SR 287/SR 87 CORRIDOR PROFILE STUDY

SR 287: SR 87 TO SR 79
SR 87: I-10 TO SR 587

ADOT WORK TASK NO. MPD0545-24 H94.3

ADOT CONTRACT NO. CTR060474

DRAFT WORKING PAPER 1

DECEMBER 2024

PREPARED FOR:

ARIZONA DEPARTMENT OF TRANSPORTATION

PREPARED BY:

This report was funded in part through grants from the Federal Highway Administration, U.S. Department of Transportation. The contents of this report reflect the views of the authors, who are responsible for the facts and the accuracy of the data, and for the use or adaptation of previously published material, presented herein. The contents do not necessarily reflect the official views or policies of the Arizona Department of Transportation or the Federal Highway Administration, U.S. Department of Transportation. This report does not constitute a standard, specification, or regulation. Trade or manufacturers ' names that may appear herein are cited only because they are considered essential to the objectives of the report. The U.S. government and the State of Arizona do not endorse products or manufacturers.

ACRONYMS & ABBREVIATIONS

AADT	Average Annual Daily Traffic
ADOT	Arizona Department of Transportation
ASLD	Arizona State Land Department
AZTDM	Arizona Travel Demand Model
BCA	Benefit-Cost Analysis
BLM	Bureau of Land Management
BQAZ	Building a Quality Arizona
CCTV	Closed Circuit Television
CDP	Census Designated Places
CR	Cracking Rating
DMS	Dynamic Message Sign
DCR	Design Concept Report
FY	Fiscal Year
HCRS	Highway Condition Reporting System
HPMS	Highway Performance Monitoring System
I-	Interstate
IRI	International Roughness Index
ITS	Intelligent Transportation System
LCCA	Life-Cycle Cost Analysis
LOS	Level of Service
LOTTR	Level of Travel Time Reliability
LRTP	Long Range Transportation Plan
MAG	Maricopa Association of Governments
MAP 21	Moving Ahead for Progress in the 21st Century
MP	Milepost
MPD	Multimodal Planning Division
NB	Northbound
NPV	Net Present Value
OP	Overpass
PAG	Pima Association of Governments
PES	Performance Effectiveness Score
P2P	Planning to Programming
PDI	Pavement Distress Index
PSR	Pavement Serviceability Rating
RTP	Regional Transportation Plan
SB	Southbound
SEAGO	Southeastern Arizona Governments Organization
SR	State Route
STSP	Strategic Traffic Safety Plan
TI	Traffic Interchange
TIP	Transportation Improvement Plan
TTTR	Truck Travel Time Reliability
UP	Underpass
USDOT	United States Department of Transportation
V/C	Volume to Capacity Ratio
VMT	Vehicle-Miles Traveled
WIM	Weigh-in-motion

1.0 INTRODUCTION

The Arizona Department of Transportation (ADOT) is the lead agency for this Corridor Profile Study (CPS) of State Route 287 (SR 287) between SR 87 and State Route 79 (SR 79) and State Route 87 (SR 87) between Interstate 10 (I-10) and State Route 587 (SR 587). The CPS study examines key performance measures relative to the SR 287/SR 87 Corridor, and the results of this performance evaluation are used to identify potential strategic improvements.

The intent of the corridor profile program, and of ADOT's Planning to Programming (P2P) process, is to conduct performance-based planning to identify areas of need and make the most efficient use of available funding to provide an efficient transportation network.

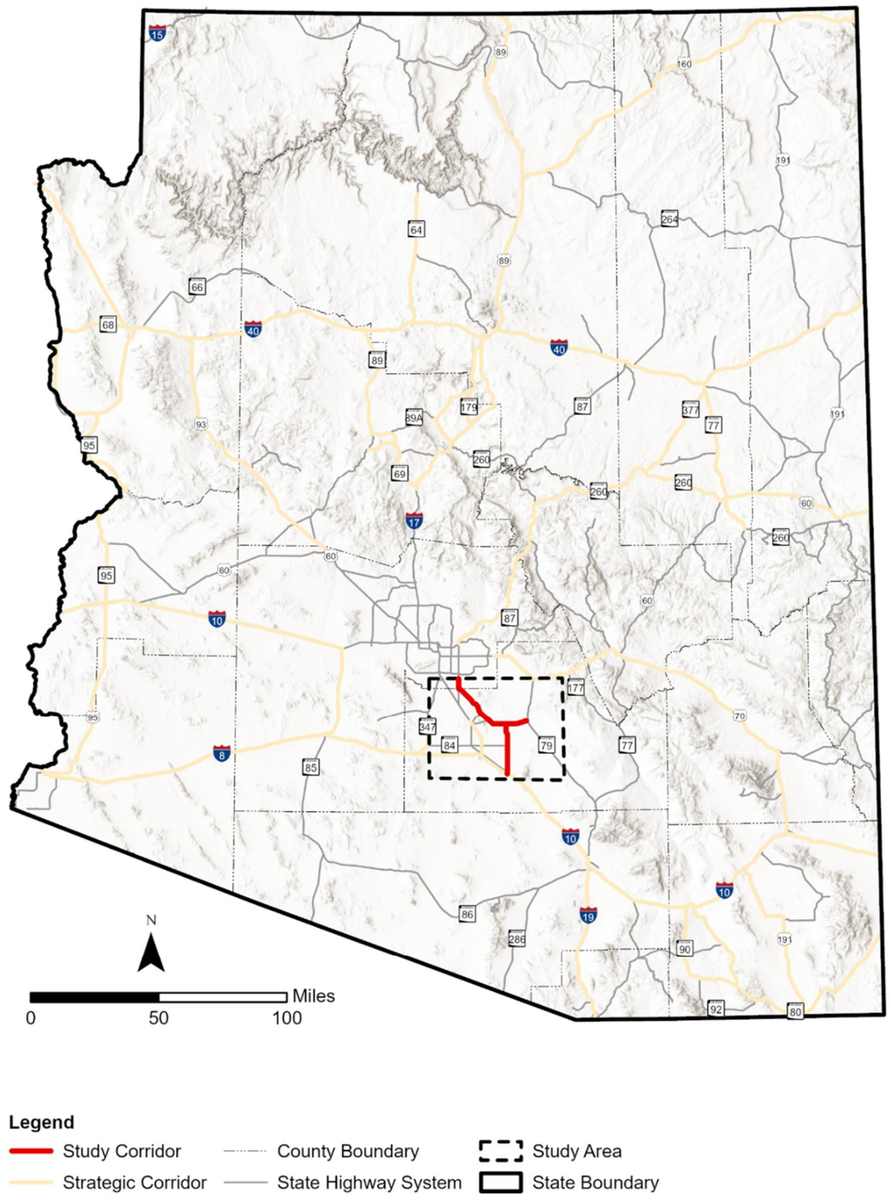
ADOT has completed 21 original CPS within four separate groupings or rounds. In 2020, ADOT separated the previously studied corridors into six groupings to be updated and reassessed: Northeast, Northcentral, Northwest, Southeast, Southcentral, and Southwest. The 13 corridor studies within the three northern groupings were updated in 2022. The 8 corridor studies within the three southern groupings were updated in 2023.

SR 287/SR 87 Corridor within the Southcentral District was selected by ADOT Multimodal Planning Division (MPD) for independent study outside of the statewide strategic corridors system, but using the same CPS program analytical structure.

The studies under this program assess the overall health, or performance, of the state's strategic highways. The CPS will identify candidate solutions for consideration in the Multimodal Planning Division's (MPD) P2P project prioritization process, providing information to guide corridor-specific project selection and programming decisions.

The SR 287/SR 87 Corridor is depicted in **Figure 1** along with all programmatic CPS corridors recently completed.

Figure 1: Corridor Study Area



1.1 Corridor Study Purpose

The purpose of the CPS is to measure corridor performance to inform the development of strategic solutions that are cost-effective and account for potential risks. This purpose can be accomplished by following the process described below:

- Inventory past improvement recommendations
- Define corridor goals and objectives
- Assess existing performance based on quantifiable performance measures
- Propose various solutions to improve corridor performance
- Identify specific solutions that can provide quantifiable benefits relative to the performance measures
- Prioritize solutions for future implementation, accounting for performance effectiveness and risk analysis findings

1.2 Study Goals and Objectives

The objective of this study is to identify a recommended set of prioritized potential solutions for consideration in future construction programs, derived from a transparent, defensible, logical, and replicable process. The SR 287/SR 87 CPS defines solutions and improvements for the corridor that are evaluated and ranked to determine which investments offer the greatest benefit to the corridor in terms of enhancing performance. Corridor benefits can be categorized by the following three investment types:

- Preservation: Activities that protect transportation infrastructure by sustaining asset condition or extending asset service life
- Modernization: Highway improvements that upgrade efficiency, functionality, and safety without adding capacity
- Expansion: Improvements that add transportation capacity through the addition of new facilities and/or services

This study identifies potential actions to improve the performance of the SR 287/SR 87 Corridor. Proposed actions are compared based on their likelihood of achieving desired performance levels, life-cycle costs, cost-effectiveness, and risk analysis to produce a prioritized list of solutions that help achieve corridor goals.

The following goals are identified as the desired outcome of this study:

- Link project decision-making and investments on key corridors to strategic goals
- Develop solutions that address identified corridor needs based on measured performance
- Prioritize improvements that cost-effectively preserve, modernize, and expand transportation infrastructure

1.3 Corridor Overview and Location

The SR 287/SR 87 Corridor between I-10 and SR 587 to the west and SR 79 to the east is an important corridor for north and south traffic between the Phoenix metropolitan area and Tucson. It serves as a primary by-pass route for I-10. Safe and reliable movement of people, vehicles, and goods, and the maintenance of corridor infrastructure are priorities for SR 287/SR 87. The corridor serves as a primary transportation facility for travelers going to and from the Gila River Indian Community (GRIC), as well as the cities of Coolidge and Eloy and the town of Florence.

1.4 Corridor Segments

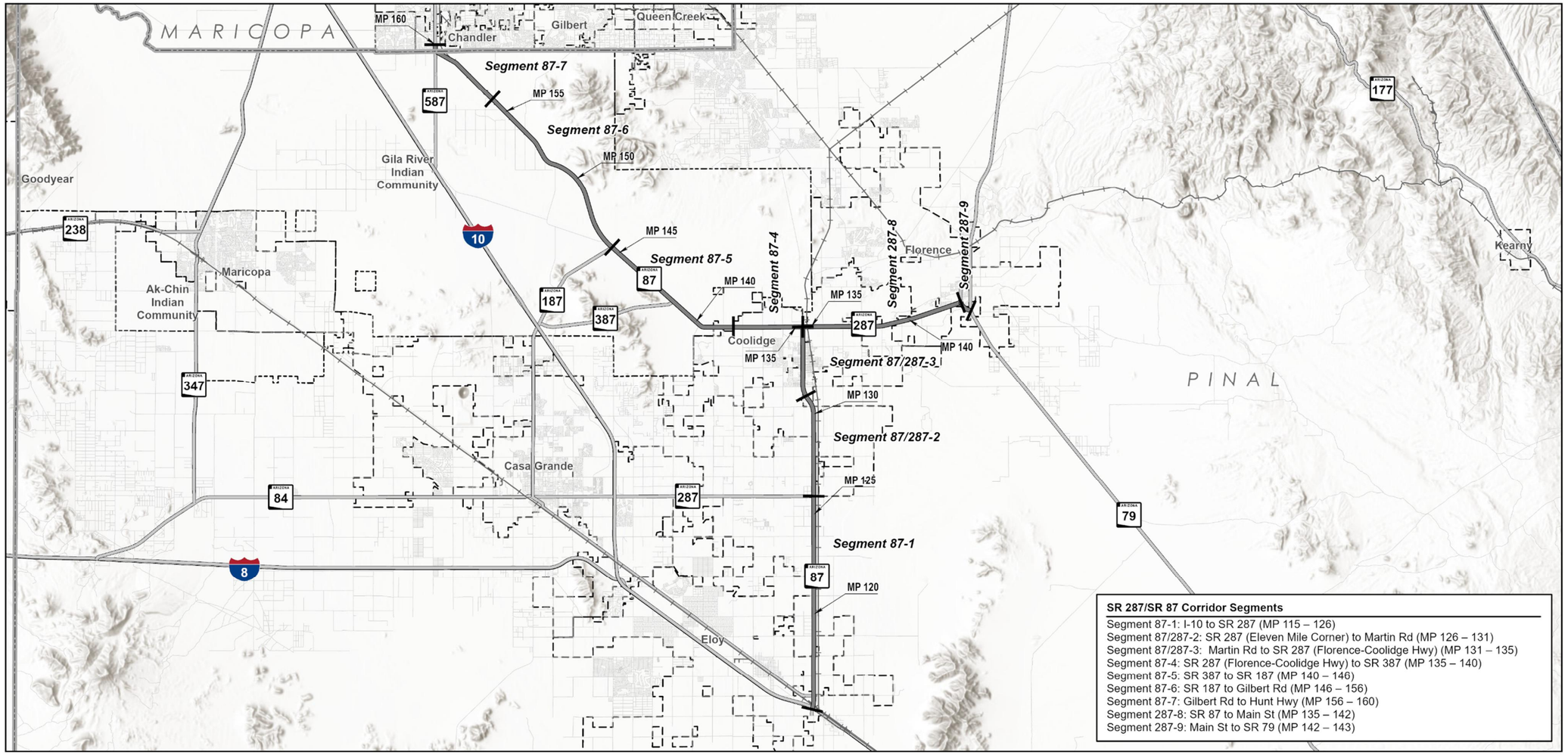
The SR 287/SR 87 Corridor is located in central Arizona and serves regional and local traffic and commerce demand between central Arizona rural communities and Phoenix. The portion of SR 87 considered in this study spans approximately 45 miles from the interchange with I-10 at milepost 115 north to the junction with Hunt Highway at milepost 160 in Chandler, Arizona. Part of SR 287 was considered as well, ranging from its intersection with SR 87 at milepost 135 to the intersection at SR 79 at milepost 143. The SR 287/SR 87 Corridor is illustrated in **Figure 2**.

The SR 287/SR 87 Corridor is divided into 9 planning segments to allow for an appropriate level of detailed needs analysis, performance evaluation, and comparison between different segments of the corridor. The corridor is segmented at logical breaks where the context changes due to differences in characteristics such as daily traffic volumes, or roadway typical section. Corridor segments are described in **Table 1** and shown in **Figure 2**.

Table 1: SR 287/SR 87 Corridor Segments

Segment #	Begin	End	Approx. Begin Milepost	Approx. End Milepost	Approx. Length (miles)	Typical Through Lanes (NB, SB)	2023/2043 Average Annual Daily Traffic Volume (vpd)	Character Description
87-1	I-10	SR 287 (Eleven Mile Corner)	115	126	11	1,1	5,100 / 6,400	Rural, level terrain, 2-lane undivided, 1 interchange, Pinal County
87/287-2	SR 287 (Eleven Mile Corner)	Martin Rd	126	131	5	1,1	8,800 / 9,100	Rural, level terrain, 2-lane undivided, no interchanges, Pinal County
87/287-3	Martin Rd	SR 287 (Florence-Coolidge Hwy)	131	135	4	2,2	13,000 / 13,600	Urban, level terrain, 5-lane undivided with a two-way left-turn lane, no interchanges, Pinal County, city of Coolidge
87-4	SR 287 (Florence-Coolidge Hwy)	SR 387	135	140	5	1,1	12,000 / 13,500	Rural, level terrain, 2-lane undivided, no interchanges, Pinal County
87-5	SR 387	SR 187	140	146	6	1,1	9,300 / 10,400	Rural, level terrain, 2-lane undivided, no interchanges, Pinal County, Gila River Indian Community
87-6	SR 187	Gilbert Rd	146	156	10	1,1	12,000 / 13,400	Rural, level terrain, 2-lane undivided, no interchanges, Pinal County, Gila River Indian Community
87-7	Gilbert Rd	Hunt Hwy	156	160	4	1,1	5,800 / 6,400	Fringe Urban, level terrain, 2-lane undivided, no interchanges, Pinal County, Gila River Indian Community, city of Chandler
287-8	SR 87	Main St	135	142	7	1,1	12,200 / 12,600	Fringe Urban, level terrain, 2-lane undivided, no interchanges, Pinal County, city of Coolidge, town of Florence
287-9	Main St	SR 79	142	143	1	1,1	2,300 / 2,600	Fringe Urban, level terrain, 2-lane undivided, no interchanges, Pinal County, town of Florence

Figure 2: Corridor Location and Segments



SR 287/SR 87 Corridor Profile Study: I-10 to SR 79 to Main St
Corridor Segments

1.5 Corridor Characteristics

The SR 287/SR 87 Corridor is a primarily 2-lane roadway that acts as a primary by-pass route for the adjacent I-10 and is the main throughfare for the local communities in the area.

National Context

The SR 287/SR 87 Corridor functions as an important regional route, connecting Sun Corridor cities to Phoenix and I-10. It is primarily a 2-lane highway facility without a median. The terrain is generally flat. Volumes are generally moderate with most sections at or below 10,000 vehicles per day.

Regional Connectivity

The SR 287/SR 87 Corridor consists of open-access roadways. The corridor connects rural communities in central Arizona to cities and towns such as Coolidge, Florence, Chandler, and Phoenix.

Commercial Truck Traffic

The corridor serves significant truck traffic throughout the segments. Total truck volumes are about 6-20% of the total vehicle flow., and this is only anticipated to increase as additional commercial development is constructed along the corridor This and other traffic count information is shown in **Figure 3**.

Commuter Traffic

SR 287/SR 87 serves as a commuter route from communities along the route to employment centers in the Phoenix metropolitan area and Tucson. Resulting peak hour traffic volumes and delay are a point of concern for commuters utilizing the corridor. Efficient travel for commuting traffic promotes the State's economic vitality. 2024 traffic count data was collected along the corridor and at major intersections, shown in **Figure 3**.

Recreation and Tourism

SR 287/SR 87 is a secondary tourism and travel route between Phoenix and Tucson. Recreational opportunities along the corridor include:

- Casa Grande Ruins National Monument (Sivan Vah'ki) – Historic Native American Dwelling Units
- Picacho Reservoir – opportunities for fishing and birding south of Coolidge

Freight Rail

Just north of I-10, SR 87 crosses over the Union Pacific Railroad (UPRR) Sunset Route, a main line railroad connecting Southern California with the Gulf Coast. The railroad is double-tracked and typically carries approximately 40 trains per day.

Just east of SR 87 and north of I-10, the UPRR Phoenix Subdivision splits off from the Sunset Route as a single track that parallels SR 87 and typically carries four trains per day. SR 287 crosses over the railroad just east of the junction with SR 87 north of Coolidge.

Just east of SR 87 from Sacaton Road north there is a UPRR Chandler Industrial Subdivision single track that parallels SR 87. Currently no trains typically use this track on a regular basis.

Passenger Rail

Amtrak operates the Texas Eagle/Sunset Limited passenger rail service along the UPRR Sunset Route. There is typically one train in each direction daily. However, ADOT is currently scoping a Service Development Plan for the Phoenix to Tucson Intercity Passenger Rail Corridor to evaluate a passenger rail route along the UPRR Phoenix Subdivision railroad line adjacent to SR 287/SR 87.

Bicycles/Pedestrians

Bicycles are permitted on the outside shoulders of SR 287/SR 87 throughout. Pedestrians are permitted along the entire length of SR 287/SR 87, though sidewalk is only present along Segment 87/287-3 within Coolidge and a portion of Segment 287-8 in Florence.

Bus/Transit

The City of Coolidge operates a transit service, Cotton Express, a fixed-route service that operates two routes and on-demand service within the city boundaries of Coolidge. Both routes operate Monday through Friday with 20 daily runs each. The on-demand service is available Monday through Friday 7:00am to 5:00pm with reservations made at least 24 hours in advance.

There is also the Central Arizona Regional Transit (CART) service. CART is a regional transit service that serves Coolidge, Casa Grande, Florence, and Central Arizona College (CAC). CART serves 13 stops Monday through Friday. The CART service is composed of an eastbound and westbound route that form a loop between the Pinal County Courts in Florence and downtown Casa Grande, with additional stops in between, including the Coolidge Transit Terminal and CAC.

Aviation

The region is served by the Coolidge Municipal Airport, a general aviation airport. Coolidge Municipal Airport also supports minor military activity and acts as a maintenance base. The airport is not a hub or focus city for any airline.

Land Ownership, Land Uses, and Jurisdictions

The SR 287/SR 87 Corridor serves a variety of land uses and jurisdictions. The corridor begins near Eloy on the south end where SR 87 intersects with I-10. Segments 87-1 and 87/287-2 are characterized as rural in nature, dominated by agricultural use.

Segment 87-3 is considered fringe urban and passes through Coolidge. Land around this segment consists mostly of residential subdivisions with some commercial areas as well.

The north end transitions from rural in Segments 87-4, 87-5, and 87-6, which pass through the Gila River Indian Community, to fringe urban uses and heavier traffic in Segment 87-7.

Segments 287-8 and 287-9 at the center and east end of the corridor where SR 287 connects to SR 79 are considered fringe urban. These segments connect Coolidge and Florence and provide access to some residential and agricultural sites between these two areas.

Population Centers

The corridor between I-10 to Coolidge and Coolidge to Florence/Chandler is predominantly rural in nature, with some small residential and mobile home communities. Florence is the most populated community in the Corridor. Chandler and the greater Phoenix area are the largest population centers near the Corridor, with many people commuting to employment in this area.

Pinal County is projected to grow from just under 500,000 residents in 2023 to 850,000 by 2043, with about 150,000 of the County's residents in Coolidge and Florence, and 325,000 in unincorporated communities. Overall, the County is projected to see high growth during this period, with faster growth in some cities and towns such as Coolidge, Florence, and Eloy. The urbanized areas are expected to grow outward and connect more with each other and to the north with Chandler and Queen Creek with accompanying urban-style traffic. Maricopa County is projected to experience more moderate population growth during the period. **Table 2** summarizes the current and projected populations for the jurisdictions within Maricopa County and Pinal County that are adjacent to or near the corridor.

Table 2: Current and Future Population

Community	2013 Population	2023 Population	2043 Population	% Change 2013-2043	Total Growth
Pinal County	**382,662**	**467,459**	**840,605**	**119.67%**	**457,943**
Apache Junction*	36,313	39,051	69,700	91.94%	33,387
Casa Grande	49,512	61,986	95,300	92.48%	45,788
Coolidge	12,127	17,662	79,200	553.11%	67,073
Eloy	16,601	18,132	54,600	228.90%	37,999
Florence	25,590	23,894	62,400	143.85%	36,810
Gila River Indian Community*	-	10,500	10,500	0.00%	0
Queen Creek*	429	12,267	28,700	6583.61%	28,271
Balance of County	190,416	220,041	324,300	70.31%	133,884
Maricopa County	**3,945,153**	**4,665,020**	**5,903,952**	**49.65%**	**1,958,799**
Chandler	244,630	285,231	315,500	28.97%	70,870
Gila River Indian Community*	-	3,600	3,600	0.00%	0

Source: U.S. Census, Arizona Commerce Authority **Incorporated place located in more than one county*

Tribes

SR 287/SR 87 crosses through and is surrounded by Gila River Indian Community (GRIC) lands west of Coolidge, with a resident population over 14,000.

Tonono O'odham Nation, Ak-Chin Indian Community, and the Pascua Yaqui Tribe are also stakeholders on the project though not directly adjacent to the SR 287/SR 87 Corridor.

Wildlife Linkages

The Arizona State Wildlife Action Plan (SWAP) provides a 10-year vision for the entire state, identifying wildlife and habitats in need of conservation, insight regarding the stressors to those resources, and suggestive actions that can be taken to alleviate those stressors. The Habimap Tool™ (http://www.habimap.org/) provides an interactive database of information included in the SWAP. These databases and other environmental resources should be conducted early on during all project-related activities to ensure appropriate environmental compliance. Managers of potentially impacted areas should be included in outreach and coordination programs. The following wildlife and habitat considerations affecting rights-of-way along the SR 287/SR 87 Corridor were identified but should not be considered a comprehensive listing of affected resources:

- Wildlife waters – None
- Important Bird Areas – None

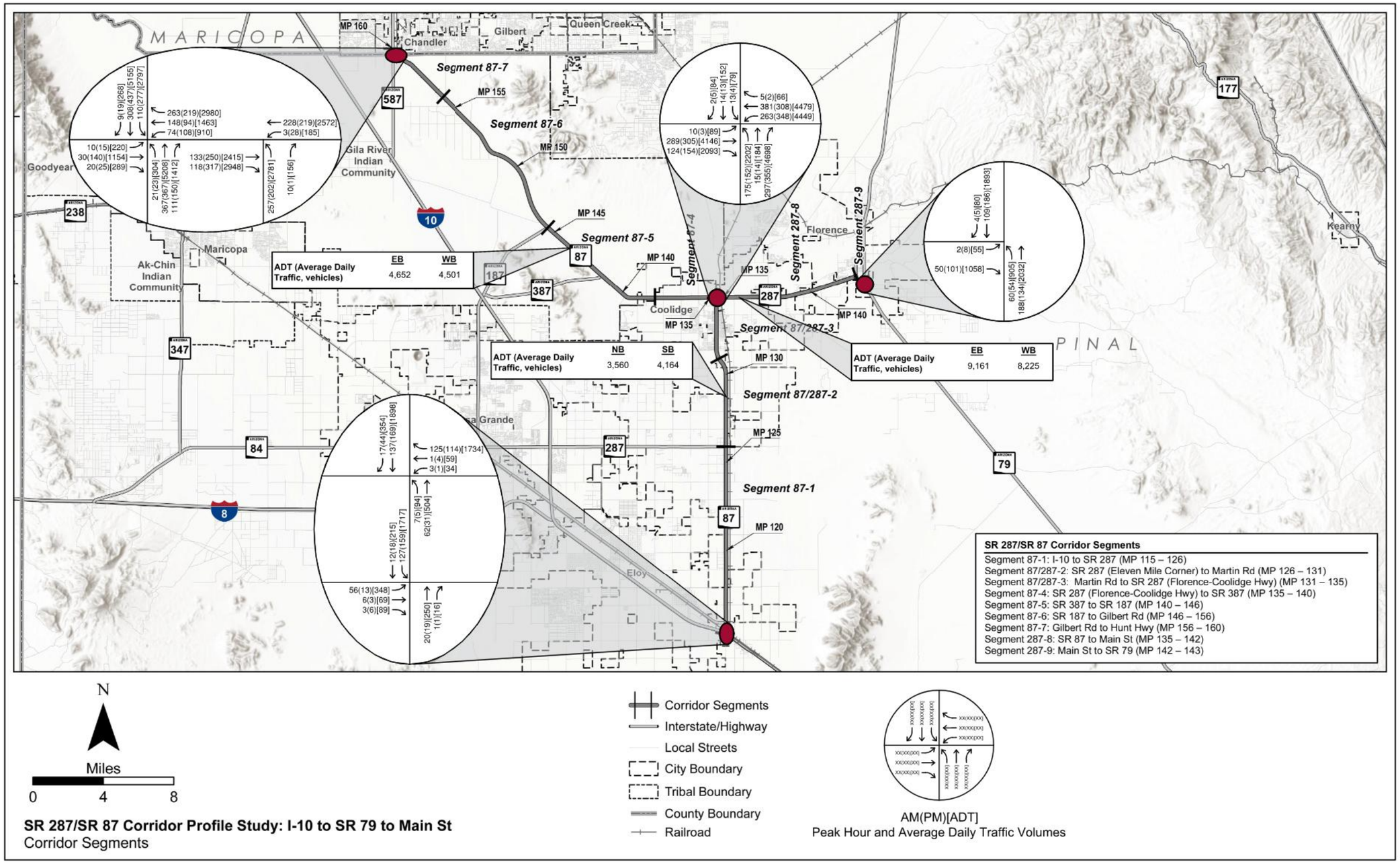
- Allotments/Pastures (grazing) including State Land Department, Bureau of Land Management, US Forest Service – None
- Arizona Game and Fish Department Parcels – None
- State Land Trust lands are present, immediately adjacent to the corridor near SR 87 segments 87-1 and 87/287-2, and on SR 287 segment 287-8
- Arizona Wildlife Linkages – None
- Species and Habitat Conservation Guide (SHCG) does not indicate any high value areas of sensitive habitats throughout the corridor
- Species of Economic and Recreational Importance (SERI) model indicates areas of high importance throughout the corridor
- Species of Greatest Conservation Need (SGCN) does not identify any areas of high value sensitive habitats throughout the corridor

Corridor Assets

Corridor transportation assets of note are summarized below and shown in **Figure 4**.

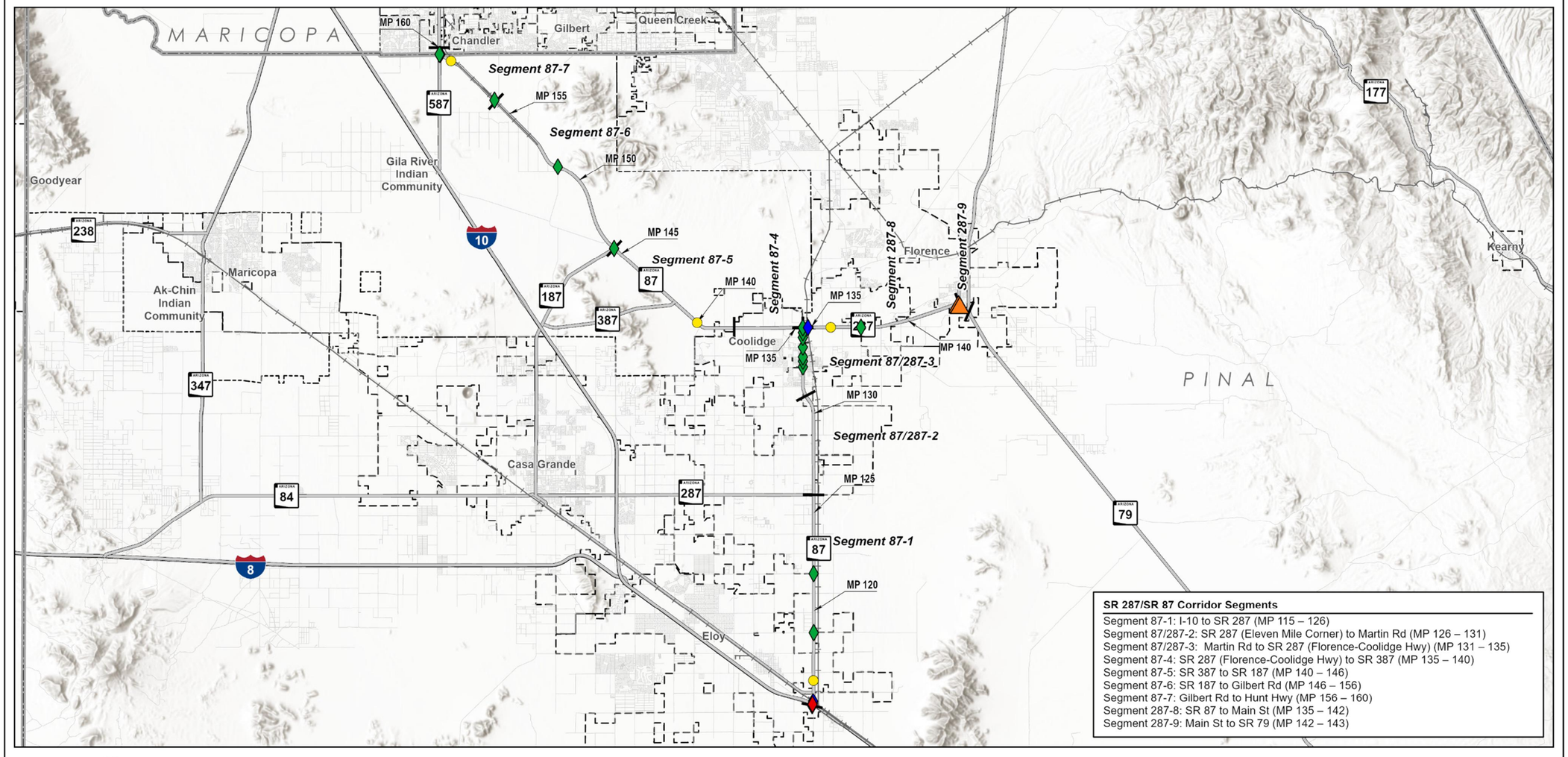
- Grade-separated traffic interchanges: 1
- Grade-separated railroad crossings: 2
- Signalized intersections: 17
- Roundabout intersections: 2
- Permanent traffic counters: SR 87 MP 116.5, MP 140, MP 159, and SR 287 MP 136

Figure 3: Corridor Traffic Count Data



SR 287/SR 87 Corridor Profile Study: I-10 to SR 79 to Main St
Corridor Segments

Figure 4: Corridor Transportation Assets



SR 287/SR 87 Corridor Profile Study: I-10 to SR 79 to Main St
Corridor Transportation Assets
2023 Data

1.6 Corridor Stakeholders and Input Process

A Technical Advisory Committee (TAC) was created that was composed of representatives from key stakeholders. TAC meetings will be held at key milestones to present results and obtain feedback. In addition, several meetings will be conducted with key stakeholders to present the results and obtain feedback.

Key stakeholders identified for this study include:

- Ak-Chin Indian Community
- City of Chandler
- City of Coolidge
- City of Eloy
- Gila River Indian Community (GRIC)
- Maricopa Association of Governments (MAG)
- Pascua Yaqui Tribe
- Pinal County
- Sun Corridor Metropolitan Planning Organization (SCMPO)
- Tohono O'odham Nation
- Town of Florence

Several Working Papers will be developed during the course of the CPS. The Working Papers will be provided to the TAC for review and comment.

1.7 Prior Studies and Recommendations

This study identified recommendations from previous studies, plans, and preliminary design documents. Studies, plans, and programs pertinent to the SR 87/SR 287 Corridor were reviewed to understand the full context of future planning and design efforts within and around the study area. These studies are organized below into four categories: Framework and Statewide Studies, Regional Planning Studies, Planning Assistance for Rural Areas (PARAs) and Small Area Transportation Studies (SATS), and Design Concept Reports (DCRs) and Project Assessments (PAs).

Framework and Statewide Studies

- ADOT Bicycle and Pedestrian Plan Update (2013)
- ADOT Active Transportation Safety Action Plan (2024)
- ADOT Five-Year Transportation Facilities Construction Program (2024 – 2029)
- ADOT Climbing and Passing Lane Prioritization Study (2015)
- ADOT Arizona Key Commerce Corridors (2014)
- ADOT Arizona Multimodal Freight Analysis Study (2009)
- ADOT Arizona Ports of Entry Study (2021)
- ADOT Arizona State Airport Systems Plan (2018)
- ADOT Arizona State Freight Plan (2022)
- ADOT Arizona State Rail Plan Update (2022)
- AGFD Arizona State Wildlife Action Plan (2012)
- AGFD Arizona Wildlife Linkages Assessment (2006)
- ADOT Arizona Statewide Dynamic Message Sign Master Plan (2011)
- ADOT Arizona Statewide Intelligent Transportation System (ITS) Architecture Update (2024)
- ADOT Arizona Statewide Rail Framework Study (2010)
- ADOT Arizona Statewide Rest Area Study (2011)
- ADOT Arizona Statewide Shoulders Study (2015)
- ADOT Arizona Strategic Traffic Safety Plan (2019)
- ADOT Arizona Strategic Highway Safety Plan (2024)
- ADOT Arizona Roadway Departure Safety Implementation Plan (RDSIP) (2014)
- ADOT AASHTO U.S. Bicycle Route System (2015)
- ADOT Low Volume State Routes Study (2017)
- ADOT Statewide Stormwater & Erosion Control Study (2020)
- ADOT Statewide Transportation Planning Framework – Building a Quality Arizona (BQAZ) (2010)
- ADOT Transportation Asset Management Plan (2021)
- ADOT What Moves You Arizona? Long-Range Transportation Plan (2016-2040)

Framework Studies

- Arizona Statewide Travel Demand Model (AZTDM)

Regional Planning Studies

- MAG 2040 Regional Transportation Plan (RTP) Update
- City of Coolidge General Plan
- City of Coolidge Transit Plan
- City of Eloy General Plan
- Town of Florence General Plan
- Pinal County 2023 Five-Year Transportation Improvement & Maintenance Program
- Central Arizona Regional Transit (CART) Route Optimization Study
- Pinal County Access Management Manual
- Pinal County Regionally Significant Routes for Safety and Mobility Report
- Pinal County Small Area Transportation Study
- Pinal County Transit Feasibility Study
- City of Chandler Transportation Master Plan 2019 Update
- Gila River Indian Community Department of Transportation Safety Action Plan
- CAG Regional Transportation Plan

Planning Assistance for Rural Areas (PARA) Studies and Small Area Transportation Studies (SATS)

- Southern Pinal County Regional Corridors Study
- City of Coolidge McCartney Road and Eleven Mile Corner Road Planning and Environmental Linkages Transportation Study
- City of Coolidge Transportation Feasibility Study
- Town of Florence Transportation Planning Study

Design Concept Reports (DCRs) and Project Assessments (PAs)

- ADOT North-South Corridor DCR

Summary of Prior Recommendations

The recommendations of each study were considered during the CPS. Many of the studies recommend duplicate actions. The aggregate recommendations are summarized in **Table 3** and illustrated on **Figure 5**.

A summary of major prior recommendations includes:

New Passing Lane Improvements

- Two passing lanes on SR 87 to 4 lanes from MP 138 to MP 140
- Passing lane on SR 87 to 3 lanes from MP 140 to MP 141
- Two passing lanes on SR 87 from MP 152 to MP 160
- Passing lane on SR 287 to 3 lanes from MP 137 to MP 142

Signalized Intersections

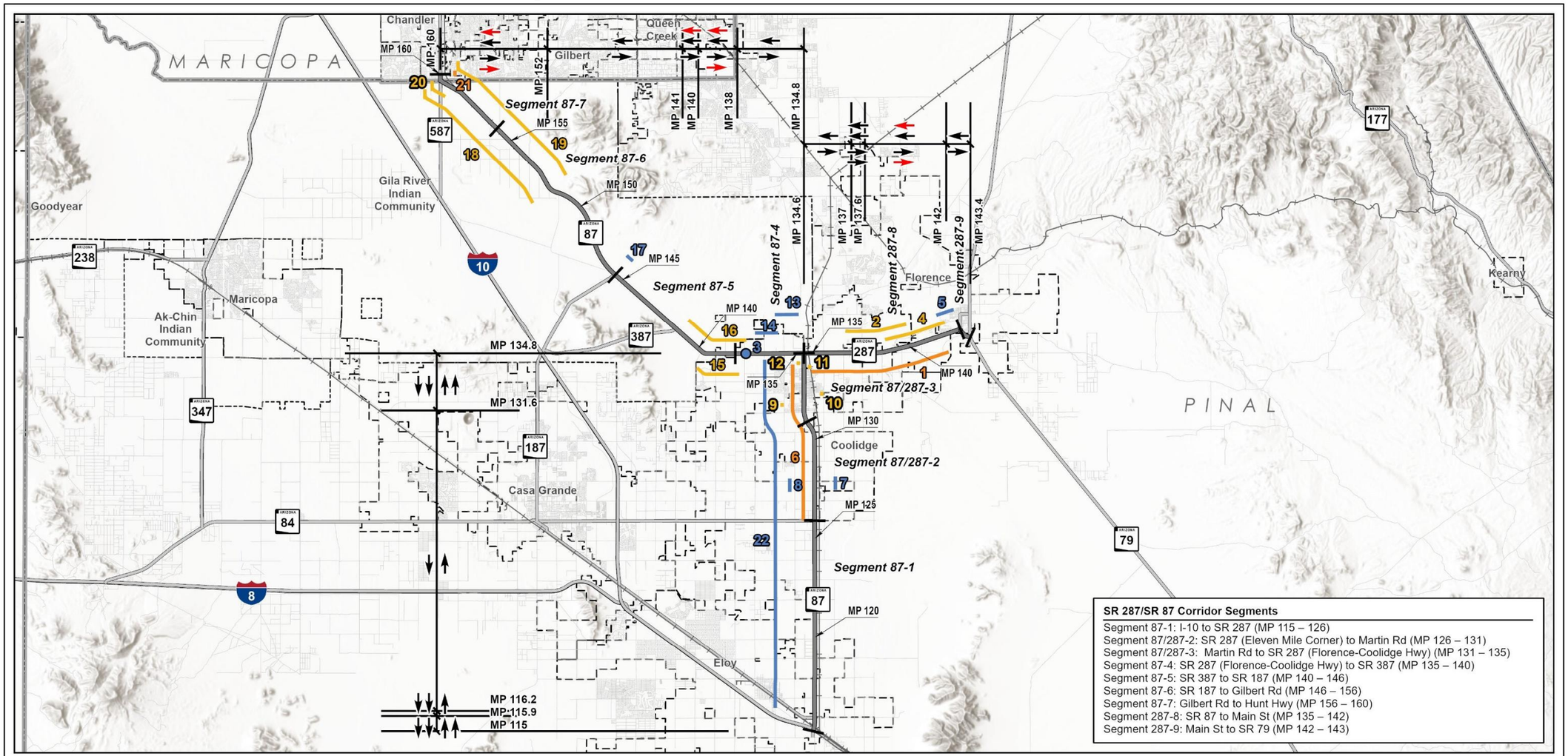
- New signal at Skousen Road (now in operation)
- New signal at Hanna Road (soon to be constructed)
- New signal at Shedd Road (programmed)
- New signal at Arica Road (programmed)

Table 3: Corridor Recommendations from Previous Studies

Map Key Ref. No.	Begin MP	End MP	Length (miles)	Project Description	Investment Category (Preservation [P], Modernization[M], Expansion [E])			Status of Recommendation			Name of Study
					P	M	E	Program Year	Project No.	Environmental Documentation (Y/N)?	
1	287-135	287-142	7	State Route 287 between Coolidge and Florence Pavement Life Extension Project	√			2022	102281	N	ADOT Five Year Program (2022-2026)
2	287-137	287-140	3	Add passing lane for NB SR 287		√			MH134	N	Statewide Climbing and Passing Study
3	287-137.54	287-137.55	0.01	Add NB Right hand turn lane		√			MV210	N	P2P FY (2024-2028)
4	287-139	287-142	3	Passing lane		√			MH135	N	Statewide Climbing and Passing Study
5	287-142	287-143	1	Roundabouts at SR 287/SR 79B and SR-79B/Florence Heights Drive intersections			√			N	ADOT Staff Input
6	87-125.9	87-134	8.1	SR 87 pavement restoration from SR 287 to Pima Lateral canal	√				24.122	N	P2P FY (2024-2028)
7	87-127.5	87-128	0.5	Construct left-turn lanes at Kleck Rd		√		2024	101747	N	ADOT Five Year Program (2024-2028)
8	87-127.5	87-128	0.5	Construct left-turn lanes at Kleck Rd		√		2024	101696	N	ADOT Five Year Program (2022-2026)
9	87-131.973	87-132.002	0.029	Improvements to non-compliant sidewalks on SR 87		√			MK148	N	P2P FY (2024-2028)
10	87-132.589	87-132.649	0.06	Improvements to non-compliant sidewalks		√			MK146	N	P2P FY (2024-2028)
11	87-134.155	87-134.193	0.038	Improvements to non-compliant sidewalks		√			MK147	N	P2P FY (2024-2028)
12	87-134.25	87-134.26	0.01	Add turn arrows and lighting for pedestrians at SR 87 and Vah Ki Inn Rd		√			MV211	N	P2P FY (2024-2028)
13	87-135	287-135	1	Constructing NB right-turn lane, EB left-turn lane, new markings, and asphalt repair at SR 87/Kenworthy Rd & SR 287/Christensen Rd		√		2023	101003	N	ADOT Staff Input
14	87-136	87-137	1	Construct Traffic signals, NB and SB left-turn lanes, widening Skousen Road to the west, EB right turn lane on SR 87			√	2025	103262	N	ADOT Staff Input
15	87-138	87-140	2	Construct passing lane for SB SR 87		√			MH057	N	P2P FY (2024-2028)
16	87-138	87-141	3	Construct passing lane for NB SR 87		√			MH061	N	P2P FY (2024-2028)

Map Key Ref. No.	Begin MP	End MP	Length (miles)	Project Description	Investment Category (Preservation [P], Modernization[M], Expansion [E])			Status of Recommendation			Name of Study
					P	M	E	Program Year	Project No.	Environmental Documentation (Y/N)?	
17	87-146	87-146.25	0.25	Construct right-turn lane on SR 87 approaching SR 187		√		2025	103678	N	ADOT Staff Input
18	87-152	87-160	8	Construct passing lane for NB SR 87		√			MH058	N	P2P FY (2024-2028)
19	87-152	87-160	8	Construct passing lane for SB SR 87		√			MH059	N	P2P FY (2024-2028)
20	87-159	87-160	1	Rebuild awkward dual intersection at SR 87/SR 587 & Hunt Highway		√			MV102	N	P2P FY (2024-2028)
21	87-160	87-160	0.1	Pavement preservation from SR 87 to McQueen Road	√			2024	TT0751	N	Hunt Highway, SR 87 (Arizona Avenue) to McQueen Road (MCDOT website)
22	SR 87 116.7	SR 87 134.5	17.8	Constructing centerline and edge line rumble strips, flashing yellow beacon on SR 287 from Hacienda to SR 87		√		2022	101007	N	ADOT Five Year Program (2022-2026)

Figure 5: Corridor Recommendations from Previous Studies



SR 287/SR 87 Corridor Profile Study: I-10 to SR 79 to Main St
Corridor Recommendations from Previous Studies

2.0 CORRIDOR PERFORMANCE

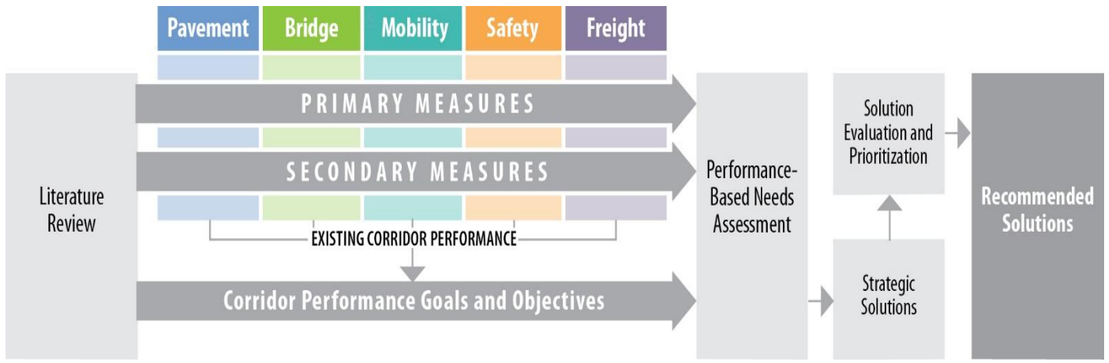
This chapter describes the evaluation of the existing performance of the SR 87/SR 287 Corridor. A series of performance measures is used to assess the corridor. The results of the performance evaluation are used to define corridor needs relative to the long-term goals and objectives for the corridor.

2.1 Corridor Performance Framework

This study uses a performance-based process to define baseline corridor performance, diagnose corridor needs, develop corridor solutions, and prioritize strategic corridor investments. In support of this objective, a framework for the performance-based process was developed through a collaborative process involving ADOT and the CPS consultant teams.

Figure 6 illustrates the performance framework, which includes a two-tiered system of performance measures (primary and secondary) to evaluate baseline performance. The primary measures in each of five performance areas are used to define the overall health of the corridor, while the secondary measures identify locations that warrant further diagnostic investigation to delineate needs. Needs are defined as the difference between baseline corridor performance and established performance objectives.

Figure 6: Corridor Profile Performance Framework



The following five performance areas guide the performance-based corridor analyses:

- Pavement
- Bridge
- Mobility
- Safety
- Freight

These performance areas reflect national performance goals stated in *Moving Ahead for Progress in the 21st Century* (MAP-21):

- 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
- 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

In 2015, the *Fixing America's Surface Transportation Act* (FAST Act) was passed. The FAST Act continued to emphasize the performance management approach identified in MAP-21 but included additional provisions for meeting established performance targets.

The MAP-21 and FAST Act performance areas were considered in the development of ADOT's P2P process, which integrates transportation planning with capital improvement programming and project delivery. Because the P2P program requires the preparation of annual transportation system performance reports using the five performance areas, consistency is achieved among various ADOT processes by using these same performance areas.

While these performance areas were established prior to the earlier rounds of the CPS program, several related federal and ADOT reporting measures and targets were not yet in place at that time. These measures and targets have since been established (subsequent to completion of the prior CPS rounds). As such, it became necessary to revisit and revise the CPS performance measures to be more consistent with the latest federal and ADOT reporting measures and targets.

The performance measures include five primary measures: Pavement Index, Bridge Index, Mobility Index, Safety Index, and Freight Index. Additionally, a set of secondary performance measures provides for a more detailed analysis of corridor performance.

Each of the primary and secondary performance measures is comprised of one or more quantifiable indicators. A three-level scale was developed to standardize the performance scale across the five performance areas, with numerical thresholds specific to each performance measure:

Good/Above Average Performance – Rating is above the identified desirable/average range

Fair/Average Performance – Rating is within the identified desirable/average range

Poor/Below Average Performance – Rating is below the identified desirable/average range

Table 4 provides the complete list of primary and secondary performance measures for each of the five performance areas.

Table 4: Corridor Performance Measures

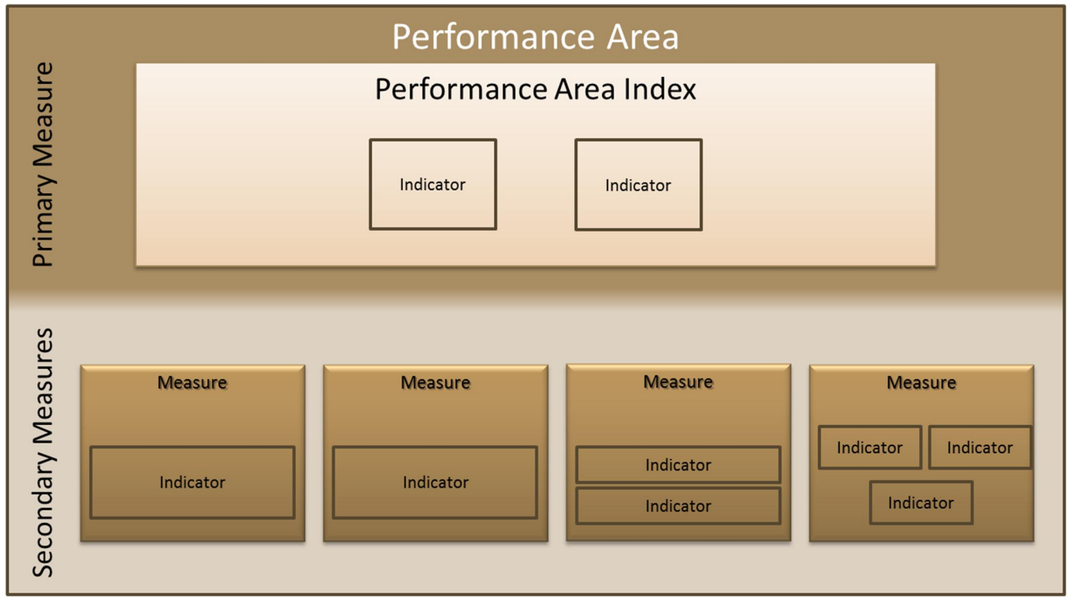
Performance Area	Primary Measure	Secondary Measures
Pavement	**Pavement Index** Based on a combination of International Roughness Index, cracking, and rutting	• Directional Pavement Serviceability • Pavement Failure • Pavement Hot Spots
Bridge	**Bridge Index** Based on lowest of deck, substructure, superstructure and structural evaluation rating	• Bridge Sufficiency • Bridge Rating • Bridge Hot Spots
Mobility	**Mobility Index** Based on combination of existing and future daily volume-to-capacity ratios	• Future Congestion • Peak Congestion • Travel Time Reliability • Multimodal Opportunities
Safety	**Safety Index** Based on frequency of fatal and suspected serious injury crashes	• Directional Safety Index • Strategic Traffic Safety Plan Emphasis Areas • Other Crash Unit Types • Safety Hot Spots
Freight	**Freight Index** Based on bi-directional truck travel time reliability	• Travel Time Reliability • Bridge Vertical Clearance • Bridge Vertical Clearance Hot Spots

The general template for each performance area is illustrated in **Figure 7**.

The guidelines for performance measure development are:

- Indicators and performance measures for each performance area should be developed for relatively homogeneous corridor segments
- Performance measures for each performance area should be tiered, consisting of primary measure(s) and secondary measure(s)
- Primary and secondary measures should assist in identifying those corridor segments that warrant in-depth diagnostic analyses to identify performance-based needs and a range of corrective actions known as solution sets
- One or more primary performance measures should be used to develop a Performance Index to communicate the overall health of a corridor and its segments for each performance area; the Performance Index should be a single numerical index that is quantifiable, repeatable, scalable, and capable of being mapped; primary performance measures should be transformed into a Performance Index using mathematical or statistical methods to combine one or more data fields from an available ADOT database
- One or more secondary performance measure indicators should be used to provide additional details to define corridor locations that warrant further diagnostic analysis; secondary performance measures may include the individual indicators used to calculate the Performance Index and/or “hot spot” features

Figure 7: Performance Area Template

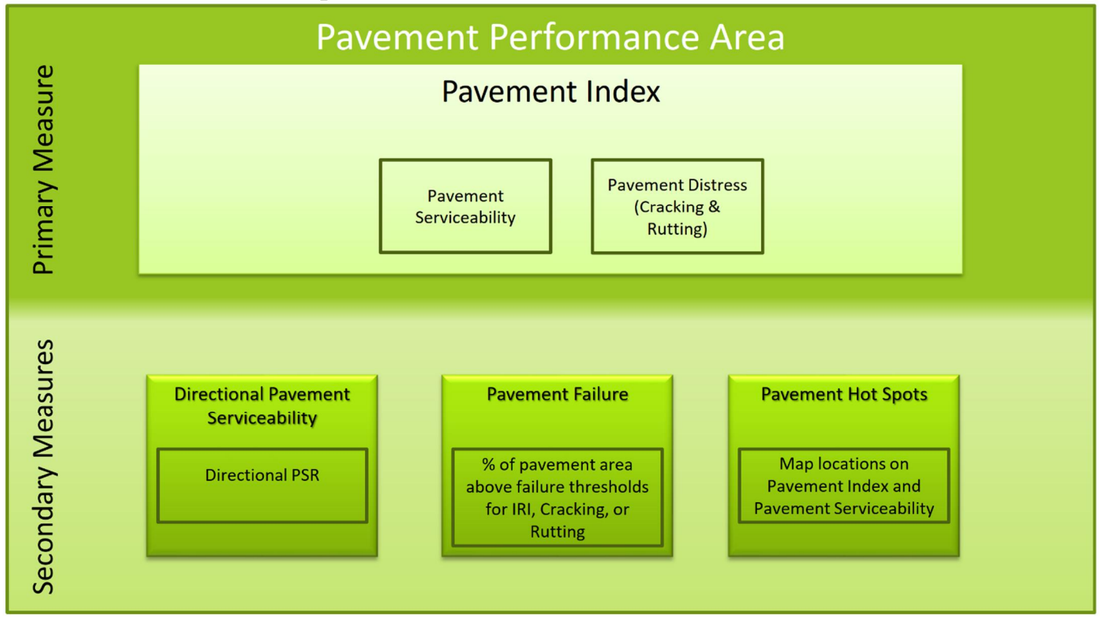


2.2 Pavement Performance Area

The Pavement Performance Area consists of a primary measure (Pavement Index) and three secondary measures, as shown in **Figure 8**. These measures assess the condition of the existing pavement along the SR 87/SR 287 Corridor. The detailed calculations and equations developed for each measure are available in **Appendix B** and the performance data for this corridor is contained in **Appendix C.**

This CPS is an update to a previously completed report. The performance measures and performance thresholds have been revised from the previous version. For the Pavement performance area, the new methodology includes the use of Rutting data and the performance thresholds have been slightly modified.

Figure 8: Pavement Performance Measures



Primary Pavement Index

The Pavement Index is calculated using two pavement condition ratings: the Pavement Serviceability Rating (PSR) and the Pavement Distress Index (PDI).

The PSR is extracted from the International Roughness Index (IRI), a measurement of pavement roughness based on field-measured longitudinal roadway profiles. The PDI is extracted from the Cracking Rating (CR) and Rutting Rating, field-measured samples from each mile of highway.

Both the PSR and PDI use a 0 to 5 scale with 0 representing the lowest performance and 5 representing the highest. The Pavement Index for each segment is a weighted average of the directional ratings based on the number of travel lanes. Therefore, the condition of a section with more travel lanes will have a greater influence on the resulting segment Pavement Index than the condition of a section with fewer travel lanes.

Each corridor segment is rated on a scale with other segments in similar operating environments. Within the Pavement performance area, the relevant operating environments are designated as interstate and non-interstate segments. For the SR 287/SR 87 Corridor, the following operating environments were identified:

- Non-Interstate: all segments

Secondary Pavement Measures

Three secondary measures provide an in-depth evaluation of the different characteristics of pavement performance.

Directional Pavement Serviceability

- Weighted average (based on number of lanes) of the PSR for the pavement in each direction of travel

Pavement Failure

- Percentage of pavement area rated above failure thresholds for IRI, Cracking, or Rutting

Pavement Hot Spots

- A Pavement “hot spot” exists where a given one-mile section of roadway rates as being in “poor” condition
- Highlights problem areas that may be under-represented in a segment average. This measure is recorded and mapped, but not included in the Pavement performance area rating calculations

Pavement Performance Results

The Pavement Index provides a high-level assessment of the pavement condition for the corridor and for each segment. The three secondary measures provide more detailed information to assess pavement performance.

Based on the results of this analysis, the following observations were made:

- The weighted average of the Pavement Index shows “fair” overall performance for the SR 287/SR 87 Corridor
- Segments 87/287-2, 87-4, 87-5, 87-6, and 287-8 have “poor” % Area Failure ratings
- Pavement hot spots along the corridor include:
  - Segment 87-1, MP 115-116 NB and SB
  - Segment 87/287-2, MP 126-129 NB, MP 130-131 NB, and MP 128-129 SB
  - Segment 87/287-3, MP 133-134 NB
  - Segment 87-4, MP 138-140 NB and MP 139-140 SB
  - Segment 87-5, MP 142-146 NB and MP140-143 SB

- Segment 87-6, MP 148-154 NB and MP 148-155 SB
- Segment 87-8, MP 135-136 NB, MP 138-140 NB, and MP 140-141 SB

Table 5 summarizes the Pavement performance results for the SR 287/SR 87 Corridor. **Figure 9** illustrates the primary Pavement Index performance and locations of Pavement hot spots along the SR 287/SR 87 Corridor. Maps for each secondary measure can be found in **Appendix A**.

Table 5: Pavement Performance

Segment	Segment Length (miles)	Pavement Index	Directional PSR		% Area Failure
			NB	SB	
87-1	11	3.77	3.64	3.48	20%
87/287-2	5	3.11	2.83	2.92	50%
87/287-3	4	3.51	3.19	3.48	17%
87-4	6	3.65	3.68	3.48	30%
87-5	5	3.43	3.61	3.63	58%
87-6	10	2.72	3.29	3.34	65%
87-7	4	4.03	3.79	3.83	0%
287-8	7	3.85	3.68	3.99	25%
287-9	1	3.72	3.63	3.60	0%
Weighted Corridor Average		3.47	3.48	3.51	35%
SCALES					
Performance Level		**Non-Interstate**			
Good		> 3.6	> 3.5		< 5%
Fair		2.80 - 3.6	2.90 - 3.5		5% - 20%
Poor		< 2.80	< 2.90		> 20%

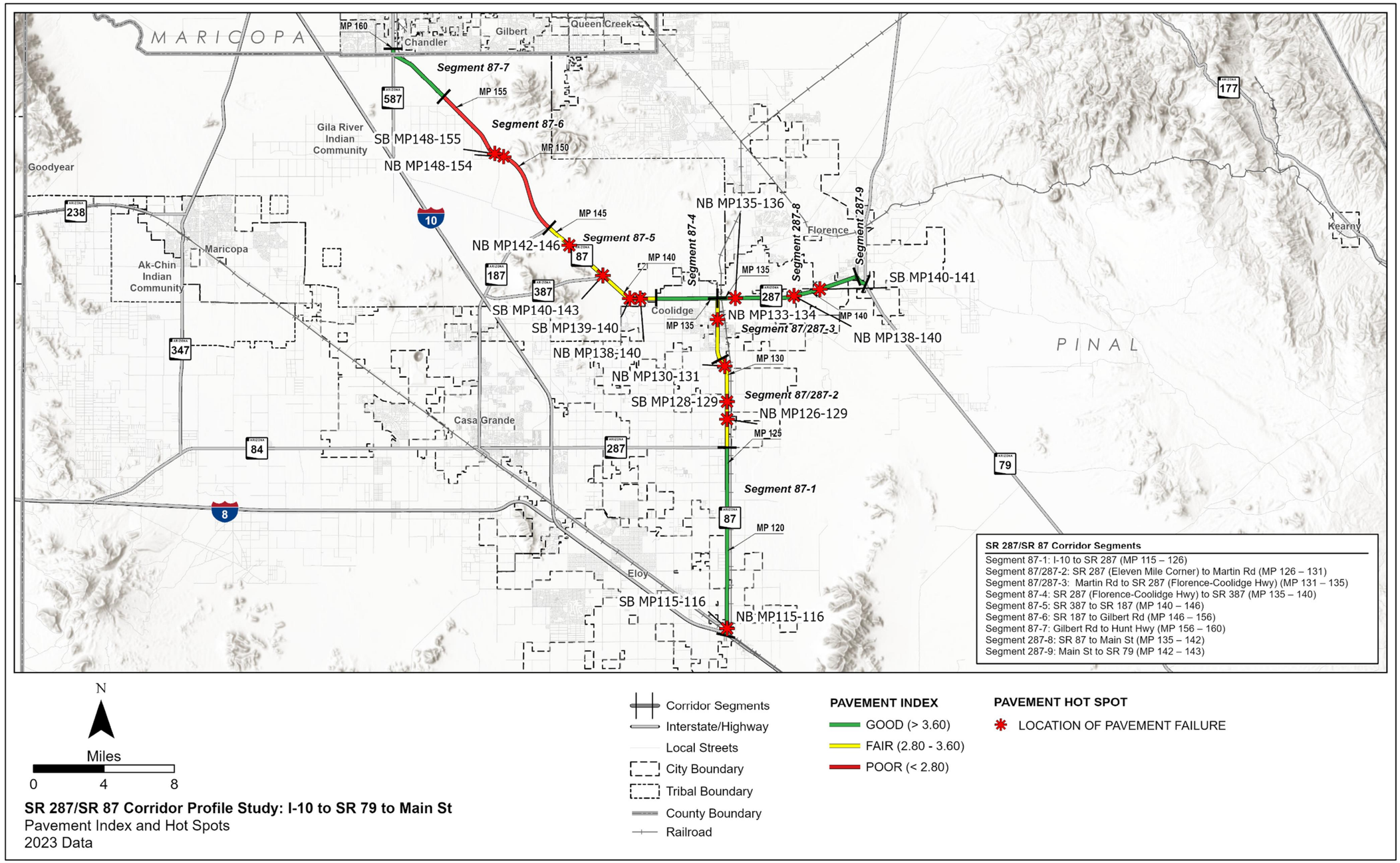
Statewide Transportation Asset Management Plan

Moving Ahead for Progress in the 21st Century Act of 2012 (MAP-21), identified national transportation system goals. The transportation asset management regulations associated with the infrastructure condition goals required the development of a Transportation Asset Management Plan (TAMP) covering National Highway System (NHS) bridges and pavements. As part of the statewide TAMP, ADOT developed pavement performance metrics and thresholds in compliance with federal tracking and reporting requirements, as shown in **Table 6**. The thresholds shown in **Table 6** are the basis for the TAMP and ADOT's federal reporting and are different than those used in this CPS, which are based on ADOT's Pavement Management System, as shown in **Table 5**. The TAMP reports asset condition information in the aggregate at the statewide level and applying the thresholds shown in **Table 6** would result in different segment-level performance than shown in **Table 5**.

Table 6: Statewide TAMP Metrics

Metric	Good	Fair	Poor
IRI (in./mile)	< 95	95-170	> 170
Cracking (%)	< 5	5-20 (asphalt) 5-15 (jointed concrete) 5-10 (cont. reinforced concrete)	> 20 > 15 > 10
Rutting (in.)	< 0.20	0.20–0.40	> 0.40
Faulting (in.)	<0.10	0.10-0.15	> 0.15

Figure 9: Pavement Performance

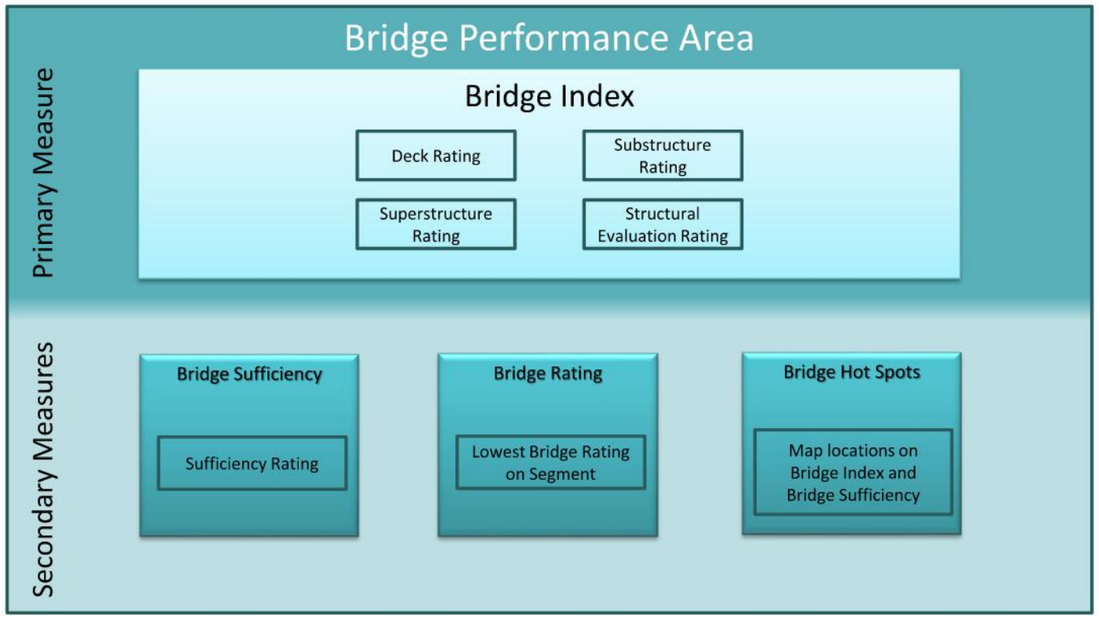


2.3 Bridge Performance Area

The Bridge Performance Area consists of a primary measure (Bridge Index) and three secondary measures, as shown in **Figure 10**. These measures assess the condition of the existing bridges along the SR 287/SR 87 Corridor. Only bridges that carry mainline traffic or bridges that cross the mainline are included in the calculation. The detailed calculations and equations developed for each measure are available in **Appendix B** and the performance data for this corridor is contained in **Appendix C.**

This CPS is an update to a previously completed report. The performance measures and performance thresholds have been revised from the previous version. For the Bridge performance area, the new methodology does not include the performance metric related to Functionally Obsolete bridges, which was used in the previous methodology.

Figure 10: Bridge Performance Measures



Primary Bridge Index

The Bridge Index is calculated based on the use of four different bridge condition ratings from the ADOT Bridge Database, also known as the Arizona Bridge Information and Storage System (ABISS). The four ratings are the Deck Rating, Substructure Rating, Superstructure Rating, and Structural Evaluation Rating. These ratings are based on inspection reports and establish the structural adequacy of each bridge. The performance of each individual bridge is established by using the lowest of these four ratings. The use of these ratings, and the use of the lowest rating, is consistent with the approach used by the ADOT Bridge Group to assess the need for bridge rehabilitation. The Bridge Index is calculated as a weighted average for each segment based on deck area.

Secondary Bridge Measures

Three secondary measures provide an in-depth evaluation of the characteristics of each bridge:

Bridge Sufficiency

- Multipart rating includes structural adequacy and safety factors as well as functional aspects such as traffic volume and length of detour
- Rates the structural and functional sufficiency of each bridge on a 100-point scale

Bridge Rating

- The lowest rating of the four bridge condition ratings (substructure, superstructure, deck, and structural evaluation) on each segment
- Identifies lowest performing evaluation factor on each bridge

Bridge Hot Spots

- A Bridge “hot spot” is identified where a given bridge has a bridge rating of 4 or lower or multiple ratings of 5 between the deck, superstructure, and substructure ratings
- Identifies particularly low-performing bridges or those that may decline to low performance in the immediate future

Bridge Performance Results

The Bridge Index provides a high-level assessment of the structural condition of bridges for the corridor and for each segment. The four secondary measures provide more detailed information to assess bridge performance.

Based on the results of this analysis, the following observations were made:

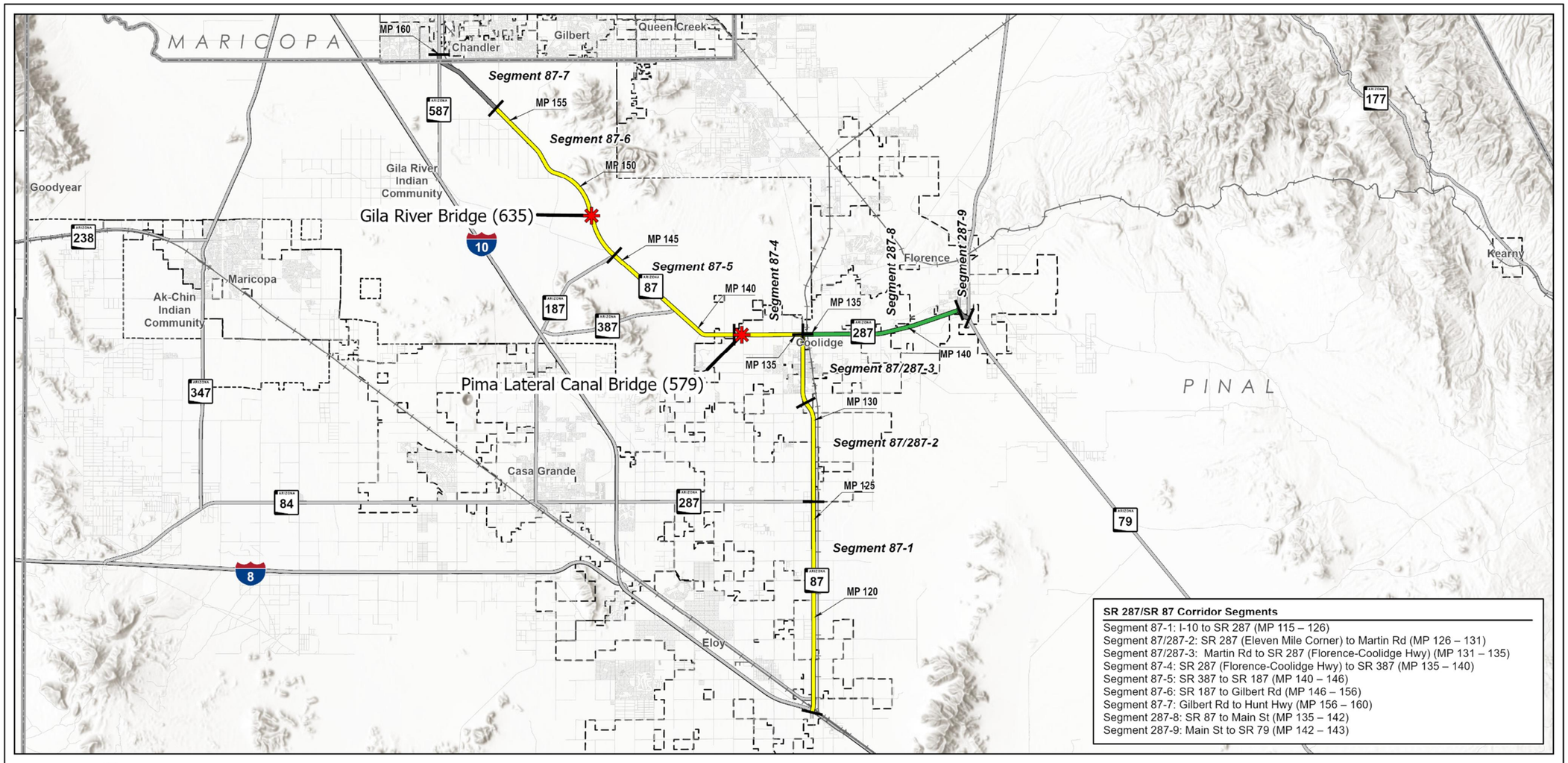
- The weighted average of the Bridge Index shows “fair” overall performance for the SR 287/SR 87 Corridor
- Bridge hot spots along the corridor include:
  - Segment 87-4, Pima Lateral Canal Bridge (579) at MP 137.7
  - Segment 87-6, Gila River Bridge (635) at MP 148.38

Table 7 summarizes the Bridge performance results for the SR 287/SR 87 Corridor. **Figure 11** illustrates the primary Bridge Index performance and locations of Bridge hot spots along the SR 287/SR 87 Corridor. Maps for each secondary measure can be found in **Appendix A.**

Table 7: Bridge Performance

Segment	Segment Length (miles)	# of Bridges	Bridge Index	Bridge Sufficiency	Lowest Bridge Rating
87-1	11	3	5.97	92.69	5
87/287-2	5	1	6.00	74.10	6
87/287-3	4	2	5.00	72.70	5
87-4	5	2	5.00	70.72	5
87-5	6	1	5.00	72.60	5
87-6	10	2	6.15	80.37	5
87-7	4	0	No Bridges in Segment		
287-8	7	1	7.00	83.90	7
287-9	1	0	No Bridges in Segment		
Weighted Corridor Average			5.68	79.69	5.25
SCALES					
Performance Level			**All**		
Good			> 6.5	> 80	> 6
Fair			5.0 – 6.5	50 – 80	5 – 6
Poor			< 5.0	< 50	< 5

Figure 11: Bridge Performance

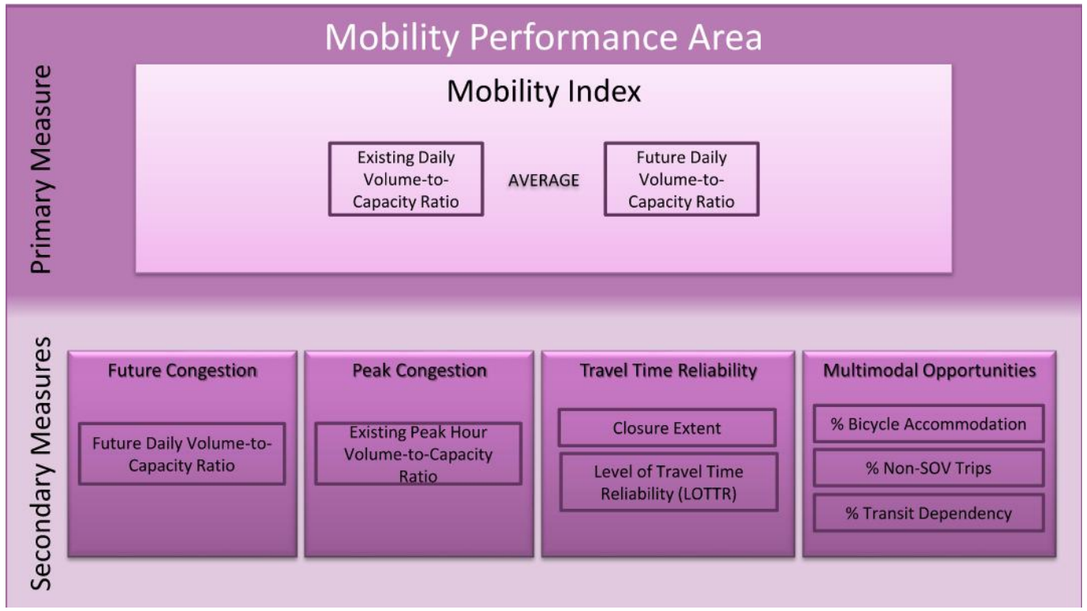


SR 287/SR 87 Corridor Profile Study: I-10 to SR 79 to Main St
Bridge Index and Hot Spots
2023 Data

2.4 Mobility Performance Area

The Mobility performance area consists of a primary measure (Mobility Index) and four secondary measures, as shown in **Figure 12**. These measures assess the condition of existing mobility along the SR 87/SR 287 Corridor. The detailed calculations and equations developed for each measure are available in **Appendix B** and the performance data for this corridor is contained in **Appendix C**.

Figure 12: Mobility Performance Measures



Primary Mobility Index

The Mobility Index is an average of the existing (2023) daily volume-to-capacity (V/C) ratio and the future (2043 AZTDM) daily V/C ratio for each segment of the corridor. The V/C ratio is an indicator of the level of congestion. This measure compares the average annual daily traffic (AADT) volume to the capacity of the corridor segment as defined by the service volume for level of service (LOS) E. By using the average of the existing and future year daily volumes, this index measures the level of daily congestion projected to occur in approximately ten years (2033) if no capacity improvements are made to the corridor.

Each corridor segment is rated on a scale with other segments in similar operating environments. Within the Mobility performance area, the relevant operating environments are urban vs. rural setting. For the SR 287/SR 87Corridor, the following operating environments were identified:

- Rural Flow: Segments 87-1, 87/287-2, 87-4, 87-5, and 87-6
- Fringe Urban: Segments 87/287-3, 87-7, 287-8, and 287-9

Secondary Mobility Measures

Four secondary measures provide an in-depth evaluation of operational characteristics of the corridor:

Future Congestion – Future Daily V/C

- The future (2040 AZTDM) daily V/C ratio. This measure is the same value used in the calculation of the Mobility Index
- Provides a measure of future congestion if no capacity improvements are made to the corridor

Peak Congestion – Existing Peak Hour V/C

- The peak hour V/C ratio for each direction of travel
- Provides a measure of existing peak hour congestion during typical weekdays

Travel Time Reliability – Three separate travel time reliability indicators together provide a comprehensive picture of how much time may be required to travel within the corridor:

- Closure Extent:
  - The average number of instances a particular milepost is closed per year per mile on a given segment of the corridor in a specific direction of travel; a weighted average was applied to each closure that takes into account the distance over which the closure occurs
  - Closures related to crashes, weather, or other incidents are a significant contributor to non-recurring delays; construction-related closures were excluded from the analysis
- Level of Travel Time Reliability (LOTTR):
  - The ratio of the 80th percentile travel time to average (50th percentile) travel time for a given corridor segment in a specific direction; as corridor segments were often comprised of multiple roadway sections for which LOTTR was reported, a weighted average was applied to each section based on the section length in order to arrive at the segment LOTTR
  - The LOTTR reflects how consistent or dependable the travel might be from day to day or during different times of day

Multimodal Opportunities – Three multimodal opportunity indicators reflect the characteristics of the corridor that promote alternate modes to the single occupancy vehicle (SOV) for trips along the corridor:

- % Bicycle Accommodation:
  - Percentage of the segment that accommodates bicycle travel; bicycle accommodation on the roadway or on shoulders varies depending on traffic volumes, speed limits, and surface type
  - Encouraging bicycle travel has the potential to reduce automobile travel, especially on non-interstate highways
- % Non-SOV Trips:
  - The percentage of trips (less than 50 miles in length) by non-SOVs
  - The percentage of non-SOV trips in a corridor gives an indication of travel patterns along a section of roadway that could benefit from additional multimodal options
- % Transit Dependency:
  - The percentage of households that have zero or one automobile and households where the total income level is below the federally defined poverty level
  - Used to track the level of need among those who are considered transit dependent and more likely to utilize transit if it is available

Mobility Performance Results

The Mobility Index provides a high-level assessment of mobility conditions for the corridor and for each segment. The four secondary measures provide more detailed information to assess mobility performance.

Based on the results of this analysis, the following observations were made:

- The weighted average of the Mobility Index shows “good” overall performance for the SR 287/SR 87 Corridor, though segments 87-4, 87-6, and 287-8 show “fair” overall performance
- During the existing peak hour, traffic operations are “good” for all segments
- Segment 87-6 is anticipated to have “poor” performance in the future, according to the Future Daily V/C performance indicator. Segment 287-8 is anticipated to have “fair” performance in the future
- Most segments show “good” performance according to the closure extent parameter, however segments 87/287-3, 87-4, and 87-7 show a “fair” performance in one or both directions
- The LOTTR performance indicator shows “good” performance for all segments
- Segments 87/287-3 and 287-9 show “poor” performance in % Bicycle Accommodation, indicating narrow shoulders
- Segments 87-4 and 87-5 show “poor” performance for non-SOV trips

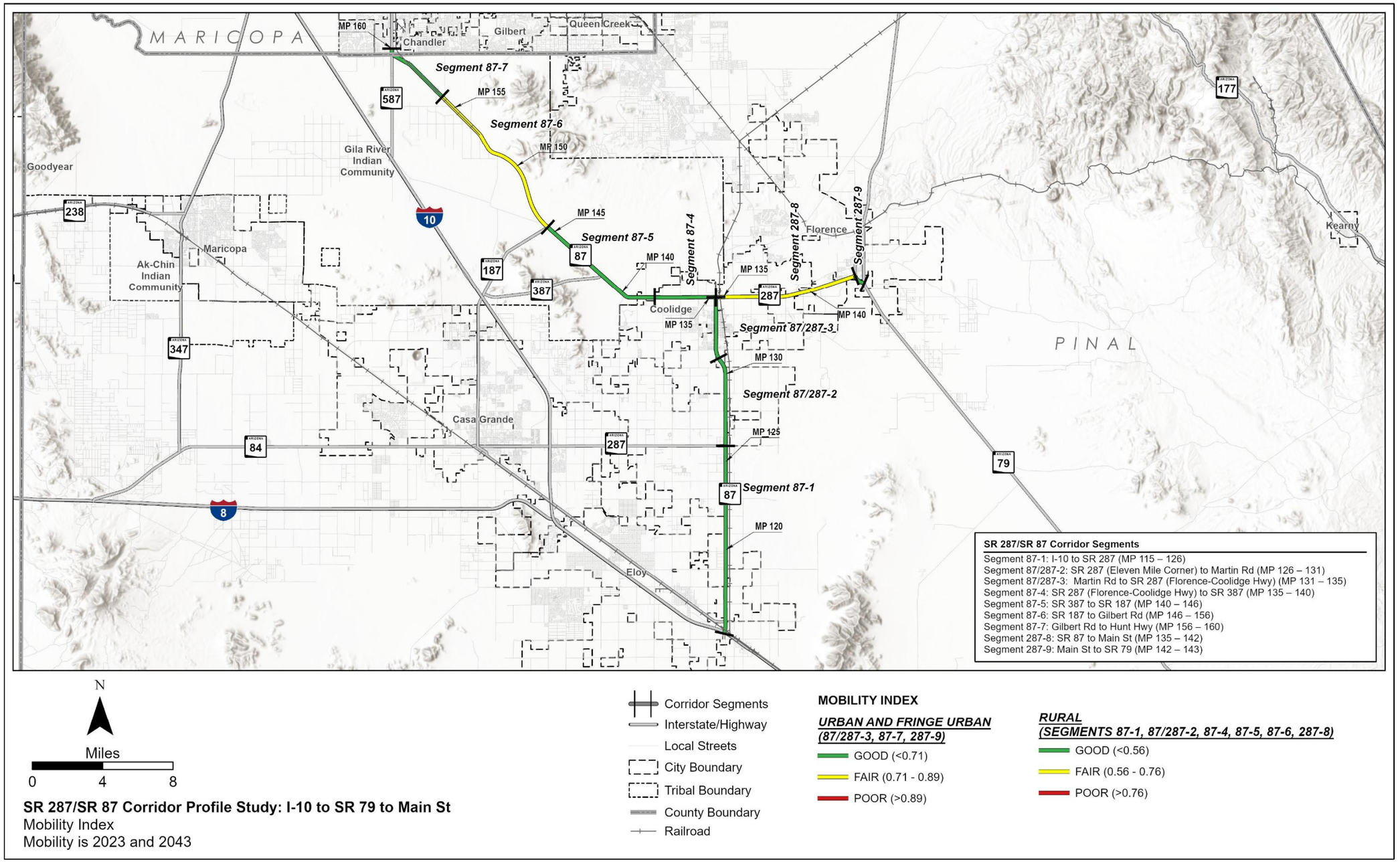
Table 8 summarizes the Mobility performance results for the SR 287/SR 87 Corridor. **Figure 13** illustrates the primary Mobility Index performance along the SR 287/SR 87 Corridor. Maps for each secondary measure can be found in **Appendix A**.

Table 8: Mobility Performance

Segment	Segment Length (miles)	Mobility Index	Future Daily V/C	Existing Peak Hour V/C		Closure Extent (instances/milepost/ year/mile)		Directional LOTTR (all vehicles)		% Bicycle Accommodation	% Non-Single Occupancy Vehicle (SOV) Trips
				NB	SB	NB	SB	NB	SB		
87-1[2]	11	0.21	0.23	0.17	0.16	0.08	0.08	1.02	1.02	86%	18.1%
87/287-2[2]	5	0.36	0.36	0.26	0.32	0.00	0.00	1.03	1.03	70%	18.1%
87/287-3[1]	4	0.41	0.42	0.65	0.67	0.26	0.00	1.03	1.03	13%	17.9%
87-4[2]	6	0.51	0.54	0.41	0.37	0.22	0.39	1.02	1.02	90%	10.1%
87-5[2]	5	0.32	0.33	0.23	0.23	0.06	0.12	1.02	1.02	100%	10.9%
87-6[2]	10	0.75	0.79	0.53	0.55	0.05	0.04	1.03	1.04	100%	13.0%
87-7[1]	4	0.37	0.39	0.53	0.53	0.23	0.31	1.03	1.04	82%	15.9%
287-8[2]	7	0.74	0.75	0.54	0.53	0.06	0.13	1.05	1.05	100%	12.4%
287-9[1]	1	0.27	0.29	0.26	0.18	0.00	0.00	1.05	1.05	35%	19.0%
Weighted Corridor Average		0.50	0.52	0.39	0.39	0.10	0.12	1.03	1.03	84.1%	14.6%
SCALES											
Performance Level		**Fringe Urban**				**All**		**All**		**All**	**All**
Good		< 0.71				< 0.22		< 1.15		> 90%	> 17%
Fair		0.71 – 0.89				0.22 – 0.62		1.15 – 1.50		60% – 90%	11% – 17%
Poor		> 0.89				> 0.62		> 1.50		< 60%	< 11%
Performance Level		**Rural**									
Good		< 0.56									
Fair		0.56 – 0.76									
Poor		> 0.76									

[1]Fringe Urban Operating Environment
[2]Rural Operating Environment

Figure 13: Mobility Performance

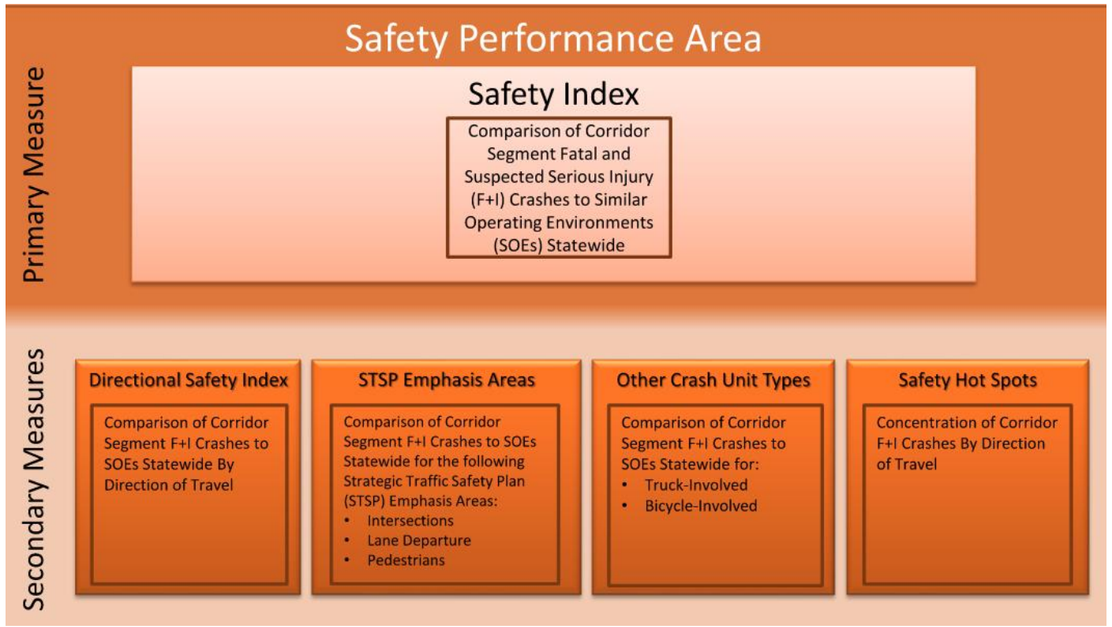


SR 287/SR 87 Corridor Profile Study: I-10 to SR 79 to Main St
Mobility Index
Mobility is 2023 and 2043

2.5 Safety Performance Area

The Safety performance area consists of a primary measure (Safety Index) and four secondary measures, as illustrated in **Figure 14**. All measures relate to crashes that result in fatal and suspected serious injuries, as these types of crashes are the emphasis of the ADOT Strategic Traffic Safety Plan (STSP), FHWA, and MAP-21. The detailed calculations and equations developed for each measure are available in **Appendix B** and the performance data for this corridor is contained in **Appendix C.**

Figure 14: Safety Performance Measures



Primary Safety Index

The Safety Index is based on the bi-directional frequency and rate of fatal and suspected serious injury crashes, the relative cost of those types of crashes, and crash occurrences on similar roadways in Arizona. According to ADOT's 2018 Highway Safety Improvement Program Application, fatal crashes have an estimated cost that is 17.3 times the estimated cost of suspected serious injury crashes ($9.5 million compared to $555,000).

Each corridor segment is rated on a scale by comparing the segment score with the average statewide score for similar operating environments. Because crash frequencies and rates vary depending on the operating environment of a particular roadway, statewide values were developed for similar operating environments defined by functional classification, urban vs. rural setting, number of travel lanes, and traffic volumes. For the SR 287/SR 87 Corridor, all segments were identified as being 2 or 3 Lane Undivided Highway similar operating environments except for segment 3, which was identified to be a 4 or 5 Lane Undivided Highway similar operating environment.

Secondary Safety Measures

Four secondary measures provide an in-depth evaluation of the different characteristics of safety performance:

Directional Safety Index

- This measure is based on the directional frequency and rate of fatal and suspected serious injury crashes

STSP Emphasis Areas

ADOT's 2019 STSP identified several emphasis areas for reducing fatal and suspected serious injury crashes. This measure compared rates of crashes in three STSP emphasis areas to other corridors with a similar operating environment. The three STSP emphasis areas related to crashes involving:

- Intersections
- Lane departures
- Pedestrians

Other Crash Unit Types

- The percentage of total fatal and suspected serious injury crashes that involves crash unit types of trucks and bicycles is compared to the statewide average on roads with similar operating environments

Safety Hot Spots

- The hot spot analysis identifies abnormally high concentrations of fatal and suspected serious injury crashes along the study corridor by direction of travel

For the Safety Index and the secondary safety measures, any segment that has too small of a sample size to generate statistically reliable performance ratings for a particular performance measure is considered to have "insufficient data" and is excluded from the safety performance evaluation for that particular performance measure.

Safety Performance Results

The Safety Index provides a high-level assessment of safety performance for the corridor and for each segment. The four secondary measures provide more detailed information to assess safety performance.

Based on the results of this analysis, the following observations were made:

- A total of 58 fatal and suspected serious injury crashes occurred along the SR 287/SR 87 Corridor in 2019-2023; of these crashes, 16 were fatal and 42 involved suspected serious injuries

- The crash unit type performance measures for crashes at intersections, lane departures and for crashes involving pedestrians, trucks, and bicyclists have insufficient data to generate reliable performance ratings for all or most of SR 287/SR 87 Corridor
- Segments 87-5 and 287-9 have insufficient data to generate reliable performance ratings for the Safety Index
- The weighted average of the Safety Index shows “below average” performance for the SR 287/SR 87 Corridor compared to other segments statewide that have similar operating environments, meaning the corridor generally has more crashes than is typical statewide
- The Overall Safety Index value for Segments 87-1, 87/287-2, 87-4, 87-6, and 87-7 are “below average”
- The Directional Safety Index value for Segments 87-4 and 87-6 are “below average” in both directions, for Segments 87-1, 87/287-2, 87/287-3, 87-5, and 87-7 in one direction, and Segment 287-8 is “above average” in both directions
- Safety hot spots include:
    - Segment 87/287-3, MP 133-135 NB, MP 134-135 SB
    - Segment 87-4, MP 135-137 NB, MP 135-136 SB
    - Segment 287-8, MP 135-136 NB

Table 9 summarizes the Safety performance results for the SR 287/SR 87 Corridor. **Figure 15** illustrates the primary Safety Index performance and locations of Safety hot spots along the SR 287/SR 87 Corridor. Maps for each secondary measure can be found in **Appendix A**.

Table 9: Safety Performance

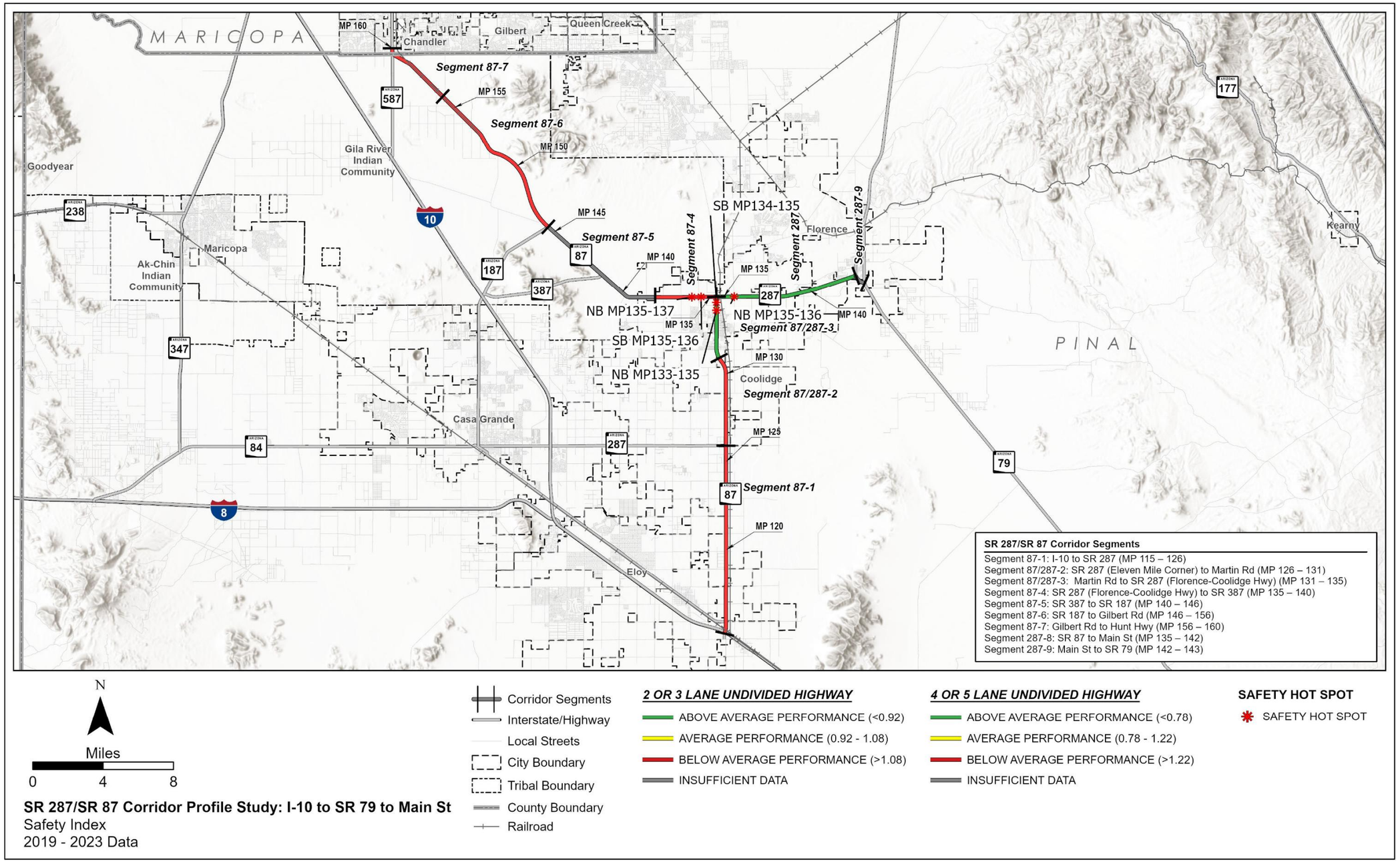
Segment	Segment Length (miles)	Total Fatal & Suspected Serious Injury Crashes (F/SS)	Safety Index	Directional Safety Index		% of Fatal + Suspected Serious Injury Crashes at Intersections	% of Fatal + Suspected Serious Injury Crashes Involving Lane Departures	% of Fatal + Suspected Serious Injury Crashes Involving Pedestrians	% of Fatal and Suspected Serious Injury Crashes Involving Trucks	% of Fatal + Suspected Serious Injury Crashes Involving Bicycles
				NB	SB					
87-1[c]	11	2/5	1.15	2.12	0.18	71%	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data
87/287-2[c]	5	1/5	1.21	0.12	2.31	67%	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data
87/287-3[d]	4	0/14	0.41	0.53	0.29	79%	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data
87-4[c]	6	4/5	3.90	5.67	2.12	56%	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data
87-5[c]	5	2/1	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data
87-6[c]	10	6/5	2.87	4.59	1.16	27%	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data
87-7[c]	4	2/2	2.83	0.15	5.50	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data
287-8[c]	7	0/5	0.19	0.15	0.22	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data
287-9[c]	1	0/0	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data
Weighted Corridor Average			1.84	2.34	1.35	57%	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data
SCALES										
Performance Level			**2 or 3 Lane Undivided Highway**							
Above Average			<0.92			<11%	<67%	<4%	<4%	<0%
Average			0.92 - 1.08			11% - 16%	67% - 75%	4% - 7%	4% - 8%	0% - 3%
Below Average			>1.08			>16%	>75%	>7%	>8%	>3%
Performance Level			**4 or 5 Lane Undivided Highway**							
Above Average			<0.78			<44%	<21%	<9%	<1%	<1%
Average			0.78 - 1.22			44% - 50%	21% - 32%	9% - 14%	1% - 6%	1% - 4%
Below Average			>1.22			>50%	>32%	>14%	>6%	>4%

[c] 2 or 3 Lane Undivided Highway

[d] 4 or 5 Lane Undivided Highway

Note: "Insufficient Data" indicates there was not enough data available to generate reliable performance ratings

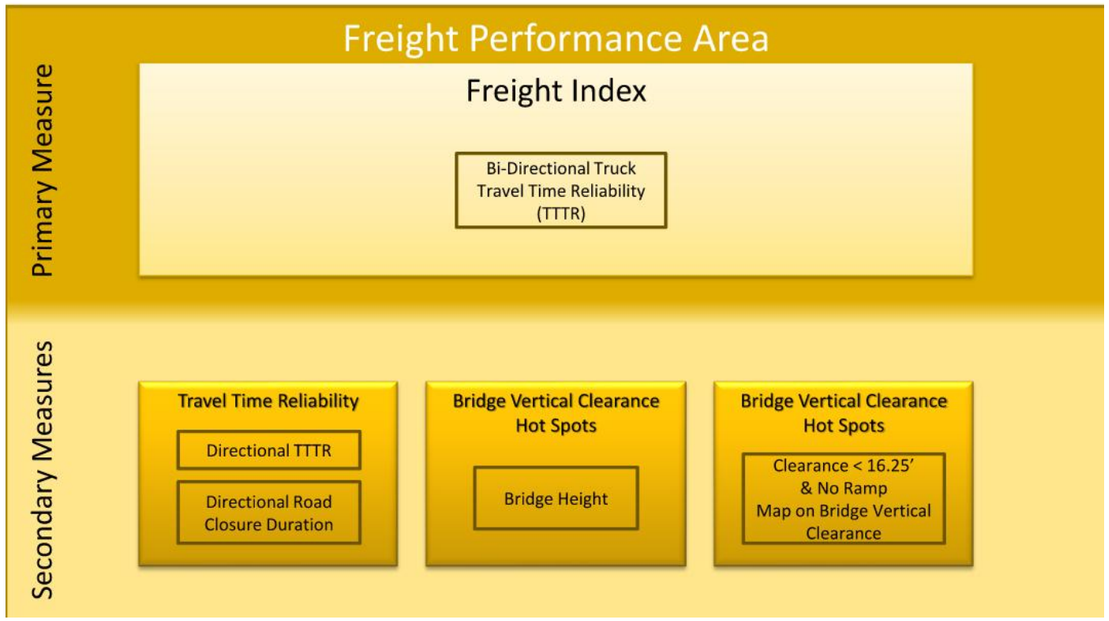
Figure 15: Safety Performance



2.6 Freight Performance Area

The Freight performance area consists of a single primary measure (Freight Index) and three secondary measures, as illustrated in **Figure 16**. All measures related to the reliability of truck travel are measured by observed truck travel time speed and delays to truck travel from road closures or physical restrictions to truck travel. The detailed calculations and equations developed for each measure are available in **Appendix B** and the performance data for this corridor is contained in **Appendix C**.

Figure 16: Freight Performance Measures



Primary Freight Index

The Freight Index is a reliability performance measure based on the travel time reliability for truck travel. The Truck Travel Time Reliability (TTTR) is the ratio of the 95th percentile truck travel time to average (50th percentile) truck travel time. The TTTR reflects the extra buffer time needed for on-time delivery while accounting for delay resulting from circumstances such as recurring congestion, crashes, inclement weather, and construction activities.

Each corridor segment is rated on a scale with other segments in similar operating environments. Within the Freight performance area, the relevant operating environments are interrupted flow (e.g., signalized at-grade intersections are present) and uninterrupted flow (e.g., controlled access grade-separated conditions such as a freeway or interstate highway).

For the SR 87/SR 287 Corridor, the following operating environments were identified:

- Interrupted Flow: Segment 87-1, 87/287-3, 87-6, 287-9
- Uninterrupted Flow: Segments 87/287-2, 87-4, 87-5, 87-7, and 287-8

Secondary Freight Measures

The Freight performance area includes three secondary measures that provide an in-depth evaluation of the different characteristics of freight performance:

Travel Time Reliability – Two separate travel time reliability indicators together provide a comprehensive picture of how much time may be required to travel within the corridor:

- Directional Truck Travel Time Reliability (TTTR):
  - The ratio of the 95th percentile truck travel time to average (50th percentile) truck travel time for a given corridor segment in a specific direction; as corridor segments were often comprised of multiple roadway sections for which TTTR was reported, a weighted average was applied to each section based on the section length in order to arrive at the segment TTTR
- Directional Closure Duration
  - The average time (in minutes) a particular milepost is closed per year per mile on a given segment of the corridor in a specific direction of travel; a weighted average is applied to each closure that takes into account the distance over which the closure occurs

Bridge Vertical Clearance

- The minimum vertical clearance (in feet) over the travel lanes for underpass structures on each segment

Bridge Vertical Clearance Hot Spots

- A Bridge vertical clearance "hot spot" exists where the underpass vertical clearance over the mainline travel lanes is less than 16.25 feet and no exit/entrance ramps exist to allow vehicles to bypass the low clearance location
- If a location with a vertical clearance less than 16.25 feet can be avoided by using immediately adjacent exit/entrance ramps rather than the mainline, it is not considered a hot spot

Freight Performance Results

The Freight Index provides a high-level assessment of freight mobility for the corridor and for each segment. The three secondary measures provide more detailed information to assess freight performance.

Based on the results of this analysis, the following observations were made:

- All segments have “good” performance for Freight Index and Directional TTTR in both directions
- Segment 87-4 and Segment 87-7 have “poor” performance for Closure Duration in the SB/WB direction
- Segment 87/287-3 and segment 87-4 have “fair” performance for Closure Duration in the NB/EB direction
- No bridge vertical clearance hot spots exist along the SR 287/SR 87 Corridor

Table 10 summarizes the Freight performance results for the SR 287/SR 87 Corridor. **Figure 17** illustrates the primary Freight Index performance and locations of freight hot spots along the SR 287/SR 87 Corridor. Maps for each secondary measure can be found in **Appendix A**.

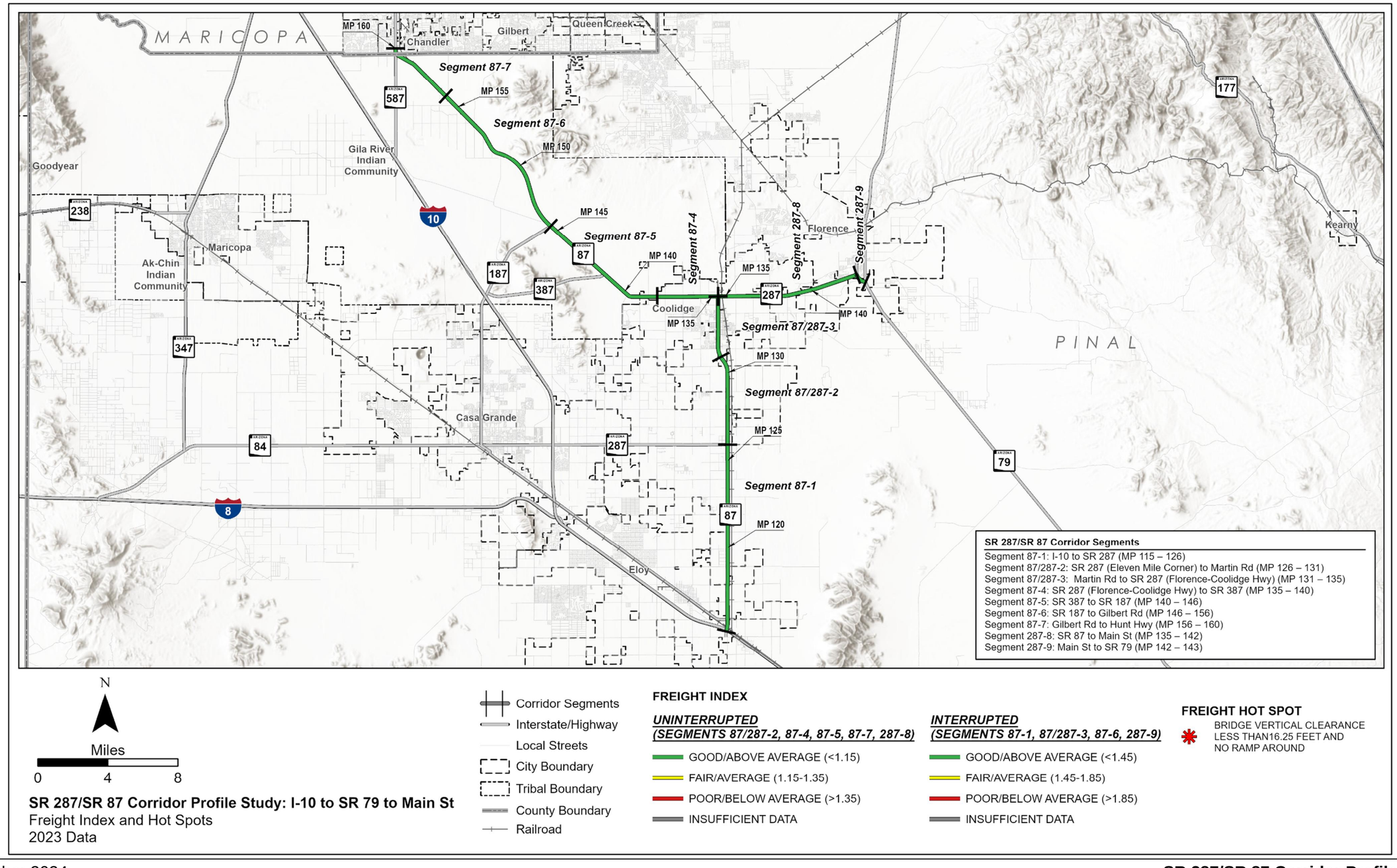
Table 10: Freight Performance

Segment	Segment Length (miles)	Freight Index	Directional TTTR		Closure Duration (minutes/milepost/year/mile)		Bridge Vertical Clearance (feet)
			NB	SB	NB	SB	
87-1*	11	1.07	1.07	1.07	24.52	43.15	No UP
87/287-2^	5	1.07	1.07	1.07	0.00	0.00	No UP
87/287-3*	4	1.07	1.07	1.07	54.95	0.00	No UP
87-4^	6	1.05	1.05	1.05	62.09	149.46	No UP
87-5^	5	1.05	1.05	1.05	7.96	29.65	No UP
87-6*	10	1.05	1.05	1.05	12.23	8.54	No UP
87-7^	4	1.06	1.06	1.06	36.83	156.95	No UP
287-8^	7	1.07	1.07	1.07	1.28	14.55	No UP
287-9*	1	1.07	1.07	1.07	0.00	0.00	No UP
Weighted Corridor Average		1.06	1.06	1.06	22.27	44.05	N/A

SCALES			
Performance Level	**Uninterrupted**	**All**	**All**
Good	< 1.15	< 44.18	> 16.5
Fair	1.15 – 1.35	44.18 – 124.86	16.0 – 16.5
Poor	> 1.35	> 124.86	< 16.0
Performance Level	**Interrupted**		
Good	< 1.45		
Fair	1.45 – 1.85		
Poor	> 1.85		

^Uninterrupted Flow Facility
*Interrupted Flow Facility

Figure 17: Freight Performance



2.7 Corridor Performance Summary

Based on the results presented in the preceding sections, the following general observations were made related to the performance of the SR 287/SR 87 Corridor:

- The Pavement performance measures generally show a mix of “good”, “fair” and “poor” performance; the Bridge performance measures generally show “good” and “fair” performance; the Mobility performance measures generally show “good” and “fair” performance; the Safety performance measures show a mix of “above average” “and “below average” performance; and the Freight performance measures show generally “good”
- The weighted average of the Pavement Index shows “fair” overall performance for the SR 287/SR 87 Corridor; Segment 87-6 shows “poor” performance for the Pavement Index; the weighted average of the % Area Failure Measure shows “poor” performance for the SR 287/SR 87 Corridor
- The weighted average of the Bridge Index shows “fair” overall performance for the SR 287/SR 87 Corridor; The weighted average of the Sufficiency Rating and Lowest Bridge Rating show “fair” for the SR 287/SR 87 Corridor
- The weighted average of the Mobility Index shows “good” overall performance for the SR 287/SR 87 Corridor; Segments 87-6 and 287-8 show “fair” performance for the Mobility Index; Segments 87/287-3 and 287-9 show “poor” performance in % Bicycle Accommodation; Segments 87-4 and 87-5 show “poor” performance in % Non-SOV Trips
- The weighted average of the Safety Index shows “below average” overall performance for the SR 287/SR 87 Corridor; Segments 87-1, 87/287-2, 87-4, 87-6, and 87-7 show “below average” performance for the Safety Index and the Directional Safety Index in one or both directions; Segments 87-1, 87/287-2, 87/287-3, and 87-4 show “below average” performance for % of Crashes at Intersections
- The weighted average of the Freight Index shows “good” overall performance for the SR 287/SR 87 Corridor; Segments 87-4 and 87-7 show “poor” performance in one direction for the Closure Duration

Figure 18 shows the percentage of the SR 287/SR 87 Corridor that rates as “good/above average” performance, “fair/average” performance, or “poor/below average” performance for each primary measure.

Table 11 shows a summary of corridor performance for all primary measures and secondary measure indicators for the SR 287/SR 87 Corridor. A weighted corridor average rating (based on the length of the segment) was calculated for each primary and secondary measure. The weighted average ratings are summarized in **Figure 19**, which also provides a brief description of each performance measure. **Figure 19** represents the average for the entire corridor and any given segment or location could have a higher or lower rating than the corridor average.

Figure 18: Performance Summary by Primary Measure

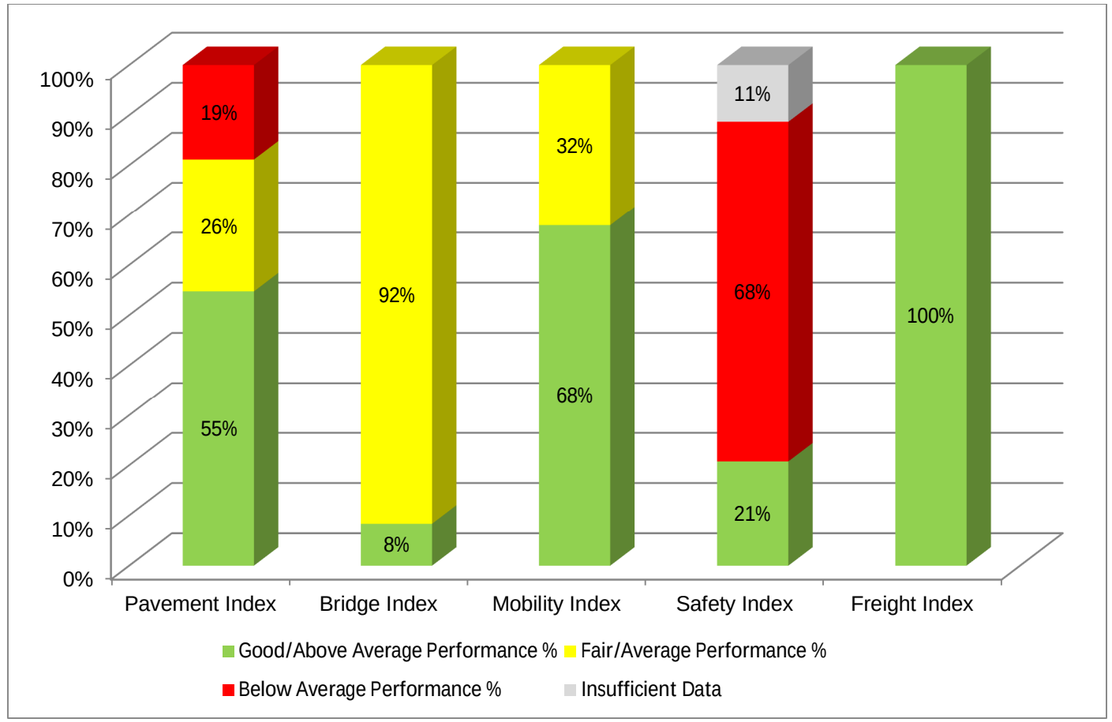


Figure 19: Corridor Performance Summary by Performance Measure

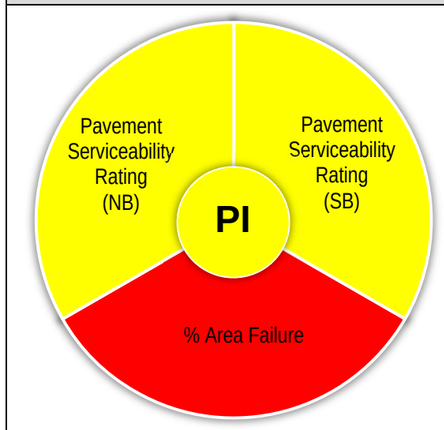
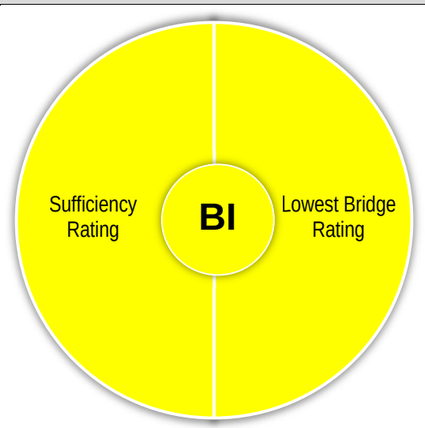
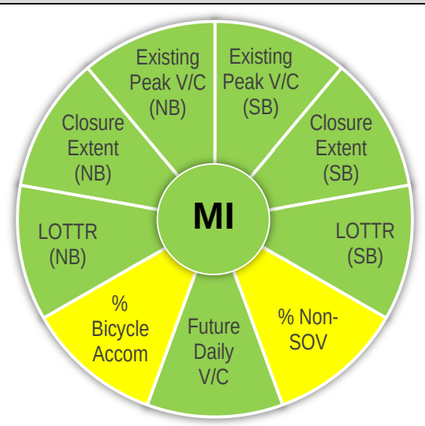
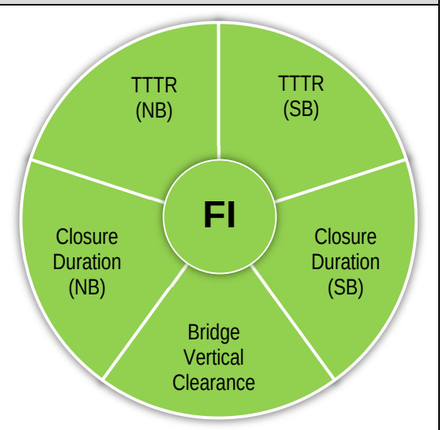
Pavement	Bridge	Mobility	Safety	Freight
				
Pavement Index (PI): based on three pavement condition ratings from the ADOT Pavement Database; the three ratings are the International Roughness Index (IRI), the Cracking Rating, and the Rutting Rating	**Bridge Index (BI):** based on four bridge condition ratings from the ADOT Bridge Database; the four ratings are the Deck Rating, Substructure Rating, Superstructure Rating, and Structural Evaluation Rating	**Mobility Index (MI):** an average of the existing daily volume-to-capacity (V/C) ratio and the projected long-term future daily V/C ratio	**Safety Index (SI):** combines the bi-directional frequency and rate of fatal and suspected serious injury crashes, compared to crash occurrences on roads with similar operating environments in Arizona	**Freight Index (FI):** a reliability performance measure based on the bi-directional Truck Travel Time Reliability (TTTR) for truck travel
➢ **Directional Pavement Serviceability Rating (PSR)** – the weighted average (based on number of lanes) of the PSR for the pavement in each direction of travel ➢ **% Area Failure** – the percentage of pavement area rated above failure thresholds for IRI, Cracking, or Rutting	➢ **Sufficiency Rating**– multipart rating includes structural adequacy and safety factors as well as functional aspects such as traffic volume and length of detour ➢ **Lowest Bridge Rating** –the lowest rating of the four bridge condition ratings on each segment	➢ **Future Daily V/C** – the future daily V/C ratio provides a measure of future congestion if no capacity improvements are made to the corridor ➢ **Existing Peak Hour V/C** – the existing peak hour V/C ratio for each direction of travel provides a measure of existing peak hour congestion during typical weekdays ➢ **Closure Extent** – the average number of instances a particular milepost is closed per year per mile on a given segment of the corridor in a specific direction of travel ➢ **Directional Level of Travel Time Reliability (LOTTR)** – the ratio of the 80th percentile peak period travel time to the 50th percentile peak period travel time for all vehicles ➢ **% Bicycle Accommodation** – the percentage of a segment that accommodates bicycle travel ➢ **% Non-Single Occupancy Vehicle (Non-SOV) Trips** –the percentage of trips that are taken by vehicles carrying more than one occupant	➢ **Directional Safety Index** – the combination of the directional frequency and rate of fatal and suspected serious injury crashes, compared to crash occurrences on roads with similar operating environments in Arizona ➢ **% of Fatal + Suspected Serious Injury Crashes Involving Lane Departures** – the percentage of total fatal and suspected serious injury crashes involving lane departures compared to the statewide average percentage on roads with similar operating environments	➢ **Directional TTTR** – the ratio of the 95th percentile peak period travel time to the 50th percentile peak period travel time for trucks ➢ **Closure Duration** – the average time a particular milepost is closed per year per mile on a given segment of the corridor in a specific direction of travel ➢ **Bridge Vertical Clearance** – the minimum vertical clearance over the travel lanes for underpass structures on each segment.

Table 11: Corridor Performance Summary by Segment and Performance Measure

Segment #	Segment Length (miles)	Pavement Performance Area				Bridge Performance Area			Mobility Performance Area									
		Pavement Index	Directional PSR		% Area Failure	Bridge Index	Sufficiency Rating	Lowest Bridge Rating	Mobility Index	Future Daily V/C	Existing Peak Hour V/C		Closure Extent (instances/ milepost/year/ mile)		Directional LOTTR (all vehicles)		% Bicycle Accommodation	% Non-Single Occupancy Vehicle (SOV) Trips
			NB	SB							NB	SB	NB	SB	NB	SB		
87-1[2]	11	3.77	3.64	3.48	20%	5.97	92.69	5.00	0.21	0.23	0.17	0.16	0.08	0.08	1.02	1.02	86%	18.1%
87/287-2[2]	5	3.11	2.83	2.92	50%	6.00	74.10	6.00	0.36	0.36	0.26	0.32	0.00	0.00	1.03	1.03	70%	18.1%
87/287-3[1]	4	3.51	3.19	3.48	17%	5.00	72.70	5.00	0.41	0.42	0.65	0.67	0.26	0.00	1.03	1.03	13%	17.9%
87-4[2]	5	3.65	3.68	3.48	30%	5.00	70.72	5.00	0.51	0.54	0.41	0.37	0.22	0.39	1.02	1.02	90%	10.1%
87-5[2]	6	3.43	3.61	3.63	58%	5.00	72.60	5.00	0.32	0.33	0.23	0.23	0.06	0.12	1.02	1.02	100%	10.9%
87-6[2]	10	2.72	3.29	3.34	65%	6.15	80.37	5.00	0.75	0.79	0.53	0.55	0.05	0.04	1.03	1.04	100%	13.0%
87-7[1]	4	4.03	3.79	3.83	0%	No Bridges in Segment			0.37	0.39	0.53	0.53	0.23	0.31	1.03	1.04	82%	15.9%
287-8[2]	7	3.85	3.68	3.99	25%	7.00	83.90	7.00	0.74	0.75	0.54	0.53	0.06	0.13	1.05	1.05	100%	12.4%
287-9[1]	1	3.72	3.63	3.60	0%	No Bridges in Segment			0.27	0.29	0.26	0.18	0.00	0.00	1.05	1.05	35%	19.0%
Weighted Corridor Average		3.47	3.48	3.51	35%	5.68	79.69	5.25	0.50	0.52	0.39	0.39	0.10	0.12	1.03	1.03	84.1%	14.6%

SCALES

Performance Level	Non-Interstate			All			Fringe Urban	All	All	All	
Good/Above Average Performance	> 3.60	>3.50	< 5%	> 6.5	> 80	> 6	< 0.71	< 0.22	<1.15	> 90%	> 17%
Fair/Average Performance	2.80-3.60	2.90 - 3.50	5%- 20%	5.0 - 6.5	50 - 80	5 - 6	>0.71 - 0.89	0.22 - 0.62	1.15-1.50	60% - 90%	11% - 17%
Poor/Below Average Performance	< 2.80	< 2.90	> 20%	< 5.0	< 50	< 5	> 0.89	>0.62	>1.50	< 60%	< 11%

Rural
< 0.56
>0.56 - 0.76
> 0.76

[1]Fringe Urban Operating Environment
[2]Rural Operating Environment

Table 11: Corridor Performance Summary by Segment and Performance Measure (continued)

Segment #	Segment Length (miles)	Safety Performance Area							Freight Performance Area					
		Safety Index	Directional Safety Index		% of Fatal + Suspected Serious Injury Crashes at Intersections	% of Fatal + Suspected Serious Injury Crashes Involving Lane Departures	% of Fatal + Suspected Serious Injury Crashes Involving Pedestrians	% of Segment Fatal + Suspected Serious Injury Crashes Involving Trucks	% of Segment Fatal + Suspected Serious Injury Crashes Involving Bicycles	Freight Index	Directional TTTR		Closure Duration (minutes/milepost/year)		Bridge Vertical Clearance (feet)
			NB	SB							NB	SB	NB	SB	
87-1*	11	1.15	2.12	0.18	71%	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data	1.07	1.07	1.07	24.52	43.15	No UP
87/287-2^	5	1.21	0.12	2.31	67%	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data	1.07	1.07	1.07	0.00	0.00	No UP
87/287-3*	4	0.41	0.53	0.29	79%	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data	1.07	1.07	1.07	54.95	0.00	No UP
87-4^	5	3.84	5.67	2.02	56%	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data	1.05	1.05	1.05	62.09	149.46	No UP
87-5^	6	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data	1.05	1.05	1.05	7.96	29.65	No UP
87-6*	10	2.87	4.59	1.16	27%	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data	1.05	1.05	1.05	12.23	8.54	No UP
87-7^	4	2.83	0.15	5.50	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data	1.06	1.06	1.06	36.83	156.95	No UP
287-8^	7	0.19	0.15	0.22	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data	1.07	1.07	1.07	1.28	14.55	No UP
287-9*	1	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data	1.07	1.07	1.07	0.00	0.00	No UP
Weighted Corridor Average		1.80	2.29	1.32	57%	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data	1.06	1.06	1.06	22.27	44.05	N/A

SCALES									
Performance Level	**2 or 3 Lane Undivided Highway**						**Uninterrupted**	**All**	
Good/Above Average Performance	< 0.92	<11.2%	< 66.9%	< 3.8%	< 4.2%	< 0.00%	< 1.15	< 44.18	> 16.5
Fair/Average Performance	0.92 - 1.08	11.2% - 15.6%	66.9% - 74.5%	0.0% - 7.2%	4.2% - 8.0%	0.0% - 3.3%	1.15 - 1.35	44.18-124.86	16.0 - 16.5
Poor/Below Average Performance	> 1.08	>15.6%	> 74.5%	> 7.2%	> 8.0%	> 3.3%	> 1.35	> 124.86	< 16.0
Performance Level	**4 or 5 Lane Undivided Highway**						**Interrupted**		
Good/Above Average Performance	<0.78	<43.8%	<21.1%	<8.8%	<0.8%	<0.5%	< 1.45		
Fair/Average Performance	0.78 - 1.22	43.8% - 49.5%	21.1% - 32.1%	8.8% - 13.5%	0.8% - 5.5%	0.5% - 3.8%	1.45 - 1.85		
Poor/Below Average Performance	>1.22	>49.5%	>32.1%	>13.5%	>5.5%	>3.8%	> 1.85		

^Uninterrupted Flow Facility
*Interrupted Flow Facility

Notes: "Insufficient Data" indicates there was not enough data available to generate reliable performance ratings
"No UP" indicates no underpasses are present in the segment

Appendix A: Corridor Performance Maps

This appendix contains maps of each primary and secondary measure associated with the five performance areas for the SR 287/SR 87 corridor. The following are the areas and maps included:

Pavement Performance Area:

- Pavement Index and Hot Spots
- Pavement Serviceability and Hot Spots (directional)
- Percentage of Pavement Area Failure

Bridge Performance Area:

- Bridge Index and Hot Spots
- Bridge Sufficiency
- Lowest Bridge Rating

Mobility Performance Area:

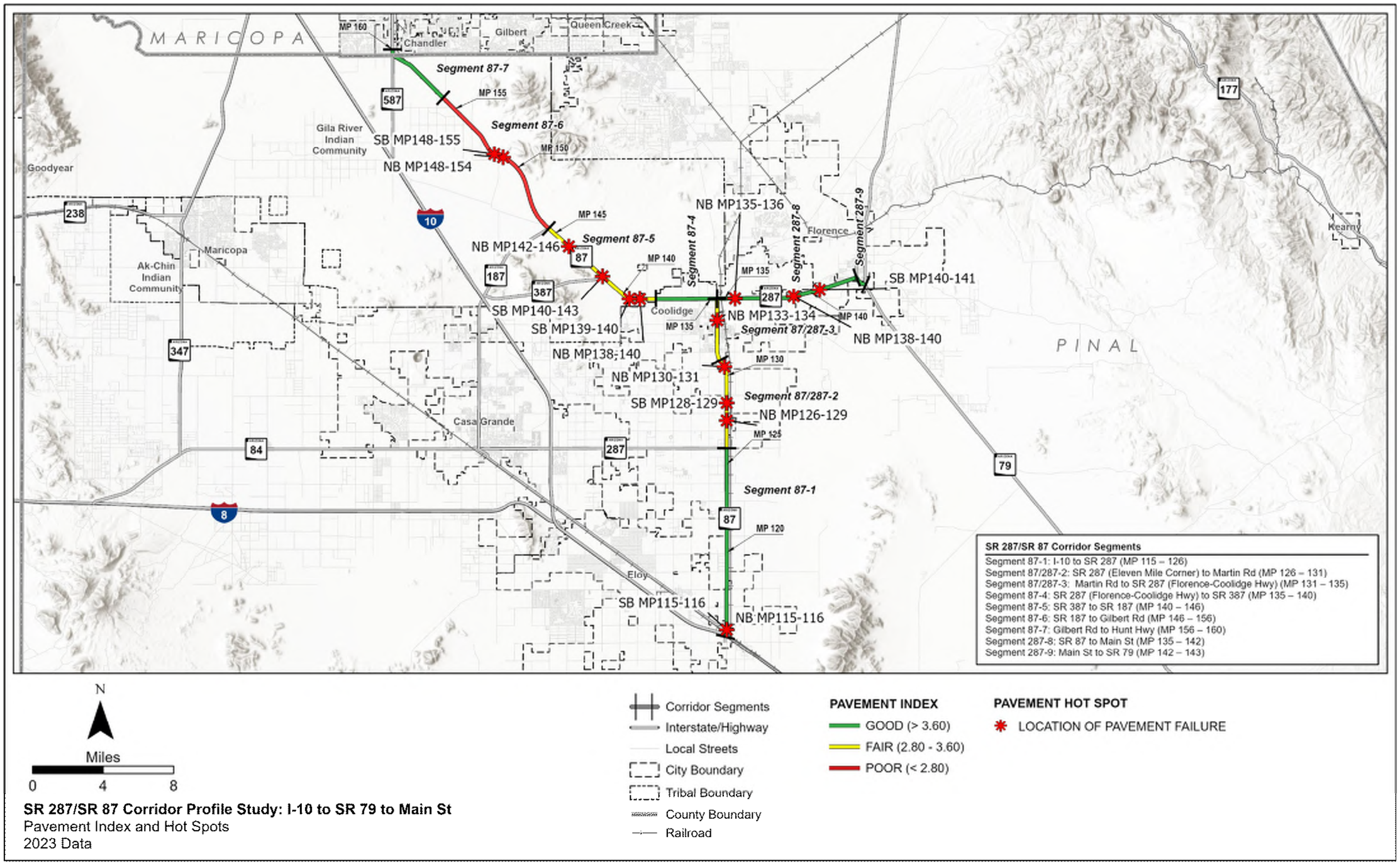
- Mobility Index
- Future Daily V/C Ratio
- Existing Peak Hour V/C Ratio (directional)
- Closure Frequency (directional)
- Level of Travel Time Reliability (directional)
- Multimodal Opportunities
- Percentage of Bicycle Accommodation

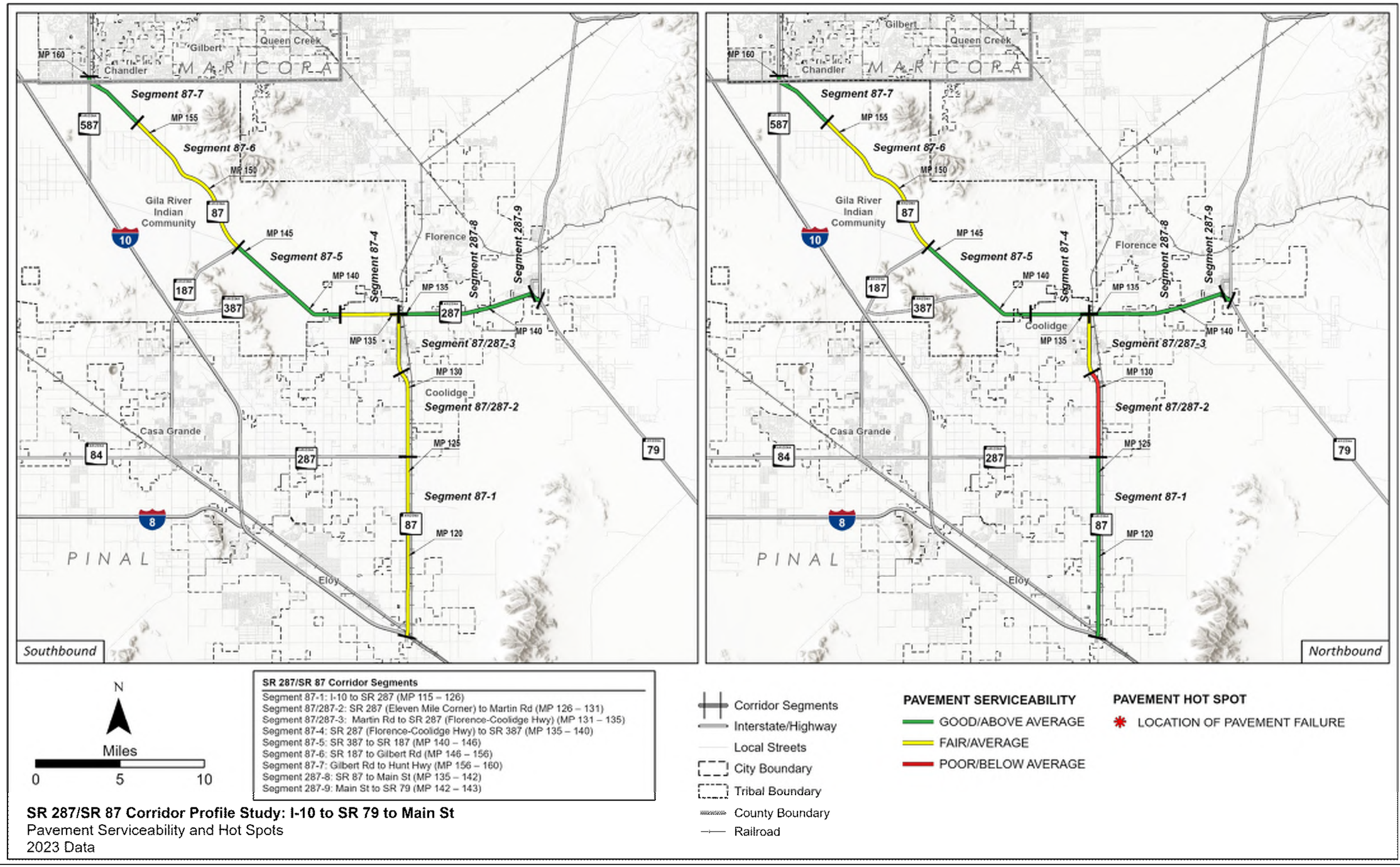
Safety Performance Area:

- Safety Index and Hot Spots
- Safety Index and Hot Spots (directional)
- Relative Frequency of Fatal + Suspected Serious Injury Crashes Involving Intersection Crashes Compared to the Statewide Average for Similar Segments
- Relative Frequency of Fatal + Suspected Serious Injury Crashes Involving Lane Departures Compared to the Statewide Average for Similar Segments (insufficient data – not included)
- Relative Frequency of Fatal + Suspected Serious Injury Crashes Involving Pedestrians Compared to the Statewide Average for Similar Segments (insufficient data – not included)
- Relative Frequency of Fatal + Suspected Serious Injury Crashes Involving Trucks Compared to the Statewide Average for Similar Segments (insufficient data – not included)
- Relative Frequency of Fatal + Suspected Serious Injury Crashes Involving Bicycles Compared to the Statewide Average for Similar Segments (insufficient data – not included)

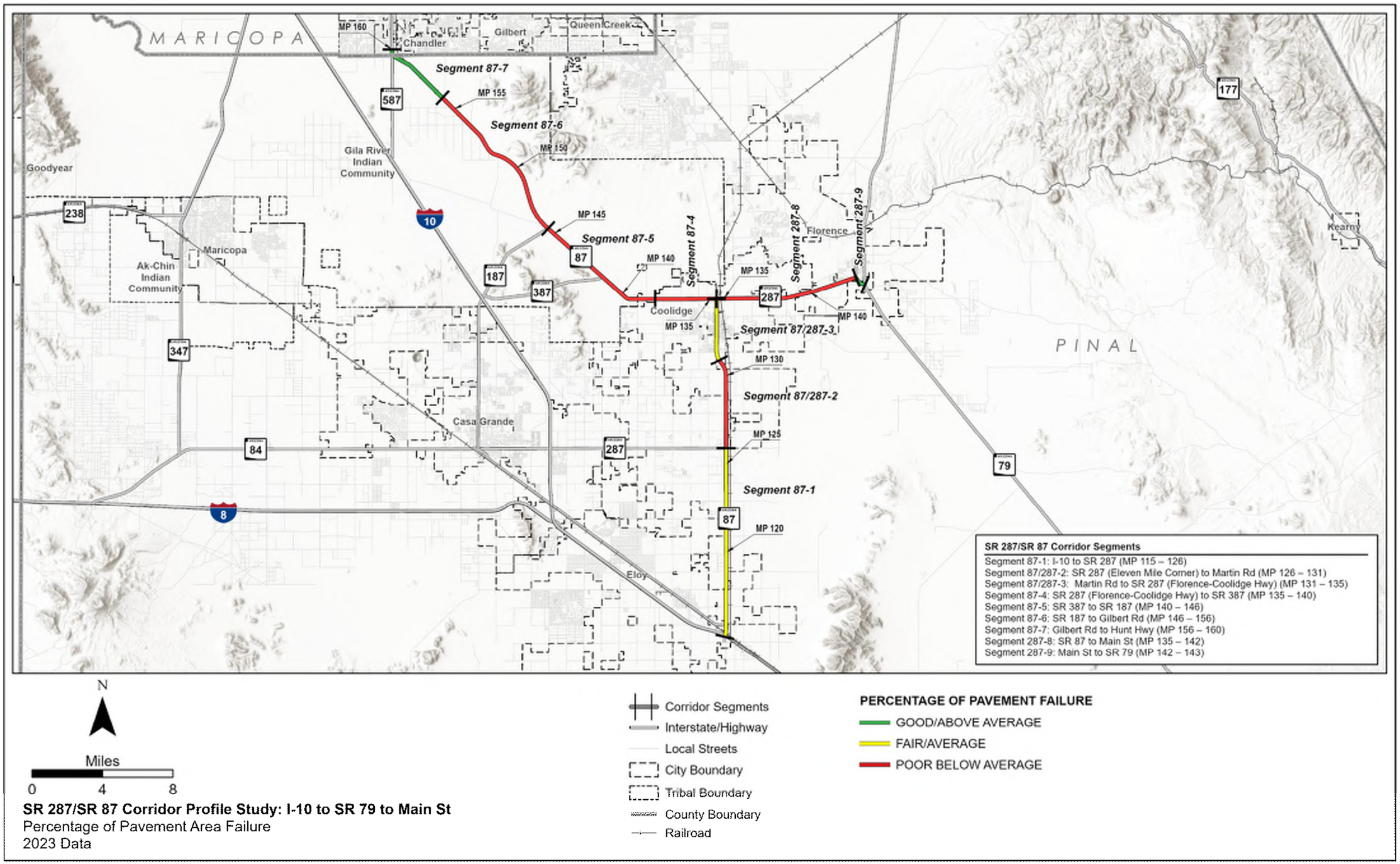
Freight Performance Area:

- Freight Index and Hot Spots
- Truck Travel Time Reliability (directional)
- Closure Duration (directional)
- Bridge Vertical Clearance

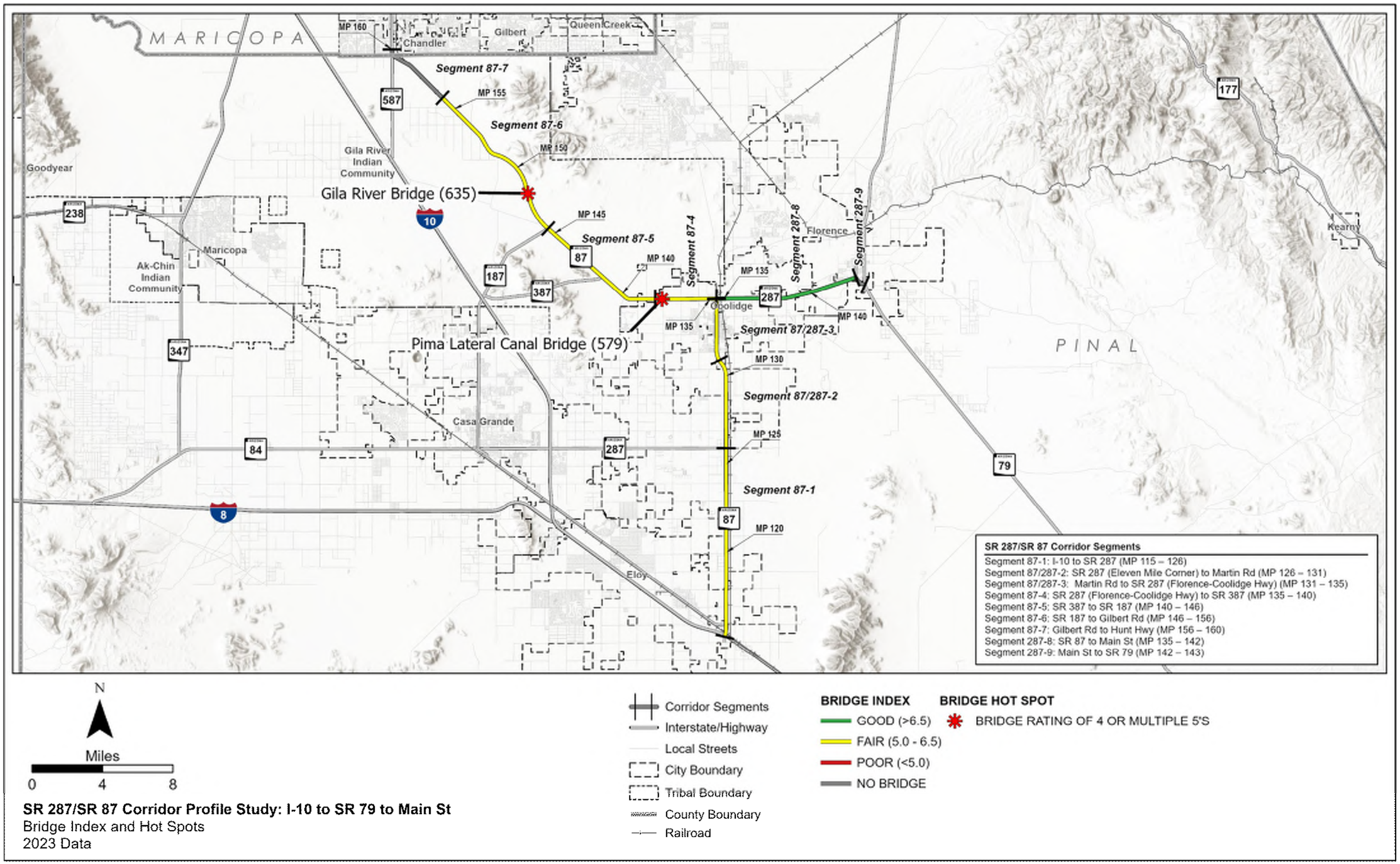

MARICOPA
PINAL
Chandler
Gilbert
Queen Creek
Gila River Indian Community
Goodyear
Maricopa
Ak-Chin Indian Community
Casa Grande
Coolidge
Florence
Kearny
Eloy
MP 160
MP 155
MP 150
MP 145
MP 140
MP 135
MP 130
MP 125
MP 120
Segment 87-7
Segment 87-6
Segment 87-5
Segment 87-4
Segment 87/287-3
Segment 87/287-2
Segment 87-1
Segment 287-8
Segment 287-9
SB MP148-155
NB MP148-154
NB MP142-146
SB MP140-143
SB MP139-140
NB MP138-140
NB MP130-131
SB MP128-129
NB MP126-129
SB MP115-116
NB MP115-116
NB MP135-136
NB MP133-134
SB MP140-141
NB MP138-140
587
10
238
347
84
8
87
187
387
287
177
79
SR 287/SR 87 Corridor Segments
Segment 87-1: I-10 to SR 287 (MP 115 – 126)
Segment 87/287-2: SR 287 (Eleven Mile Corner) to Martin Rd (MP 126 – 131)
Segment 87/287-3: Martin Rd to SR 287 (Florence-Coolidge Hwy) (MP 131 – 135)
Segment 87-4: SR 287 (Florence-Coolidge Hwy) to SR 387 (MP 135 – 140)
Segment 87-5: SR 387 to SR 187 (MP 140 – 146)
Segment 87-6: SR 187 to Gilbert Rd (MP 146 – 156)
Segment 87-7: Gilbert Rd to Hunt Hwy (MP 156 – 160)
Segment 287-8: SR 87 to Main St (MP 135 – 142)
Segment 287-9: Main St to SR 79 (MP 142 – 143)
N
Miles
0
4
8
Corridor Segments
Interstate/Highway
Local Streets
City Boundary
Tribal Boundary
County Boundary
Railroad
PAVEMENT INDEX
GOOD (> 3.60)
FAIR (2.80 - 3.60)
POOR (< 2.80)
PAVEMENT HOT SPOT
LOCATION OF PAVEMENT FAILURE
SR 287/SR 87 Corridor Profile Study: I-10 to SR 79 to Main St
Pavement Index and Hot Spots
2023 Data



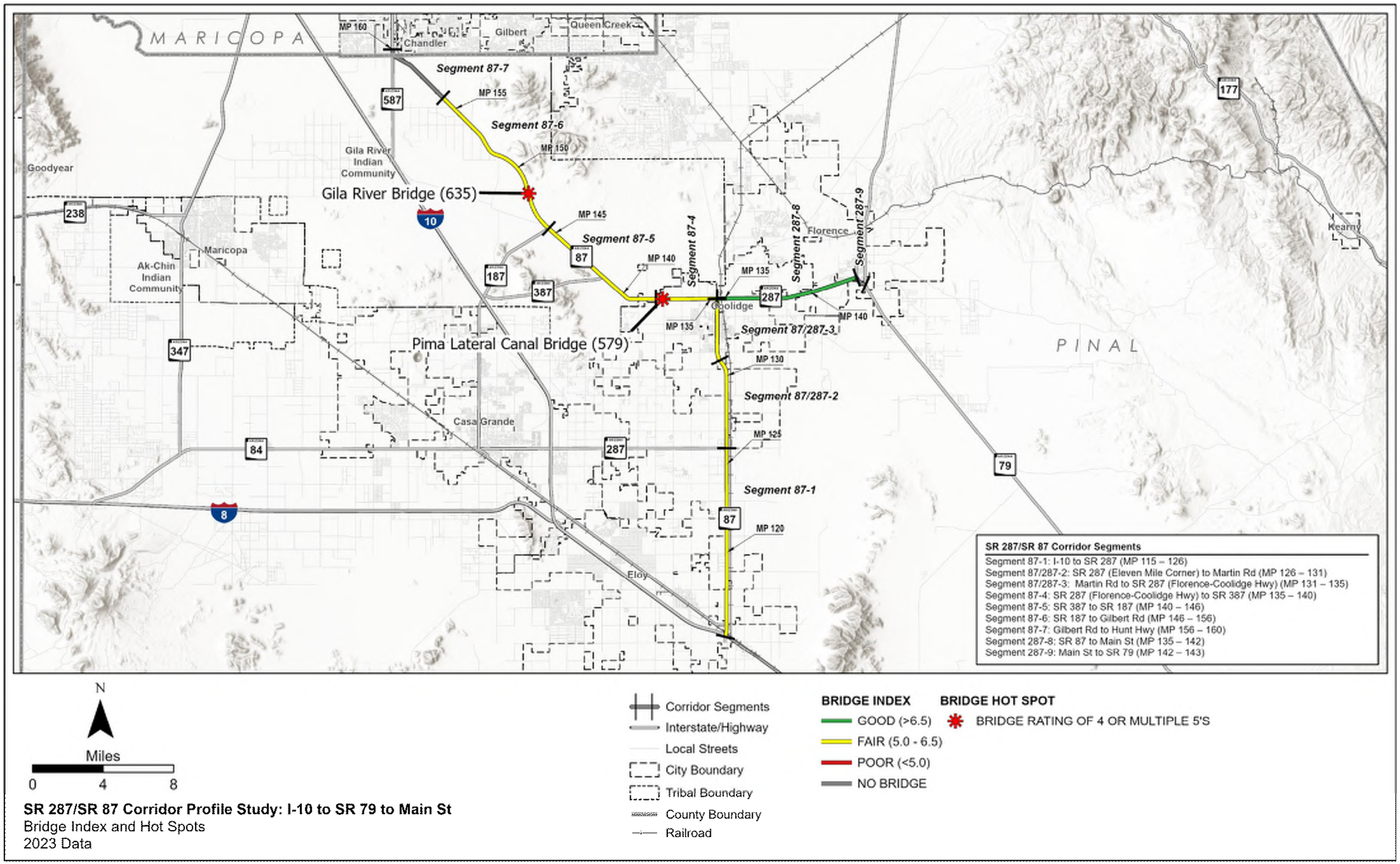
SR 287/SR 87 Corridor Profile Study: I-10 to SR 79 to Main St
Pavement Serviceability and Hot Spots
2023 Data



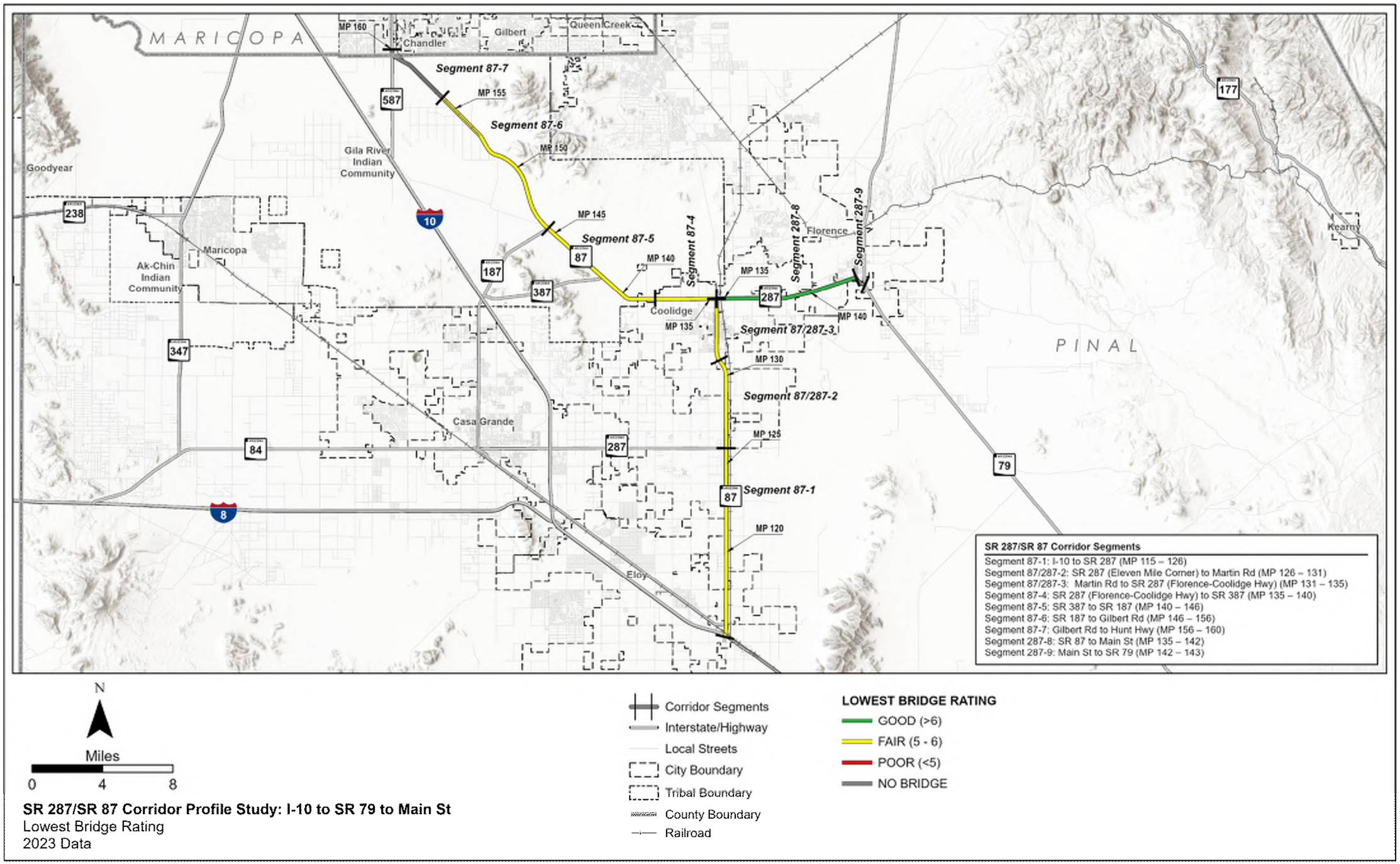
SR 287/SR 87 Corridor Profile Study: I-10 to SR 79 to Main St
Percentage of Pavement Area Failure
2023 Data



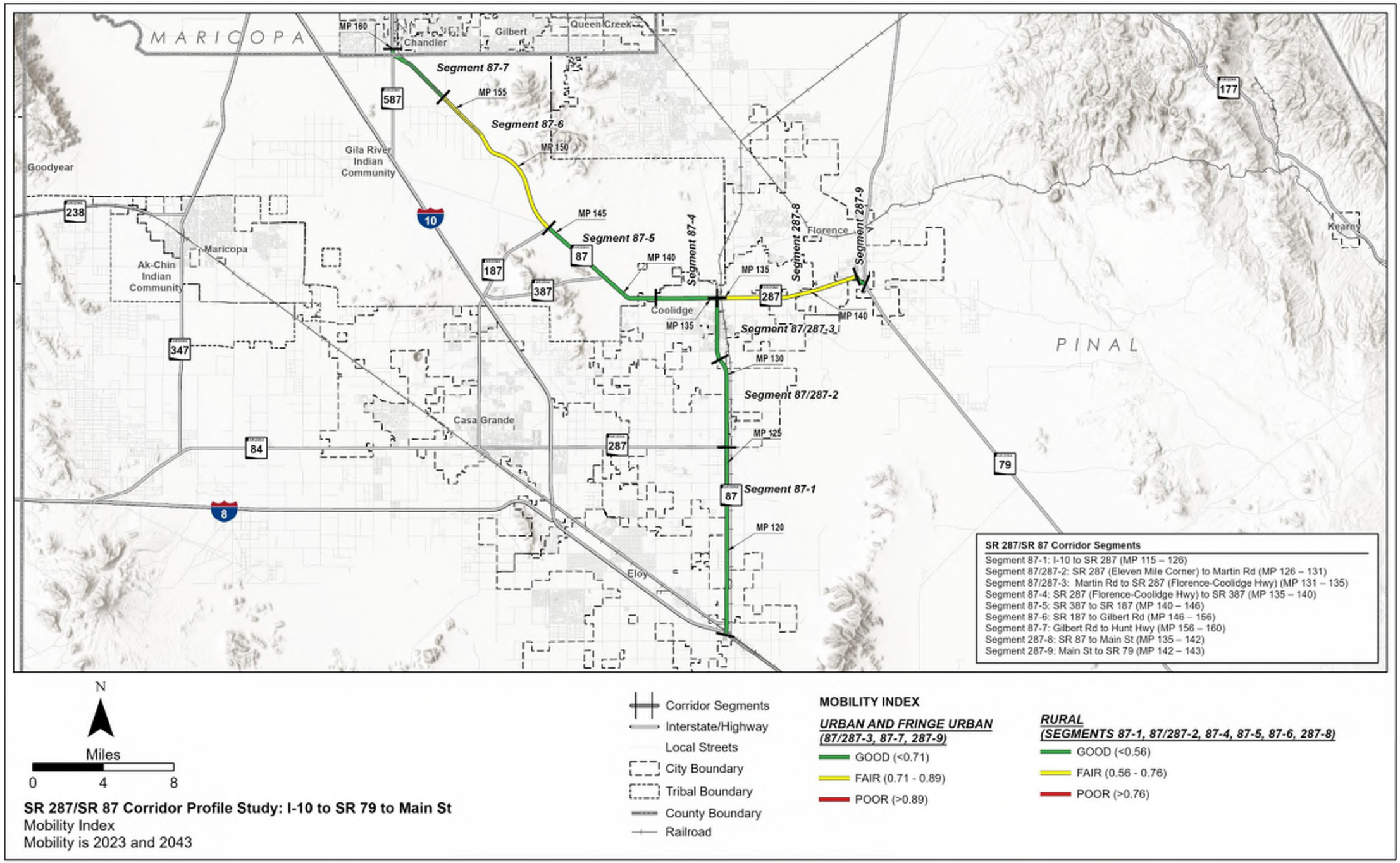
SR 287/SR 87 Corridor Profile Study: I-10 to SR 79 to Main St
Bridge Index and Hot Spots
2023 Data



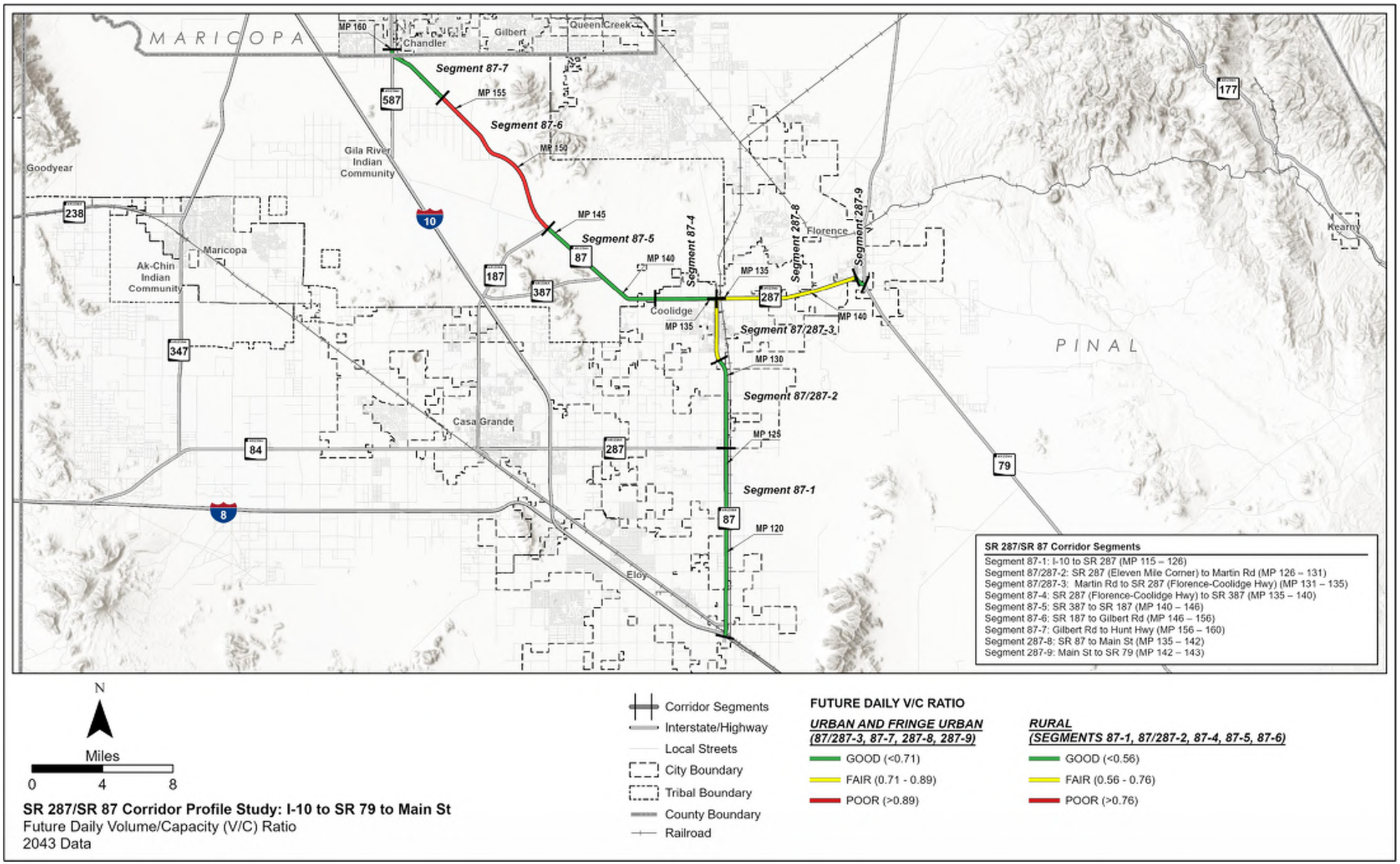
SR 287/SR 87 Corridor Profile Study: I-10 to SR 79 to Main St
Bridge Index and Hot Spots
2023 Data

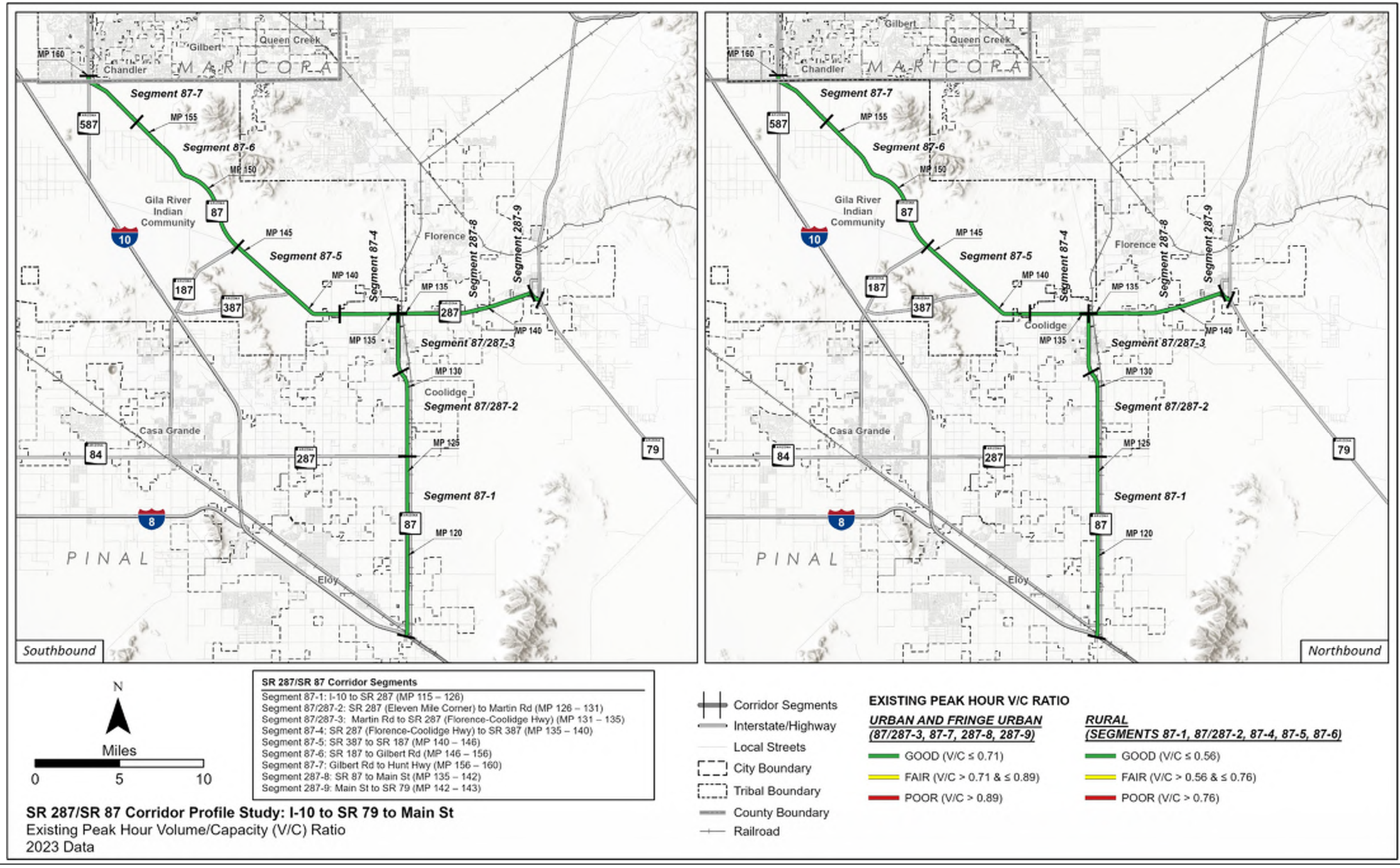


SR 287/SR 87 Corridor Profile Study: I-10 to SR 79 to Main St
Lowest Bridge Rating
2023 Data

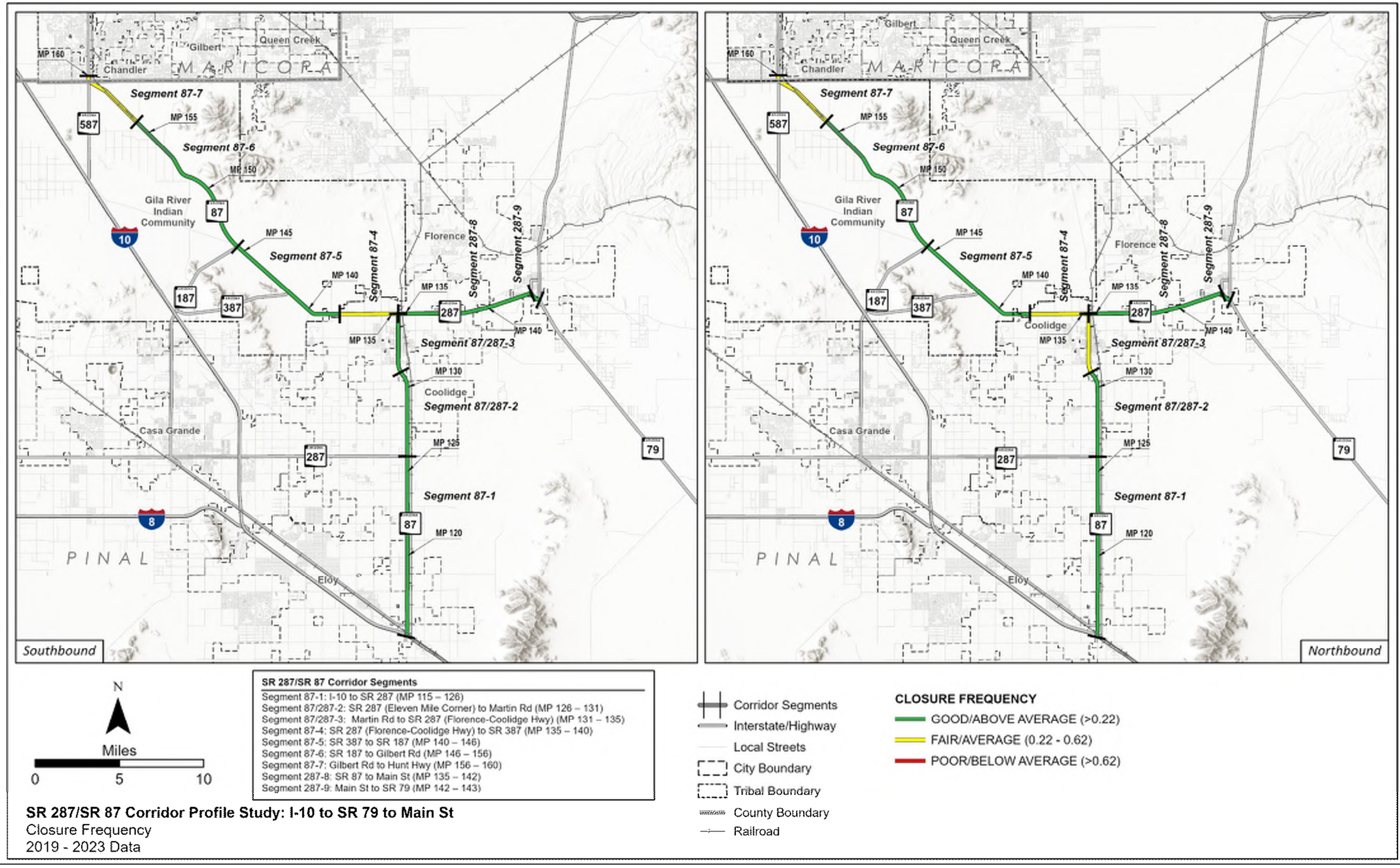


SR 287/SR 87 Corridor Profile Study: I-10 to SR 79 to Main St
Mobility Index
Mobility is 2023 and 2043

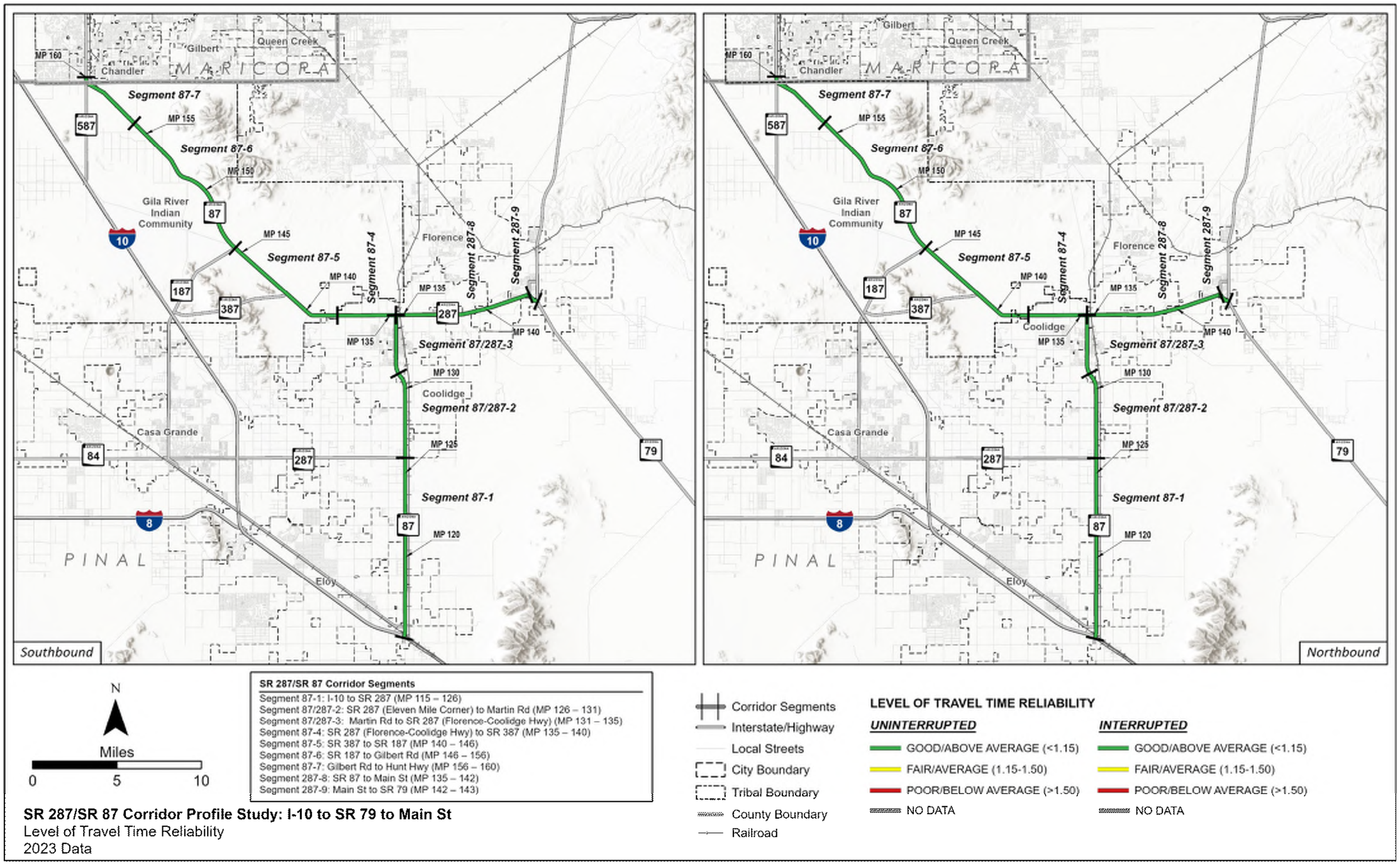

MARICOPA
PINAL
MP 160
Chandler
Gilbert
Queen Creek
Segment 87-7
MP 155
Segment 87-6
MP 150
Gila River Indian Community
Goodyear
MP 145
Segment 87-5
Maricopa
Ak-Chin Indian Community
MP 140
Segment 87-4
MP 135
Segment 287-8
Segment 287-9
Florence
Kearny
Coolidge
MP 135
MP 140
Segment 87/287-3
MP 130
Segment 87/287-2
Casa Grande
MP 125
Segment 87-1
MP 120
Eloy
238
587
10
187
387
87
287
177
347
84
8
79
SR 287/SR 87 Corridor Segments
Segment 87-1: I-10 to SR 287 (MP 115 – 126)
Segment 87/287-2: SR 287 (Eleven Mile Corner) to Martin Rd (MP 126 – 131)
Segment 87/287-3: Martin Rd to SR 287 (Florence-Coolidge Hwy) (MP 131 – 135)
Segment 87-4: SR 287 (Florence-Coolidge Hwy) to SR 387 (MP 135 – 140)
Segment 87-5: SR 387 to SR 187 (MP 140 – 146)
Segment 87-6: SR 187 to Gilbert Rd (MP 146 – 156)
Segment 87-7: Gilbert Rd to Hunt Hwy (MP 156 – 160)
Segment 287-8: SR 87 to Main St (MP 135 – 142)
Segment 287-9: Main St to SR 79 (MP 142 – 143)
N
Miles
0
4
8
Corridor Segments
Interstate/Highway
Local Streets
City Boundary
Tribal Boundary
County Boundary
Railroad
FUTURE DAILY V/C RATIO
URBAN AND FRINGE URBAN (87/287-3, 87-7, 287-8, 287-9)
GOOD (<0.71)
FAIR (0.71 - 0.89)
POOR (>0.89)
RURAL (SEGMENTS 87-1, 87/287-2, 87-4, 87-5, 87-6)
GOOD (<0.56)
FAIR (0.56 - 0.76)
POOR (>0.76)
SR 287/SR 87 Corridor Profile Study: I-10 to SR 79 to Main St
Future Daily Volume/Capacity (V/C) Ratio
2043 Data



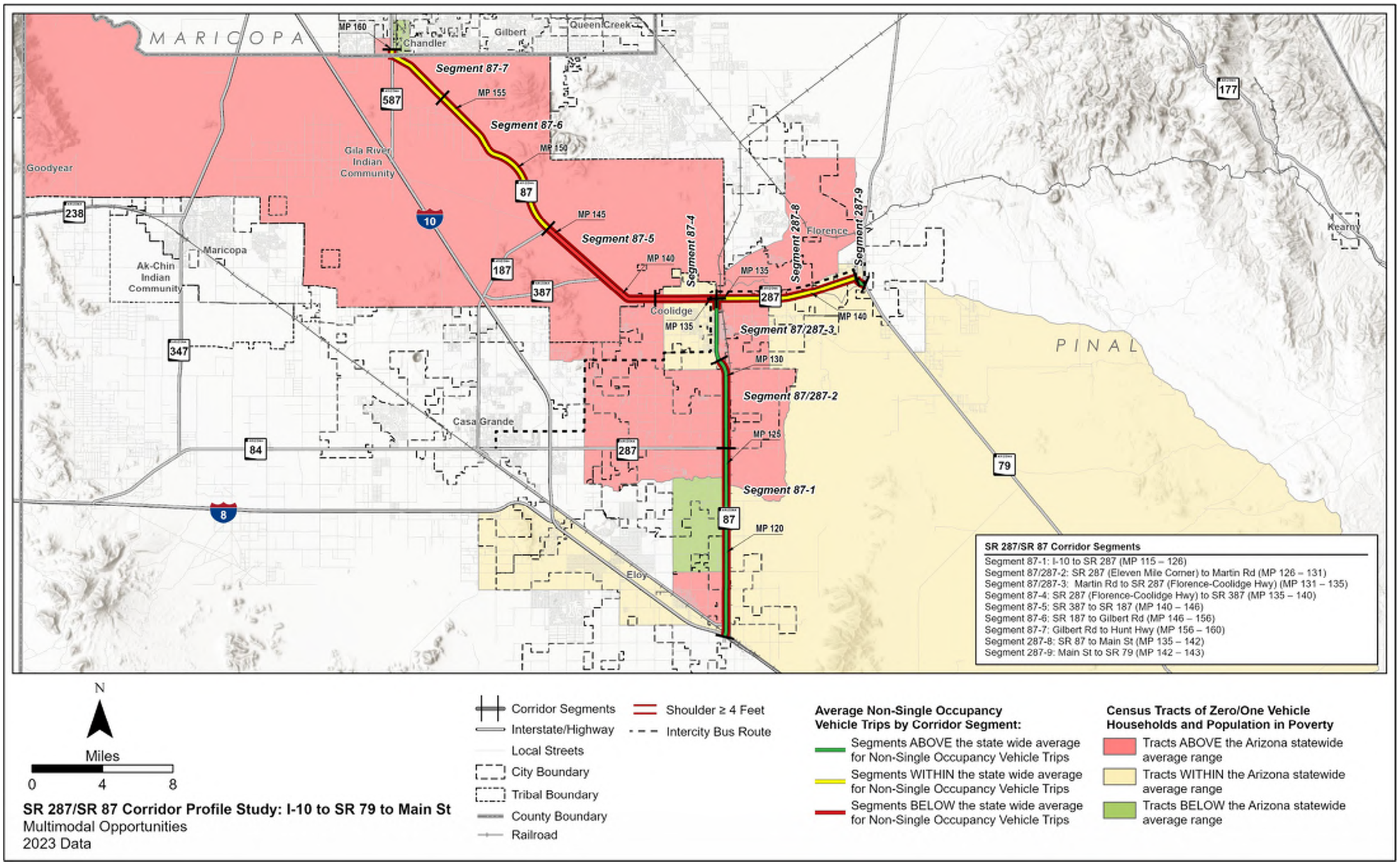
SR 287/SR 87 Corridor Profile Study: I-10 to SR 79 to Main St
Existing Peak Hour Volume/Capacity (V/C) Ratio
2023 Data

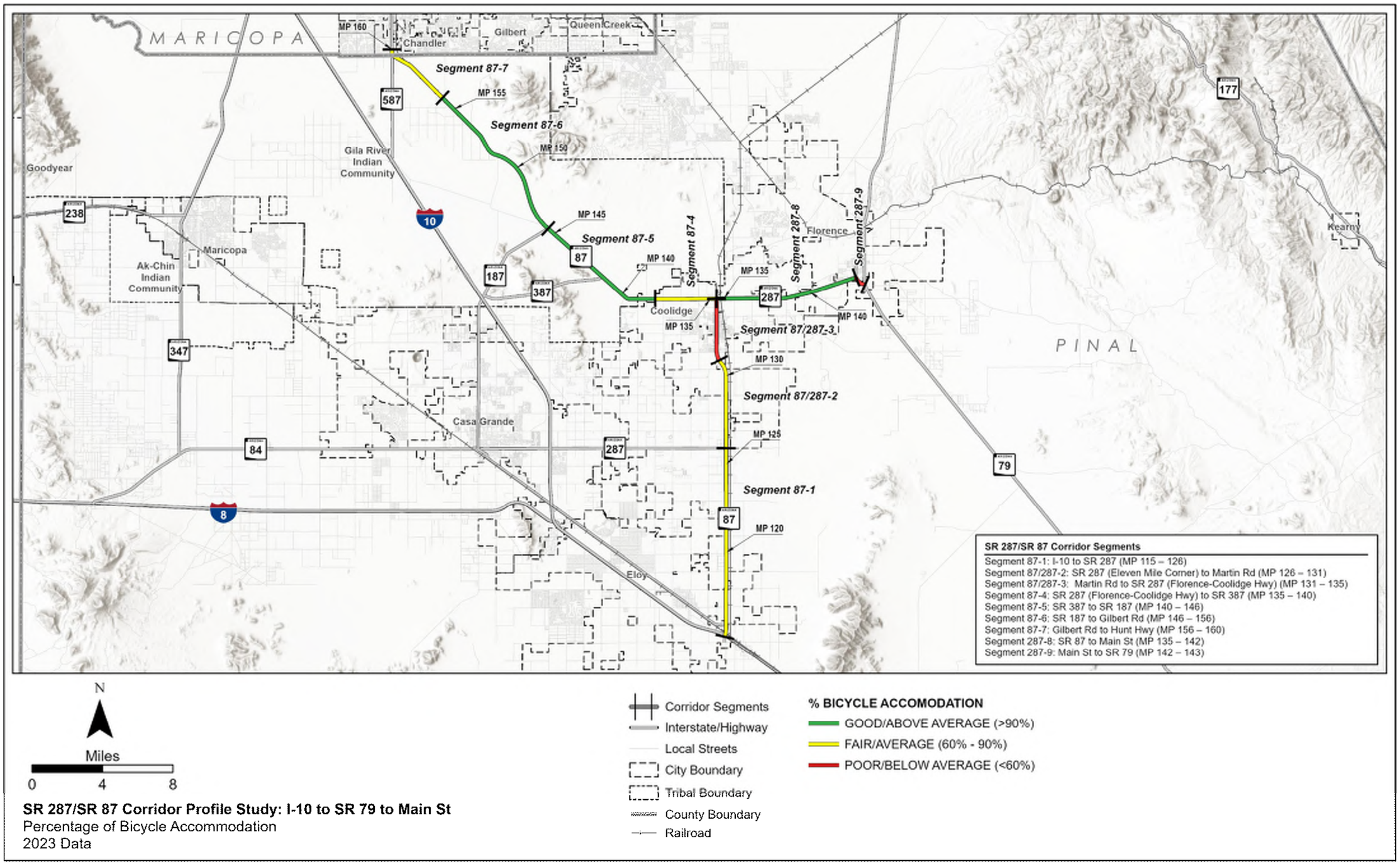


SR 287/SR 87 Corridor Profile Study: I-10 to SR 79 to Main St
Closure Frequency
2019 - 2023 Data

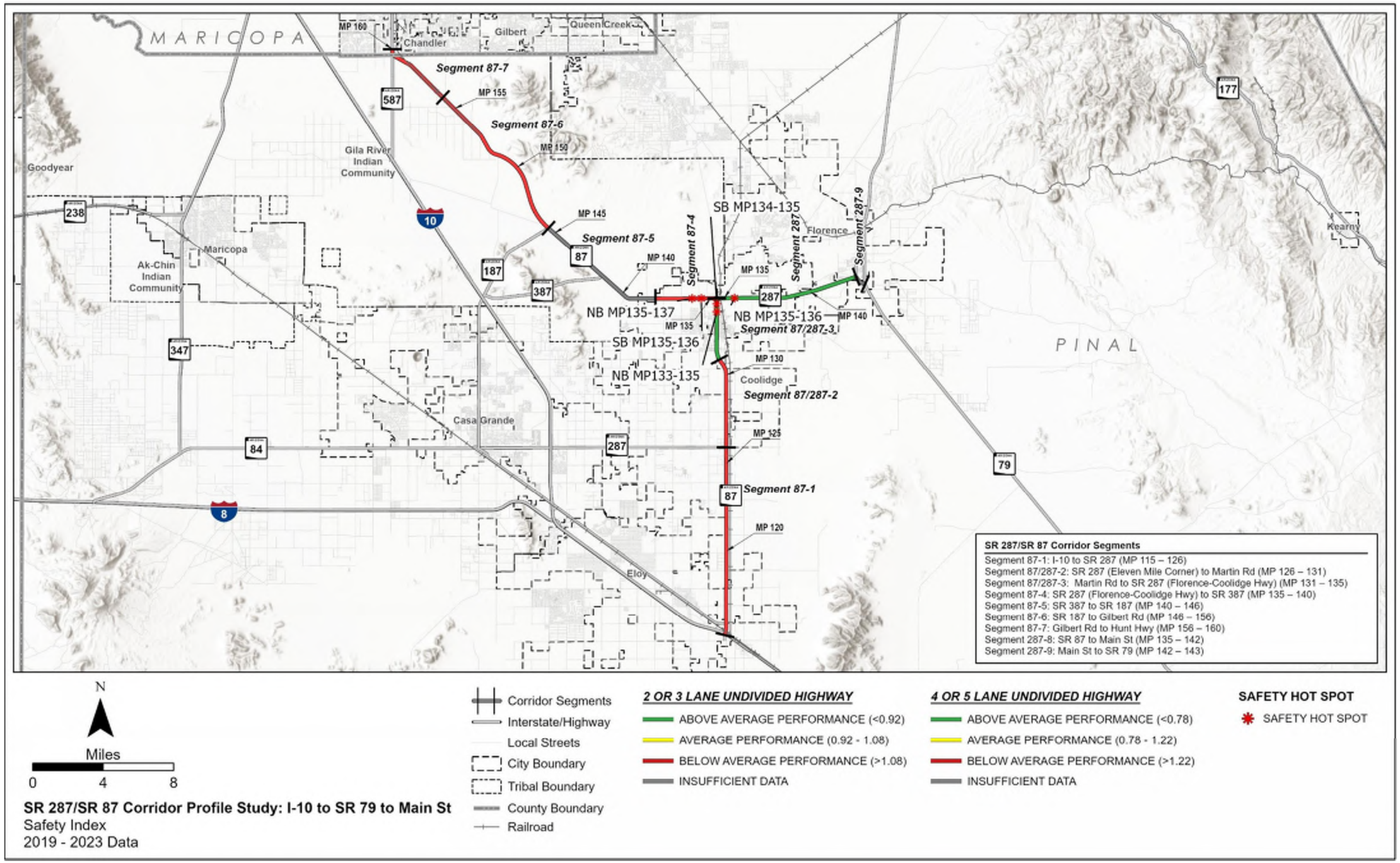


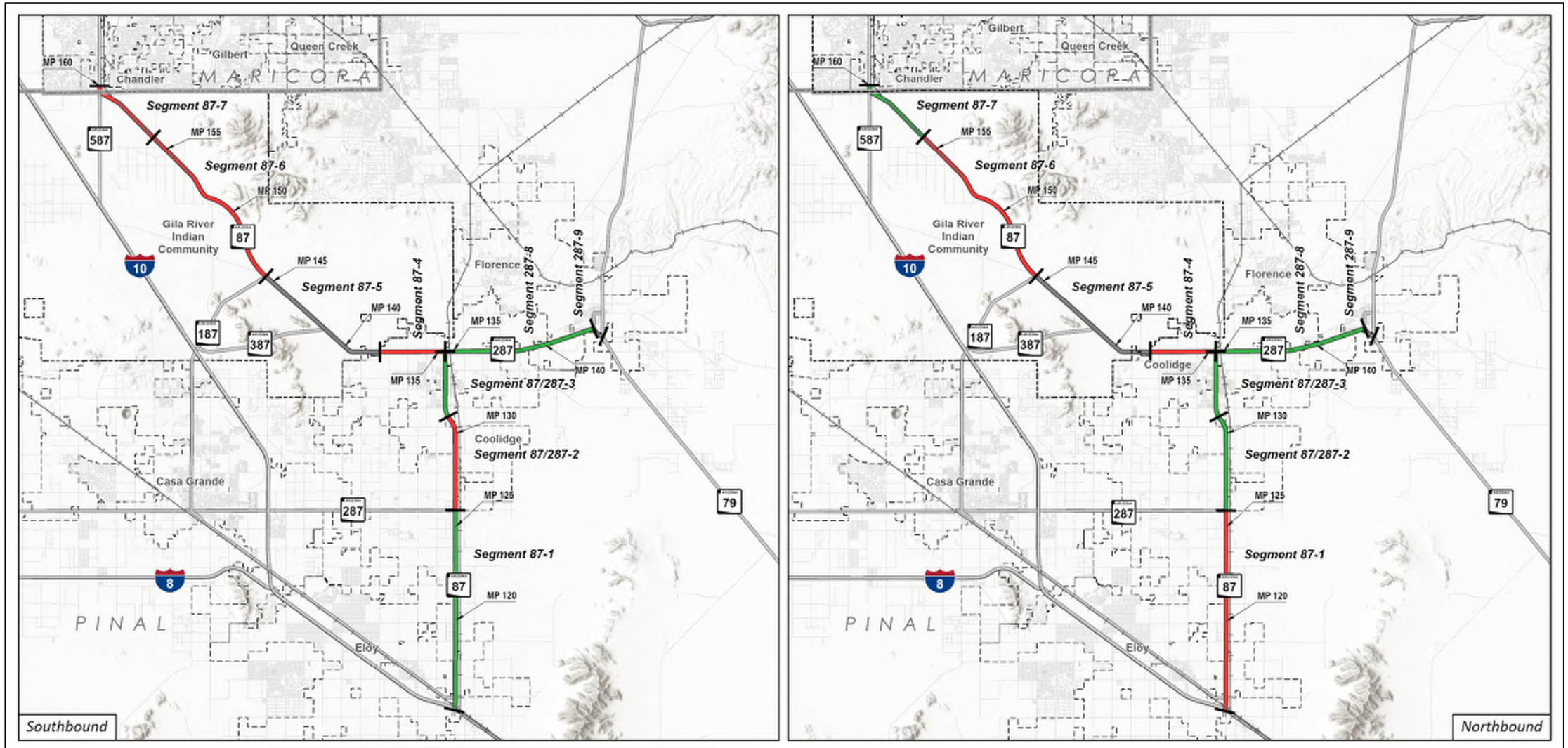
SR 287/SR 87 Corridor Profile Study: I-10 to SR 79 to Main St
Level of Travel Time Reliability
2023 Data


MARICOPA
PINAL
Segment 87-7
Segment 87-6
Segment 87-5
Segment 87-4
Segment 87/287-3
Segment 87/287-2
Segment 87-1
Segment 287-8
Segment 287-9
MP 160
MP 155
MP 150
MP 145
MP 140
MP 135
MP 130
MP 125
MP 120
Chandler
Gilbert
Queen Creek
Goodyear
Gila River Indian Community
Maricopa
Ak-Chin Indian Community
Coolidge
Florence
Kearny
Casa Grande
Eloy
587
87
10
238
187
387
287
177
347
84
8
79
SR 287/SR 87 Corridor Segments
Segment 87-1: I-10 to SR 287 (MP 115 – 126)
Segment 87/287-2: SR 287 (Eleven Mile Corner) to Martin Rd (MP 126 – 131)
Segment 87/287-3: Martin Rd to SR 287 (Florence-Coolidge Hwy) (MP 131 – 135)
Segment 87-4: SR 287 (Florence-Coolidge Hwy) to SR 387 (MP 135 – 140)
Segment 87-5: SR 387 to SR 187 (MP 140 – 146)
Segment 87-6: SR 187 to Gilbert Rd (MP 146 – 156)
Segment 87-7: Gilbert Rd to Hunt Hwy (MP 156 – 160)
Segment 287-8: SR 87 to Main St (MP 135 – 142)
Segment 287-9: Main St to SR 79 (MP 142 – 143)
N
Miles
0 4 8
SR 287/SR 87 Corridor Profile Study: I-10 to SR 79 to Main St
Multimodal Opportunities
2023 Data
Corridor Segments
Interstate/Highway
Local Streets
City Boundary
Tribal Boundary
County Boundary
Railroad
Shoulder ≥ 4 Feet
Intercity Bus Route
Average Non-Single Occupancy Vehicle Trips by Corridor Segment:
Segments ABOVE the state wide average for Non-Single Occupancy Vehicle Trips
Segments WITHIN the state wide average for Non-Single Occupancy Vehicle Trips
Segments BELOW the state wide average for Non-Single Occupancy Vehicle Trips
Census Tracts of Zero/One Vehicle Households and Population in Poverty
Tracts ABOVE the Arizona statewide average range
Tracts WITHIN the Arizona statewide average range
Tracts BELOW the Arizona statewide average range



SR 287/SR 87 Corridor Profile Study: I-10 to SR 79 to Main St
Percentage of Bicycle Accommodation
2023 Data


MARICOPA
PINAL
MP 160
Chandler
Gilbert
Queen Creek
Segment 87-7
MP 155
Segment 87-6
MP 150
Gila River Indian Community
Goodyear
Maricopa
Ak-Chin Indian Community
MP 145
Segment 87-5
MP 140
SB MP134-135
Segment 87-4
Segment 287
Segment 287-9
Florence
Kearny
MP 135
NB MP135-137
SB MP135-136
NB MP133-135
NB MP135-136
Segment 87/287-3
MP 140
MP 135
MP 130
Coolidge
Segment 87/287-2
Casa Grande
MP 125
Segment 87-1
MP 120
Eloy
238
10
187
87
387
287
177
347
84
8
79
SR 287/SR 87 Corridor Segments
Segment 87-1: I-10 to SR 287 (MP 115 – 126)
Segment 87/287-2: SR 287 (Eleven Mile Corner) to Martin Rd (MP 126 – 131)
Segment 87/287-3: Martin Rd to SR 287 (Florence-Coolidge Hwy) (MP 131 – 135)
Segment 87-4: SR 287 (Florence-Coolidge Hwy) to SR 387 (MP 135 – 140)
Segment 87-5: SR 387 to SR 187 (MP 140 – 146)
Segment 87-6: SR 187 to Gilbert Rd (MP 146 – 156)
Segment 87-7: Gilbert Rd to Hunt Hwy (MP 156 – 160)
Segment 287-8: SR 87 to Main St (MP 135 – 142)
Segment 287-9: Main St to SR 79 (MP 142 – 143)
N
Miles
0
4
8
SR 287/SR 87 Corridor Profile Study: I-10 to SR 79 to Main St
Safety Index
2019 - 2023 Data
Corridor Segments
Interstate/Highway
Local Streets
City Boundary
Tribal Boundary
County Boundary
Railroad
2 OR 3 LANE UNDIVIDED HIGHWAY
ABOVE AVERAGE PERFORMANCE (<0.92)
AVERAGE PERFORMANCE (0.92 - 1.08)
BELOW AVERAGE PERFORMANCE (>1.08)
INSUFFICIENT DATA
4 OR 5 LANE UNDIVIDED HIGHWAY
ABOVE AVERAGE PERFORMANCE (<0.78)
AVERAGE PERFORMANCE (0.78 - 1.22)
BELOW AVERAGE PERFORMANCE (>1.22)
INSUFFICIENT DATA
SAFETY HOT SPOT
SAFETY HOT SPOT



N

Miles

0 5 10

SR 287/SR 87 Corridor Segments

Segment 87-1: I-10 to SR 287 (MP 115 – 126)
Segment 87/287-2: SR 287 (Eleven Mile Corner) to Martin Rd (MP 126 – 131)
Segment 87/287-3: Martin Rd to SR 287 (Florence-Coolidge Hwy) (MP 131 – 135)
Segment 87-4: SR 287 (Florence-Coolidge Hwy) to SR 387 (MP 135 – 140)
Segment 87-5: SR 387 to SR 187 (MP 140 – 146)
Segment 87-6: SR 187 to Gilbert Rd (MP 146 – 156)
Segment 87-7: Gilbert Rd to Hunt Hwy (MP 156 – 160)
Segment 287-8: SR 87 to Main St (MP 135 – 142)
Segment 287-9: Main St to SR 79 (MP 142 – 143)

Corridor Segments
Interstate/Highway
Local Streets
City Boundary
Tribal Boundary
County Boundary
Railroad

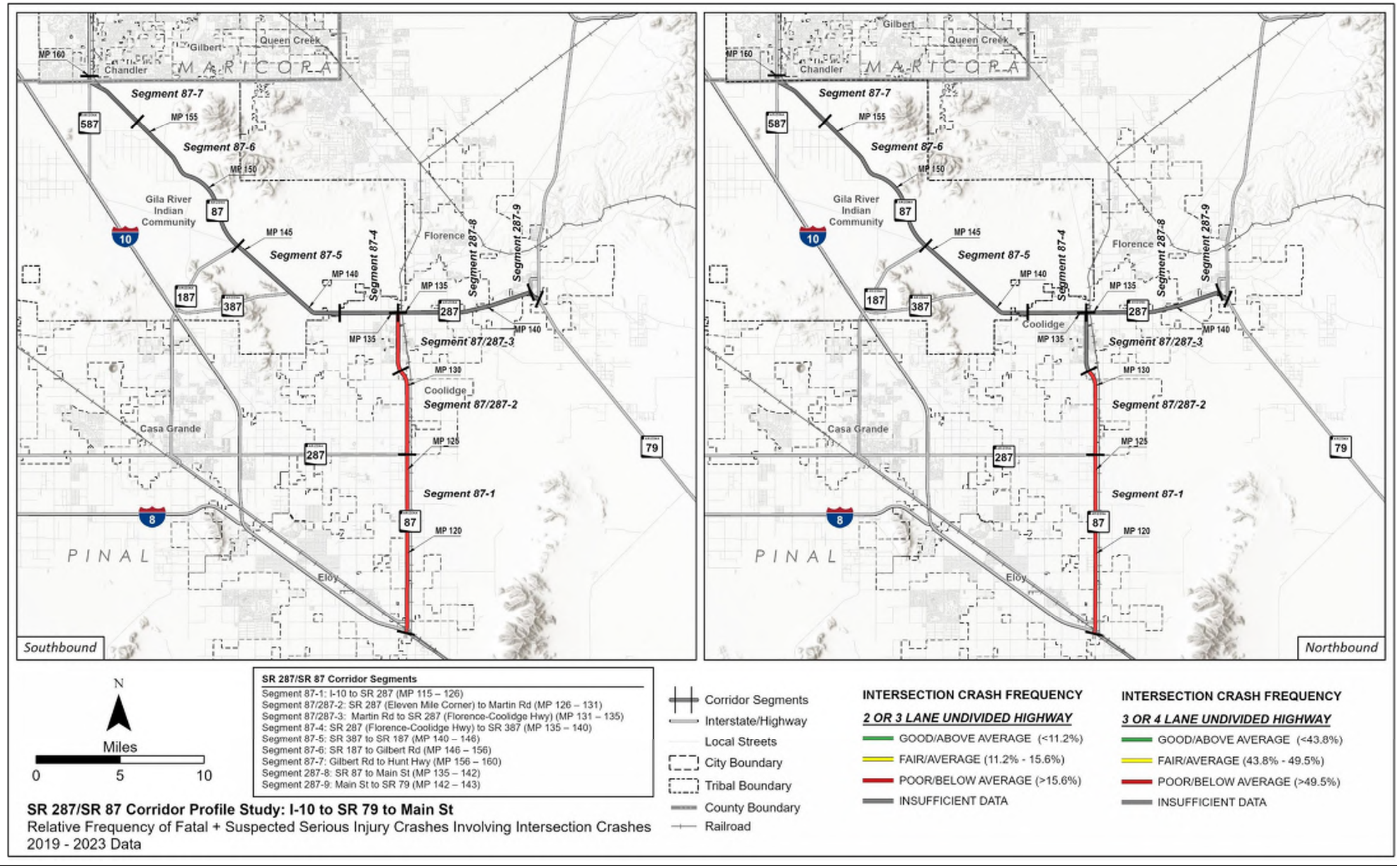
2 OR 3 LANE UNDIVIDED HIGHWAY

ABOVE AVERAGE PERFORMANCE (<0.92)
AVERAGE PERFORMANCE (0.92 - 1.08)
BELOW AVERAGE PERFORMANCE (>1.08)
INSUFFICIENT DATA

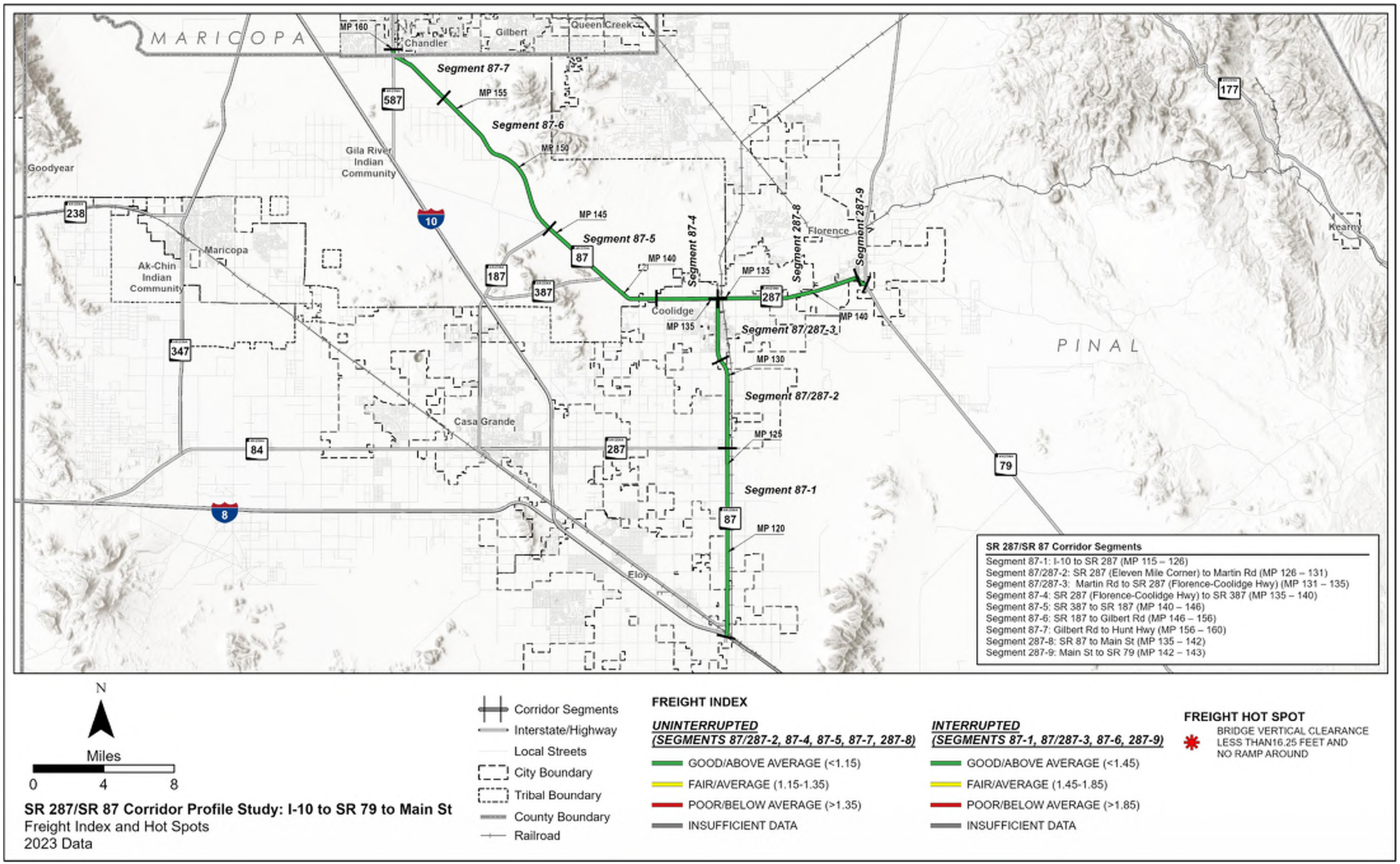
4 OR 5 LANE UNDIVIDED HIGHWAY

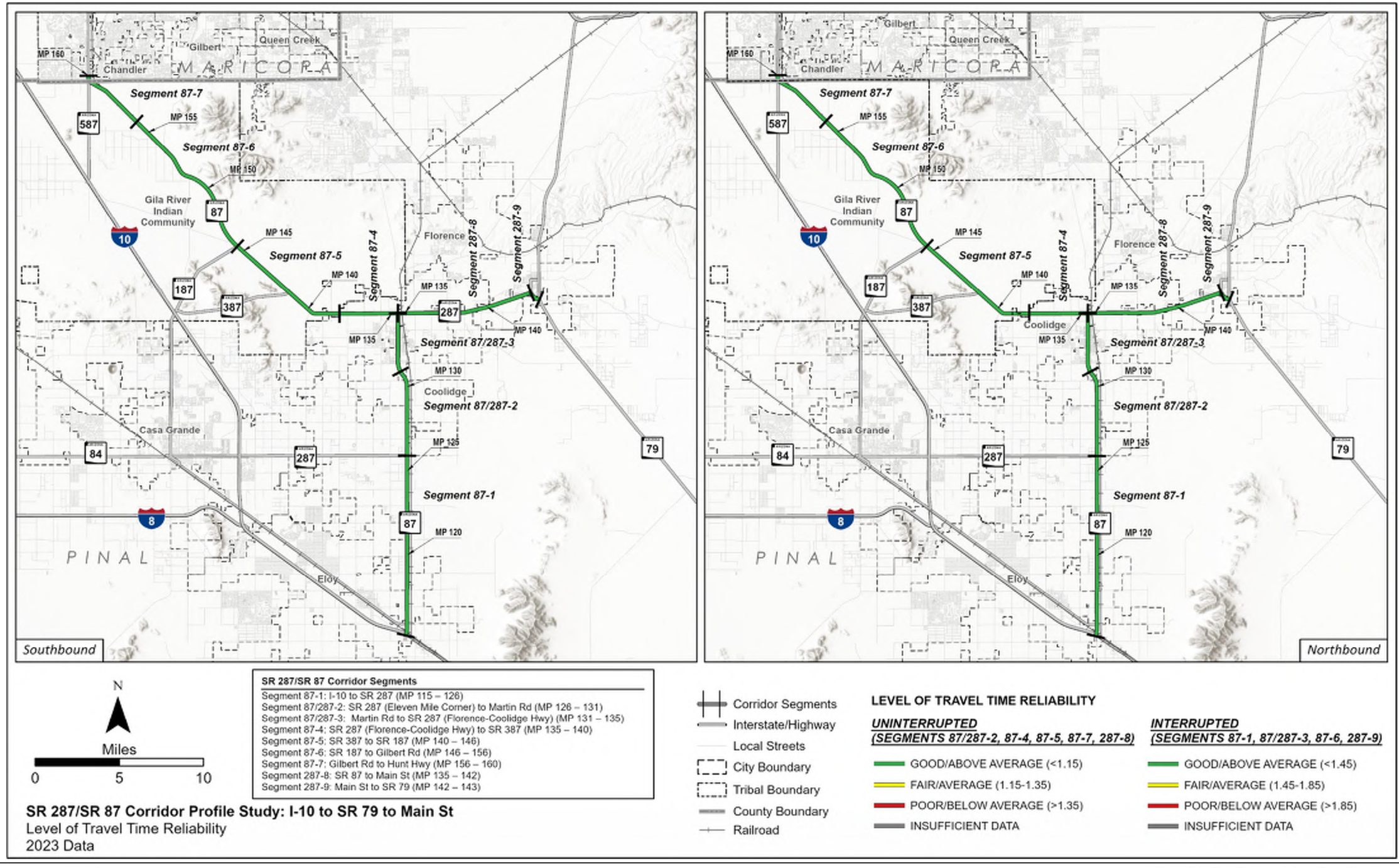
ABOVE AVERAGE PERFORMANCE (<0.78)
AVERAGE PERFORMANCE (0.78 - 1.22)
BELOW AVERAGE PERFORMANCE (>1.22)
INSUFFICIENT DATA

SR 287/SR 87 Corridor Profile Study: I-10 to SR 79 to Main St
Directional Safety Index
2019 - 2023 Data

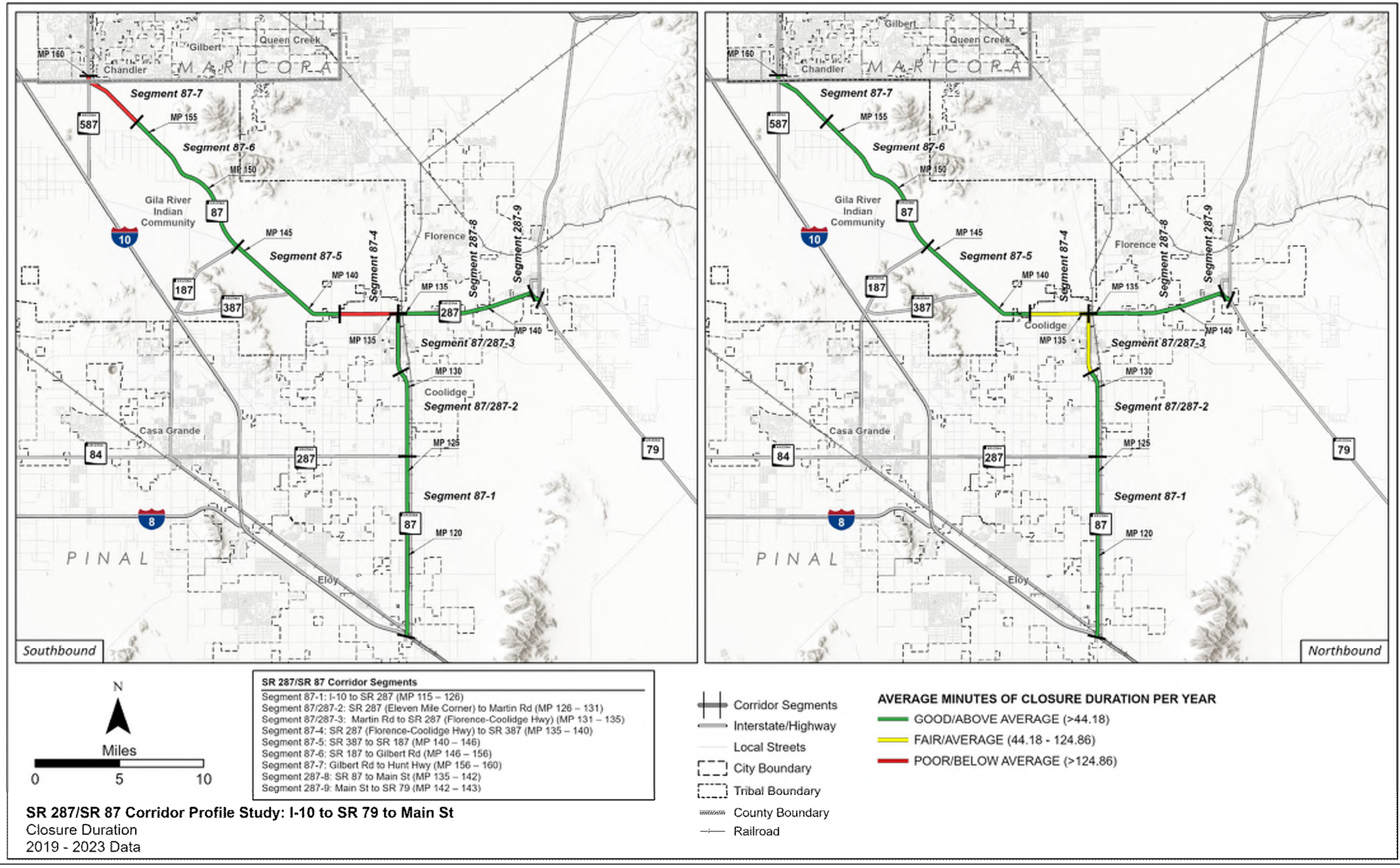


SR 287/SR 87 Corridor Profile Study: I-10 to SR 79 to Main St
Relative Frequency of Fatal + Suspected Serious Injury Crashes Involving Intersection Crashes
2019 - 2023 Data

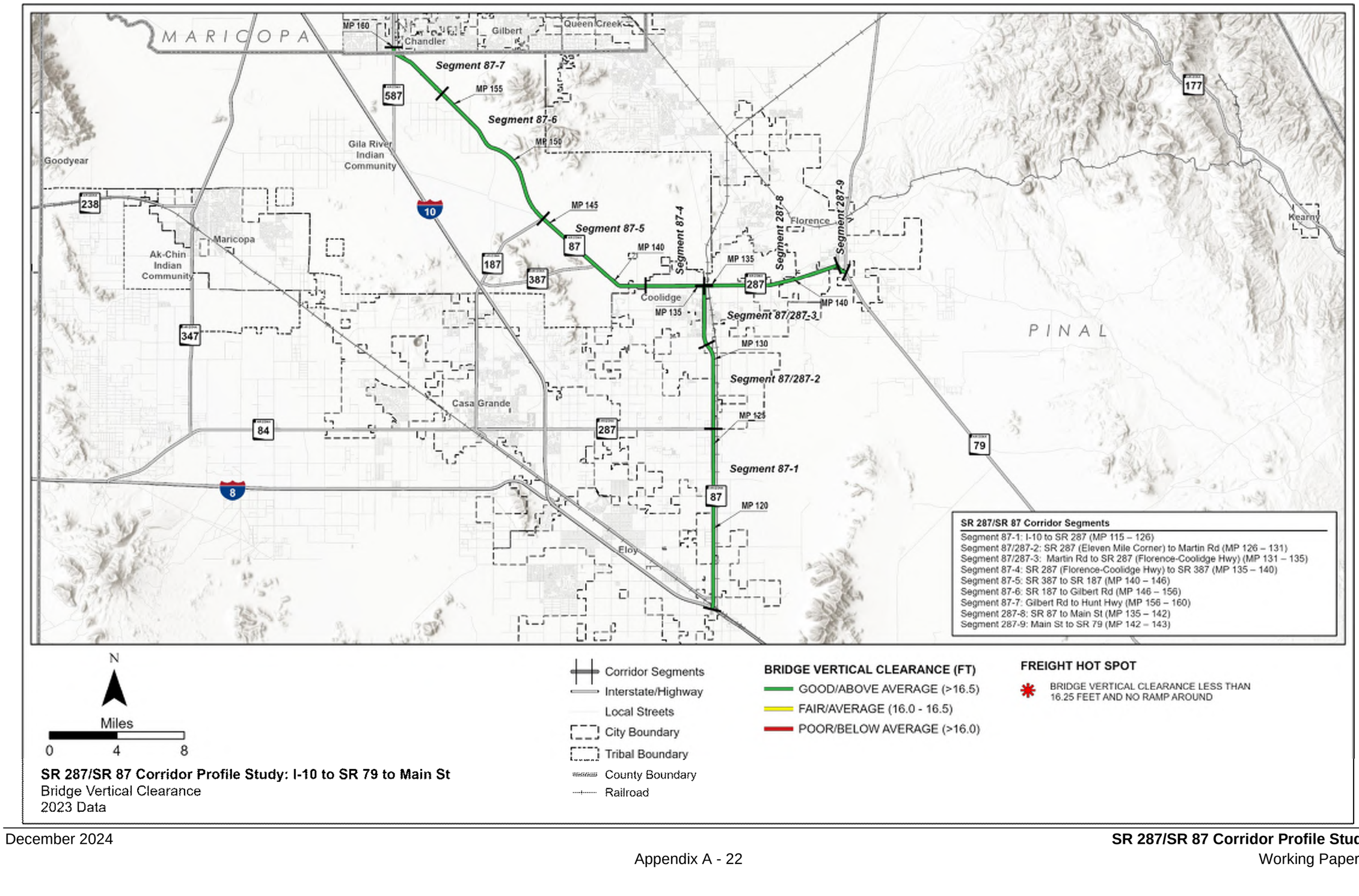

MARICOPA
PINAL
MP 160
Chandler
Gilbert
Queen Creek
Segment 87-7
MP 155
Segment 87-6
MP 150
Gila River Indian Community
Goodyear
MP 145
Segment 87-5
Maricopa
Ak-Chin Indian Community
MP 140
Segment 87-4
MP 135
Segment 287-8
Segment 287-9
Florence
Kearny
Coolidge
MP 135
MP 140
Segment 87/287-3
MP 130
Segment 87/287-2
Casa Grande
MP 125
Segment 87-1
MP 120
Eloy
238
10
587
87
187
387
347
84
287
8
177
79
SR 287/SR 87 Corridor Segments
Segment 87-1: I-10 to SR 287 (MP 115 – 126)
Segment 87/287-2: SR 287 (Eleven Mile Corner) to Martin Rd (MP 126 – 131)
Segment 87/287-3: Martin Rd to SR 287 (Florence-Coolidge Hwy) (MP 131 – 135)
Segment 87-4: SR 287 (Florence-Coolidge Hwy) to SR 387 (MP 135 – 140)
Segment 87-5: SR 387 to SR 187 (MP 140 – 146)
Segment 87-6: SR 187 to Gilbert Rd (MP 146 – 156)
Segment 87-7: Gilbert Rd to Hunt Hwy (MP 156 – 160)
Segment 287-8: SR 87 to Main St (MP 135 – 142)
Segment 287-9: Main St to SR 79 (MP 142 – 143)
N
Miles
0
4
8
SR 287/SR 87 Corridor Profile Study: I-10 to SR 79 to Main St
Freight Index and Hot Spots
2023 Data
Corridor Segments
Interstate/Highway
Local Streets
City Boundary
Tribal Boundary
County Boundary
Railroad
FREIGHT INDEX
UNINTERRUPTED
(SEGMENTS 87/287-2, 87-4, 87-5, 87-7, 287-8)
GOOD/ABOVE AVERAGE (<1.15)
FAIR/AVERAGE (1.15-1.35)
POOR/BELOW AVERAGE (>1.35)
INSUFFICIENT DATA
INTERRUPTED
(SEGMENTS 87-1, 87/287-3, 87-6, 287-9)
GOOD/ABOVE AVERAGE (<1.45)
FAIR/AVERAGE (1.45-1.85)
POOR/BELOW AVERAGE (>1.85)
INSUFFICIENT DATA
FREIGHT HOT SPOT
BRIDGE VERTICAL CLEARANCE LESS THAN16.25 FEET AND NO RAMP AROUND



SR 287/SR 87 Corridor Profile Study: I-10 to SR 79 to Main St
Level of Travel Time Reliability
2023 Data



SR 287/SR 87 Corridor Profile Study: I-10 to SR 79 to Main St
Closure Duration
2019 - 2023 Data



SR 287/SR 87 Corridor Profile Study: I-10 to SR 79 to Main St
Bridge Vertical Clearance
2023 Data