CENTRAL TEXAS REGIONAL
MOBILITY AUTHORITY

2024
ANNUAL REPORT OF CONDITIONS

Prepared by:
AtkinsRéalis
General Engineering Consultant

183A TOLL | 290 TOLL | 71 TOLL | 183 TOLL | 45 TOLL | 183A PHASE III | 183 NORTH

CENTRAL TEXAS REGIONAL MOBILITY AUTHORITY SYSTEM

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March 8, 2024

Mr. James Bass, Executive Director
Central Texas Regional Mobility Authority
3300 N. Interstate 35, Suite 300
Austin, Texas 78705

Subject: **2024 Annual Report of Conditions - 183A Turnpike, 290E, SH 71 Express, SH 45 Southwest, 183 South, 183A Phase III Project, 183 North Mobility Project**

Mr. Bass:

As General Engineering Consultant to the Central Texas Regional Mobility Authority (Mobility Authority) and in accordance with Section 712 of the Master Trust Indenture, AtkinsRéalis.is pleased to submit the 2024 Annual Report of Conditions for the 183A Turnpike, 290E, SH 71 Express, SH 45 Southwest and 183 South, 183A Phase III, and 183 North Mobility Projects, otherwise known as the System. This report sets forth our findings as to the condition of the System, as well as our recommendation of proper operations and maintenance of the System and associated budget during fiscal year (FY) 2025.

AtkinsRéalis conducted a visual inspection of all portions of the System in fall 2023. Bridges are inspected as part of TxDOT's Bridge Inventory, Inspection and Appraisal Program (BRINSAP) every two years per applicable federal requirements in accordance with the National Bridge Inspection Standards. The findings of the most recent BRINSAP inspections, conducted in 2023, were provided to the Mobility Authority and are reflected in this year's report. In addition, visual observations of bridges are performed during alternate years, under the Maintenance Bridge Inspection Tracking System (MBITS) program.

There were two projects in the System that were not operational at the time of inspection. The first project, 183A Phase III Project, commenced construction activities in Spring 2021 and will extend the 183A Turnpike north from Hero Way to north of SH 29, with approximately 6.6 total miles of road improvements and transitions. The second project, 183 North Mobility Project, commenced construction activities in early 2022 and will include two express lanes in each direction along a 9-mile stretch of US 183 between State Highway (SH) 45 North/Ranch-to-Market (RM) 620 and State Loop 1 (MoPac), the addition of a fourth general-purpose lane in each direction, and two express lane direct connectors to and from MoPac. Although neither project is open to traffic, expenses for capital expenditures should be included in the recommended budgets for FY 2025.

We appreciate the opportunity to provide the services required of the General Engineering Consultant, and we wish to acknowledge the excellent cooperation of the Mobility Authority staff in the performance of these services.

Sincerely,

Gregory S. Blake, P.E.
Sr. Division Manager, Atkins North America, Inc.

Enclosure

Cc: Tracie Brown, Director of Operations, Central Texas Regional Mobility Authority
Jose Hernandez, Chief Financial Officer, Central Texas Regional Mobility Authority
Jori Liu, Director of Communications, Central Texas Regional Mobility Authority
Greg Mack, Director of IT & Toll Systems, Central Texas Regional Mobility Authority
Mike Sexton, P.E., Director of Engineering, Central Texas Regional Mobility Authority
File

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Acronyms and Abbreviations

BRINSAP	Bridge Inventory, Inspection and Appraisal Program
BMP	Best Management Practice
CAMPO	Capital Area Metropolitan Planning Organization
CIP	Cast in Place
CR	County Road
CRCP	Continuously Reinforced Concrete Pavement
DC	Direct Connector
ETC	Electronic Toll Collection
FY	Fiscal Year
GEC	General Engineering Consultant
GFCI	Ground-fault Circuit Interrupter
GIS	Geographic Information System
IH	Interstate Highway
ILP	In-Lane Processing
MBGF	Metal Beam Guard Fence
MBITS	Maintenance Bridge Inspection Tracking System
MSE	Mechanically Stabilized Earth
PFC	Permeable Friction Course
PBMC	Performance Based Maintenance Contractor
R&R	Renewal and Replacement
RM	Ranch to Market Road
ROW	Right-of-Way
SH	State Highway
SUP	Shared Use Path
TCS	Toll Collection System
TIM	Traffic Incident & Management Center
TxDOT	Texas Department of Transportation
US	United States Highway

System Map


GEORGETOWN
29
183A
PHASE III
183A
TOLL
LEANDER
1431
CEDAR PARK
1431
620
183
NORTH
734
45
TOLL
1
TOLL
ROUND ROCK
1460
130
TOLL
79
HUTTO
TAYLOR
45
TOLL
95
PFLUGERVILLE
130
TOLL
2222
360
35
ELGIN
183
EXPRESS
1
TOLL
290
TOLL
MANOR
360
WEST LAKE HILLS
AUSTIN
183
TOLL
71
1
290
OAK HILL
DRIPPING SPRINGS
71
TOLL
71
1826
45
TOLL
183
CREEDMOOR
1626
45
TOLL
BUDA
KYLE
MUSTANG RIDGE
N
LEGEND
Open to Traffic
Under Construction

Executive Summary

As per Section 712 of the Master Trust Indenture, the Central Texas Regional Mobility Authority (Mobility Authority requires the General Engineering Consultant (GEC) to conduct an inspection of the System at least once in the fiscal year following substantial completion of the initial project funded with bond obligations, and in each fiscal year thereafter. The System is currently comprised of the 183A Turnpike, 290E, SH 71 Express, SH 45 Southwest, 183 South, 183A Phase III and the 183 North Mobility Projects.

Following each inspection and on or before the 90th day prior to the end of each fiscal year, the GEC should submit to the Mobility Authority a report setting forth:

- Its findings as to whether the System has been maintained in good repair, working order and condition;
- Its advice and recommendations as to the proper maintenance, repair and operation of the System during the ensuing fiscal year; and
- An estimate of the amount of money necessary for such purposes, including its recommendations as to the total amounts and classifications of items and amounts that should be provided for in the annual operating budget, the annual maintenance budget and annual capital budget for the next ensuing fiscal year.

Copies of such reports are to be provided to the Trustee by the Mobility Authority. AtkinsRéalis completed the inspections in fall 2023 and is pleased to report that the System has been maintained in good repair, working order and condition. This observation was based on a general visual inspection of the roadways, buildings, overhead sign bridges, retaining walls and toll gantries.

AtkinsRéalis recommends that the Mobility Authority continue to implement the routine maintenance as budgeted and scoped, and implement the Renewal and Replacement (R&R) projects planned for the ensuing fiscal year. Through coordination with Mobility Authority staff, and in review of the R&R projects anticipated through 2029, the following budgets are recommended:

RECOMMENDED BUDGETS	
Operating Expenses FY2025	$45,500,000
Maintenance Expenses FY2025	$11,000,000
R&R Fund FY2025	$18,200,000
R&R Fund FY2026	$9,700,000
R&R Fund FY2027	$16,500,000
R&R Fund FY2028	$18,700,000
R&R Fund FY2029	$13,100,000

The overall condition of the System, and funding levels for the System operating budgets exemplify the Mobility Authority's commitment to maintain and operate a safe and reliable toll road system for the Central Texas region.

1.0 Introduction

1.1 BACKGROUND

In compliance with the requirements of the Master Trust Indenture, AtkinsRéalis conducted a visual inspection of the System roadways open to traffic in fall 2023. The inspection was conducted to assess the general condition of roadways, buildings, overhead sign bridges, retaining walls and toll gantries along the facilities and to identify any deficient elements to be restored to good working condition. This report includes conclusions and recommendations concerning the condition, maintenance, repair and operation; the amount of money necessary for the proper maintenance, repair and operation of the toll roads during Fiscal Year (FY) 2025, and the amount of funds forecasted for R&R Projects.

1.2 INSPECTION PROCESS

The inspection covered all portions of the facilities including pavement, roadside elements, retaining and noise walls, underdeck lighting, drainage structures, signs and sign bridges, pedestrian bridges, pavement markings and associated buildings and equipment. All bridges constructed on the Mobility Authority System, with the exception of the pedestrian bridges that are not located over travel lanes, are inspected as part of the Texas Department of Transportation's (TxDOT) Bridge Inventory, Inspection and Appraisal Program (BRINSAP) to implement the National Bridge Inspection Standards. These standards are issued by the Federal Highway Administration and discussed in detail in the Code of Federal Regulations (CFR), 23 CFR 650C. These standards require all bridges on the Texas Transportation Commission designated State Highway System to be inventoried, inspected and appraised every two years in accordance with the Manual of Maintenance Inspection of Bridges published by the American Association of State Highway and Transportation Officials. In addition, visual observations are performed by TxDOT maintenance personnel and the Mobility Authority, as inspected through the System-wide Performance Based Maintenance Contract (PBMC), during alternate years, when BRINSAP inspections are not conducted, under the Maintenance Bridge Inspection Tracking System (MBITS) program. The Mobility Authority performs biennial structural inspections for lighting structures, cantilever and overhead sign bridges, signal poles and pedestrian bridges. These structural inspections are conducted by trained engineers in accordance with TxDOT structural inspection protocols.

For the purpose of this report, the existing roadway conditions were rated and grouped into three major categories: (1) Pavement; (2) Roadside and (3) Miscellaneous. Each category consisted of specific features that were inspected, as shown in Table 1, below.

Table 1: Roadway Inspection Elements

CATEGORY	ITEM	DESCRIPTION OF INSPECTION
Pavement	Pavement & shoulders	General condition of pavement and shoulders
	Curb/Gutter	Identification of deficiencies such as settlement, cracking, and displacement
	Joints	Identification of deficiencies including joint cracking, faulting, and surface deterioration, etc.
Roadside	Culverts	Identification of inadequate drainage at culverts, flumes, and weep holes and condition of safety treatments
	Ditches	Presence of erosion, silting, presence of debris, lack of vegetation, etc.
	Grates/Inlets/Piping	Identification of inadequate drainage at pipes, grates, and inlets
	Ponds	Identification of inadequate drainage, evidence of erosion, and malfunctioning components
Misc.	Signs	Conditions associated with mainlane and ramp signing to include damage and day and night visibility
	Pavement Graphics	Condition of pavement graphics to include day and night visibility and section loss
	Pavement Markings	Presence of wear and tear of striping and markings to include day and night visibility and section loss
	Raised Pavement Markers	Condition of raised pavement markers to include missing markers and proper day and night visibility
	Delineators	Condition of delineation to include missing delineators and proper day and night visibility
	Metal Beam Guard Fence (MBGF)	Condition of MBGF and its components, terminal anchors, single guardrail terminals (SGT), etc.
	Attenuators	Condition of various crash attenuation systems
	Barriers	Condition of concrete barriers and bridge rail
	Coatings	Conditions such as peeling, absent or damaged coatings on concrete traffic barrier, concrete traffic rail, or other coated surfaces
	Fence	Condition of chain-link, barbed wire, and ornamental fencing at the right-of-way (ROW), or within maintenance limits
	Lighting	Conditions associated with lighting structures and their components, bridge underdeck lights, and nighttime inspections for proper operation
	Traffic Signals	Conditions associated with signals and their components, and nighttime inspections for proper operation
	Shared Use Path (SUP)	General condition of concrete path, joints and potential obstructions

1.0 Introduction *continued*

Bridge inspections were conducted in 2023 by TxDOT as part of BRINSAP. The findings of the most recent bridge inspections were provided to the Mobility Authority and serve as the basis for the comments and recommendations in the bridge portion of this report. Pedestrian bridge inspections were conducted in 2023 by the GEC as part of the Mobility Authority's structural inspection program.

The existing bridge conditions are rated and grouped by the following categories: (1) Deck; (2) Substructure; (3) Superstructure; (4) Channel; (5) Culverts; (6) Approaches; (7) Miscellaneous and (8) Traffic Safety. Each category consists of specific features that were inspected, as shown in Table 2, below.

Table 2: Bridge (Traffic and Pedestrian) Inspection Elements

CATEGORY	DESCRIPTION OF INSPECTION
Deck	Condition of the deck surface, its associated joints, rail, sidewalks/medians, striping, and drainage on top of the bridge structure
Superstructure	Condition of concrete beams, beam connections and bearings
Substructure	Condition of columns, bents, abutments, foundations, and riprap
Channel	Condition of the stream or creek being crossed by the bridge
Culverts	Condition of the headwalls, wingwalls, slab footing, safety devices and other associated items
Approaches	Condition of the approach slabs, rail leading up to the bridge, guard fence, and retaining walls at the bridge abutments
Miscellaneous	Condition of the warning devices such as vertical under clearances, signs, illumination and utility lines
Traffic Safety	Condition of approach rails and impact attenuators

Retaining and noise walls, and associated components were rated and grouped in categories described in Table 3, below.

Table 3: Wall Inspection Components

CATEGORY	DESCRIPTION OF INSPECTION
Wall	Condition of wall face, coping, foundations, joints, panel finishes, and Cast in Place (CIP) sections
Earth	Conditions of the top slope, toe slope, backfill, CIP, and Mechanically Stabilized Earth (MSE) wall

Building conditions were rated and grouped by the following categories: (1) Architectural; (2) Structural; (3) Mechanical and (4) Electrical. Each category consisted of specific features that were inspected, as shown in Table 4.

Table 4: Building Inspection Elements

CATEGORY	ITEM	DESCRIPTION OF INSPECTION
Architectural	Building Exterior	Condition of walls, glazing, decks, stairs, handrails, sealants, soffits, doors, paint, and signage
	Building Interior	Conditions of the lobby, finishes, stairs, doors, restrooms, security system, and ceiling tile
	Roof	Condition of the surface condition, seams, expansion joints, and access
	Drainage	Condition of the roof drains, secondary drainage, gutters, downspouts, and edge flashing
	Site	Condition of the ramps, rails, lighting, retaining walls, screen walls, landscaping, irrigation, and parking
Structural	Structural	Condition of the foundation, ground floor slab, grade beams, walls, elevated floor slabs, roof, columns, and joints
Mechanical	Mechanical	Condition of cooling and heating systems, air handlers, exhaust fans, ductwork, piping, and insulation
	Plumbing	Condition of the piping, water flow and pressure, hot water source, water pumps, natural gas plumbing, sanitary sewer plumbing, fixtures, and water softening system
	Fire Protection Systems	Condition of fire protection systems and backflow preventers
Electrical	Electrical	Condition of the primary transformer, step-down transformer, electrical room, wiring, conduits, emergency power, and communication systems

The structural components of the overhead sign bridges, lighting and signals located on each roadway were inspected as shown in Table 5, below.

Table 5: Overhead Sign Bridge, Lighting and Signal Elements

CATEGORY	DESCRIPTION OF INSPECTION
Structural	Condition of the foundation
	Condition of the concrete columns
	Condition of the truss connection to the column, including the bolts
	Condition of the arm chords on the truss

The toll system infrastructure required to accommodate the Toll Collection System (TCS) consists of various components at each tolling location including, but not limited to those indicated in Table 6, below.

Table 6: TCS Inspection Elements

CATEGORY	DESCRIPTION OF INSPECTION
TCS	Retaining walls and copings
	Drainage features
	Civil site work, including grading, access driveways and fencing
	Toll gantries, including foundations and gantry structures
	In-Lane Processing (ILP) Equipment Enclosures, environmental protection and climate controls for housing the electronic equipment. ILP Equipment Enclosures consist of either cabinets or communications hub buildings.
	Conduit and ground boxes providing connections between the ILPs and the Electronic Toll Collection (ETC) Lane equipment installations
	Power and Wide Area Network (WAN) communication services up to the location of the ILP enclosures
	Emergency generators and associated fuel tanks
	Signing, pavement markings, traffic barriers and other roadway appurtenances required at each remote tolling location

It should be noted that the assessment is based on visual observations made in the field without conducting any testing. Inspection data is collected and organized in real-time by means of computer tablets pre-loaded with a Geographic Information System (GIS) based collection application for visualization and analysis. The GIS based maps and output data are spot-checked to verify accuracy and consistency. The observations reflect the condition of the feature(s) on the day the inspection was performed. As such, the opinions, statements and recommendations in this report are based solely on conditions observed during the inspection. As part of this inspection, a list of roadside deficiencies is being provided to the Mobility Authority to forward to either the maintenance or the construction contractor to be addressed as part of their punch list.

An inspection rating scale of 1 to 5 is used to determine the severity of the asset defect, shown in Table 7 below. No representation or warranty is made that all defects have been discovered or that additional defects will not appear in the future.

Table 7: Condition Assessment Rating Scale

GRADE	RATING	DESCRIPTION
5	Excellent	Feature is in like-new condition. No deficiencies noted.
4	Good	Feature appearance and functionality/operability are good. No maintenance is required.
3	Degraded	Feature appearance and functionality/operability are below average. Maintenance is required, but does not require emergency repair to protect the System.
2	Unsatisfactory	Feature appearance and functionality/operability are substandard. Maintenance is required, as soon as practical (1), but does not require emergency repair to protect the System.
1	Failing	Feature appearance and functionality/operability are unacceptable. Feature has failed and may require emergency repair to protect the public or System.(2)

NOTES:

(1) Timeframe for which, under normal circumstances, repair work would be prioritized and scheduled.
(2) The need for emergency repair should be determined based on response times set forth in maintenance protocols set forth by the Mobility Authority as appropriate for a specific deficiency.

A rating of 5 indicates the asset is adequately performing or is in "like-new" condition and does not require maintenance action.

A rating of 4 indicates some level of degradation of the asset but has not affected performance and does not require maintenance.

A rating of 3 indicates some level of degradation of the asset performance and requires maintenance action but does not warrant expedited maintenance.

A rating of 2 indicates the defect identified is showing signs of the asset degrading to the point that it is no longer functional and requires expedited maintenance to protect the public or the System.

A rating of 1 indicates that the asset is out of service and is in need of replacement or reconstruction.

For bridges, a 10-point numerical rating scale is used to determine the severity of the asset defect, where a "9" indicates that an element is in "Excellent" condition and a "0" indicates that an element has failed, as shown in Table 8, below.

Table 8: Bridge Condition Assessment Rating Scale

GRADE	RATING	DESCRIPTION
9	**Excellent**	All elements are in excellent condition
8	**Very Good**	No problems noted
7	**Good**	Element has some minor problems. Minor maintenance may be needed
6	**Satisfactory**	Minor deterioration of structural elements (limited). Maintenance may be needed
5	**Fair**	Minor deterioration of structural elements (extensive). Minor rehabilitation may be needed
4	**Poor**	Deterioration significantly affects structural capacity. Major rehabilitation may be needed
3	**Serious**	Deterioration seriously affects structural capacity. Repair / rehabilitation is required immediately
2	**Critical**	Element shows advanced deterioration. It may be necessary to close the bridge until repaired
1	**Failing**	Bridge is closed to traffic, but repairable
0	**Failed**	Bridge is closed, and beyond repair

1.3 DESCRIPTION OF SYSTEM

1.3.1. 183A TURNPIKE

The Mobility Authority constructed, operates and maintains the 183A Turnpike, a tolled facility stretching 11.6 miles from RM 620 to Hero Way in Williamson County. The corridor is a critical link in the highway network serving an area experiencing tremendous development and economic growth. The Project included phased construction with Phase I opening in 2007, Phase II opening in 2012, and intersection improvements opening in 2015 effectively reducing congestion, enhancing mobility, and providing safer travel and better access to developments along the corridor. Additionally, the project includes 6.9 miles of shared use path and connections to regional trails.

1.3.2. 183A PH III PROJECT

Construction for the third phase of the 183A Turnpike began in 2021. The project includes a 5.3-mile extension of the existing 183A Toll Road northward from Hero Way to north of SH 29. Together with the associated access ramps, frontage road improvements and transitions the overall project length will be approximately 6.6 miles. Upon completion, the roadway will provide two tolled lanes in each direction, within the median of the existing US 183 corridor. The project is anticipated open to traffic in early 2025.

1.3.3. 290E

The Mobility Authority constructed, operates, and maintains the 290E, a toll road along US 290 from US 183 to just east of Parmer Lane with 7.3 miles of improvements. It includes three tolled mainlanes and three non-tolled general-purpose lanes in each direction, direct connectors (DCs) to US 183 and SH 130, and a 6.3-mile shared use path along the entire corridor. The corridor is a significant link to important roadways in the region including US 183, IH-35 and SH 130, and , effectively reduced congestion on US 290 and provides reliable travel times for tolled and non-tolled travel.

1.3.4. SH 71 EXPRESS

The Mobility Authority operates and maintains SH 71 Express, a 4-mile toll lane in each direction along SH 71 between Presidential Boulevard and east of SH 130 in Travis County. In addition to the tolled lane opened in 2017, the project added 5.6 miles of shared use path connections on both sides of the roadway, improved existing non-tolled lanes, constructed bridges over FM 973 and SH 130 to facilitate through-traffic movement, and ramps connecting SH 71 to SH 130 offering greater connectivity options to drivers. The facility enhances traffic flow, mobility, and driver and pedestrian safety along SH 71, a key east-west corridor connecting to the Austin-Bergstrom International Airport, the city of Bastrop, and points beyond.

1.3.5. SH 45 SOUTHWEST

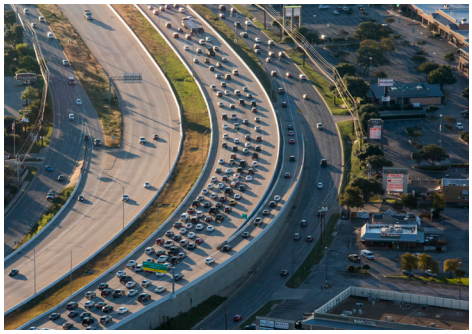
The Mobility Authority constructed, operates and maintains SH 45 Southwest, a tolled facility stretching from State Loop 1(MoPac) to FM 1626 in southern Travis and northern Hays counties with 5.2 miles of improvements. The corridor, which opened to traffic in 2019, includes two tolled lanes in each direction and a 4.9-mile shared use path. The facility was built without frontage roads to limit impacts to the surrounding environment. The road offers drivers an alternative to congested neighborhood streets like Menchaca Road, Slaughter Lane and Brodie Lane.

1.3.6. 183 SOUTH

The Mobility Authority constructed, operates, and maintains 183 South, an 8.3-mile long toll road along US 183, spanning from US 290 to SH 71. The facility upgraded the previous four-lane US 183 to include three tolled mainlanes and three non-tolled general-purpose lanes in each direction – tripling the roadway's previous capacity and construction multimodal connections along the entire corridor offering greater mobility for all users of the corridor. Aesthetic enhancements are a major facility component and are visible in the unique design of the bridges, walls, and other features. The roadway makes it possible for drivers to travel from Austin-Bergstrom International Airport through Leander without stopping and provides a north-south alternative to I-35.

1.3.7. 183 NORTH MOBILITY PROJECT

The 183 North Mobility Project is currently constructing 12 miles of improvement on US 183 between SH 45 North/RM 620 and MoPac. Improvements include two express lanes in each direction, the addition of a fourth general-purpose lane in each direction, and express lane DCs to and from southbound MoPac. The project also includes operational improvements for the transition to MoPac, new shared use path connections, new sidewalks, and cross-street connections for bicycles/pedestrians. Construction began in early 2022.



1.3.8. FACILITIES/BUILDINGS

Mobility Authority facilities provide support for the safe and reliable operation of the System. These facilities include the Traffic Incident & Management (TIM) Center adjacent to the 183A Turnpike in Cedar Park, the 183A Turnpike maintenance storage yard at the Brushy Creek Road interchange, the 290E maintenance storage yard on Old Manor Road and various roadway ILP structures along the Mobility Authority roadways.

1.4 MAINTENANCE PROGRAM OVERVIEW

The Mobility Authority utilizes a System-wide PBMC to maintain its infrastructure. The intent of the PBMC is for the contractor to manage and plan maintenance activities to meet the performance requirements as set forth in the contract. The general maintenance obligations of the PBMC are as follows:

(1) Maintain the project and related transportation facilities in a proactive and timely manner appropriate for a facility of the character of the project.
(2) Minimize delay and inconvenience to users and, to the extent the Contractor is able to control, users of adjacent facilities.
(3) Identify, manage, and correct all defects and damages from Incidents to include cleanup of spilled cargo, removal and disposal of damaged and unsalvageable materials, obtaining required permits, etc.
(4) Monitor and observe weather and weather forecasts to proactively deploy resources to minimize delays and safety hazards due to heavy rains, snow, ice or other severe weather events.
(5) Remove debris, including litter, graffiti, animals, and abandoned vehicles or equipment from the ROW.
(6) Minimize the risk of damage, disturbance or destruction of third-party property during the performance of maintenance activities.
(7) Coordinate with the Mobility Authority and perform duties and functions on their behalf.
(8) Perform systematic inspections and maintenance in accordance with the provisions of Maintenance Management Plan to include contractor's Safety and Health Plan and in accordance with the contract.

A PBMC was procured and commenced on July 1, 2020. The contractor was declared in default in October of 2021. The Mobility Authority entered an emergency maintenance services contract in November of 2021 to ensure safe and continued operations of Mobility Authority facilities. The Mobility Authority entered into a tender agreement with the surety, established a contractor for completion through the end of the FY 2023 performance bond. The Mobility Authority has entered into an agreement with the completion contractor to resume full scope services provided by the PBMC through FY 2028.

1.5 CONDITION ASSESSMENT

The PBMC is administered by the Mobility Authority. The System and its performance are monitored on a daily basis. Monthly audits are performed through condition assessments conducted on 20% of the roadways on randomly selected sections. This ensures the contractor is maintaining the facilities within the tolerances established by the contract performance measures.

2.0 Annual Report of Conditions

2.1 OVERVIEW

Visual daytime and nighttime condition assessments were conducted in the fall of 2023. Most ratings are based on the 5-point rating scale described in Table 7, while bridges are assessed on 10-point rating scale described in Table 8. The results of this year's annual inspection indicate the System is performing as expected and is being maintained in accordance with the Mobility Authority's asset management program and is in good repair. Corrective measures are being taken to address deficiencies through the Mobility Authority System-wide PBMC and stand-alone maintenance projects.

2.2 183A TURNPIKE

2.2.1. 183A TURNPIKE ROADWAY

ASPHALT PAVEMENT

Although minor issues were noted, the inspection did not identify a significant number of deficiencies in the asphalt pavement that would affect the safety and operations of183A Turnpike. The north end of the corridor will be overlayed as part of the ongoing 183A Phase III Project that is anticipated to be complete in 2025.

CONCRETE PAVEMENT

The concrete pavement along the corridor was in good repair, with some degradation present. Deficiencies noted included minor failures occurring along joints, some of which have been temporarily patched, and transverse cracking across lanes, which is typical and an expected cracking pattern for continuously reinforced concrete pavement (CRCP). The PBMC will monitor to seal cracks and repair spalls as needed as part of regularly scheduled maintenance activities. It was also noted that one location on an off-ramp is experiencing diminished ride quality due to settlement, which will be addressed with a future slab stabilization project.

ROADSIDE

The roadside visual inspection did not identify any deficiencies outside of the PBMC scope. The most common deficiencies noted consisted of siltation at drainage inlets and pipes with more than 20% capacity blockage, some areas reported as high as 100% blocked, thus reducing the drainage to less than the factor of safety. Other deficiencies observed included untreated vegetation growth in isolated areas, minor turf loss in various locations, a few urban areas with ROW encroachments, several areas of significant (18"-24") erosion in the ditch line, and litter and debris. Deficiencies should be addressed as part of regularly scheduled maintenance activities.

183A Turnpike has numerous detention and water quality ponds along the length of the facility. These ponds serve to provide water quality treatment of the runoff from the roadway and detain the storm water where necessary. Visual inspections did not identify deficiencies outside of the PBMC scope. The most common deficiencies observed were erosion in isolated areas, vegetation growth, and graffiti along pond retaining walls.

MISCELLANEOUS

Signs: Signs were assessed by a day and a nighttime visual inspection during the fall 2023 inspections. Peeling and fading were noted on small signs along the frontage roads. These will be replaced as part of the ongoing small sign replacement contract for FY 2024.

Pavement Graphics, Pavement Markings, and Raised Pavement Markers: Deficiencies identified during day and nighttime visual inspections indicate that there were several locations where the pavement graphics exhibited section loss and lack of reflectivity, pavement markings either exhibited section loss or was missing, and raised pavement markers were missing or non-reflective. As part of the PBMC responsibilities, an independent inspection and work plan should be developed to address the deficient graphics, markings and markers. As a result of their inspections, a plan was developed, and work planned for summer of 2024.

Delineators: Delineators were assessed by a day and a nighttime visual inspection during the fall 2023 inspections. The most common deficiency noted was missing delineation along concrete traffic barriers.

MBGF, Attenuators, Barriers and Coatings: Safety barriers and guardrail end treatment were inspected for damage and proper functioning. No deficiencies were noted outside of the PBMC scope. The most common deficiency noted was impact damage on MBGF.

Fence: No fencing deficiencies were identified.

Lighting: Lighting along the 183A Turnpike corridor was inspected for damage and proper functioning at night. No deficiencies were noted outside of the PBMC scope. For high mast lights, there were locations where illumination outages and minor rust were noted. For safety lighting, there were significant areas of lighting not functioning, as well as missing access panels. Lights were structurally sound. As part of the PBMC responsibilities, an independent inspection and work plan should be developed to address lighting deficiencies.

Traffic Signals: 183A Turnpike has 22 traffic signals and 18 pedestrian signals on the frontage road that are the Mobility Authority's responsibility located at the following intersections: Crystal Falls Parkway, Hero Way, RM 2243, Scottsdale Drive and San Gabriel Parkway. No deficiencies were noted outside of the PBMC scope. Deficiencies noted included loose anchor bolts and minor impact damage to column supports but remain structurally sound.

Shared Use Path: A 6.9-mile paved shared use path runs along the 183A corridor from south of Brushy Creek Road to Hero Way. Inspection of the shared use path indicates it is in good repair and deficiencies fall within the PBMC scope. Minor deficiencies noted include vegetation growth and separation and chipping at joints, rust noted at railings, spalling and cracking on sidewalk paving, vertical displacement with adjacent curb and inlets in isolated locations, vegetation encroachment, tree trimming needed in isolated areas, and several areas of soil missing causing a drop off on edge of path.

2.2.2. 183A TURNPIKE BRIDGES

The 183A Turnpike bridges were inspected and evaluated in 2023, as part of TxDOT's BRINSAP Program. The findings of the 2023 bridge inspections serve as the basis for the comments and recommendations in the bridge portion of this report. Additionally, visual observations performed by TxDOT maintenance personnel and the Mobility Authority, as inspected through the PBMC, from the FY 2023 MBITS Program findings are included herein.

All Mobility Authority-owned bridges on the 183A Turnpike corridor remain in good repair. Of the 234 total components rated for the 39 Mobility Authority-owned bridges on 183A Turnpike, 100% of the components are rated at a 6 or above while 5% of the components within the deck, superstructure, substructure, channel, culvert, or approaches categories received a 6-rating.

The most common deficiencies noted in the BRINSAP reports were minor impact dents on MBGF, spalling along construction joints, cracks in bent caps, cracks and spalls in wingwalls and backwalls, erosion along riprap, accumulation of dirt and debris in deck scuppers, broken and/or disconnected MBGF support posts, and non-functional lights at the turnarounds at one bridge location.

Additional deficiencies noted in MBITS reports included debris in joints, vegetation growing through riprap joints, missing bridge clearance sign, minor beam damage, graffiti, damaged curb, and barrier wall spalls. The deficiencies found fall within the PBMC scope and should be addressed as part of regularly scheduled maintenance activities.

The pedestrian bridges were not inspected by TxDOT and were thus included in the GEC's annual inspection. There are five pedestrian bridges along the shared use path adjacent to the 183A Turnpike. None of the components were rated less than a 6. These bridges were in good repair. Deficiencies noted consisted of tree branch overgrowth under and through trusses, missing bolts on a steel plate that is not flush with walkway, and several locations where galvanized handrails have spots of rust. The deficiencies found fall within the PBMC scope and should be addressed as part of regularly scheduled maintenance activities.

2.2.3. 183A TURNPIKE RETAINING WALLS

The retaining walls on the 183A Turnpike corridor consist primarily of MSE walls. There are also concrete noise walls adjacent to neighborhoods in the Phase I segment of 183A Turnpike, a concrete block subdivision wall at the Block House Creek neighborhood, and soil nail and drilled shaft wall systems at the Scottsdale Drive underpass.

183A Turnpike retaining walls were in good repair with only minor defects. The defects noted were primarily vegetation growth at multiple locations. Sounds walls were in good repair. Isolated areas of minor cracking of panels were noted. Deficiencies found fall within the PBMC scope and should be addressed as part of regularly scheduled maintenance activities.

2.2.4. 183A TURNPIKE BUILDINGS FACILITIES

The Mobility Authority's TIM Center is in good repair. The following is a general summary of condition assessment for each building category. These assets are maintained as part of the PBMC scope.

- **BUILDING EXTERIOR**
  Building exterior components, including wall systems, sealants, paint, and doors are in good repair. Minor rust on the exterior stairwell tread was found and will be monitored; however, maintenance is not required at this time.
- **ROOFING**
  The surface, seams, expansion joints and roofing were observed to be in good repair. No roofing deficiencies were noted at the TIM Center.
- **BUILDING INTERIOR**
  Building interior components, including the TIM Center lobby area, corridor finishes, windows, restrooms, security, and paint were in good repair. No building interior deficiencies were noted at the TIM Center.
- **SITE IMPROVEMENTS**
  Site improvement components were observed to be in good repair. Deficiencies noted were lid damage at multiple locations for water meters, irrigation, and clean outs. Deficiencies found should be addressed as part of regularly scheduled maintenance activities.
- **STRUCTURE**
  Structural components were observed to be in good repair. The only deficiency noted was sealant needed for porch columns on concrete foundation. Deficiencies should be addressed as part of regularly scheduled maintenance activities.
- **ELECTRICAL SYSTEMS**
  Electrical components, including panels, wiring, emergency power, transformers, and lighting were in good repair, although there were some isolated electrical issues found. There are two locations where it appears that toll equipment was removed from the bridge above the cash lanes at the Park Street Plaza where power wires were exposed and capped, but not placed in a covered junction box. In addition, junction boxes around the doors in multiple telecommunication rooms at the TIM Center were not secured, and wires were exposed. Deficiencies should be addressed as part of regularly scheduled maintenance activities.
- **MECHANICAL SYSTEMS**
  Mechanical components, including cooling, heating, air handlers, exhaust fans, and alarm systems were in good repair. It should be noted that due to the toll plaza cash lanes no longer active, AC units in the telecommunications room and the elevator room are not required and are permanently unplugged. Consequently, those mechanical systems were not inspected. Otherwise, no mechanical systems deficiencies were noted.
- **FIRE PROTECTION**
  Fire protection equipment include alarm systems, smoke detectors, heat detectors, fire extinguishers, and fire suppression system in the server room. Inspection of fire protection equipment are typically performed by the PBMC in January of each year. No deficiencies were observed with the fire protection system.

- **PLUMBING**
  Plumbing components, including water piping, insulation, and fixtures were in good repair. Inspectors observed a leaking flush valve in one of the women's restroom stalls. The deficiency should be addressed as part of regularly scheduled maintenance activities.

2.2.5. 183A TURNPIKE MAINTENANCE STORAGE YARD

The Maintenance Storage Yard at the Brushy Creek Road intersection provides a secured area for storage of various materials, including signs, lighting poles and fixtures, and other miscellaneous materials. The facility also stores a fully operational anti-icing storage tank and space for solid de-icing agents. This facility, together with the TIM Center, meets the immediate needs for storage of equipment and materials for the northern portion of the System.

The 183A maintenance yard inspection indicated that the yard and the surrounding areas remain in good repair. Deficiencies noted were sealed and unsealed cracks in the asphalt parking area, leaking anti-icing storage tank with corrosion, and scattered litter and debris. Deficiencies found fall within the PBMC scope and should be addressed as part of regularly scheduled maintenance activities.

2.2.6. 183A TURNPIKE OVERHEAD SIGN BRIDGES

A structural inspection of the overhead sign bridges, which include toll gantries and sign structures was conducted to identify deficiencies associated with their foundations, anchor bolts, base plates, column supports, and arm chord connections and members.

The inspection did not identify any deficiencies outside of the PBMC scope. Deficiencies noted include ground boxes with missing bolts, minor rust, anchor bolts needing to be tightened, tack welding needed, and locations where leveling nuts to base plates were loose.

2.2.7. 183A TURNPIKE TOLL INFRASTRUCTURE

Toll system infrastructure was inspected. Tolling equipment itself is inspected by a separate party.

The 183A Turnpike toll infrastructure includes nine ILP enclosures located at the northbound (NB) exit and southbound (SB) entrance ramps for Brushy Creek Road, the NB entrance and SB exit ramps for Crystal Falls Parkway, Crystal Fall Parkway mainlane, NB and SB Lakeline mainlane, NB Scottsdale Drive exit ramp, and the NB Park Street Mainlane, located at the TIM Center. Emergency generator sites serve the toll locations.

Overall, the ILP enclosures on 183A Turnpike are in good repair. The following is a summary of condition assessment results for ILP enclosures for each hub building category.

- **HUB BUILDING EXTERIOR AND ROOFING**
  Building exterior components, including wall systems, sealants, paint, and doors are in good repair. No deficiencies were noted for roofing components, including roof surfaces, seams, and expansion joints. There were instances of degraded findings at the SB Lakeline Mainlane location, specifically a loose handle and surface rust on an exterior door. The deficiencies found fall within the PBMC scope and should be addressed as part of regularly scheduled maintenance activities.
- **HUB BUILDING INTERIOR**
  Building interior components, including finishes, doors, and paint were in good repair. No deficiencies were noted.
- **SITE IMPROVEMENTS**
  Site improvement components were observed to be in good repair. There were some degraded elements at the NB and SB Brushy Creek locations consisting of faded parking lot striping. The deficiencies found fall within the PBMC scope and should be addressed as part of regularly scheduled maintenance activities.
- **STRUCTURE**
  No deficiencies were noted for structural components, including foundations, floor slabs, expansion joints, and walls.

- **ELECTRICAL SYSTEMS**
  Electrical components, including panels, wiring, emergency power, and lighting were in good repair. However, there were instances of degraded findings at the NB and SB Brushy Creek locations consisting of ground-fault circuit interrupter (GFCI) devices not operational, as well as conduit duct seal missing. Likewise, GFCI devices were not operational at the NB Lakeline mainlane locations. The deficiencies found fall within the PBMC scope and should be addressed as part of regularly scheduled maintenance activities
- **MECHANICAL SYSTEMS**
  No deficiencies were observed for mechanical components, including cooling, heating, air handlers, exhaust fans, and alarm systems.
- **FIRE PROTECTION**
  No deficiencies were observed for alarm systems and smoke detectors.

2.3 290E

For the 290E Phase III project, the remaining warranty provisions in place for various items, are as summarized in Table 9, below.

Table 9: 290E Phase III Summary of Project Warranties

GENERAL SUBJECT	WARRANTY PERIOD AFTER FA
Flexible Pavement (Pourous Friction Course (PFC) and Asphalt): Cracking, Debonding, Raveling, Flushing, Popouts, Rutting, Failures, Permeability, and Settlement	2 Years
Concrete (Rigid) Pavement: Settlement	2 Years
Concrete (Rigid) Pavement: Cracking, Joint Deficiencies, and Surface Defects	2 Years
Intelligent Traffic System (ITS) Fiber Optic Cable (manufacturer warranty)	2 Years

2.3.1. 290E ROADWAY

- **ASPHALT PAVEMENT**
  Although the tolled mainlanes consist primarily of concrete pavement, there is a section of pavement where asphalt transitions to concrete on the east end of the corridor. Visual inspections indicated that the asphalt mainlane pavement was in good repair, with some degradation present. In addition, two locations with failures along the pavement joint were noted. The deficiencies identified fall within the PBMC scope and should be addressed as part of regularly scheduled maintenance activities.
- **CONCRETE PAVEMENT**
  Through the Mobility Authority's asset management program, ride quality on concrete pavement mainlanes, including bridge approach and departure transitions, are being actively monitored. As issues are discovered through this monitoring, routine maintenance repairs are performed to stabilize the pavement.

  The visual inspections conducted during fall of 2023 indicated that the concrete pavement along the 290E mainlanes was in good repair, with some minor deficiencies present. Transverse cracking was noted along the mainlanes, which is normal behavior for CRCP. In addition, areas of longitudinal cracking were noted. As part of regularly scheduled maintenance activities, the PBMC will monitor to seal cracks and repair spalls as needed.
- **ROADSIDE**
  The roadside visual inspection did not identify any deficiencies outside of the PBMC scope. The most common deficiencies noted included undesirable vegetation under bridges, debris and silt buildup causing more than 20% capacity blockage at drainage inlets and pipes at several locations, areas of edge repair needed, untreated and undesired vegetation growth along the corridor, minor turf loss, litter and debris in several areas, ROW encroachment in urban areas, slope erosion in isolated areas, and tree

growth encroaching the view of roadway signs at bridges in isolated areas.
Minimal deficiencies were observed on 290E retention ponds. A few elements were identified as minor problems, with the most common deficiencies consisting of vegetation, silt, and debris buildup at pond drainage structures. Pond deficiencies found fall within the PBMC scope and should be addressed as part of regularly scheduled maintenance activities.

MISCELLANEOUS

The PBMC includes performance measures for identifying deficiencies and work planning responsibilities for the following miscellaneous roadway inspection elements.

Signs: Signs were also assessed by a day and a nighttime visual inspection. The most common deficiencies noted for small signs were cracked sheeting, peeling, fading, leaning, and turned signs, mostly on frontage roads. Large sign deficiencies observed included sheet peeling at several locations, mostly on Exit Only signs and on the frontage roads. Several locations on the frontage road also have large signs that are bent, faded, or damaged. The deficient signs are in need of replacement. A sign replacement project is planned for FY 2025.

Pavement Graphics, Pavement Markings, and Raised Pavement Markers: Day and nighttime visual inspections were conducted for pavement graphics, markings, and markers. The most common deficiencies included graphics that were faded, consisted of section loss, or were cracked, as well as several locations of pavement striping that exhibited section loss or were missing. As part of the PBMC responsibilities, an inspection and work plan should be developed to address the deficient graphics, markings and markers. As a result of their inspections, a workplan was developed and work is planned for summer of 2024.

Delineators: Deficiencies were observed for delineators and object markers, including delineators or object markers that were missing, incorrectly spaced, leaning, or dirty.

MBGF, Attenuators, Barriers, and Coatings: Safety barriers and guardrail end treatment were inspected for damage and proper functioning. The deficiencies identified fall within the PBMC scope. The most common deficiencies noted were areas of impact damage on MBGF and spalling at concrete traffic barrier bases.

Fence: No fencing deficiencies were identified.

Lighting: Lighting was inspected for damage and proper function at night. In general, illumination features are in good repair. The most common deficiencies noted for safety and continuous lighting were missing electrical access panels, lighting outages, and areas of lighting that were not functioning. For high mast lights, deficiencies found included lighting outages, column rust, and several locations where ground wires were either cut or missing. The deficiencies identified fall within the PBMC scope.

Traffic Signals: 290E has two sign mounted flashing beacon assemblies per frontage road location, one set east of Arterial A and the second set west of Johnny Morris Road. Both are the Mobility Authority's responsibility, placed as an advanced warning for signals on approach to these intersections. No significant deficiencies were noted.

Shared Use Path: A paved shared use path runs along the 290E corridor from US 183 to east of SH 130. Visual inspection of the shared use path indicates that it is in good repair. Deficiencies noted include vegetation growth and separation with vertical displacement at joints, rust on railings, minor spalling on sidewalk paving at several locations, isolated locations where vertical displacement with adjacent curb and inlets is occurring, spalling at locations where rebar is near the surface, missing turf on the sides of the path causing edge drop-offs, tree trimming needed, and missing access panel on SUP light poles. The deficiencies identified fall within the PBMC scope.

2.3.2. 290E BRIDGES

All of the 290E bridges were inspected and evaluated in 2023, as part of TxDOT's BRINSAP Program, which

occurs every two years per federal requirements. The findings of the 2023 bridge inspections serve as the basis for the comments and recommendations in the bridge portion of this report. Additionally, visual observations performed by TxDOT maintenance personnel and the Mobility Authority, as inspected through the PBMC, from the FY 2023 MBITS Program findings are included herein.

As part of an ongoing plan to address ride quality caused by uneven transitions from the roadway section to the bridge section, the ride quality is assessed and repairs are made as needed using foam injection to realign approach and departure slabs with the adjacent pavement, ultimately improving the ride quality for the driver. No significant ride quality issues were noted during this inspection.

Based on a review of the most recent inspection reports and visual observations, 290E bridges are in good repair. Of the 84 total components rated for the 14 Mobility Authority-owned bridges on 290E, 100% are rated 6 or higher with 4% receiving a 6-rating. No components received a rating lower than a 6. The most common deficiencies noted in BRINSAP reports include horizontal cracks on backwalls, joint seal failure, missing grate from a drainage inlet, and exposed drilled shaft at interior bent due to erosion.

Additional deficiencies were noted in MBITS reports and include riprap cracking and spalling, pile and column scour, cracking and spalls on MSE wall and cap, cracking on backwall and wingwall, spalls on barrier wall, missing clearance sign, and a small amount of cement built-up around bearings and abutments. Deficiencies found fall within the PBMC scope and should be addressed as part of regularly scheduled maintenance activities.

The pedestrian bridges were not inspected by TxDOT and were thus included in the GEC's annual inspection. There is one stand-alone pedestrian bridge along the shared use path adjacent to 290E. None of the components were rated less than a 6. The bridge was in good repair with no significant repair needs.

2.3.3. 290E RETAINING WALLS

The retaining walls on the 290E corridor consist primarily of MSE walls. Wall deficiencies noted included vegetation present, erosion under mow strips, and flume settlement. Two wall locations, one at Parmer Lane and the second at Harris Branch Parkway, continue to be monitored for movement. A testing and monitoring plan was put in place to establish the source of movement in FY 2023. Repairs at the Harris Branch location were completed in 2023. The Parmer Lane location will continue to be monitored, with no immediate mitigation planned. Sound walls are in good repair, also with settlement noted in isolated areas to be monitored.

2.3.4. 290E MAINTENANCE STORAGE YARDS

The Maintenance Storage Yard on Manor Road near 290E provides a secured area for storage of various materials, including signs, lighting poles and fixtures, and other miscellaneous materials. The facility also stores a fully operational anti-icing storage tank and space for solid de-icing agents. The facility remains in good repair. The inspection observed sealed and unsealed cracking in the parking area, interior lights not functioning, tree encroachment along fencing, open holes on a couple of the exterior walls, and undesirable tree growth at a culvert. Granular de-icing in bulk bags were not protected and is leaching material. Chemicals inside of the building is causing corrosion inside and outside of the structure. Deficiencies found fall within the PBMC scope and should be addressed as part of regularly scheduled maintenance activities.

2.3.5. 290E OVERHEAD SIGN BRIDGES

A structural inspection of the overhead sign bridges, which include toll gantries, sign structures and monotube sign structures was conducted to identify deficiencies associated with their foundations, anchor bolts, base plates, column supports, and arm chord connections and members.

Inspectors observed areas where there was foundation undermining caused by erosion, as well as brackets and truss repair needed. Deficiencies found fall within the PBMC scope and should be addressed as part of regularly scheduled maintenance activities.

2.3.6. 290E TOLL INFRASTRUCTURE

Toll system infrastructure was inspected. Tolling equipment itself is inspected by a separate party.

The 290E toll infrastructure includes 12 ILP enclosures, consisting of three hub buildings and nine cabinets that house various ETC equipment, and are located at the westbound (WB) and eastbound (EB) tolling locations at the 183 South DCs; the Parmer mainlane tolling location; EB and WB Giles mainlane; EB and WB Giles ramp locations; EB and WB Harris Branch locations; the EB and WB Springdale ramp locations, and the WB DCs at SH 130. Emergency generators serve all tolling locations.

Overall, the ILP enclosures on 290E are in good repair. The following is a general summary of condition assessment for each category.

- **HUB BUILDING EXTERIOR AND ROOFING**
  Building exterior components for the ILP enclosures, including wall systems, sealants, paint, and doors were observed to be in good repair. No deficiencies were noted for roofing components, including surfaces, seams, and expansion joints.
- **HUB BUILDING INTERIOR**
  Building interior components, including the finishes, doors, and paint were in good repair.
- **SITE IMPROVEMENTS**
  Site improvement components, including lighting and fences, were observed to be in good repair. The only deficiencies noted where a fence and a pole-mounted light that was down due to an accident that occurred prior to the inspection. Deficiencies found fall within the PBMC scope and should be addressed as part of regularly scheduled maintenance activities.
- **STRUCTURE**
  Structural components were observed to be in good repair. No deficiencies were noted for structural components, including foundations and floor slabs on the ILP enclosures. A slab crack at a column on the EB Harris Branch on-Ramp was found and will be monitored; however, maintenance is not required at this time.
- **ELECTRICAL SYSTEMS**
  Electrical components, including panels, wiring, emergency power, and lighting were in good repair. However, there were instances of degraded findings at the EB DC on-ramp at US 183 and WB DC on-ramp to US 183 consisting of GFCI devices not operational. In addition, deficiencies were found on the WB DC from SH 130 consisting of a missing electrical panel label and missing duct seal for wiring/conduit. Additionally, at the time of inspection, primary and step-down transformer equipment were down due to an accident that occurred prior to inspection. Deficiencies found fall within the PBMC scope and should be addressed as part of regularly scheduled maintenance activities.
- **MECHANICAL SYSTEMS**
  Mechanical systems components, including cooling, exhaust fans, and alarm systems, were observed to be in good repair.
- **FIRE PROTECTION**
  Inspection of fire protection equipment are typically performed by the PBMC in January of each year. Alarm systems and smoke detectors appeared to be in good repair.

2.4 SH 71 EXPRESS

2.4.1. SH 71 EXPRESS ROADWAY

- **ASPHALT PAVEMENT**
  Most of the deficiencies noted occurred within the asphalt transition area from concrete to existing flexible pavement. The most common deficiencies observed were cracking at isolated areas, mostly on entrance/exit ramps. Additionally, failure was observed at several areas along joints, minor rutting at a few locations, and ride quality issues at a few exit ramps. All of the observed deficiencies fall within the

PBMC's scope and should be addressed as part of regularly scheduled maintenance activities.

- **CONCRETE PAVEMENT**
  The concrete pavement sections along the corridor are in good repair. Indications of transverse cracking were observed. This is a typical, expected cracking pattern for CRCP. In addition, areas of longitudinal cracking were noted. PBMC will monitor to seal cracks and repair spalls as needed.

- **ROADSIDE**
  Roadside elements on SH 71 Express are in good repair. Deficiencies found fall within the PBMC scope and should be addressed as part of regularly scheduled maintenance activities. The most common deficiencies noted were siltation blocking 20% capacity at drainage inlets, isolated areas of edge drop-offs, litter and debris build-up in isolated areas, untreated and undesired vegetation growth, minor turf loss at various locations, and three locations with slope erosion. Dead trees were also reported.

- **MISCELLANEOUS**
  Signs: No deficiencies were noted on the toll lanes.

  Pavement Graphics, Pavement Markings, and Raised Pavement Markers: Overall, pavement striping, symbols and reflective pavement markers are in good repair. No graphics deficiencies were noted for the toll lanes. Striping deficiencies observed in the toll lanes included section loss and loss of reflectivity. Deficiencies found fall within the PBMC scope and should be addressed as part of regularly scheduled maintenance activities.

  Delineators: Findings indicate missing delineation along portions of guardrail and safety barriers, as well as nonreflective delineation. Deficiencies found fall within the PBMC scope and should be addressed as part of regularly scheduled maintenance activities.

  MBGF, Attenuators, Barriers, and Coatings: Typical deficiencies noted included areas of impact damage on MBGF and spalling at concrete traffic barrier bases. Deficiencies found fall within the PBMC scope and should be addressed as part of regularly scheduled maintenance activities.

  Fence: No fencing deficiencies were noted.

  Lighting: Deficiencies noted for safety lighting include lights not functioning and bulbs burnt out. Continuous lighting deficiencies found include missing access panels and lights not functioning. High mast light deficiencies found include missing access panels and light bulbs burned out. Observed deficiencies fall within the PBMC scope and should be addressed as part of regularly scheduled maintenance activities.

  Shared Use Path: A paved shared use path runs along both sides of the SH 71 Express corridor from US 183 to SH 130. Visual inspection of the shared use path indicates that it is in good repair. Deficiencies noted include several locations with vegetation in joints, rail damage and missing due to impact and theft, minor spalling at several locations, vertical displacement along adjacent curb and inlets in isolated locations, broken and/or missing sections of pavement, dirt covering sections of the SUP, lighting outage at multiple locations, locations with bent or damaged signs, one location with blocked sight distance, and multiple locations noted for area of soil missing next to the SUP. Deficiencies found fall within the PBMC scope and should be addressed as part of regularly scheduled maintenance activities.

2.4.2. SH 71 EXPRESS BRIDGES

All of the SH 71 Express bridges were inspected and evaluated in 2023 as part of TxDOT's BRINSAP Program, which occurs every two years per federal requirements. The findings of the 2023 bridge inspections serve as the basis for the comments and recommendations in the bridge portion of this report. Additionally, visual observations performed by TxDOT maintenance personnel and the Mobility Authority, as inspected through the PBMC, from the FY 2023 MBITS Program findings are included herein.

Based on a review of the most recent inspection reports and visual observations, SH 71 Express bridges are in good repair. None of the 18 total components rated for the three bridges on SH 71 Express received a 6 or below rating. Deficiencies noted include deck drains clogged at several location.

Additional deficiencies noted in MBITS reports include cracking in riprap and vegetation growing through riprap joints. Deficiencies found fall within the PBMC scope and should be addressed as part of regularly scheduled maintenance activities.

2.4.3. SH 71 EXPRESS RETAINING WALLS

The retaining walls on the SH 71 Express corridor consist primarily of MSE walls. Based on visual observations, retaining walls on SH 71 Express are in good repair. A few elements were identified as minor problems, with the most common deficiency being isolated reports of silt build-up in flumes, as well as erosion at the base of a flume. There were also several locations noted for cracked coping. Deficiencies found fall within the PBMC scope and should be addressed as part of regularly scheduled maintenance activities.

2.4.4. SH 71 EXPRESS OVERHEAD SIGN BRIDGES

A structural inspection of the overhead sign bridges, which include toll gantries and sign structures was conducted to identify deficiencies associated with their foundations, anchor bolts, base plates, column supports, and arm chord connections and members. All inspected elements appear to be in good repair.

2.4.5. SH 71 EXPRESS TOLL INFRASTRUCTURE

Toll system infrastructure was inspected. Tolling equipment itself is inspected by a separate party.

The SH 71 Express toll infrastructure includes two ILP enclosures, which are communication cabinets that house various ETC equipment and are located on the north and south sides of the toll gantry, east of FM 973.

An emergency generator site that serves the tolling location is located next to the ILP south of the toll gantry. The exterior, interior, structural, electrical, and mechanical cooling components of the ILP enclosures are in good repair. However, it was observed that the generator, which is located on the south side of the toll gantry in the EB direction, does not appear to be grounded. Deficiencies found fall within the PBMC scope and should be addressed as part of regularly scheduled maintenance activities.

2.5 SH 45 SOUTHWEST

For SH 45 Southwest, the remaining warranty provisions in place for various items, are as summarized in Table 10, below.

Table 10: SH 45 Southwest Summary of Project Warranties

GENERAL SUBJECT	WARRANTY PERIOD AFTER FA
Radar Presence Detection Devices (RPDD): Free from material and workmanship defects	5 Years
Radar Advance Detection Devices (RADD): Free from material and workmanship defects	5 Years
Battery Back-Up System for Signal Cabinets: Replace when non operable due to defect in material or workmanship	5 Years

2.5.1. SH 45 SOUTHWEST ROADWAY

- **ASPHALT PAVEMENT**
  The pavement sections along the corridor are in good repair. Visual inspections did not identify any deficiencies outside of the PBMC scope. The most common deficiencies noted were asphalt pavement cracking and potholes at isolated locations. Deficiencies should be addressed as part of regularly scheduled maintenance activities.

FM 1626 which intersects SH 45 Southwest on the south end of the corridor, shows signs of pavement surface failure where frequent turning movements occur. An asphalt mill and inlay is scheduled for spring of 2024.

ROADSIDE

The roadside elements along the SH 45 Southwest corridor are in good repair. Visual Inspection did not identify any deficiencies outside of the PBMC scope. A few deficiencies were noted, such as multiple locations of siltation at drainage inlets blocking more than 20% capacity, untreated and undesired vegetation growth, isolated areas of dead trees, isolated locations with litter, and several bridge joints full of debris. Deficiencies should be addressed as part of regularly scheduled maintenance activities.

Minimal deficiencies were observed on SH 45 Southwest retention ponds. The most prevalent deficiency consisted of silt and debris that was blocking a pond outlet at one location, as well as erosion around the perimeter of a pond retaining wall at another location. Deficiencies should be addressed as part of the PBMC's regularly scheduled maintenance activities.

MISCELLANEOUS

Signs: Signs were also assessed by a day and a nighttime visual inspection and were in good repair. A few deficiencies were noted, including small signs that were leaning, missing, cracked, or faded, and a couple of large signs that were damaged. It is recommended that annual reflectivity inspections be continued to ensure compliance with requirements.

Pavement Graphics, Pavement Markings, and Raised Pavement Markers: Overall, pavement striping, symbols and reflective pavement markers are in good repair. A few deficiencies were noted, including several locations where graphics are showing section loss, cracking, and loss of reflectivity, as well as several locations where striping is exhibiting section loss due to damage, mainly on cross streets. There were also several locations with missing delineators or object markers. Deficiencies should be addressed as part of the PBMC's regularly scheduled maintenance activities.

Delineators: There were several locations with missing delineators or object markers. Deficiencies should be addressed as part of the PBMC's regularly scheduled maintenance activities.

MBGF Fence, Attenuators, Barriers, and Coatings: Safety barriers and guardrail end treatment were inspected for damage and proper functioning. Visual inspection did not identify deficiencies outside of the PBMC scope. The most common deficiencies noted were isolated areas of impact damage on MBGF and one location where there was minor damage at an attenuator. Deficiencies should be addressed as part of the PBMC's regularly scheduled maintenance activities.

Fence: No fencing deficiencies were noted.

Lighting: Lighting along the SH 45 Southwest corridor was inspected for damage and proper functioning at night. In general, illumination features are in good repair. Visual inspection did not identify any deficiencies outside of the PBMC scope. The most common deficiencies noted were missing access panels, areas of safety lighting that were not functioning, and one location where a light pole was on the ground.

Traffic Signals: SH 45 Southwest has two traffic signals and two beacon assemblies that are the Mobility Authority's responsibility, located at FM 1626. The signals were in good repair. At the time of inspections, anchor bolt nuts were not tack welded at two locations. Deficiencies should be addressed as part of the PBMC's regularly scheduled maintenance activities.

Shared Use Paths: A paved shared use path runs along the SH 45 Southwest corridor from MoPac and Escarpment Boulevard to FM 1626. Visual inspection of the shared use path indicates that it is in good repair. Minor deficiencies noted includes edge drop offs where erosion is occurring along sidewalk paving, several SUP locations with faded and/or rusty signs, cracking and spalling on the sidewalk paving, and locations where several lights were not functioning. Deficiencies should be addressed as part of the PBMC's regularly scheduled maintenance activities.

2.5.2. SH 45 SOUTHWEST BRIDGES

SH 45 Southwest bridges were inspected and evaluated in 2023, as part of TxDOT's BRINSAP Program, which occurs every two years per federal requirements. The findings of the 2023 bridge inspections serve as the basis for the comments and recommendations in the bridge portion of this report. Additionally, visual observations performed by TxDOT maintenance personnel and the Mobility Authority, as inspected through the PBMC, from the MBITS Program findings are included herein.

Based on a review of the most recent inspection reports and visual observations, SH 45 Southwest bridges are in good repair, with no deficiencies noted. Of the 48 total components rated for the eight bridges on SH 45, no component received a 6-rating or lower. No components received a rating lower than a 6. Deficiencies noted include a damaged guard fence attenuator reflector and a disconnected drainpipe near abutment backwall.

Additional deficiencies noted in MBITS reports included minor amount of joint debris and gravel mostly at edges. Deficiencies should be addressed as part of the PBMC's regularly scheduled maintenance activities.

2.5.3. SH 45 SOUTHWEST RETAINING WALLS

The retaining walls on the SH 45 Southwest corridor consist primarily of MSE walls. Based on visual observations, retaining walls on SH 45 Southwest are in good repair, with minor deficiencies noted, including vegetation growth in mow strips at several locations. Deficiencies should be addressed as part of the PBMC's regularly scheduled maintenance activities.

2.5.4. SH 45 SOUTHWEST OVERHEAD SIGN BRIDGES

A structural inspection of the overhead sign bridges, which include toll gantries and sign structures was conducted to identify deficiencies associated with their foundations, anchor bolts, base plates, column supports, and arm chord connections and members. All inspected elements appear to be in good repair and no deficiencies were noted.

2.5.5. SH 45 SOUTHWEST TOLL INFRASTRUCTURE

Toll system infrastructure was inspected. Tolling equipment itself is inspected by a separate party.

SH 45 Southwest toll infrastructure includes one ILP enclosure, which is a cabinet that houses various ETC equipment, and is located on the west side of the mainlane tolling location, approximately 2.3 miles southeast of Loop 1. An emergency generator site that serves the tolling location is located next to the ILP. The visual inspection of the toll system infrastructure indicates that the primary components are in good repair, with no deficiencies noted. Efforts should be made to continue to keep all components clean, well maintained and secure for the TCS.

2.6 183 SOUTH

183 South fully opened in early 2021. The Mobility Authority is currently working through punch list items with the contractor.

2.6.1. 183 SOUTH ROADWAY

- **ASPHALT PAVEMENT**
  Although the tolled mainlanes consist primarily of concrete pavement, there is a section of pavement where asphalt transitions to concrete on the south end of the corridor. Visual inspections indicated that the asphalt pavement was in good repair, with some minor deficiencies present. Asphalt failures were reported at two locations. Deficiencies found fall within the PBMC scope and should be addressed as part of regularly scheduled maintenance activities.

CONCRETE PAVEMENT

The inspections indicated that the concrete pavement along the 183 South mainlanes was in good repair, with some minor deficiencies present. Transverse cracking was noted along the mainlanes, which is normal behavior for CRCP. In addition, several small areas exhibited failures along joints. As part of regularly scheduled maintenance activities, the PBMC will monitor to seal cracks and repair spalls as needed.

ROADSIDE

The roadside elements along the 183 South corridor are in good repair. Deficiencies reported include isolated areas where siltation removal is needed at drainage inlets, isolated areas of drop-off needing maintenance, untreated and undesired vegetation growth, litter and debris, minor turf loss, isolated areas of erosion in the center median, and dead trees noted in isolated areas along the corridor. These deficiencies should be addressed as part of regularly scheduled maintenance activities.

No pond deficiencies were noted along the 183 South corridor.

MISCELLANEOUS

Signs: Signs were also assessed by a day and a nighttime visual inspection. No significant deficiencies were noted for large signs. There was minor damage to several large signs, as well as one sign that was on the ground. For small signs, there were several locations where signs were damaged, out of plumb, dirty, or missing. These deficiencies should be addressed as part of regularly scheduled maintenance activities.

Pavement Graphics, Pavement Markings, and Raised Pavement Markers: Day and nighttime visual inspections were conducted for pavement graphics, markings, and markers. Overall, pavement striping, symbols and reflective pavement markers are in good repair.

Delineators: Delineation on CTBs were missing at multiple locations. Deficiencies found fall within the PBMC scope and should be addressed as part of regularly scheduled maintenance activities.

MBGF, Attenuators, Barriers, and Coatings: Safety barriers and guardrail end treatment were inspected for damage and proper functioning. Deficiencies noted included impact damage and paint peeling in several areas. Deficiencies found fall within the PBMC scope and should be addressed as part of regularly scheduled maintenance activities.

Fence: No fencing deficiencies were noted.

Lighting: Lighting was inspected for damage and proper function at night. Deficiencies noted included lighting outages at high mast lights, as well as areas of lighting not functioning and access panels missing at safety light pole locations. Deficiencies found fall within the PBMC scope and should be addressed as part of regularly scheduled maintenance activities.

Traffic Signals: There are no traffic signals that are owned or maintained by the Mobility Authority on the 183 South corridor.

Shared Use Path: Visual inspection of the adjacent shared use path and pedestrian bridges indicates that it is in good repair. Deficiencies noted include vegetation growth and minor separation and chipping at joints, rust on SUP railings in isolated areas, spalling, cracking, broken panels, and vertical displacement on sidewalk paving at several locations, graffiti, missing signs, tree trimming needed, areas where vegetation establishment hasn't occurred, and several non-functioning safety light poles. Deficiencies found fall within the PBMC scope and should be addressed as part of regularly scheduled maintenance activities.

2.6.2. 183 SOUTH BRIDGES

All of the 183 South bridges were inspected and evaluated in 2023, as part of TxDOT's BRINSAP Program, which occurs every two years per federal requirements. The findings of the 2023 bridge inspections serve as the basis for the comments and recommendations in the bridge portion of this report. Additionally, visual observations performed by TxDOT maintenance personnel and the Mobility Authority, as inspected through the PBMC from the FY 2023 MBITS Program findings are included herein.

Based on a review of the most recent inspection reports and visual observations, 183 South bridges are in good repair. Of the 84 total components rated for the 14 bridges on 183 South, 100% were rated 6 or higher, with one receiving a rating of 6 due to impact damage to MBGF terminal end. Deficiencies noted in the BRINSAP report, include vegetation growing in riprap joints, and a missing reflector from the nose piece of an impact attenuator. Deficiencies found fall within the PBMC scope and should be addressed as part of regularly scheduled maintenance activities.

2.6.3. 183 SOUTH RETAINING WALLS

The retaining walls on 183 South consist primarily of MSE walls. Based on visual observations, no significant repair needs are required. Deficiencies were minor and included wall graffiti and undesirable vegetative growth. Deficiencies found fall within the PBMC scope and should be addressed as part of regularly scheduled maintenance activities.

2.6.4. 183 SOUTH OVERHEAD SIGN BRIDGES

A structural inspection of the overhead sign bridges, which include toll gantries and sign structures was conducted to identify deficiencies associated with their foundations, anchor bolts, base plates, column supports, and arm chord connections and members. No significant repairs are needed. The most common deficiency found was rust, loose anchor bolts, and the need to tighten loose leveling nuts to base plates. Deficiencies found fall within the PBMC scope and should be addressed as part of regularly scheduled maintenance activities. Deficiencies found fall within the PBMC scope and should be addressed as part of regularly scheduled maintenance activities.

2.6.5. 183 SOUTH TOLL INFRASTRUCTURE

Toll system infrastructure was inspected. Tolling equipment itself is inspected by a separate party.

The 183 South corridor included inspection of 11 ILP enclosures located at the following points: 51st Street NB Entrance Ramp, 51st Street NB Mainlane, MLK Jr. Blvd NB Exit Ramp, 51st Street SB Exit Ramp, Marton Luther King Jr. Boulevard SB Mainlane, Smith Road NB Exit Ramp, Smith Road SB Entrance Ramp, Thompson NB Mainlane Plaza, Thompson SB Mainlane Plaza, the DC from SH 71 EB to 183 Toll NB, and the DC from 183 Toll SB to SH 71 WB. Emergency generator sites serving the tolling locations are located next to the ILPs.

The visual inspection of the toll system infrastructure indicates that the primary components are in good repair. Deficiencies noted include debris in drain inlets, generator housing damage, and a cover missing on a GFCI junction box. Efforts should be made to continue to keep all components clean, well maintained and secure for the TCS.

3.0 Ongoing Initiatives

3.1 ASSET MANAGEMENT

The Mobility Authority continues to improve upon their Transportation Asset Management Plan (TAMP).

The Mobility Authority is using a production version of software, that is web-enabled integrated GIS based, to serve as their Computerized Maintenance Management System (CMMS). Using this CMMS, the Mobility Authority records maintenance activity accomplishment associated with the GIS based asset inventory. The PBMC contractor utilizes the CMMS, directly entering day-to-day work requests, reporting work accomplishments and other reporting requirements.

The Mobility Authority has implemented a pavement management program, collecting pavement condition data as scheduled. This inventory and maintenance history will be utilized to support the Mobility Authority in decision-making, providing a strategy to proactively manage its pavement program.

In addition, the Mobility Authority utilizes dashboards to include crash data, bridge inspection data, annual inspection deficiency data and financial data for tracking and planning.

This revised review of crash data better serves the quarterly evaluation of the performance of its corridors. Evaluation results are analyzed and used to aid the Mobility Authority in planning and implementing operational improvements as part of the safety management process. If an operational improvement is supported, it should be programmed and considered for funding. In some cases, further investigation is needed to facilitate an informed decision.

3.2 TECHNOLOGY INITIATIVES

The Mobility Authority is leveraging industry best practices in technology to enhance safety and operations on its roadway System.

3.2.1. DATA PLATFORM SOLUTION

The Mobility Authority has implemented a toll transaction solution that will provide flexibility and more control of data, providing better and more informed decision-making. In March 2021, the Mobility Authority awarded a contract to begin development of the data platform solution to move to a strategy wherein all toll transaction processing and data management capabilities after the point of transaction creation is advanced to a Mobility Authority-managed solution. To achieve the new transaction processing arrangement, the Mobility Authority defined a multi-faceted strategic plan to implement an end-to-end scalable tolling transaction system to meet current and future business capabilities. The solution began processing transactions in August 2023.

The objective of the data platform project is to transition all toll transaction data processing and data management capabilities after the point of transaction creation to a Mobility Authority-managed solution. A third-party vendor will continue to collect and create the toll transaction at the roadside, then pass the fully formed toll transaction to the data platform. Business logic and rules will then consume the transaction and route the payment request to either the Central United States Interoperability Hub or the Pay by Mail vendor.

The Mobility Authority-managed data platform can also support additional business capabilities such as external reporting and internal data analytics. Future development could include adding promotions and discount program logic.

3.2.2. INTELLIGENT TRAFFIC SYSTEMS MASTER PLAN

The Mobility Authority has continued to follow its existing Intelligent Traffic Systems (ITS) Master Plan to improve and expand its ITS along its existing corridors and those under construction. ITS technologies, such as closed-circuit television (CCTV) cameras, Microwave and Bluetooth detectors, Connected Vehicle Roadside Units, Wrong-Way Driving Detection Systems, and Dynamic Message Signs among other technologies improve the Mobility Authority's ability to monitor the performance of its roadways, detect and respond to incidents, and deliver important messaging to drivers. In a continued effort to standardize the approach to ITS, the

Mobility Authority is in the process of developing Minimum Technical Requirements and Standards (MTRS). The MTRS will include technical specifications, standard drawings, procedure, and equipment types to ensure all new ITS and ITS-related construction meets the needs of the Mobility Authority ITS Master Plan.

3.2.3. ITS RETROFITS AND EXPANSIONS

Continuing the effort to leverage new technology to maximize safety along its roadways, the Mobility Authority has initiated multiple projects to retrofit existing ITS equipment and install new ITS systems along its managed corridors. These projects are the 183A Shared Use Path Pedestrian Safety Project, the system-wide weather sensor deployment, and the 290 ITS Modernization Project.

The 183A Shared Use Path Pedestrian Safety Project will include the installation of a video-based detection system which will monitor the 183A Shared Use Path at two high-volume commercial driveway crossings at the Costco, just North of RM 1431 (Whitestone Blvd). The purpose of the system is to warn motorists of pedestrians/cyclists approaching the driveway crossing through a series of LED flashing signs. This project is currently under design with planned construction completion in June 2024.

The System-Wide Weather Sensor Deployment will bring 10 Road Weather Information System (RWIS) devices to existing ITS sites to the 183A Turnpike, 290E, 183 South, and SH 45 Southwest corridors. These devices will provide the Mobility Authority the ability to monitor roadway weather conditions in real-time, including ambient temperature, pavement temperature, precipitation, visibility, wind speed, and more. Once deployed, these systems will allow the Operations team to monitor weather conditions at targeted locations, reducing reliance on third party weather reports allowing for quicker notifications to motorists (through DMS messaging, X, etc.), Law Enforcement and Emergency Services, as well as partnering mobility agencies. This project will complete construction in FY 2025.

The 290 ITS Modernization Project will seek to upgrade all legacy ITS cabinets along the 290E tolling corridor to the new Mobility Authority ITS Standards. The new Mobility Authority ITS Standard Cabinet will provide a more robust enclosure adding additional capacity for future expansion and increased security for in-cabinet equipment. This project will also involve the relocation of existing ITS enclosures to more accessible locations to reduce maintenance burden and unnecessary maintenance-related lane closures. Preliminary design for this project is underway and is scheduled to be completed in FY 2024. Procurement for construction services is currently scheduled to begin in FY 2024 and carry over into FY 2025.

3.2.4. REGIONAL COLLABORATION

The Mobility Authority remains a proactive contributor in the exploration and execution of cutting-edge solutions. They are presently engaged in numerous regional initiatives.

Central Texas Traffic Management System, a partnership involving the Mobility Authority, Capital Area Metropolitan Planning Organization (CAMPO), TxDOT, CapMetro, and the cities of Austin, San Marcos, Kyle, Round Rock, Georgetown, Pflugerville, Cedar Park and Leander, aims to formulate a region-wide strategy for traffic management. The partnership leverages shared information and collective problem-solving tactics throughout all stages of project development and delivery. Their integrated system will utilize a unified data environment that links with individual agency traffic management systems.

Central Texas Construction Partnership represents a collaboration with the Mobility Authority, TxDOT, City of Austin, Travis County, CapMetro, CAMPO, and the Austin Transit Partnership (ATP), with the central goal of actively informing both the public and relevant agencies about ongoing construction work zones and related traffic impacts. The aim is to foresee and manage traffic flow to sustain existing service standards. A collaborative methodology has been forged with partner organizations to facilitate the creation of a Mobility App and Dashboard. This resource aims to keep the public, state and local officials, and contractors updated, aid in decision-making processes, and enhance safety across the transportation network.

3.0 Ongoing Initiatives *continued*

Texas SMARTTrack (TST) showcases collaboration at its finest, involving the Mobility Authority, the University of Texas - Austin, CAMPO, TxDOT, and the City of Austin. Texas SMARTTrack, an acronym for Safety, Mobility, and Autonomy Research and Testing, serves as a world-class testing ground for shared insights from transportation agencies, academia, and the private sector in order to promote improved traffic safety, operations and management, via smart transport infrastructure and automated vehicles. TST is designed to be used by governmental bodies for technology evaluations, academic researchers for technology development, and private sector Original Equipment Manufacturers for testing both new vehicles and state-of-the-art tech innovations.

4.0 Annual Budgets

4.1 ANNUAL OPERATING BUDGET

Annual budgets are currently being prepared by the Mobility Authority for the proper maintenance, repair, and operation of the System for FY 2025. These budgets, which are based on estimated cost projections, together with the factors that may influence costs during this period, should be reviewed by the GECs as they are made available from the Mobility Authority. These budgets should consider the recommended maintenance and repairs noted in the System roadways included in the Annual Report of Conditions; and they should be based on current operating practices and agency organization, anticipated changes in methods of operations, and changes in Mobility Authority staff and organization projected through FY 2025. The budgets shown below do not include non-system costs.

The operations costs consist of administration costs, including: accounting, financial and legal expenses, toll collection and toll system maintenance, customer service, violation processing, banking services, policing, and other costs associated with the operations of the System roadways. The estimated costs for the proper operation of these facilities for the coming fiscal year is based on a review of existing conditions, together with a variety of factors that may influence costs during this period. The GECs estimate the FY 2025 System Operating Expenses to be $45.5M. The factors that determine this estimate include the utilization of consultants/ vendors and the assignment of Mobility Authority personnel. The Annual Operating Budget should be finalized by the Mobility Authority on or before June 30, 2024.

It is the opinion of the GEC that the costs projected for the operation of the System are reasonable estimations of anticipated costs for the FY 2025 Annual Operating Budget.

4.2 ANNUAL MAINTENANCE BUDGET

The maintenance costs include administration costs, roadway contract maintenance activities, and other costs associated with the maintenance of the System roadways. The estimated costs for the proper maintenance and repair of these facilities for the coming year is based on a review of existing conditions, together with the factors that may influence costs during this period. The GEC estimates the FY 2025 Maintenance Expenses to be $11M.

This budget includes the cost of the PBMC contract and asset management support. The actual Annual Maintenance Budget should be finalized by the Mobility Authority on or before June 30, 2024.

It is the opinion of the GEC that the costs projected for the maintenance of the System are reasonable estimations of anticipated costs for the FY 2025 Annual Maintenance Budget.

4.3 ANNUAL CAPITAL BUDGET

The Annual Capital Budget details the Mobility Authority's planned capital expenditures during the ensuing fiscal year. Planned capital expenditures for FY 2025 are summarized below.

The Mobility Authority's 183A Phase III Project began construction in the spring of 2021 with completion anticipated in 2025. Capital expenditures are estimated to be $33.8M for FY 2025 and are funded by the Project Fund.

The Mobility Authority's 183 North Mobility Project began construction in 2022 with completion anticipated in 2026. capital expenditures and Mobility Authority costs are estimated to be $154M for FY 2025, funded by the Project Fund.

The Mobility Authority's System of Projects continues to increase in both overall lane miles and geographical footprint. The existing maintenance facilities, currently located along 290E and 183A Turnpike are approaching

capacity. With the expansion of 183A Turnpike and construction of the 183 North Mobility Project, it is recommended that additional maintenance facilities be added for effective maintenance. Additional maintenance yard real estate and planning support is estimated to cost $6.7M and is recommended for the FY 2025.

The Mobility Authority's ITS devices enable the monitoring of the Mobility Authority's facilities at the TIM Center. With the expansion of the 183A Turnpike and construction of the 183 North Mobility Project, it is recommended that the TIM Center be expanded and reconfigured to effectively monitor the Mobility Authority's system. Renovation of the TIM Center building is estimated to cost $6.8M and is recommended for the FY 2025.

It is recommended that the Mobility Authority implement additional projects that focus on safety, revenue collection, toll violation mitigation, and technology programs to make efficient use of the organization's financial and human resources. Projects to be implemented in FY 2025 include additional roadside automated license plate readers, signal upgrades at five intersections along the 183A Turnpike corridor, toll equipment cabinet standardization, enhancements to the RekorOne traffic monitoring and notification systems, CCTV replacement, fixed-camera array upgrades, and mobile operations safety onboard units for connected vehicle technology. The capital expenditures for these projects are estimated to be $4.2M in FY 2025.

5.0 Renewal and Replacement (R&R) Funding

5.1 R&R OVERVIEW

Under the terms of the Master Trust Indenture, R&R Funding should be established for the purpose of paying the cost of:

- Unusual or extraordinary maintenance or repairs not occurring annually, and renewals and replacements, including major items of equipment;
- Repairs or replacements resulting from an emergency caused by some extraordinary occurrence, so characterized by a certificate signed by an authorized representative, approved by the Consulting Engineer and filed with the Trustee stating that the moneys in the Reserve Fund and insurance proceeds, if any, available therefore are insufficient to meet such emergency; and,
- Paying all or any part of the cost of any capital improvements to the System.

5.2 ROADWAY AND MAINTENANCE

5.2.1. 183A

As a result of the FY 2024 inspections, additional investigations are recommended for FY 2025 along 183A Turnpike near the Scottsdale Drive underpass due to evidence of water seepage through the retaining wall and water ponding in the median. The investigation is expected to cost $200,000.

A pond repair and improvements are recommended in FY 2025 to repair erosion on the embankment wall and reduce future maintenance costs by lining the bottom of the detention pond with concrete riprap; the expected cost is $1M.

A lighting upgrade project is recommended in FY 2025 to replace outdated high pressure sodium lights with LED luminaires; estimated cost is $910,000.

A mill, seal and overlay on 183A Turnpike is recommended for FY 2028. This will replace the asphalt surface, ensuring the life of the pavement is met and is estimated to cost $16.5M.

5.2.2. 290E

A small and large sign replacement was recommended for the 290E corridor Phases I and II in FY 2024. This project is anticipated to be added to the FY 2025 budget and is expected to cost $3.9M.

As a result of the inspection findings in FY 2023, the Mobility Authority installed wall monitoring equipment on 290E at Harris Branch and Parmer Lane. Based on the results of the monitoring the Authority developed and implemented a project to stabilize the wall at Harris Branch. Continued monitoring at both locations is recommended through FY 2025; the expected cost is $30,000.

As the Mobility Authority's system expands additional equipment, covered storage, and laydown areas are needed at the 290E maintenance yard. An expansion of the asphalt paved laydown yard and a storage building are recommended to accommodate the additional equipment, materials, and winter weather treatment material storage. The project is estimated to cost $1.5M.

Phases I and II of the 290E corridor are scheduled to receive a MBGF upgrade in FY 2025 with an expected cost of $1.6M. The proposed safety improvement project will install new MBGF end treatments.

A mill, seal and overlay on 290E is recommended for FY 2028. This will replace the asphalt surface, ensuring the life of the pavement is met and is estimated to cost $1M.

5.2.3. SH 71 EXPRESS

Replacement of pedestrian railing along the SH 71 Express shared use path is recommended in FY 2025 due to vandalism; the costs are estimated at $470,000.
A mill, seal, and Type C overlay on SH 71 Express is tentatively scheduled for FY 2027 as a preventative measure to replace the asphalt surface, ensuring the useful life of pavement is met and is estimated to cost $3.5M.

A small sign replacement project is tentatively scheduled for FY 2028 to maintain the retroreflectivity and legibility of the signs along the corridor. The project is estimated to cost $670,000.

5.2.4. SH 45 SOUTHWEST

SH 45 Southwest pavement surface consists of a PFC which serves as a best management practice (BMP) to satisfy stormwater runoff commitments. This surface is anticipated to need replacement in FY 2029 and is estimated to cost $12.8M.

5.2.4. SYSTEMWIDE

In addition to wall monitoring on 290E and 183A Turnpike, a wall monitor program for the remainder of the system is recommended in FY 2025 at a cost of $500,000.

The Mobility Authority is scheduled to purchase a replacement maintenance vehicle in FY 2025 at a cost of $65,000.

5.3 OPERATIONS

Connected Vehicle Roadside Units provide wireless communications from roadside infrastructure to vehicles enabled with On Board Units. Improved communication with these vehicles is recommended through the installation of such units on 290E, SH 71 Express, and 183 South corridors in FY 2025 at an expected cost of $1.4M. Roadside units are recommended for the 183 North Mobility Project in FY 2026 at an estimated cost of $440,000.

The Mobility Authority is replacing and upgrading its electronic toll system on system corridors through FY 2027. It is expected that replacements and the associated costs, will occur in the future as shown in Table 11, below.

Table 11: Summary of Toll System Replacement

PROJECT	FY2025	FY2026	FY2027
SH 45 Southwest Toll System Replacement	$1,843,000		
183 South Toll System Replacement			$11,730,000
183A Turnpike Toll System Replacement	$4,808,000	$5,210,000	

Roadway information may be better communicated to Mobility Authority customers through additional dynamic message signs along the 183A corridor. The installation of dynamic message signs is recommended to occur in FY 2026 and is estimated to cost $1.9M.

AtkinsRéalis recommends the Mobility Authority install lane violation detection equipment along the future 183 North Mobility Project. Such equipment is estimated to cost $1.7M and is suggested for inclusion in FY 2026 planning.

6.0 Recommendations

6.1 OVERVIEW

The Mobility Authority is mandated by State law, as well as by the terms of the Master Trust Indenture, to maintain a safe highway facility in sound condition and good working order. An effective maintenance policy contributes significantly to ensuring a safe highway for System users, as well as preserving the investment.

Based on the findings of the annual visual inspections as well as the inventory and condition assessment, the current maintenance program that has been implemented should be continued to effectively secure and maintain the overall condition of each asset. The continued efforts by the Mobility Authority to maintain the roadways, bridges, roadside appurtenances, toll plazas and buildings have kept the overall condition of the Mobility Authority assets in good repair.

6.2 183A TURNPIKE RECOMMENDATIONS

6.2.1. ROUTINE MAINTENANCE

AtkinsRéalis recommends that the Mobility Authority continue to implement the routine maintenance as budgeted and scoped through the PBMC. Deficiencies found were outlined in Section 2.2 of this report.

6.2.2. R&R PROJECTS

In order to continue proper maintenance, repair, and operation of the corridor, the following projects are recommended for the 183A Turnpike:

Scottsdale Drive Underpass Water Seepage Investigation
Additional investigations near the Scottsdale Drive underpass due to evidence of water seepage through the retaining wall and water ponding in the median is recommended for FY 2025.

Pond Repairs
A pond repair and improvements project is recommended in FY 2025 to repair erosion on the embankment wall and reduce future maintenance costs by lining the bottom of the detention pond with concrete riprap.

183A Lighting Upgrade
A lighting upgrade project is recommended in FY 2025 to replace outdated high pressure sodium lights with LED luminaires.

183A Mill, Seal, and Overlay Project
A mill, seal and overlay on 183A Turnpike is recommended for FY 2028. This will replace the asphalt surface, ensuring the life of the pavement is met.

6.3 290E RECOMMENDATIONS

6.3.1. ROUTINE MAINTENANCE

AtkinsRéalis recommends that the Mobility Authority continue to implement the routine maintenance as budgeted and scoped through the PBMC. Deficiencies for the 290E corridor noted were outlined in Section 2.3 of this report.

6.3.2. R&R PROJECTS

In order to continue proper maintenance, repair, and operation of the corridor, the following projects are recommended for 290E:

290E Small and Large Sign Replacement Project
A small and large sign replacement is recommended for the 290E corridor Phases I and II in FY 2025.

Wall Stabilization and Monitoring – Harris Branch Parkway and Parmer Lane
As a result of the inspection findings in FY 2023, the Mobility Authority installed wall monitoring equipment on 290E at Harris Branch and Parmer Lane. Based on the results of the monitoring the Mobility Authority developed and implemented a project to stabilize the wall at Harris Branch Parkway. Continued monitoring at both locations is recommended through FY 2025.

290E Maintenance Yard Expansion
As the Mobility Authority's system continues to expand, there is a need for additional equipment, covered storage, and laydown areas at the 290E maintenance yard. An expansion of the asphalt paved laydown yard and a storage building are recommended to accommodate the additional equipment, materials, and winter weather treatment material storage.

290E Phase I and II MBGF Fence Upgrade
Phases I and II of the 290E corridor are scheduled to receive a MBGF upgrade in FY 2025. The proposed safety improvement project will install new MBGF end treatments.

290E Mill, Seal, and Overlay
A mill, seal and overlay on 290E is recommended for FY 2028. The project will consist of replacement of the asphalt surface to ensure the life of the pavement is met.

6.4 SH 71 EXPRESS RECOMMENDATIONS

6.4.1. ROUTINE MAINTENANCE

AtkinsRéalis recommends that the Mobility Authority continue to implement the routine maintenance as budgeted and scoped through the PBMC. Section 2.4 identified deficiencies found during the fall 2023 inspections.

6.4.2. R&R PROJECTS

In order to continue proper maintenance, repair, and operation of the corridor, the following projects are recommended for SH 71 Express:

SH 71 Pedestrian Railing Replacement
Due to vandalism, replacement of pedestrian railing along the SH 71 Express shared use path is recommended in FY 2025.

SH 71 Mill, Seal, and Type C Overlay Project
A mill, seal, and Type C overlay on SH 71 Express is tentatively scheduled for FY 2027 as a preventative measure to replace the asphalt surface, ensuring the useful life of pavement is met.

SH 71 Small Sign Replacement
A small sign replacement project is tentatively scheduled for FY 2028 to maintain the retroreflectivity and legibility of the signs along the corridor.

6.5 SH 45 SOUTHWEST RECOMMENDATIONS

6.5.1. ROUTINE MAINTENANCE

AtkinsRéalis recommends that the Mobility Authority continue to implement the routine maintenance as budgeted and scoped through the PBMC. Section 2.5 identified deficiencies found during the fall 2023 inspections.

6.5.2. R&R PROJECTS

To continue proper maintenance, repair, and operation of the corridor, the following project is recommended for SH 45 Southwest:

45 Southwest PFC Replacement Project
The pavement surface of 45 Southwest consists of a PFC which serves as a BMP to satisfy stormwater runoff commitments. Replacement of the PFC surface is anticipated for FY 2029.

6.6 SYSTEMWIDE RECOMMENDATIONS

To continue proper maintenance, repair, and operation of the system, the following systemwide projects are recommended:

Systemwide Wall Monitoring Program
In addition to wall monitoring on 290E and 183A Turnpike, a wall monitoring program for the remainder of the system is recommended in FY 2025.

Replacement Maintenance Vehicle
The Mobility Authority is scheduled to purchase a replacement maintenance vehicle in FY 2025.

6.7 TOLL OPERATIONS RECOMMENDATIONS

To continue proper maintenance, repair, and operation of the ITS and tolls system, the following ITS and toll operations projects are recommended:

Connected Vehicle Roadside Units
Connected Vehicle Roadside Units provide wireless communications from roadside infrastructure to vehicles enabled with On Board Units. Improved communication with these vehicles is recommended through the installation of such units on 290E Toll, 71 Express, and 183 South corridors in FY 2025 at an expected cost of $1.4 million. Roadside units are recommended for the 183 North Mobility Project in FY 2026.

Electronic Toll System Replacement
The Mobility Authority is replacing and upgrading its electronic toll system on 183A Turnpike, SH 45 Southwest, and 183 South through FY 2027.

183A Dynamic Message Signs
Roadway information may be better communicated to Mobility Authority customers through additional dynamic message signs along the 183A corridor. The installation of dynamic message signs is recommended to occur in FY 2026.

Lane Violation Detection Equipment - 183 North Mobility Project
AtkinsRéalis recommends the Mobility Authority install lane violation detection equipment along the 183 North Mobility Project for inclusion in FY 2026 planning.

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