

March 28, 2014

Mike Heiligenstein  
Executive Director  
Central Texas Regional Mobility Authority  
3300 N. IH-35, Suite 300  
Austin, Texas 78705

**Re: 2014 Annual Report of Conditions – 183A Turnpike / Manor Expressway**

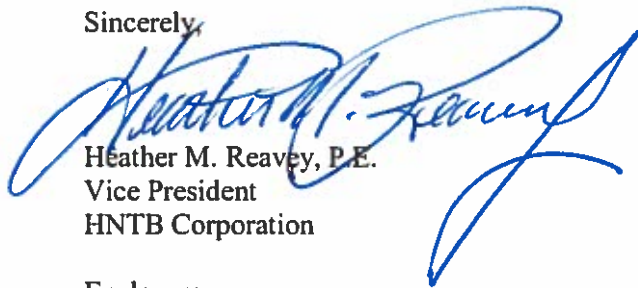
Dear Mr. Heiligenstein:

We are pleased to submit the 2014 Annual Report of Conditions for the 183A Turnpike and Manor Expressway. This joint report sets forth our findings as to the condition of the 183A Turnpike and Manor Expressway, as well as our recommendations of proper maintenance, operation, and repair of the facilities during 2014-2015.

To determine the physical condition of the roadways, structures, and related facilities and equipment, inspections of the facilities were performed. In November 2013, HNTB conducted a visual inspection of all portions of the 183A Turnpike and in January 2014 Atkins conducted a similar inspection of the Manor Expressway. Bridges are inspected by the Texas Department of Transportation (TxDOT) every two years per applicable federal requirements in accordance with the National Bridge Inspection Program (NBIP) and the findings of the most recent NBIP inspections were reviewed and are reflected in this report for both facilities. The following report summarizes the conditions observed and are fully reported in the 2014 Annual Detailed Inspection Report transmitted to the Mobility Authority's Director of Engineering.

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

Sincerely,



Heather M. Reavey, P.E.  
Vice President  
HNTB Corporation



Alastair Miller  
Principal Project Director  
Atkins

Enclosure

Copies to: W. Burford, CTRMA  
B. Chapman, CTRMA  
File



**CENTRAL TEXAS**  
**Regional Mobility Authority**

**2014 Annual Report of Conditions**  
**183A Turnpike – HNTB**  
**Manor Expressway - Atkins**

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# 183A Turnpike



## INTRODUCTION



183A Turnpike

The Central Texas Regional Mobility Authority (Mobility Authority) is responsible for the 183A Turnpike - a roadway facility stretching 11.6 miles from RM 620 to CR 276 in Williamson County. The first phase of the 183A Turnpike opened to traffic on March 3, 2007, to relieve congestion and enhance mobility. The second phase opened to traffic on April 6, 2012. The 183A Turnpike is a critical link in the highway network serving an area experiencing tremendous development and economic growth. The operational demands placed on the 38 bridges, numerous ancillary structures, and miles of roadway that make up the 183A Turnpike require that the Mobility Authority maintain a high level of maintenance to ensure that the facility remains in sound condition and good working order. With the constant wear on the facility and the need for the prevention of deterioration due to aging, it is essential that the facility have a planned and effectively executed program of maintenance and repair.

In accordance with the terms of Section 712 of the Master Trust Indenture, the Mobility Authority shall require the General Engineering Consultant (GEC) to make an inspection of the System, at least once in the Fiscal Year following the Substantial Completion of the initial Project (the 183A Turnpike) funded with Bond Obligations and in each Fiscal Year thereafter. The System is currently comprised of the 183A Turnpike and the Manor Expressway Phase I Project. This report addresses only the 183A Turnpike.

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

- i. its findings as to whether the System has been maintained in good repair, working order, and condition;
- ii. its advice and recommendations as to the proper maintenance, repair, and operation of the System during the ensuing Fiscal Year; and
- iii. 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.

## INSPECTION OF FACILITIES



183A Turnpike mainlanes from the Scottsdale Drive Overpass

In compliance with the requirements of the Master Trust Indenture, HNTB Corporation conducted a visual inspection of the entire 183A Turnpike in November 2013. The inspection covered all portions of the 183A Turnpike facility including: pavement; edging and curbing; various walls; cut sections and embankments; pedestrian bridges; roadway lighting; drainage structures; signs and pavement markings; interchanges, including toll plazas, Field Operations Building, ramps, and equipment; and other facilities, such as shared use path and sidewalks, within the 183A Turnpike Right-of-Way.

The level of inspection which forms the basis for this report is a general visual observation. The opinions, statements, and recommendations made in this report are based solely on conditions revealed by this visual inspection. No representation or warranty is made that all defects have been discovered or that defects will not appear later.

A 183A Turnpike Detailed Inspection Report of the inspection findings is transmitted separately to the Mobility Authority's Director of Engineering.

## ANNUAL REPORT OF CONDITIONS

The statement of conditions of the toll road facility and the recommendations in this report are based on the findings of the above-noted visual inspections and a review of current operating practices and organization. This report sets forth conclusions and recommendations concerning the condition, maintenance, repair, and operation of the 183A Turnpike and its various facilities; the amount of money necessary for the proper maintenance, repair, and operation of the toll road during the ensuing Fiscal Year (2015); and the amount of funds available in the Renewal and Replacement Fund.

There were no major ongoing construction activities on the 183A Turnpike during the 2013 Fall inspection period. The 183A Phase II Extension Project opened to traffic on April 6, 2012. This project also included a 4.7 mile extension of the 183A Shared Use Path along 183A Turnpike from RM 1431 to Hero Way. This extension was opened to the public on January 18, 2013. There was minor construction along the southbound frontage road north of RM 1431 for the adjacent Costco development. The impact to the 183A frontage road was the addition of three driveways, reconstruction of portions of the 183A Shared Use Path, new curb and gutter, repaving, restriping, and associated erosion control and traffic control activities.

Within the past year, an extension of Scottsdale Drive was constructed to the east side of the 183A Turnpike. This extension of Scottsdale Drive will provide access to Scottsdale Crossing, a new development that will include residential, retail, and office space. The first phase of

Scottsdale Crossing, which primarily consists of single family homes, is currently under construction. To accommodate new traffic generated from the development, a new right turn lane was constructed along the northbound frontage road. It will be maintained by the Mobility Authority.

The 2013 Fall inspection indicates that the 183A Turnpike has generally been maintained in good repair, working order, and condition. However, there are areas that require attention. The non-tolled asphalt frontage roadway that was constructed under the 183A Phase I project is in need of milling and overlay in addition to other minor items requiring repair. Identified items are noted in the following sections.

## 1. ANNUAL VISUAL INSPECTIONS

The annual visual inspection of the Mobility Authority's 183A Turnpike facilities was completed in November 2013. This inspection was made for the purpose of evaluating the general condition of the Mobility Authority's assets and identifying any deficiencies that might require further attention. The degree of inspection for this report consists of general visual observations and is not based on detailed in-place testing unless noted specifically. The opinions, statements, and recommendations in this report are based solely on conditions observed during the inspection.

### 1.1 ROADWAYS

The visual inspections consist of general visual observations, revealing areas where the existing conditions of these roadways require attention.

For the purpose of this report, the existing roadway conditions were rated and are grouped by the following categories:



183A Turnpike at South Brushy Creek

- **Pavement and Shoulders** – condition of pavement, shoulders, curbs and curb inlets, and their associated joints.
- **Riprap** – condition of riprap structures and their associated joints, including concrete slope protection, flumes, and abutment slopes.
- **Drainage** – Deficiencies associated with inadequate drainage at roadside inlets, culverts, pipes, grates, flumes, and weep holes.
- **Signs** – conditions associated with mainlane and ramp signing (not including signing at toll plazas), trailblazers, and route markers.
- **Striping & Delineation** – condition of striping, pavement graphics, raised reflective pavement markings, and delineation.

- **Concrete Barriers** – condition of concrete barriers and bridge rail.
- **Guardrail & Attenuation** – condition of metal beam guard fence (MBGF) and its components, terminal anchors, single guardrail terminals (SGT), and various crash attenuation systems.
- **Coating** – conditions such as peeling, absent, or damaged coatings on concrete traffic barrier, concrete traffic rail, or other coated surfaces.
- **Fencing** – condition of chain-link, barbed wire, and ornamental fencing at the ROW, or within maintenance limits.
- **Lighting** – conditions associated with ramp lighting structures and its components.
- **Retaining Walls** – condition of the various retaining wall systems including wall face, foundation, joints, panels, coping, top and toe of slopes, and backfill.
- **Landscape Areas** – condition of the various landscaped areas, plantings, streetscape elements and other surface treatments.
- **Ponds** – condition of the pond berms, sedimentation basins, sand filtration basins, concrete retaining walls, block retaining walls, riser structures, inlet and outlet structures, splitter boxes, manholes, riprap, and access ramps

A summary of the condition of the 183A Turnpike is described as follows:

During its sixth year of operation, the 183A Turnpike continues to provide a well-maintained route to and from northwest Williamson County, connecting to downtown Austin and other destinations. The pace of new developments has been increasing along the corridor with several developments currently being planned and some under construction that will utilize the 183A Turnpike. As growth continues, more vehicles are expected to travel on the 183A Turnpike, thereby requiring increased levels of maintenance within the corridor.

#### **Asphalt Pavement:**

The 2013 Fall visual inspection did not identify any major deficiencies that affect the safety and operations of the facility. However, there were various areas within the asphalt pavement and shoulders along the frontage roads that will require substantial corrective maintenance. The most common deficiency identified was longitudinal cracking primarily along the joints or along the lane lines which varied in severity from minor to severe, followed by fatigue cracking at various locations along both the northbound and southbound frontage roads. Although not as common, there were locations identified where rutting, raveling, debonding, and transverse cracking were prevalent.

The section of southbound frontage road from RM 1431 north to the nearest entrance ramp was resurfaced during the course of the annual inspection, in conjunction with the construction of the adjacent Costco development. New curb and gutter, inlets, pavement marking, and landscaping were also constructed in this section of frontage road. The condition of this section of pavement after the resurfacing is very good.

#### **Concrete Pavement:**

The concrete pavement sections appear to be in good condition with no apparent major deficiencies. The primary issue observed during the visual inspection was minor transverse cracking in the concrete pavement within the mainlanes at several locations and minor cracking and spalling at several joints. The transverse cracking and spalling locations do not require repairs at this time. These locations will continue to be monitored in future annual inspections.



**Curb and Gutter:**

The curb and gutter along the corridor is also primarily in good condition. There are however, isolated areas of cracking and spalling that have been identified for required repair.

**Concrete Barrier Rail:**

The Single Slope Traffic Rail (SSTR) throughout the project is in good condition overall. However, there are a few isolated sections with significant cracks or damage that are unsightly. It is not believed that the function of the rail is compromised, but because it is visually unappealing, efforts should be taken to repair the rail within the next year.

**Striping and Delineation:**

The striping along the northbound and southbound frontage road is in fair condition with a majority of the pavement markings experiencing fading and cracking. The markings along the mainlanes are in good condition with some fading at the ramp gores. There are areas along the corridor where pavement markings should be replaced. The concentration of these areas lies primarily outside the limits of the newly constructed 183A Phase II Extension Project and exist where older pavement markings remain from the original 183A Phase I construction. As a maintenance measure, the striping should be replaced in these areas.

**Shared Use Path:**

The Shared Use Path (SUP) runs along the southbound frontage road from Hero Way to RM 1431, where it crosses along the north side of RM 1431 and continues along the east side of the 183A Turnpike to its termination at the Brushy Creek Regional Trail at South Brushy Creek. During the 2013 Fall Inspection, the SUP was found to be in very good condition.

**Detention/Water Quality Ponds:**

The 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. The most common issues noted were erosion of the pond berms where water entered the pond, clogging of the outlet riser pipe holes, trash buildup, and some outfall pipes not being properly graded to drain.

Overall, the 183A Turnpike continues to operate sufficiently on a daily basis, but is experiencing normal wear and tear that will require maintenance and repairs to continue to serve as designed.

## 1.2 BRIDGES

All of the 183A Turnpike bridges were last inspected and evaluated in October 2013 and January 2014, in accordance with the National Bridge Inspection Program (NBIP) by TxDOT which occurs every two years per federal requirements. The resulting reports were provided to the Mobility Authority and serve as the basis for the comments and recommendations for the Bridge portion of this report.



Scottsdale Drive Bridge over 183A Turnpike Mainlanes

The existing bridge conditions were rated and are grouped by the following categories:

- **Deck** – condition of the deck surface, its associated joints, rail, sidewalks/medians, striping, and drainage on top of the bridge structure.
- **Substructure** – condition of columns, bents, abutments, foundations, and riprap.
- **Superstructure** – condition of concrete beams, beam connections and bearings.
- **Channel** – condition of the stream or creek being crossed by the bridge
- **Culverts** – condition of culvert and associated items
- **Approaches** – condition of the approach slabs, rail leading up to the bridge, guard fence, and retaining walls at the bridge abutments
- **Miscellaneous** – information about vertical clearances under the bridge
- **Traffic Safety** – description of approach rails and impact attenuators

A summary of the bridge inspection reports for the 183A Turnpike is provided in the 183A Turnpike Detailed Inspection Report.

The pedestrian bridges were not inspected by TXDOT and were thus included in the GEC's annual inspection. There are four pedestrian bridges along the shared use path within the 183A Turnpike Corridor. These bridges were found to be in good condition with some minor wear and tear of substructure elements.

Based on a review of the most recent inspection reports and visual observations, the 183A Turnpike bridges, including those for the shared use path, remain in good condition. There are no significant deficiencies noted in the 2013 and 2014 NBIP Reports.

## 1.3 RETAINING WALLS

The retaining walls on the project consist of mainly Mechanically Stabilized Earth (MSE) walls. There are also concrete noise walls adjacent to neighborhoods in the Phase I segment of the

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.

The 2013 Fall visual inspection did not identify any major deficiencies that affect the safety and operations of the facility. The majority of the defects noted were minor cracking of panels, water stains on the face of the walls, cracked mow strip, and minor scratches and chips at the bottom of the walls, believed to be from mowing operations. The only significant deficiency noted was at soil nail walls 19 and 20, at the Scottsdale Drive bridges. There were a number of vertical cracks on the wall panels, many with white, brown, or black stains at the crack. These walls should be monitored closely over the next couple years. Additional drainage may be required to help remedy the issue.

## 1.4 BUILDINGS

The inspection – which consists of general visual observations – revealed areas where the existing conditions of these facilities require attention.

For the purpose of this report, the existing building conditions are grouped by the following categories:



183A Turnpike Field Operations Building

### 1. Architectural

- a) **Building Exterior** – condition of walls, glazing, decks, stairs, handrails, sealants, soffits, doors, paint, and signage.
  - b) **Building Interior** – conditions of the lobby, finishes, stairs, doors, restrooms, security system, and ceiling tile.
  - c) **Roof** – condition of the surface condition, seams, expansion joints, and access.
  - d) **Drainage** – condition of the roof drains, secondary drainage, gutters, downspouts, and edge flashing.
  - e) **Site** – condition of the ramps, rails, lighting, retaining walls, screen walls, landscaping, irrigation, and parking.
2. **Structural** – condition of the foundation, ground floor slab, grade beams, walls, elevated floor slabs, roof, columns, and joints.
  3. **Mechanical** – condition of cooling and heating systems, air handlers, exhaust fans, ductwork, piping and insulation.
    - a) **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.
    - b) **Fire Protection Systems** and backflow preventers.
  4. **Electrical** – condition of the primary transformer, step-down transformer, electrical room, wiring, conduits, emergency power, and communication systems.

With the implementation of video-tolling and conversion to an all-electronic toll collection system (ETC) on the 183A Turnpike, the ultimate use of the existing Field Operations Building is now intended to be a Tolls and Traffic Operations Center. Operation of the all-ETC system has significantly reduced the maintenance requirements for the toll system infrastructure facilities.

A summary of the Mobility Authority's building and plazas elements, together with their associated general condition, are described in the 183A Turnpike Detailed Inspection Report.

#### **1.4.1. MAINLANE PLAZA AT PARK STREET**

**Field Operations Building** – Overall, the mainlane plaza facilities at Park Street generally are in very good condition. The interior of the Field Operations Building (FOB) was being renovated at the time of inspection. The most significant deficiencies noted were expired inspection certificates for fire extinguishers and elevator, exposed wiring near the air conditioner condenser unit, and clearance around the fire hydrant not meeting the minimum required by the Cedar Park Fire Marshal. The Mobility Authority is coordinating with the local fire marshal to determine the necessary steps to make the fire hydrant compliant.

**Toll Plaza and Access Walkway** – There were no significant defects noted on the toll plaza or access walkway.

It is noted that, with the conversion to a “cashless” all ETC toll collection system, all toll booths at the Mainlane Plaza at Park Street were deactivated, equipment removed, and were secured. The service connections were terminated and the toll booths removed and transported to a new location by a receiving toll agency in 2012.

#### **1.4.2. RAMP PLAZAS AND TOLL SYSTEMS EQUIPMENT STRUCTURES (ILP) AT BRUSHY CREEK ROAD**

The ramp plaza facilities are in overall good condition. The most common deficiencies noted were exposed wires in the ILP enclosures.

The toll booths at the Brushy Creek Road Ramp Plazas remain in place. With the conversion to a “cashless” all ETC toll collection system, the toll booth at each plaza has been deactivated, some non-essential equipment removed, and the toll booth has been secured. Efforts continue to potentially remove the booths; however, until the booths are removed, they should be protected and periodically inspected.

#### **1.4.3. SECTION 9 TOLL SYSTEMS EQUIPMENT STRUCTURES (ILP)**

The Section 9 ILP Enclosure Structures on both the northbound and the southbound roadways are in overall good condition. The main comment noted was that there is exposed wire in multiple locations in the ILP enclosure structures.

#### **1.4.4. MAINLANE PLAZA AT SCOTTSDALE DRIVE**

**Toll Plaza** – There were no significant defects noted on the toll plaza.

**ILP Enclosure Structures** – The ILP Enclosure Structure on the northbound roadway is in overall good condition. There were no significant defects noted during inspection.

#### **1.4.5. RAMP PLAZA AT THE NORTHBOUND EXIT TO SCOTTSDALE DRIVE**

The ILP Enclosure Structure at the Northbound Exit to Scottsdale Drive is in overall good condition. No significant deficiencies were found.

#### **1.4.6. RAMP PLAZAS NORTH OF CRYSTAL FALLS PARKWAY**

The Crystal Falls Parkway ILP Enclosure Structures on both the northbound and the southbound roadways are in overall good condition. There were no significant defects noted.

#### **1.4.7. MAINTENANCE STORAGE YARD**

The Maintenance Storage Yard at the Brushy Creek Road interchange 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 along with an area for pallets of solid de-icing agents. This facility, together with the Field Operations Building, meets the immediate needs for storage of equipment and materials for the 183A Turnpike. The facility remains in generally good condition with adequate space for the orderly storage of materials.

This facility meets the immediate needs of the Mobility Authority's maintenance operations with its storage area. As the Mobility Authority's Toll Road System and associated maintenance needs develop and expand, particularly in light of the implementation of additional toll road projects, planning has begun for a comprehensive Maintenance Program and associated facilities to best meet the Agency's future maintenance requirements.

### **1.5 TOLL COLLECTION SYSTEM**

The basic components for the Toll Collection System (TCS) are the Toll Collection System Infrastructure, the Toll Collection System Operations and Maintenance, the Customer Service Center, and the Violation Processing Center. The TCS is fully interoperable with all Texas toll roads so that ETC customers from other cities, such as Houston and Dallas, can use the Mobility Authority's system and vice versa. Violation processing and collections, as well as the operation and maintenance of the toll collection systems, are provided through private contracts.

The traffic growth that the 183A Turnpike had been experiencing over the past six years is indicative of the widespread acceptance of electronic tolling by the traveling public. Advances in technology have improved toll violation enforcement, reduced operating costs, and improved auditing abilities.

#### **1.5.1. TOLL COLLECTION SYSTEMS INFRASTRUCTURE**

The toll system infrastructure required to accommodate the TCS consists of various components at each remote tolling location including, but not limited to:

- Special Reinforced Pavement Section;
- Retaining Walls and Copings;
- Drainage Features;

- Civil Site Work, including Grading, Access Driveways, and Fencing;
- Toll gantries, including foundations and gantry structures;
- ILP Equipment Enclosures, environmental protection and climate controls for housing the electronic equipment;
- Conduit and ground boxes providing connections between the ILP's and the ETC Lane equipment installations;
- Power and network communication services up to the location of the ILP enclosures;
- Emergency Generators and associated fuel tanks; and
- Signing, pavement markings, traffic barriers and other roadway appurtenances required at each remote tolling location.

The visual inspection of the toll system infrastructure indicates that the primary components remain in very good condition. The item that should be addressed is the exposed wires in the ILP Enclosures. The only other notable deficiency is the fences that do not appear to be grounded. Due to the small amount of effort necessary for these repairs, it is recommended that they be addressed in 2014-2015. Efforts should continue to keep all components clean, well maintained, and secure for the Toll Collection System.

### **1.5.2. TOLL COLLECTION SYSTEMS OPERATIONS AND MAINTENANCE**

The 183A Turnpike uses a computerized all-electronic toll collection system (TCS) similar in make-up and functionality to those used on other toll roads in Texas, including electronic toll collection (ETC) using automatic vehicle identification and classification technology, a Violation Enforcement System (VES) with an integrated camera and triggering system to capture referenced digital images of license plates of those vehicles that are "Pay-By-Mail". License plates on these vehicles are captured by cameras, and the registered vehicle owner is sent a bill for the toll, plus a processing fee.

The entire TCS is operated and maintained under a separate Maintenance Contract by the Mobility Authority's Systems Integrator, Schneider Electric, formerly known as Telvent USA Corporation. The TCS is equipped with a Remote On-Line Management System (ROMS) that monitors all elements, and Schneider Electric provides a staff of engineers and technicians available at all times to ensure the TCS remains fully functional.

### **1.5.3. CUSTOMER SERVICE CENTER**

The Mobility Authority contracts with the members of the Texas Statewide Interoperability Task force for Customer Service Center (CSC) services for its customers. The local CSC facility, developed and administrated by the Texas Department of Transportation (TxDOT), is located at 12719 Burnet Road, Austin, Texas. Expansion of Mobility Authority's TCS to serve the Mobility Authority's current and future projects includes coordination of appropriate interfaces with the various CSCs. Appropriate communications links between the various toll facilities on the Mobility Authority Toll Road System and the Mobility Authority Administrative Offices, the existing Field Operations Building, and the Violation Processing Center were part of the requirements of the design/implementation work for the 183A Project.

#### **1.5.4. VIOLATION PROCESSING CENTER**

The Violation Processing Center (VPC) is located in a separate facility at 8325 Tuscan Way, Austin, Texas, and it is being administrated by the Municipal Services Bureau, Inc. under contract to the Mobility Authority. Development of Mobility Authority's TCS also includes coordination and design of appropriate interfaces with the VPC. Appropriate communications links between the various toll facilities on the Mobility Authority Toll Road System and the Mobility Authority Administrative Offices, the existing Field Operations Building, and the various CSCs are part of the requirements of the design/implementation work for projects within the System.

## **2. RECOMMENDATIONS**

Based on the findings of the annual visual inspections 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 contract maintenance personnel to maintain the roadways, bridges, roadside appurtenances, toll plazas, and building have kept the overall condition of the Mobility Authority assets in very good condition. An inventory of the spare toll equipment will be performed in late-2014 after the Manor Expressway is opened to traffic.

### **2.1 RECOMMENDATIONS FROM ANNUAL VISUAL INSPECTIONS**

Based on the 2013 Fall annual visual inspections, it is recommended that the Mobility Authority continue to carry out an effective maintenance program, utilizing a combination of public interlocal agreements and private contractors, as appropriate, to ensure that the 183A Turnpike facility continues to be maintained in sound condition and good working order.

#### **2.1.1. ROADWAYS**

No major roadway deficiencies have been identified during the 2013 visual inspection period that would negatively affect current safety and operations of the facility. Based on the 2013 Fall visual inspection, the concrete pavement sections of the 183A Turnpike mainlanes remain in good condition. There was only one defect observed during inspection; some large spalls are developing on the West edge of the northbound entrance ramp just north of New Hope Drive. Since this area is on the edge of the roadway and does not carry traffic, this area should be monitored during 2014-2015 if it is not repaired.



Concrete pavement spalling at northbound entrance ramp just north of New Hope Drive

There are a few isolated sections of Single Slope Traffic Rail (SSTR) along the northbound mainlanes of the 183A Turnpike that are significantly cracked or damaged and, though they do not negatively affect the safety or functionality of the facility, they are unsightly and should be repaired within the next year. Some examples are shown below.



Northbound mainlane north of  
Avery Ranch Boulevard



Northbound mainlane on south end of  
Spanish Oak Creek Bridge

Substantial repairs will be required along the northbound and southbound frontage roads. The most significant deficiencies noted during the 2013 inspections were longitudinal and fatigue cracking in the asphalt pavement on the frontage roads. Repairs to the frontage roads are planned to occur in 2014. Pavement markings on the frontage roads will also be restored as part of this work. There are instances of normal wear and tear throughout the facility, such as cracking and chipping of concrete of curbs and barriers; however, these are relatively isolated and do not affect the daily function of the 183A Turnpike. The remainder of the deficiencies identified during the annual inspection should be monitored to ensure that more serious conditions do not develop. As surrounding planned developments become a reality, and traffic volumes increase, continued attention and maintenance on the 183A Turnpike is essential to ensure proper operation.



**Contract Maintenance Operations:** The Mobility Authority is mandated by State Law, as well as by the terms of the 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.

Routine maintenance activities for the mainlane roadways, frontage roads, and shared use path are being effectively and efficiently accomplished under an interlocal agreement (ILA) with TxDOT as part of a 3-year Performance-Based Maintenance Contract that began in November 2012. The interlocal agreement with TxDOT provides for various routine maintenance activities performed in conjunction with an overall roadway maintenance contract for other toll road segments in the region, thus taking advantage of efficiencies and economies of scale. Landscape maintenance is performed under a separate, private contract. The current landscape maintenance contract expires in June 2015 and may be extended for one additional year upon mutual agreement of the parties. The Mobility Authority also has an on-call Traffic Signals and Illumination Contract that is used for operational improvements and is a backup contract if the Performance-Based Maintenance contractor is not performing satisfactorily. The current Signals and Illumination contract expires in November 2014 and may be extended for one additional two-year period.

The quality of the maintenance work is dictated by appropriate TxDOT standards supplemented by particular standards established by the Mobility Authority for the 183A Turnpike, and it is monitored by Mobility Authority representative inspections. The table below presents a general breakdown of the anticipated maintenance activities for the 183A Turnpike. It is anticipated that, during the term of the interlocal agreement with TxDOT, the Mobility Authority will continue to evaluate alternative strategies for performance of maintenance on their developing Toll Road System.

The quality of the work, dictated by specific levels of service standards as part of the interlocal agreement, ensures uniform quality along the entire length of the 183A Turnpike corridor.

<b>Routine Maintenance Activity</b>	<b>Public/ Private</b>	<b>Contract Arrangement</b>	<b>Term</b>
Mowing Guardrail & Attenuators Drainage Litter Pickup/Debris Removal Misc. repairs Pavement Crack Sealing Minor Asphalt Repair Signing and delineators Striping and Pavement Markings Signals/Roadway Illumination Graffiti Removal/Painting Hazardous Materials Response	Private / Public	Interlocal Agreement with TxDOT	10/2012 – 11/2015
Landscape Maintenance	Private	Contract Services with Maldonado Nursery & Landscaping	Contract Term Expires 06/2015 – Currently May Be Extended For One Additional Year
Signal and Illumination Contract (On-Call)	Private	Contract Services with Austin Traffic Signal Construction Co., Inc.	Contract Term Expires 11/30/14– Currently May Be Extended For An Additional Two-Year Period

Routine Maintenance Activity	Public/Private	Contract Arrangement	Term
Toll Collection Systems Maintenance and Operation	Private	Contract Services with Schneider Electric	03/2008 – No Expiration – Mobility Authority Must Give 90 Days Notice of Non-Renewal of Contract
Hazardous Materials Response	Public/Private	City of Leander, City of Round Rock and Williamson County - No Contract Interlocal Agreement with TxDOT	NA

**Erosion and Drainage Issues** – During the 2013 Fall inspection, instances of erosion and ponding water were observed throughout the 183A Turnpike. Some of the most significant areas are pictured below.

In cases of channel erosion where a rock bottom is not evident, it is recommended that the channel be re-graded and lined with erosion control matting until adequate vegetation can be established.

Above retaining wall 20, there is a gap between a storm sewer outfall and the retaining wall flume. The soil is eroded in this area. It is recommended that concrete rip rap be placed to direct flow from the outfall to the flume.



Observed channel erosion



Erosion above retaining wall 20



Erosion of decorative rock at the north end of the South Brushy Creek Pedestrian Bridge



Erosion in channel along southbound mainline south of South Brushy Creek

At the north end of the South Brushy Creek Pedestrian Bridge, the concrete mow strip has been undermined by erosion, resulting in a washing away of decorative rocks. This is believed to have been the result of an inlet being clogged across the street and excess flow crossing the street and eroding the landscaping areas. At this time, the inlet has been cleaned and should be kept clear through regular maintenance activities. The eroded area should be reconstructed and monitored to assure no further issues develop.

**Pavement Condition, Striping and Markings** – During the 2013 Fall inspection period, the primary deficiency identified was longitudinal and fatigue cracking along the asphalt paved frontage roads between RM 1431 north to the intersection with US 183. Below are some examples of areas from the inspection.



Observed longitudinal cracking



Observed longitudinal cracking



Observed fatigue cracking



Observed fatigue cracking

The striping along the northbound and southbound frontage road is in fair condition. The pavement markings are visible but are experiencing fading and cracking along a majority of both the northbound and southbound frontage roads. The highest concentration of fading occurs at the approaches to each intersection with cracking occurring throughout.

The markings along the mainlanes are in good condition with some fading, but isolated primarily at the ramp gores. As a maintenance measure, the striping should be replaced in these areas. Any substandard striping will be addressed under the Performance Based Maintenance Contract ILA with TxDOT.



Observed pavement marking cracking



Observed pavement marking fading

**Detention/Water Quality Ponds** – The ponds were found to be in generally good condition and no significant defects were found that would inhibit the normal functioning of the ponds as designed. The most common issues noted were erosion of the pond berms where water entered the pond, clogging of the outlet riser pipe holes, trash buildup, some outfall pipes not being properly graded to drain, and lack of vegetation on berms under bridges. The clogging of the outlet riser pipe could lead to the ponds not being as effective as intended. It is recommended that these structures be regularly cleaned to maintain proper flow from sedimentation basins to sand filtration basins. The other defects noted do not affect pond performance, but decrease the aesthetic appeal and should therefore be addressed during regular maintenance activities.

### 2.1.2. BRIDGES

In accordance with applicable Federal law, the National Bridge Inspection Program (NBIP) was performed by TxDOT in October 2013 for the original 183A Phase I bridges and in January 2014 for the 183A Phase II Extension Project bridges. The 183A Shared Use Path bridges are not inspected under NBIP.

Based on a review of the results of the recent bridge inspections, there are no significant deficiencies which require attention or repair at this time. There are a few instances of scour at bridge piers, but it was determined they do not warrant additional attention at this time.

### 2.1.3. RETAINING WALLS

The 2013 Fall visual inspection did not identify any major deficiencies that affect the safety and operations of the facility. The majority of the defects noted were minor cracking of panels, water stains on the face of the walls, cracked mow strip, and minor scratches and chips at the bottom of the walls, believed to be from mowing operations. The only significant deficiency noted was at soil nail walls 19 and 20, at the Scottsdale Drive underpass. There were a significant number of vertical cracks on the wall panels, many with white, brown, or black stains at the crack. These walls were visually observed by two structural engineers and it seems there is water pressure behind these walls, possibly due to the drain pipe behind the wall being clogged. It is recommended that this drain be located and cleaned. The structural integrity of the walls is not believed to be compromised; however the walls should continue to be monitored.

#### **2.1.4. BUILDINGS**

The Field Operations Building (FOB) and the mainline Toll Plaza and Access Walkway facilities at Park Street are in generally good condition. Many sections of the FOB have been repainted as part of ongoing 183A Phase I warranty work, which has corrected minor visual defects.

Based on a review of the results of the buildings inspection, a few deficiencies deserve attention at this time at the FOB. An existing fire hydrant has a small retaining wall built adjacent to both sides of it. The fire hydrant is therefore not compliant with the Cedar Park Fire Department Site Development Standards which requires a 36-inch minimum clearance around all sides of fire hydrants. The wall may need to be partially reconstructed for the hydrant to be in compliance with the standards. The Mobility Authority is coordinating with the local fire marshal on an appropriate solution. Additionally, there is a small section of exposed electric wires exiting from the decommissioned server room condenser unit supply. Since these wires are no longer in use, they should be removed. Other minor deficiencies that warrant attention include expired fire extinguisher and elevator certificates of compliance.

#### **2.1.5. TOLL COLLECTION SYSTEM**

The 2013 Fall visual inspection did not identify any major deficiencies that affect the safety and operations of the facility. The items that should be addressed are the exposed wires in the ILP Enclosures. The other items noted at the ILP Equipment Enclosures are the same as in last year's report and include expired fire extinguisher certificates of compliance. Most do not require immediate attention; however, due to the small amount of effort necessary for these repairs, it is recommended that they be addressed in 2014-2015. Efforts should continue to keep all components clean, well maintained, and secure for the Toll Collection System.

### **2.2 ON-GOING INITIATIVES**

#### **2.2.1. ROADWAYS**

**Pavement Management** – The Mobility Authority has taken steps to develop a pavement management system to improve the effectiveness of the funds used to maintain their pavement network and to ensure that bond covenants are met. The development of the pavement management system utilizes the PAVER software, which utilizes inspection data and pavement condition scoring to develop performance models for forecasting future Renewal & Replacement needs. Continued implementation of a pavement management system as part of an annual asset inspection and assessment would allow the Mobility Authority to proactively monitor the condition of its pavements and demonstrate the optimal timing for funding.

#### **Preventative Maintenance Programs:**

- **Skid Testing** – Skid Testing was previously recommended to be performed on a bi-annual cycle. However, because the 183A Phase II Extension Project remains in like-new condition, it does not warrant skid testing at this time. It is recommended that skid testing be performed on the original 183A Turnpike pavement sections in

the relatively near future. In the meantime, the facility should continue to be monitored for any wet-weather safety issues.

- **Joint and Crack Sealing** – Crack Sealing of the asphalt pavement in the corridor was performed in February 2014. Any additional necessary joint and crack sealing will be covered as part of the Performance Based Maintenance Contract ILA with TxDOT. The maintenance contractor is expected to fill all cracks greater than 0.5” wide and 1.0” deep with fine aggregate prior to the application of sealant.
- **Rideability and Pavement Profiling** – The rideability of the pavement system will be tested annually as part of the Performance Based Maintenance Contract ILA with TxDOT. If any 0.1 mile sections are discovered with an International Roughness Index (IRI) value above the established intervention threshold the maintenance contractor is required to present a corrective action plan. If approved, the contractor must complete the corrective action plan within 30 days.

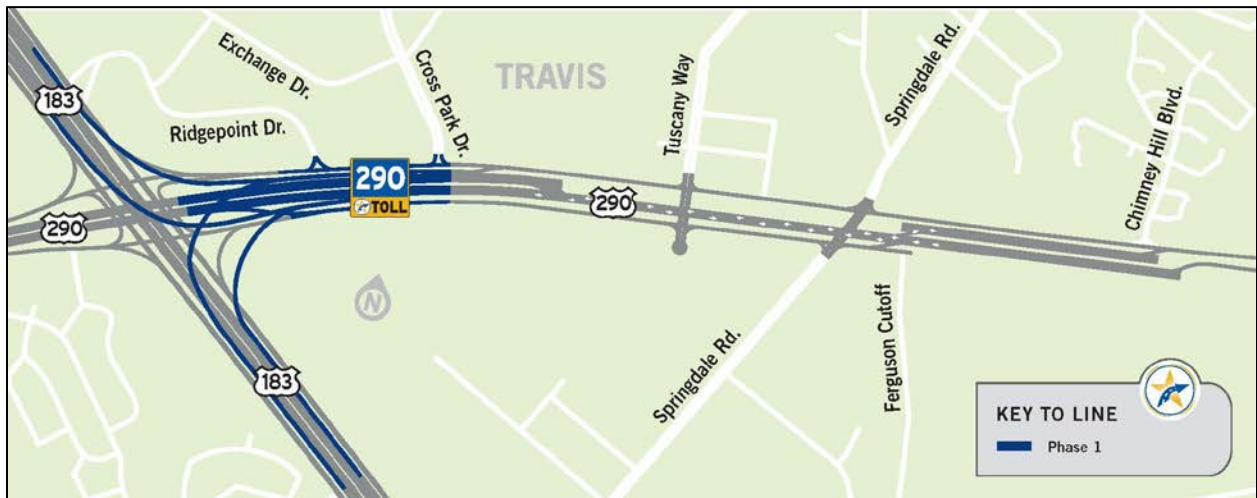
# Manor Expressway



# INTRODUCTION

Manor Expressway is a 6.2-mile limited access toll road being developed and constructed by the Central Texas Regional Mobility Authority (Mobility Authority) to relieve congestion on US 290 East. The all-electronic corridor, which will be three lanes in each direction, begins at US 183 and ends just east of Parmer Lane. Phase I of Manor Expressway, which was opened to traffic in December 2012, consists of four tolled direct connectors and associated pavement at the US 183 interchange that provide direct access to and from the Manor Expressway mainlanes. Phase 2 will extend the Manor Expressway limits from Phase I at the US 183 interchange to the eastern limits east of SH 130. Phase II also includes an interim milestone that provides grade-separated intersections at Tuscany Way and Springdale Road so that users of the direct connectors constructed as part of Phase I can bypass the existing signals at those intersections. The interim milestone limits within Phase II opened to traffic as part of the Phase I opening in 2012. Construction of Phase II is currently underway and is scheduled to be completed in 2014.

The 2014 annual report will only describe the findings for Phase I of Manor Expressway. Phase II of Manor Expressway, including the interim milestone portion that is currently open to traffic, will be included in future annual reports upon construction completion of the full corridor.



Manor Expressway Phase I

Manor Expressway will serve to link important roadways in the region including US 183, IH-35 and SH 130 Toll Road and provide a critical evacuation route from the Gulf Coast. Combined with the construction of the flyover interchange at US 183, Manor Expressway will increase safety and travel speeds along US 290 between Austin and Manor. The construction of the expressway is also expected to foster economic growth opportunities in the area, generating 2,220 new jobs and supporting major employers like Samsung and Applied Materials.

In order for Manor Expressway to continue to serve as one of the region's most critical transportation corridors, the Mobility Authority must maintain a high level of performance for the expressway. The facility must remain in good working condition, such that the safety of users is ensured. Appropriate measures need to be taken to inspect the facility on a regular basis and plan maintenance and repair activities to prevent deterioration of the facility.



As per Section 712 of the Master Trust Indenture, the Mobility Authority shall require the General Engineering Consultant (GEC) to conduct an inspection of the “System”, which is currently comprised of the 183A Turnpike and Manor Expressway Phase I, at least once in the fiscal year following the substantial completion of the initial project funded with bond obligations and in each fiscal year thereafter.

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

- i. Its findings as to whether the System has been maintained in good repair, working order, and condition;
- ii. Its advice and recommendations as to the proper maintenance, repair, and operation of the System during the ensuing fiscal year; and
- iii. 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.



Mainlanes under the westbound US 290E to southbound US 183 Direct Connector

## INSPECTION OF FACILITIES

In compliance with the requirements of the Master Trust Indenture, Atkins North America, Inc. conducted a visual inspection of Manor Expressway Project Phase I in January 2014. The inspection covered all portions of the Phase I facility including: pavement, roadside elements, retaining walls, underdeck lighting, drainage structures, signs and sign structures, pavement markings and associated buildings and equipment. Bridge inspections are being conducted by the Texas Department of Transportation (TxDOT), and a summary of their findings will be included in this report.

This report is based on a general visual inspection and the opinions, statements, and recommendations are made with respect to the conditions revealed by this visual inspection. No representation or warranty is made that all defects have been discovered or that defects will not appear later.

A Manor Expressway Phase I Detailed Inspection Report of the inspection findings is transmitted separately to the Mobility Authority's Director of Engineering.

## **ANNUAL REPORT OF CONDITIONS**

This report includes conclusions and recommendations concerning the condition, maintenance, repair, and operation of Manor Expressway Phase I; the amount of money necessary for the proper maintenance, repair, and operation of the toll road during the ensuing Fiscal Year (2015); and the amount of funds available in the Renewal and Replacement Fund.

Major construction is ongoing on the adjacent Phase II project and although minor activities such as final striping and painting work were ongoing within the Phase I limits, there are no adverse impacts on the operation of the facility within Phase I. Phase II has been under construction since July 2011 and will be completed in 2014.

The results of this year's annual inspection indicate that Manor Expressway Phase I is in "like new" condition and is being maintained in an overall excellent condition. No major deficiencies were identified. There were minor deterioration of certain roadway elements and building components. For instance, certain aspects of the pavement striping has begun to deteriorate. In general, most of the corrective measures are being addressed through the TxDOT Performance Based Maintenance Contract (PBMC), where TxDOT is providing maintenance services for Mobility Authority roadways and facilities under an interlocal agreement that was executed in November 2012. Some items will be addressed by the Manor Expressway roadway construction contractor.

### **1. ANNUAL VISUAL INSPECTIONS**

The annual visual inspection of the Mobility Authority's Manor Expressway Phase I was completed in January 2014. The inspection was conducted to assess the general condition of roadways, buildings, overhead sign structures, retaining walls and toll gantries along the facility and identify any deficient elements to be restored to good working condition. The assessment is based on general visual observations made in the field without conducting any detailed in-place testing. It should also be noted that the observations reflect the condition of the feature(s) on the day the inspection was performed. Many of the deficiencies noted may have been corrected subsequent to the inspection as part of the maintenance program currently administered through TxDOT. As such, the opinions, statements, and recommendations in this report are based solely on conditions observed during the inspection.

## 1.1 ROADWAYS

The visual inspections consist of general visual observations to determine the physical and functional condition of a specific feature and to identify any deficiencies that may require attention.



Manor Expressway Phase I approaching westbound toll gantries

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 1-1** below.

Table 1-1: Roadway Inspection Elements

Category	Item	Description of Inspection
Pavement	Pavement & shoulders	General conditions of pavement and shoulders
	Curb/Gutter	Deficiencies such as settlement, cracking, and displacement.
	Joints	Deficiencies including joint cracking, faulting, and surface deterioration etc.
Roadside	Culverts	Inadequate drainage at culverts, flumes, and weep holes
	Ditches	Erosion, silting, presence of debris, lack of vegetation etc.

	Grates/Inlets/Piping	Inadequate drainage at pipes, grates and inlets
<b>Miscellaneous</b>	Signs	Conditions associated with mainlane and ramp signing
	Pavement Graphics	Condition of pavement signs
	Pavement Markings	Wear and tear of striping and markings
	Raised Markers	Condition of raised pavement markers used in edge and skip lines
	Delineators	Condition of retro-reflective pavement markings
	MBGF	Condition of metal beam guard fence (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 ROW, or within maintenance limits.
	Lighting	Conditions associated with lighting structures and its components and bridge underdeck lights.

As previously noted, the results of this year's annual inspection indicate that Manor Expressway Phase I are in like new condition and are being maintained in an overall excellent condition. A summary of the visual findings within each category are provided below.

### **Pavement**

The concrete pavement sections along the corridor appear to be in good condition with no apparent major deficiencies. In addition, no deficiencies were identified in the joints or curb and gutter along the corridor.

### **Roadside:**

The roadside visual inspection did not identify any major deficiencies that affect the safety and operations of the facility. In general, most roadside features were in very good condition with no problems or were newly constructed. Only a few elements were identified as minor problems, with the most common deficiency being some debris along ditches and in drainage inlets. A list of roadside deficiencies is being provided to the Mobility Authority to forward to the PBMC maintenance contractor to be addressed.

## **Miscellaneous**

In general, most deficiencies were minor in nature, however, certain elements of the pavement striping on the facility is fading and requires repair to prevent further deterioration. The pavement striping deficiency will be addressed by the Manor Expressway roadway construction contractor. A list of miscellaneous deficiencies is being provided to the Mobility Authority to forward to the PBMC maintenance contractor to be addressed.

As previously indicated, many of the deficiencies noted may have been corrected subsequent to the inspection as part of the maintenance program currently administered through TxDOT. For example, on the day the inspection was performed, it was noted that an attenuator on the westbound direct connector that splits between northbound US 183 and southbound US 183 was out of service from being hit. Since that date, this deficiency has been addressed.

## 1.2 **BRIDGES**

All bridges that were constructed with the Manor Expressway Phase I project were inspected and evaluated in December 2012, in accordance with the National Bridge Inspection Program (NBIP) by TxDOT which occurs every two years per federal requirements. The resulting reports were provided to the Mobility Authority and serve as the basis for the comments and recommendations for the bridge portion of the report.



Westbound Manor Expressway bridges at the US 183 northbound and southbound split

The existing bridge conditions were rated and are grouped by the following categories:

- Deck – condition of the deck surface, its associated joints, rail, sidewalks/medians, striping, and drainage on top of the bridge structure.
- Substructure – condition of columns, bents, abutments, foundations, and riprap.

- Superstructure – condition of concrete beams, beam connections and bearings.
- Coating – peeling or absent coating on railing, substructure, slope protection, or beam surfaces.
- Erosion – deficiencies caused by runoff such as erosion along abutment slopes.
- Riprap – condition of riprap structures and their associated joints, including concrete slope protection, flumes, and abutment slopes.
- Drainage – conditions associated with inadequate drainage at abutment slopes, inlets, pipes, grates, flumes, and weepholes.

A summary of the bridge inspection reports for Manor Expressway Phase I is provided in the Manor Expressway Phase I Detailed Inspection Report.

Based on a review of the most recent inspection reports and visual observations, Manor Expressway Phase I bridges are in very good condition.

### 1.3 RETAINING WALLS

To ensure the health of the system, both new and existing retaining walls along Manor Expressway Phase I were inspected and evaluated. The various components of retaining walls were rated and grouped in categories described in **Table 1-3**.

Table 1-3: Retaining Wall Inspection Components

Item	Description of Inspection
Wall	Condition of wall face, coping, foundations, joints, panel finishes and CIP sections.
Earth	Conditions of the top slope, toe slope, backfill, CIP, and MSE

A summary of the retaining wall inspection reports are provided in the Manor Expressway Phase I Project Detailed Inspection Report.



Retaining wall along the westbound Manor Expressway to southbound US 183 departure

Based on visual observations, both new and existing retaining walls on the Manor Expressway Phase I project are in very good condition. There were no significant deficiencies noted during the inspection. However, minor settlement at the abutment face and spalling at abutment coping was found at certain locations along the existing TxDOT retaining wall on the departure end of the westbound Manor Expressway to northbound US 183 direct connector. A list of deficiencies is being provided to the Mobility Authority to forward to the PBMC maintenance contractor to be addressed.

#### 1.4 BUILDINGS

The inspection of building facilities serving the Manor Expressway Phase I project revealed areas where the existing conditions of these facilities require maintenance actions. The inspections covered two In-Lane Processor (ILP) buildings, which house various electronic toll collection equipment, located at the westbound and eastbound tolling locations at the east ends of the direct connect flyovers. An emergency generator site that serves both the westbound and eastbound tolling location is located on the north side of the westbound frontage road, just west of Cross Park Drive.



ILP building located at the Ramp 1 toll location

For the purpose of this report, the existing building conditions for the ILP buildings are grouped in the categories described in **Table 1-4**.

Table 1-4: Building Inspection Elements

Element	Description of Inspection
<b>Building Exterior</b>	Condition of wall system, sealants, paint, glazing, and doors
<b>Roofing</b>	Surface condition, seams, expansion joints, and access
<b>Building Interior</b>	Conditions of finishes, windows, doors, security system, and paint
<b>Site Improvements</b>	Conditions of the sidewalks, ramps/rails, building-mounted and pole-mounted lighting, fences, site drainage, drainage structures, and parking.
<b>Structure</b>	Condition of the general construction job, foundation, ground floor slab, roof structure, expansion joints
<b>Electrical</b>	Condition of the electrical room, wiring/conduit, emergency generator, primary lighting, GFCI, power provider/reported adequacy and UPS



<b>Mechanical Systems</b>	Condition of cooling and heating systems, air handlers, outside air provision, exhaust fans, ductwork/insulation, reported capacity adequacy
<b>Fire Protection</b>	Condition of cooling and alarm system, smoke detectors and heat detectors



Emergency generator that serves both Ramps 1 and 2 toll locations

A summary of the Mobility Authority's ILP buildings and the associated general conditions are described in the Manor Expressway Phase I Inspection Report. Overall, the ILP building facilities at both the eastbound and westbound ramps are in very good condition. The common minor deficiencies noted at both locations are associated with exterior lighting.

- **Building Exterior**  
No deficiencies were observed on the exterior finishes or surfaces.
- **Roofing**  
The surface, seams, expansion joints and roof at both ILP building locations are in good condition.
- **Building Interior**  
The exit sign light was not functioning for the Ramp 1 building. Also, no inspection tags were present with the fire extinguishers in both ILP buildings for Ramps 1 and 2.
- **Site Improvements**  
Exterior light for both ILP buildings were not functioning. Further investigation is recommended to restore lights to full functionality. Minor issues of debris present in the parking lots at both locations were also noted during inspection.

- **Structure**  
No deficiencies were observed in the structural components of ILP buildings.
- **Electrical Systems**  
The electrical systems appear to be in good condition excepting a GFCI switch that could not be reset in the ILP building at the westbound ramp.
- **Mechanical Systems**  
The mechanical systems at both ILP buildings are in good working order.
- **Fire Protection**  
No major deficiencies noted at this time.

A list of deficiencies is being provided to the Mobility Authority to be addressed. Building-related items are not covered under TxDOT PBMC.

## 1.5 OVERHEAD SIGN BRIDGES

Overhead sign bridges, which includes toll gantries, sign structures, and monotube sign structures were visually inspected for deficiencies associated with their foundations, anchor bolts, base plates, column supports and arm chord connections and members.



Overhead sign structure approaching westbound direct connectors

The inspection did not reveal any major deficiencies in the condition and operation of the toll gantries and sign structures. Minor deficiencies, including members of a column support have begun to rust in areas where the galvanized finish has been rubbed.

A list of deficiencies is being provided to the Mobility Authority to forward to the PBMC maintenance contractor to be addressed.

## 1.6 TOLL COLLECTION SYSTEM

The basic components for the Toll Collection System (TCS) are the Toll Collection System Infrastructure, the Toll Collection System Operations and Maintenance, the Customer Service Center, and the Violation Processing Center. The TCS is fully interoperable with all Texas toll roads so that ETC customers from other cities, such as Houston and Dallas, can use the Mobility Authority's system and vice versa. Violation processing and collections, as well as the operation and maintenance of the toll collection systems, are provided through vendors that support the Mobility Authority.

### 1.6.1. TOLL COLLECTION SYSTEMS INFRASTRUCTURE

The toll system infrastructure required to accommodate the TCS consists of various components at each remote tolling location including, but not limited to:

- Special Reinforced Pavement Section;
- Retaining Walls and Copings;
- Drainage Features;
- Civil Site Work, including Grading, Access Driveways, and Fencing;
- Toll gantries, including foundations and gantry structures;
- ILP Equipment Enclosures, environmental protection and climate controls for housing the electronic equipment;
- Conduit and ground boxes providing connections between the ILP's and the ETC Lane equipment installations;
- Power and WAN communication services up to the location of the ILP enclosures;
- Emergency Generators and associated fuel tanks; and
- Signing, pavement markings, traffic barriers and other roadway appurtenances required at each remote tolling location.

As discussed in Section 1.4 (Buildings), the visual inspection of the building and civil site aspects of the toll system infrastructure indicates that the primary components are in very good condition. In addition, as discussed in Section 1.5 (Overhead Sign Bridges), the toll gantries are in very good condition. Other elements associated with the toll infrastructure listed above were found to be in very good condition. Efforts should continue to keep all components clean, well maintained, and secure for the Toll Collection System.

### 1.6.2. TOLL COLLECTION SYSTEMS OPERATIONS AND MAINTENANCE

Manor Expressway Phase I uses a computerized all-electronic toll collection system similar in make-up and functionality to those used on other toll roads in Texas, including electronic toll collection (ETC) using automatic vehicle identification and classification technology, a Violation Enforcement System (VES) with an integrated camera and triggering system to capture referenced digital images of license plates of

those vehicles that are “Pay-By-Mail”. License plates on these vehicles are captured by cameras, and the registered vehicle owner is sent a bill for the toll, plus an administration fee.

The entire TCS is operated and maintained under a separate Maintenance Contract by the Mobility Authority's Systems Integrator, Schneider Electric, formerly known as Telvent USA Corporation. The TCS is equipped with a Remote On-Line Management System (ROMS) that monitors all elements, and Schneider Electric provides a staff of engineers and technicians available at all times to ensure the TCS remains fully functional.

### **1.6.3. CUSTOMER SERVICE CENTER**

The Mobility Authority contracts with the members of the Texas Statewide Interoperability Task force for Customer Service Center (CSC) services for its customers. The local CSC facility, developed and administrated by the Tolls Operation Division (TOD) of TxDOT, is located at 12719 Burnet Road, Austin, Texas. Expansion of Mobility Authority's TCS to serve Manor Expressway includes coordination of appropriate interfaces with the various CSCs. Appropriate communications links between the various toll facilities on the Mobility Authority Toll Road System and the Mobility Authority Administrative Offices, the future Traffic/Tolls Management Center (TMC) at the 183A Field Operations Building, and the Violation Processing Center (VPC) were part of the requirements of the design/implementation work for the Manor Expressway Project.

### **1.6.4. VIOLATION PROCESSING CENTER (VPC)**

The VPC is located in a separate facility at 8325 Tuscan Way, Austin, Texas, and it is being administrated by the Municipal Services Bureau, Inc. under contract to the Mobility Authority. Development of Mobility Authority's TCS also includes coordination and design of appropriate interfaces with the VPC. Appropriate communications links between the various toll facilities on the Mobility Authority Toll Road System and the Mobility Authority Administrative Offices, the future TMC at the existing Field Operations Building, and the various CSCs are part of the requirements of the design/implementation work for projects within the System.

## **2. RECOMMENDATIONS**

Based on the findings of the annual visual inspections 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 contract maintenance personnel, as well as the maintenance contractor performing work as part of the TxDOT PBMC to maintain the roadways, bridges, roadside appurtenances, toll plazas, and building have kept the overall condition of the Mobility Authority assets in very good condition. An inventory of the spare toll equipment will be performed in late-2014 after the Manor Expressway is opened to traffic.

## 2.1 RECOMMENDATIONS FROM ANNUAL VISUAL INSPECTIONS

Based on the 2014 annual visual inspections, it is recommended that the Mobility Authority continue to carry out an effective maintenance program, utilizing a combination of public interlocal agreement and private contractors, as appropriate, to ensure that the Manor Expressway Phase I facility continues to be maintained in sound condition and good working order.

### 2.1.1. ROADWAYS

No major roadway deficiencies have been identified during the 2014 visual inspection period that would negatively affect current safety and operations of the facility. Based on the 2014 visual inspection, the concrete pavement sections of Manor Expressway Phase I are in good condition with no apparent major deficiencies; no maintenance repairs on the pavement are necessary or recommended at this time but should continue to be monitored.

There are isolated instances of roadside deficiencies through the facility, such as debris and missing barrier wall delineators; however these are relatively isolated and do not affect the daily function of Manor Expressway Phase I. It should be noted that some of the deficiencies observed have been addressed since the day of the inspection. A complete list of deficiencies have been provided to the Mobility Authority to be addressed.

All in all, the deficiencies identified during the annual inspection should be monitored to ensure that more serious conditions do not develop. As traffic volumes increase, continued attention and maintenance on Manor Expressway is essential to ensure proper operation.

Contract Maintenance Operations: The Mobility Authority is mandated by State Law, as well as by the terms of the 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.

Routine maintenance activities for the mainlane roadways are being effectively and efficiently accomplished under an interlocal agreement (ILA) with TxDOT as part of a 3-year Performance-Based Maintenance Contract that began in November 2012. The interlocal agreement with TxDOT provides for various routine maintenance activities performed in conjunction with an overall roadway maintenance contract for other toll road segments in the region, thus taking advantage of efficiencies and economies of scale. Upon completion of the full Manor Expressway project, landscape maintenance will be accomplished through an existing landscape maintenance contract. The current landscape maintenance contract expires in June 2015 and may be extended for one additional year upon mutual agreement of the parties. The Mobility Authority also has an on-call Traffic Signals and Illumination Contract that is used for operational improvements and is a backup contract if the Performance-Based Maintenance contractor is not performing satisfactorily. The current Signals and Illumination contract expires in November 2014 and may be extended for one additional two-year period.

The quality of the maintenance work is dictated by appropriate TxDOT standards supplemented by particular standards established by the Mobility Authority for Manor Expressway, and it is monitored by Mobility Authority representative inspections. The table below presents a general breakdown of the anticipated maintenance activities for Manor Expressway. It is anticipated that, during the term of the interlocal agreement with TxDOT, the Mobility Authority will continue to evaluate alternative strategies for performance of maintenance on their developing Toll Road System.

The quality of the work, dictated by specific levels of service standards as part of the interlocal agreement, ensures uniform quality along the entire length of the Manor Expressway corridor. A summary of existing maintenance contracts is provided in **Table 2-1**.

Table 2-1: Summary of Maintenance Contracts

<b>Routine Maintenance Activity</b>	<b>Public/ Private</b>	<b>Contract Arrangement</b>	<b>Term</b>
Mowing Guardrail & Attenuators Drainage Litter Pickup/Debris Removal Misc. repairs Pavement Crack Sealing Minor Asphalt Repair Signing and delineators Striping and Pavement Markings Signals/Roadway Illumination Graffiti Removal/Painting	Private/ Public	Interlocal Agreement with TxDOT	10/2012 – 11/2015
Landscape Maintenance	Private	Contract Services with Maldonado Nursery & Landscaping.	Contract Term Expires 06/2015 – Currently May be Extended for One Additional Year
Signal and Illumination Contract (On-cal)	Private	Contract Services with Austin Traffic Signal Construction Co., Inc.	Contract Term Expires 11/30/14– Currently May Be Extended For An Additional Two-Year Period
Toll Collection Systems Maintenance and Operation	Private	Contract Services with Schneider Electric	03/2008 – No Expiration – Mobility Authority Must Give 90 Days Notice of Non-Renewal of Contract
Hazardous Materials Response	Public/ Private	City of Leander, City of Round Rock and Williamson County - No Contract; Interlocal Agreement with TxDOT	NA

**Pavement Striping and Markings**– The pavement striping along the facility is visible; however, the original blacktail skip striping is experiencing fading along a majority of the corridor and should be replaced in these areas. Another deficiency that warrants attention is striping that is faded along the westbound entrance ramp. A list of deficiencies have been provided to the Mobility Authority to be addressed.



Faded black tail skip stripe



Faded white striping along westbound entrance ramp

### **2.1.2. BRIDGES**

In accordance with applicable Federal law, the National Bridge Inspection Program (NBIP) was performed by TxDOT in December 2012 for Manor Expressway Phase I bridges

Based on a review of the results of the recent bridge inspections, there are no significant deficiencies which require attention or repair at this time.

### **2.1.3. BUILDINGS**

The 2014 annual inspection revealed that the two ILP buildings on Manor Expressway Phase I are in very good condition. Based on a review of the results of the building inspection, there are a few deficiencies which deserve attention at this time. The exit sign light was not functioning for the Ramp 1 building. In addition, the exterior light for both ILP buildings were not functioning. Also, the GFCI switch could not be reset in the Ramp 1 ILP building. Other minor deficiencies that warrant attention include the presence of debris at both ILP pull-off/parking areas and inspection tags that were not present with the fire extinguishers in both ILP buildings.

### **2.1.4. RETAINING WALLS**

Based on visual observations, both new and existing retaining walls on the Manor Expressway Phase I project are in very good condition. There were no significant deficiencies noted during the inspection. However, minor settlement at the abutment face and spalling at abutment coping was found at certain locations along the existing TxDOT retaining wall on the departure end of the westbound Manor Expressway to northbound US 183 direct connector. A list of deficiencies is being provided to the Mobility Authority to be addressed.

### **2.1.5. OVERHEAD SIGN BRIDGES**

The inspection did not reveal any major deficiencies in the condition and operation of the toll gantries and sign structures. Minor deficiencies, including members of a column support have begun to rust in areas where the galvanized finish has been rubbed.

A list of deficiencies is being provided to the Mobility Authority to forward to the PBMC maintenance contractor to be addressed.

## **2.2 ON-GOING INITIATIVES**

### **2.2.1. ROADWAYS**

**Pavement Management** – The Mobility Authority has taken steps to develop a pavement management system to improve the effectiveness of the funds used to maintain their pavement network and to ensure that bond covenants are met. The development of the pavement management system utilizes the PAVER software, which utilizes inspection data and pavement condition scoring to develop performance models



for forecasting future Renewal and Replacement needs. Continued implementation of a pavement management system as part of an annual asset inspection and assessment would allow the Mobility Authority to proactively monitor the condition of its pavements and demonstrate the optimal timing for funding.

**Preventative Maintenance Programs:**

- **Skid Testing** – Since Manor Expressway Phase I is in like-new conditions, skid testing is not warranted at this time. As the facility ages, skid testing is recommended to be performed on a bi-annual cycle. In the meantime, the facility should continue to be monitored for any wet-weather safety issues.
- **Joint and Crack Sealing** – Routine joint and crack sealing will be covered as part of the Performance Based Maintenance Contract ILA with TxDOT. The Maintenance Contractor is expected to fill all cracks greater than 0.5” wide and 1.0” deep with fine aggregate prior to the application of sealant. .
- **Rideability and Pavement Profiling** – The rideability of the pavement system will be tested annually as part of the Performance Based Maintenance Contract ILA with TxDOT. If any 0.1 mile sections are discovered with an International Roughness Index (IRI) value above the established intervention threshold the maintenance contractor is required to present a corrective action plan. If approved, the contractor must complete the corrective action plan within 30 days.

# Budget



# 1. ANNUAL BUDGETS

Annual budgets are currently being prepared by the Mobility Authority for the proper maintenance, repair, and operation of the 183A Turnpike and the Manor Expressway for the coming year. These budgets, which are based on estimated cost projections, together with the factors that may influence costs during this period, will be reviewed by the GEC's as they are made available from the Mobility Authority. These budgets should take into account the recommended maintenance and repairs noted in the current 183A Turnpike and Manor Expressway Annual Report of Conditions and Detailed Inspection Reports; and they should be based on current operating practices and organization, anticipated changes in methods of operations, and changes in Mobility Authority staff and organization projected through Fiscal Year (FY) 2015.

## 1.1 ANNUAL OPERATING BUDGET

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, janitorial services, policing, and other costs associated with the operation of 183A Turnpike and the Manor Expressway. The estimated costs for the proper operation of these facilities for the coming year is based on a review of existing and future conditions, together with the factors that may influence costs during this period. The GEC's estimate that the amount necessary for both System and Non-System expenses for FY2015 to be \$12,000,000. The factors that determine the amount include the amount of utilization of consultants/vendors and the assignment of Mobility Authority personnel. The actual Annual Operating Budget will be finalized by the Mobility Authority on or before June 30, 2014.

It is our opinion that the costs projected for the operation of the 183A Turnpike and the Manor Expressway are reasonable estimations of anticipated costs for the FY2015 Annual Operating Budget. Sound management practices will be essential in operating effectively and efficiently.

## 1.2 ANNUAL MAINTENANCE BUDGET

The maintenance costs include administration costs, roadway contract maintenance activities, and other costs associated with the maintenance of the 183A Turnpike and Manor Expressway. The estimated costs for the proper maintenance and repair of these facilities for the coming year is based on a review of existing and future conditions, together with the factors that may influence costs during this period. The GEC's estimate that the sum of \$1,625,000 will be required for FY2015. The actual Annual Maintenance Budget will be finalized by the Mobility Authority on or before June 30, 2014.

It is our opinion that the costs projected for the maintenance of the 183A Turnpike and Manor Expressway are reasonable estimations of anticipated costs for the FY2015 Annual Maintenance Budget. Sound management practices and an effective program of maintenance will be essential in maintaining the facilities in good repair and working condition.

## 1.3 ANNUAL CAPITAL BUDGET

The Annual Capital Budget details the Mobility Authority's planned capital expenditures during the ensuing Fiscal Year and the portion of capital expenditures expected to be funded from the Renewal and Replacement Fund. As defined by the Master Trust Indenture, the Annual Capital Budget for each Fiscal Year includes: the expected beginning balance in the Renewal and

Replacement Fund; the amounts to be transferred by the Trustee to the Renewal and Replacement Fund from the Revenue Fund; the amount of proceeds of Obligations expected to become available during the Fiscal Year; and the desired year-end balance in the Renewal and Replacement Fund. The Annual Capital Budget should be in the amount recommended by the General Engineering Consultant.

Currently, Capital Budget expenditures in FY2015 are estimated at \$5,600,000 for the mill and overlay of the asphalt pavement on the 183A Turnpike non-tolled frontage roads. This amount includes oversight of the anticipated work. There are not any anticipated Capital Budget expenditures for the Manor Expressway. The actual Annual Capital Budget will be finalized by the Mobility Authority on or before June 30, 2014.

## **2. RENEWAL AND REPLACEMENT FUND**

The Renewal and Replacement Fund was established under the terms of the Master Trust Indenture for the purpose of paying the cost of:

- i. unusual or extraordinary maintenance or repairs not occurring annually, and renewals and replacements, including major items of equipment;
- ii. 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,
- iii. paying all or any part of the cost of any capital improvements to the System.

To finance the future needs for repair, replacement, and rehabilitation work required on the 183A Turnpike and the Manor Expressway, the cumulative amount in the Renewal and Replacement Fund should be sufficient to finance the next anticipated Renewal and Replacement Activities, projected to be approximately \$1,736,000 and tentatively scheduled for 2017.