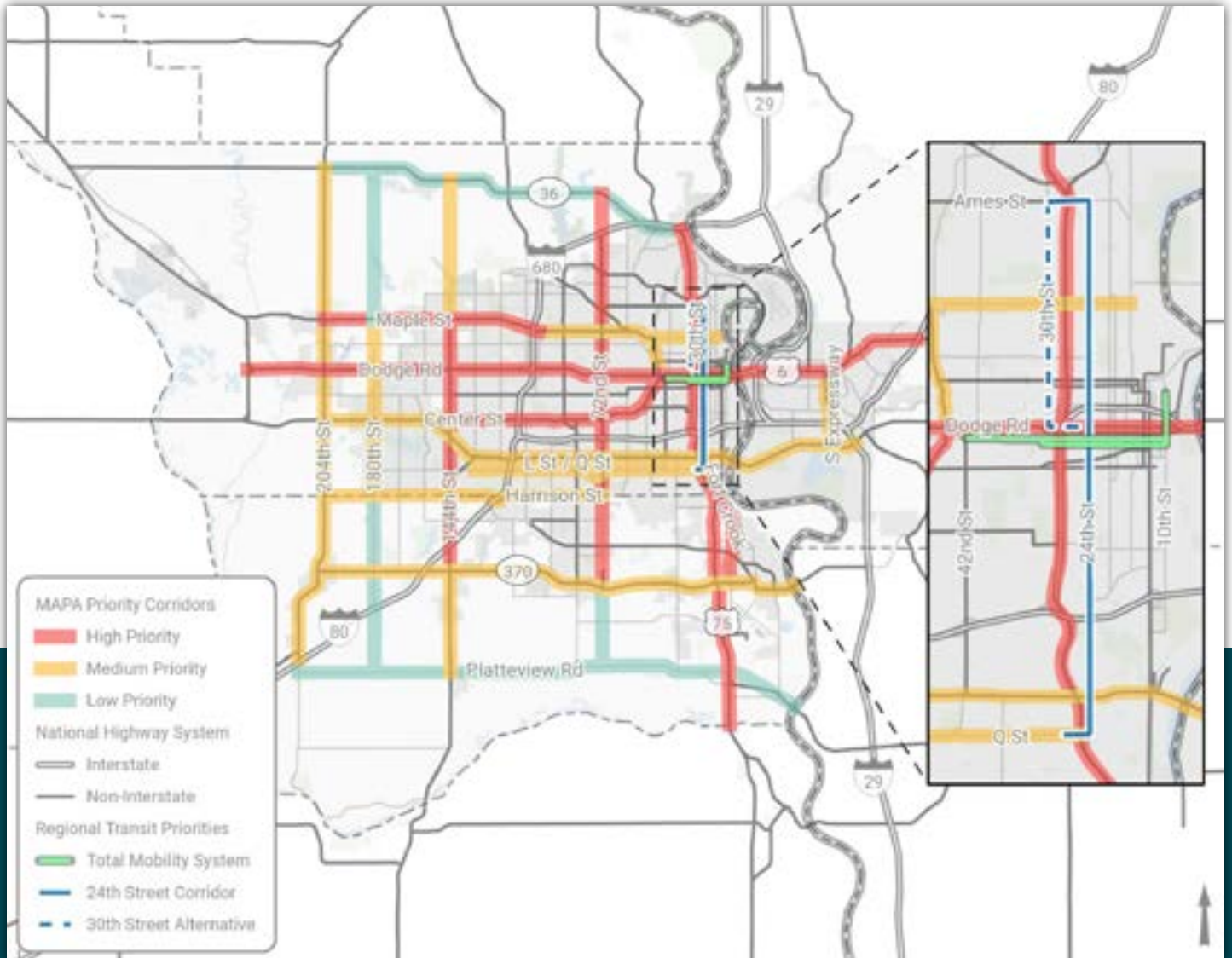


Figure 5.12: The MAPA Congestion Management Process Network



Since MAPA’s last update to the Congestion Management Process, the region has faced major shifts—flooding, extreme weather, the rise of big data and smart infrastructure, workforce challenges, the ConnectGO strategy, and dramatic changes in travel during/post COVID-19. These disruptions bring

both challenges and opportunities. With new data and tools, MAPA can better track performance, test innovative solutions, and set updated goals to build a safer, more efficient, and more balanced transportation system for the future.

2050 CMP Objectives

The 2050 Congestion Management Process (CMP) sets clear goals for a safer, more reliable, and more balanced transportation system. New data and analytic tools allow MAPA to measure progress and allow local policy makers to make smarter investments. Key objectives from the CMP include:

1. Keeping air quality within national standards,
2. Improving system reliability by minimizing delays from crashes, construction, and events, and
3. Reducing Single-Occupancy Vehicle Rates from 80.6% to 75.0%¹ by 2030.

Beyond moving cars, the CMP focuses on connecting people. By considering all modes—driving, transit, biking, and walking—it ensures communities have the tools and data to make cost-effective decisions that strengthen mobility, reliability, and quality of life across the Omaha-Council Bluffs region.

¹ Currently measured using ACS 5-Year Estimates Subject Table. Workers 16 years and over who travel by car, truck, or van and drove alone

