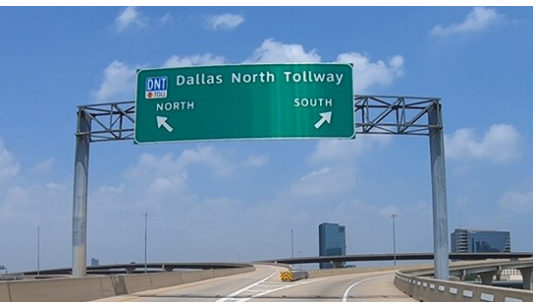
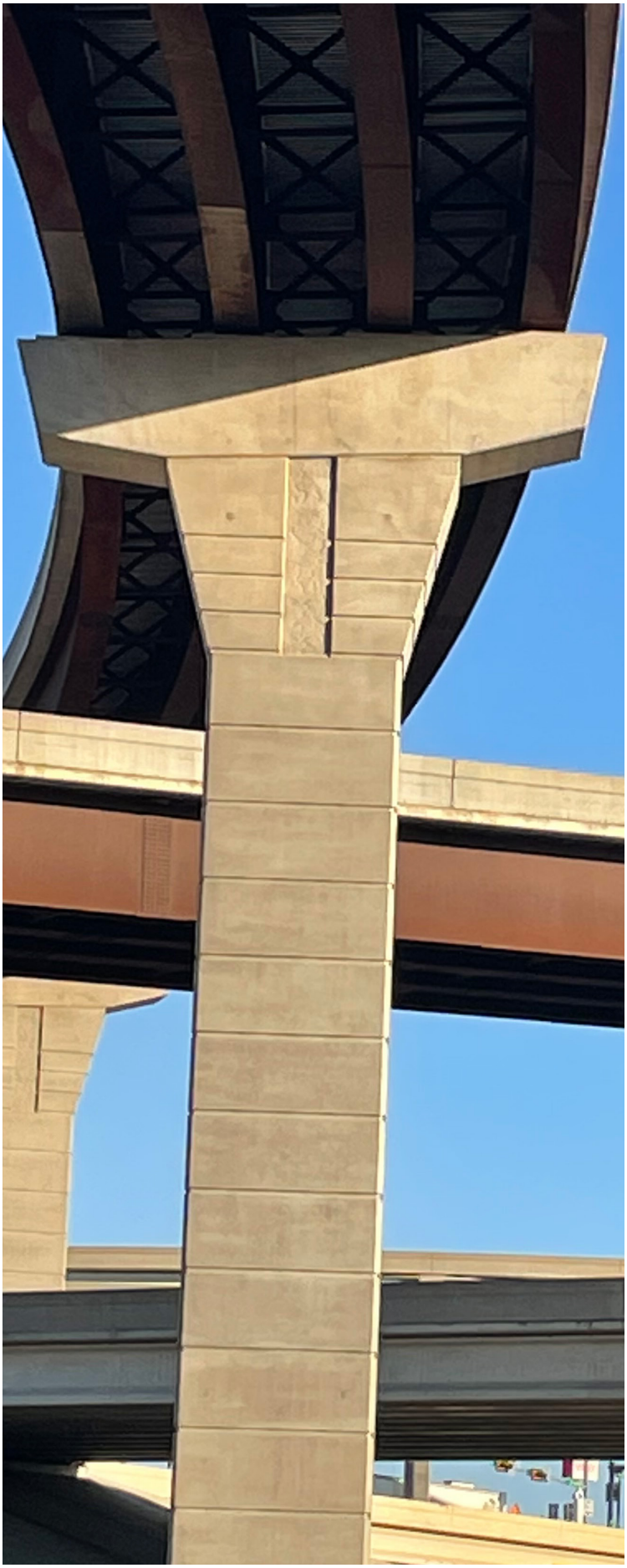
NORTH TEXAS TOLLWAY AUTHORITY

SYSTEM ANNUAL INSPECTION REPORT

Fiscal Year 2024



VRX



NTTA Board of Directors

Scott D. Levine – Chairman

Mojy Haddad – Vice Chairman

Marcus Knight – Director

Derek V. Baker – Director

Geroge “Tex” Quesada – Director

Pete Kamp – Director

John Mahalik – Director

Andy Wambsganss – Directorr

Lynn Gravley – Director

NTTA Executive Staff

James Hofmann,
CEO/Executive Director

Horatio Porter,
CFO/Assistant Executive Director of Finance

Elizabeth Tovarnak-Mow, P.E.,
Assistant Executive Director of Infrastructure

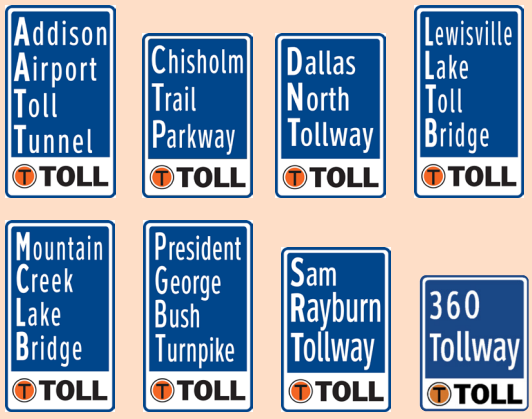
Jeffrey Dailey, P.E.,
Assistant Executive Director of Operations

Dena Stroh,
General Counsel

NTTA Mission Statement

“We are committed to providing a safe and reliable toll road system, increase value and mobility options for our customers, operate the Authority in a businesslike manner, protect our bondholders, and partner to meet our region’s growing need for transportation infrastructure.”

NTTA Toll System



September 27, 2024

James Hofmann
Executive Director
North Texas Tollway Authority
5900 W. Plano Parkway
Plano, Texas 75093

Subject: FY 2024 GEC System Annual Inspection

Dear Mr. Hofmann:

As General Engineering Consultant to the North Texas Tollway Authority and in accordance with the requirements set forth in the NTTA System Amended and Restated Trust Agreement Section 504, VRX, Inc. (VRX) is pleased to submit the Fiscal Year 2024 (FY24) System Annual Inspection Report.

VRX completed the System inspections in July 2024 and reports that the systems' tollways, bridges, tunnel, and associated facilities have been maintained in generally good repair, working order and condition. This determination is based on a general visual observation of the roadway, walls, bridges, tunnel, and facilities. Results of the observations are presented in greater detail within this report. A complete list of observations has been transmitted to the Maintenance Department under a separate cover.

VRX recommends that NTTA continue to implement the routine maintenance as budgeted and scoped, and to also implement the major maintenance projects planned for the ensuing fiscal year. Through coordination with NTTA staff and review of the anticipated Reserve Maintenance Funded (RMF) projects scheduled for FY25, the following budgets, which will be presented at the October 16, 2024, Board of Directors' meeting and subject to Board approval at the December 2024 Board Meeting, are recommended:

Operation and Maintenance Fund (OMF):	$253.6M
Reserve Maintenance Fund (RMF):	$97.5M

The overall condition of the tollways, toll bridges, toll tunnel, and associated facilities, along with the appropriate funding levels for the System operating budgets, demonstrates NTTA's commitment to maintain and operate a safe and reliable toll road system in the North Texas region.

Respectfully submitted,

Scott A. Brush, P.E.

Scott A. Brush, PE
General Engineering Consultant
Project Director

cc: Elizabeth Mow, PE, NTTA (w/1 copy)
Amitis Meshkani, PE, NTTA (w/1 copy)
Dee Runnels, NTTA (w/1 copy and electronic pdf)
Tammy Sims, PE, AtkinsRealis (w/1 copy)
File

TABLE OF CONTENTS

FIGURES

TABLES

ACRONYMS AND ABBREVIATIONS

360T	360 Tollway
AATT	Addison Airport Toll Tunnel
BRINSAP	Bridge Inventory Inspection and Appraisal Program
CIP	Cast-in-Place
CMU	Concrete Masonry Unit
COMA	Comprehensive Maintenance Agreement
COSS	Cantilever Overhead Sign Support
CR	County Road
CTP	Chisholm Trail Parkway
DNT	Dallas North Tollway
FY	Fiscal Year
GASB	Governmental Accounting Standards Board
GEC	General Engineering Consultant
HMAC	Hot Mix Asphalt Concrete
HMIP	High-Mast Illumination Pole
IH	Interstate Highway
LLTB	Lewisville Lake Toll Bridge
MCLB	Mountain Creek Lake Bridge
MLG	Mainlane Gantry
MLP	Mainlane Plaza
MMC	Maintenance Management Consultant
MRP	Maintenance Rating Program
NTTA	North Texas Tollway Authority
OMF	Operation and Maintenance Fund
OSB	Overhead Sign Bridge
OSS	Overhead Sign Structure
PGBT	President George Bush Turnpike
QMS	Quality Management System
RMF	Reserve Maintenance Fund
SH	State Highway
SRT	Sam Rayburn Tollway
TRM	Total Routine Maintenance
TxDOT	Texas Department of Transportation
US	U. S. Highway

SYSTEM MAP

NTTA System

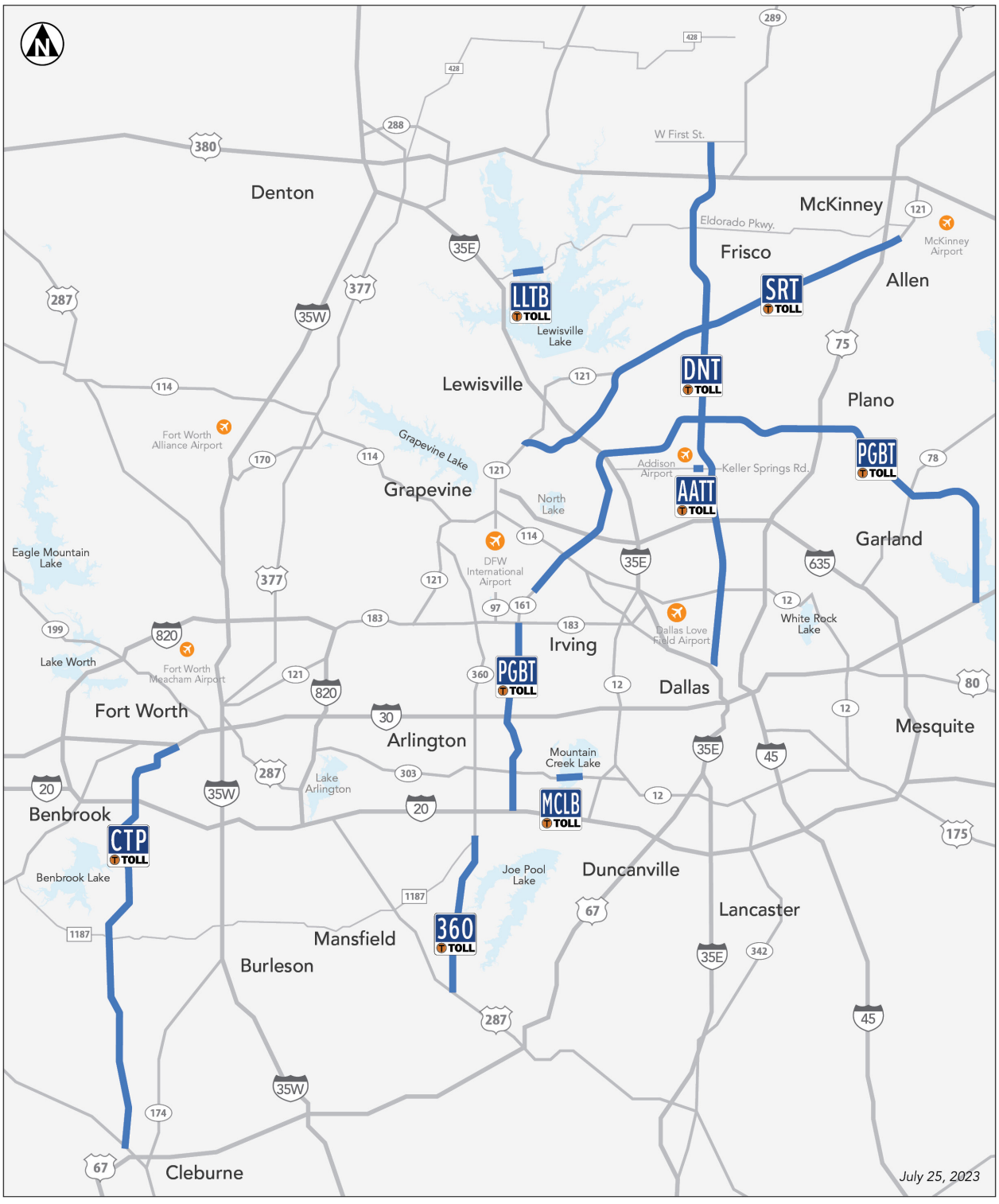


Figure 1: System Map

EXECUTIVE SUMMARY

As described in the requirements set forth in the North Texas Tollway Authority System Amended and Restated Trust Agreement Section 504, the Consulting Engineers make an inspection of the Tollway on or before the 90th day prior to the end of the fiscal year and submit a report setting forth (a) their findings whether the Tollway has been maintained in good repair, working order, and condition and (b) their advice and recommendation as to the proper maintenance, repair, and operation of the Tollway during the ensuing fiscal year and an estimate of the amount of money necessary for such purposes.

The Tollway (or System) consists of the Dallas North Tollway, President George Bush Turnpike, Sam Rayburn Tollway, Chisholm Trail Parkway, Mountain Creek Lake Bridge, Lewisville Lake Toll Bridge, Addison Airport Toll Tunnel, 360 Tollway, and associated facilities. The System encompasses much of the North Texas region and spans Dallas, Collin, Tarrant, Johnson, Denton, and Ellis Counties.

VRX, Inc. (VRX), as General Engineering Consultant, completed the inspections in July 2024 and is pleased to report that the system as a whole has been maintained in good repair, working order, and condition. This observation was based on a general visual inspection of the roadway, walls, bridges, tunnel, and facilities.

VRX recommends that NTTA continue to implement the routine maintenance as budgeted and scoped, and to also implement the Reserve Maintenance Projects planned for the ensuing fiscal year and beyond.

Working with NTTA staff, VRX has reviewed the 2025 NTTA System preliminary budget which includes the Operation and Maintenance Fund and Reserve Maintenance Fund and concurs that they are in line with major items for administrative and roadway costs. The following budgets are recommended and will be presented at the Board of Director's meeting on October 16, 2024, and subject to Board approval in December, 2024:

Table 1: Budget Recommendations

FUNDS	BUDGET
Operation and Maintenance Fund (OMF)	$253.6M
Reserve Maintenance Fund (RMF)	$97.5M

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

1.0 INTRODUCTION

1.1 Background

As the General Engineering Consultant (GEC) to the North Texas Tollway Authority (NTTA) and in compliance with the requirements set forth in the NTTA System Amended and Restated Trust Agreement Section 504, VRX, Inc. (VRX) conducted the annual visual inspection of the NTTA System (System). The assets inspected included roadways (mainlanes and frontage roads), bridges, retaining walls, tunnel, roadway appurtenances, and associated facilities. The GEC also conducts specialized inspections consisting of detailed pavement assessments and structural inspections of overhead signs and high mast illumination poles, which are performed to complement the annual inspection. The observations and findings noted should be monitored or addressed by NTTA, as necessary, to ensure the assets meet their intended life expectancy. These observations and inspections provide a basis to plan funding levels needed to maintain assets for the maintenance portion of the Operation and Maintenance (O&M) and the Reserve Maintenance Fund (RMF) for the ensuing fiscal year.

1.2 Annual Inspection Process

The GEC Annual Inspection assessed four main System elements: roadway, walls, bridges and facilities. The roadway portion of the inspection focused on the pavement, drainage structures, erosion, pavement markings, illumination, and barriers (Table 2). The wall inspection focused on panels, joints, coping, flumes, mow strips, inlets, rails, riprap, visible underdrain cleanouts, sound walls, and adjacent elements (Table 3). The bridge inspection focused on the deck, superstructure, substructure, and drainage components (Table 4). The facility inspection focused on the interior and exterior components of plaza operations, Fiber Huts, Winter Weather Operation Facilities, maintenance operation and administrative office buildings and sites. (Table 5)

Table 2: Roadway Inspection Elements

CATEGORY	ELEMENT	DESCRIPTION OF POTENTIAL OBSERVATIONS
Pavement	Travel Lanes & Shoulders	Identify distresses (spalls, joint damage, faulting or potholes) that affect the performance and ride quality
	Curb & Gutter	Identify damage such as cracks, spalls or settlement
	Concrete Barrier	Identify damage such as cracks or spalls, or alignment issues
Roadside	Inlets & Drainage Structures	Identify damage such as cracks, spalls, or settlement
	Culverts	Identify erosion at apron, spalls and cracks
	Embankment/Slopes	Identify erosion
	Landscape Beds	Identify erosion, damaged or exposed irrigation lines and damage to landscape boarders
	Pavement Markings	Identify damaged, missing or non-reflective markings
	Signage	Identify damaged, faded or non-reflective signage
	Illumination	Identify lighting not properly functioning; foundation issues or damaged/missing access panel
	Metal Beam Guard Fence	Identify damage by impact, settlement, misaligned, or erosion around posts
	Impact Attenuators	Identify damage by impact

To ensure the condition of the System, retaining walls and their associated appurtenances are inspected. The inspection covers structural and drainage elements, as shown in Table 3 below.

Table 3: Wall Inspection Elements

CATEGORY	ELEMENT	DESCRIPTION OF POTENTIAL OBSERVATIONS
Retaining Walls	Structure	Identify racked panels, cracks, spalls, backfill migration, coping displacement
	Drainage	Identify cracks or settlement in flumes, erosion adjacent to drainage structures or issues with visible cleanouts

Bridge inspections were conducted by TxDOT as part of the BRINSAP. The findings from the most recent bridge inspections are reviewed by the GEC prior to performing the supplemental inspection consisting of categories and specific features as shown in Table 4 below.

Table 4: Bridge Inspection Elements

CATEGORY	ELEMENT	DESCRIPTION OF POTENTIAL OBSERVATIONS
Bridge	Deck	Identify surface deterioration, damaged joints, drainage issues, rail cracks or spall
	Superstructure	Identify concrete beams with cracks, spalls, damaged connections, damaged or deteriorated bearings associate with concrete and steel beams
	Substructure	Identify cracks or spalls in abutment and bent caps
	Channel	Identify erosion around columns and banks
	Culverts	Identify cracks, spalls erosion on or around footings, headwalls and wingwalls
	Approaches	Identify cracks, spalls, or damage joints
	Miscellaneous	Vertical clearance signs, illumination, warning devices or utility lines

NTTA-owned office buildings, operation centers, plazas, IT buildings, and the AATT facilities that support the System were inspected. The condition inspections were broken into seven categories: (1) Architectural, (2) Mechanical, (3) Electrical, (4) Safety, (5) Gantry Building, (6) Fiber/MLG/IT Building and (7) Unique Items. Each category consists of specific features that were inspected as shown in Table 5 below.

Table 5: Facility Inspection Elements

CATEGORY	ELEMENT	DESCRIPTION OF POTENTIAL OBSERVATIONS
Architectural	Exterior/General	Identify any tripping hazards or ADA non-compliance, erosion or landscape failures, exterior sealant and joint conditions, masonry damage, rust, or corrosion, railing, fencing or signage damage
	Interior/General	Identify any issues with ADA non-compliance, evidence of leaks, damaged interior finishes, functionality of doors and hardware, and structural stability
	Roofing	Identify any issues with roofing membrane, fasteners, penetration treatments and general drainage
Mechanical	Plumbing	Identify functionality of all fixtures, observed leaks and proper drainage
	HVAC System	Identify issues of functionality, refrigerant conditions, and age-related obsolescence
Electrical	Electrical System	Identify issues of functionality and code compliance with lighting and power systems, panelboards, transformers, transfer switches and generators
Safety	Egress	Identify issues with egress routes, exit signage improper materials storage, guard rails and ladders
	Fire Protection & Alarms	Identify any issues with fire alarms and fire protection equipment
Gantry Building	Structural Elements	Identify issues with concrete or masonry damage, corrosion, rails and attenuators
	IT Support Elements	Identify issues with power, equipment mounting
Fiber/MLG/IT Building	IT Support Elements	Identify issues with insect infestation, lighting and power supply, and HVAC
	Building Structure	Identify issues with vandalism, rust, water infiltration, door and hardware
Unique Items	Fuel Stations, Geothermal Wells, Etc.	Identify functionality of project specific items such as geothermal wells

Inspections were conducted in accordance with NTTA's Project Deliver Department's Quality Management System (QMS) Manual Procedure GEC-01 (Appendix B) and involve a general visual observation and assessment of asset element features.

No detailed analysis, in-place or destructive testing was performed. The opinions, statements, and recommendations made in this report are based solely on conditions revealed by these visual observations. No representations or warranty is made that all defects have been discovered or that a defect will not appear at a later time. Nothing contained herein shall be deemed to give any third party a claim or right of action against the NTTA, its employees, the GEC, or the Maintenance Management Consultant (MMC), nor create a duty on behalf of the NTTA, its employees, the GEC or the MMC to such third party.

Items observed were recorded and rated using a five-point scale (Table 6).

Table 6: GEC Annual Inspection Rating Scale

GRADE	RATING	DESCRIPTION
M	Monitor	Asset exhibits an existing condition which warrant periodic follow-up inspection activities. Maintenance is optional at this time.
4	Good	Asset exhibits minor levels of distress or deterioration. Routine maintenance recommended.
3	Fair	Asset exhibits moderate (frequent) distress or deterioration. Maintenance required to prevent further damage to system.
2	Poor	Asset exhibits advanced deterioration or is a safety concern. Maintenance or repair required to protect public or system.
1	Critical	Asset functionality is severely impaired or threatened. Immediate repair required to protect public or system.

1.3 Description of System

The System consists of the Dallas North Tollway (DNT), President George Bush Turnpike (PGBT), Sam Rayburn Tollway (SRT), Chisholm Trail Parkway (CTP), Mountain Creek Lake Bridge (MCLB), Lewisville Lake Toll Bridge (LLTB), Addison Airport Toll Tunnel (AATT), 360 Tollway (360T) and associated facilities and serves as a vital component of the transportation system in the North Texas region (Figure 1). All tolling on the System is accomplished electronically. The System totals over 1,194 lane miles of limited access toll roads, including 624 bridges, and one tunnel.

1.3.1 Dallas North Tollway

DNT extends from Interstate 35E (IH-35E) in downtown Dallas north approximately 33 miles to W. First Street, just north of U.S. Route 380 (US 380), in Prosper. It is a convenient north-south connection for motorists traveling between Dallas, Highland Park, University Park, Addison, Farmers Branch, Plano, Frisco, and Prosper.

The high growth rate in both Collin and Denton Counties, along with input from both counties, encouraged the NTTA to widen the existing facility and also extend further north. The current widening project which extends from the Sam Rayburn Tollway to US 380 is under construction and is expected to be opened to traffic in late 2025. Extending DNT to the north will be accomplished by two projects: Phase 4A will be a 6-mile section from US 380 to FM 428 and Phase 4B will be an 8-mile section from FM 428 to Grayson County. These two projects are in the FY 2024-2028 Capital Plan for design and construction and planning and design respectively.

1.3.2 President George Bush Turnpike

PGBT extends from IH-20 in Grand Prairie to SH 183 in Irving and is approximately 11 miles. A non-tolled segment runs from SH 183 to Belt Line Road and is maintained by the Texas Department of Transportation (TxDOT). PGBT picks up at Belt Line Road in Irving and extends clockwise approximately 40 miles to Interstate 30 (IH-30) in Garland. PGBT provides a vital route through the DFW Metroplex and offers access to Grand Prairie, Irving, Carrollton, Dallas, Plano, Richardson, Sachse, Rowlett, and Garland.

1.3.3 Sam Rayburn Tollway

SRT extends for approximately 26 miles from Business SH 121 near the Denton/Dallas County line to east of US 75 in Collin County. The SRT offers access to Coppell, Lewisville, Carrollton, The Colony, Plano, Frisco, McKinney, and Allen.

1.3.4 Chisholm Trail Parkway

CTP is an approximate 28-mile corridor, extending from IH-30 in downtown Fort Worth in Tarrant County to US 67 in Cleburne which is in Johnson County. CTP offers access to Fort Worth, Burleson, and Cleburne. This limited access toll road has major interchanges located at IH-30 and IH-20.

1.3.5 Mountain Creak Lake Bridge

MCLB is an approximate two mile facility that provides an east-west crossing of Mountain Creek Lake from the Spur 303/SE 14th Street intersection in Grand Prairie to the Spur 303/Mountain Creek Parkway intersection in the Oak Cliff section of Dallas. This facility links communities in Tarrant County with those in the southern part of Dallas County and provides convenient access to businesses, recreational facilities, and other destinations in the Mid Cities area.

1.3.6 Lewisville Lake Toll Bridge

LLTB is an approximately two mile long facility that provides an east-west crossing of the northwestern arm of Lewisville Lake in Denton County. It serves as a unique landmark with a 360-foot steel truss that rises 60 feet above the roadway.

1.3.7 Addison Airport Toll Tunnel

AATT provides an approximate 3,600 foot, east-west route under Addison Airport in northern Dallas County which includes a 1,650 foot tunnel. This facility relieves congestion in the far North Dallas and Addison areas and provides an alternate route to the heavily traveled Trinity Mills and Belt Line Roads and opened to traffic in 1999.

1.3.8 360 Tollway

360T is an approximate 10-mile toll road located in Tarrant, Ellis, and Johnson Counties, extending from Green Oaks Boulevard in Tarrant County south to US 287 in Ellis County.

Table 7: Corridor Facts				
Corridor	Mainlane Miles	Frontage Road Miles	Bridges	Gantries/Plazas
DNT	200	0	111	43
PGBT	387	56	239	71
SRT	206	154	140	44
CTP	99	0	83	30
MCLB	4	0	1	2
LLTB	8	0	2	2
AATT	1	0	0	1
360T	37	41	48	10

Note: Individual corridor construction history available in Appendix C.

1.3.9 Facilities

NTTA facilities provide support for the safe and reliable operation of the System. These facilities include the Gleneagles Office Complex, the Plano Operations Center, the Frisco Operations Center, winter weather operation facilities, fiber huts, as well as roadway plaza facilities that provide various operational support functions.

1.4 Maintenance Program Overview

The goal of NTTA's Maintenance Program is to maintain a safe and reliable toll road system by proactively performing functions to preserve the useful life of the assets while delivering a high level of service to their customers.

1.4.1 Organization

The Maintenance Department is responsible for the normal day-to-day routine maintenance of the System and associated facilities. Utilizing both in-house and outsourced resources to perform routine maintenance activities, NTTA has created a check and balance in providing these services to improve efficiency and to be cost effective. The overall goal is to have approximately 50% of these services outsourced to TRM contractors.

Table 8: Maintenance Responsibilities	
CORRIDOR	MAINTAINED BY
DNT, AATT, SRT and LLTB	NTTA Staff
PGBT, MCLB and CTP	TRM Contractors
360 Tollway	COMA/TRM Contractor

Note: Tolling & ITS Equipment is maintained by NTTA Staff

TRM contracts are outlined below.

- The TRM contract for PGBT West, from IH-20 in Grand Prairie to Dickerson Parkway in Carrollton, and MCLB is outsourced to Roy Jorgensen Associates, Inc. This 6-year contract was executed in October 2019.
- The TRM contract for PGBT East, from Dickerson Parkway in Carrollton to IH-30 in Garland, is outsourced to Webber Infrastructure Management, Inc. This 6-year contract was executed in May 2023.
- The TRM contract for CTP is outsourced to Roy Jorgenson Associates, Inc. This 6-year contract was executed in October 2022.
- 360T is maintained under a Comprehensive Maintenance Agreement (COMA) with Lane-Abrams Joint Venture. The COMA has been in effect since May 2018 when 360T was opened to traffic. NTTA will take over the maintenance responsibilities at a future date to be determined.

The Project Delivery Department, along with their engineering consultants, the GEC and MMC, supports Maintenance by providing inspection findings and delivering major maintenance projects along the System. Atkins North America, Inc. (AtkinsRealis), is the current MMC and provides professional engineering services in support of maintenance responsibilities such as:

- Oversight/direction of roadway repairs by NTTA in-house forces
- Plans, specifications, and estimates of maintenance projects
- Update of capital improvement plan as necessary to preserve NTTA assets
- Identification of appropriate maintenance and repair actions and cycles to minimize deteriorating conditions of the NTTA assets

1.4.2 Maintenance Rating Program

System conditions are monitored by means of a Maintenance Rating Program (MRP) which evaluates the performance of both in-house and outsourced resources. As part of the MRP, the NTTA established acceptable levels of maintenance regardless of road type, construction history, or traffic patterns. The MRP monitors current operations and is used to identify recurring problems. This program allows for early identification of maintenance issues, increases accountability, and provides assurance that assets are being maintained adequately. Under the MRP, sample units for different asset groups (roads, bridges, and facilities) are randomly selected for the entire year. Inspections are conducted monthly on a portion of the sample units for each corridor. Individual characteristics are evaluated on Pass/Fail criteria. The resulting scores are weighted and combined for the asset groups. This total composite score is used to evaluate maintenance effectiveness on a monthly basis.

1.5 Specialized Inspections

NTTA, through the GEC, conducts specialized inspections of the pavement, overhead sign structures, and high-mast illumination poles on the System. These inspections allow for the early detection of maintenance needs and provide insight for budget projections all of which is intended to maximize the useful life of the assets. Final observations are discussed with NTTA and incorporated into their maintenance plans.

1.5.1 Pavement Management Program

As the GEC, VRX maintains a Computerized Pavement Management System (CPMS) for the NTTA. The CPMS is a tool utilized to determine current pavement condition levels and monitor trends in the performance of the pavement during its life cycle. This annual assessment allows NTTA the ability to optimize the effectiveness of roadway maintenance and it is vital to developing budgetary funding levels by predicting future pavement rehabilitation needs.

1.5.2 Overhead Sign Structure Inspection Program

The Overhead Sign Structure Inspection Program is performed in accordance with standard procedures that are consistent with previous inspection cycles at NTTA as well as with other transportation agencies. These procedures are based on the 2005 FHWA publication NHI 05-036, "Guidelines for the Installation, Inspection, Maintenance and Repair of Structural Supports for Highway Signs, Luminaires, and Traffic Signals." The Program inspects cantilever overhead sign supports (COSS), overhead sign bridges (OSB), and dynamic message signs (DMS) in addition to the structural elements of the mainlane and ramp toll gantries. The System contains 883 sign structures. The structures are inspected on a 5-year cycle, with a portion of the overall number of structures being inspected each year. The 2024 inspection consisted of 206 structures.

1.5.3 High Mast Illumination Pole Inspection Program

The High Mast Illumination Pole (HMIP) Inspection Program is primarily a visual inspection but does include Ultrasonic Testing of base weld locations, as necessary and if determined by the inspection team. NTTA owns and maintains 258 high mast illumination poles throughout the System. TxDOT guidelines for inspection of the HMIP's are followed. The program requires each pole to be inspected once every 5 years. The inspections are broken into two groups: 148 on PGBT that were inspected in 2021 and 110 on DNT, SRT and CTP inspected in 2022. All inspections are up to date with the next inspection scheduled for 2026.

1.5.4 Bridge Management Program

All bridges owned and maintained by NTTA 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 (NBIS). These standards are issued by the Federal Highway Administration (FHWA) and discussed in detail in the Code of Federal Regulations (CFR), 23 CFR 650C. These standards require all bridges on the Texas Transportation Commission (TTC) 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 (AASHTO). In addition, TxDOT performs fracture critical and underwater inspections for structures which require such.

The BRINSAP reports rate various categories of bridge elements including, Deck, Superstructure, Substructure, Channel, Culvert, and Approaches. The condition of the bridge elements is rated on a scale from 0 to 9 with 9 being excellent and a rating of 0 denotes that the element has failed.

The GEC maintains a database of all NTTA bridge structures on the System. Once BRINSAP reports are received, they are reviewed and all bridge element ratings are tracked, and follow-up action worksheets are addressed. The database assists in tracking statistics to monitor the overall health of NTTA's bridges.

The bridge condition score (BCS) is another performance measure used by TxDOT to assess and communicate the overall health of Texas' bridge inventory. The BCS is calculated based on each bridge's minimum component rating and weighted by the deck area. The overall BCS for bridges in Texas is 88.91. NTTA's bridges have an overall BCS of 91.22.

Fast Facts

1.5.5 Tunnel Management Program

NTTA's System includes one tunnel, AATT, which traverses below the Addison Airport. AATT is inspected as part of TxDOT's implementation of the National Tunnel Inspection Standards (NTIS). This Federal requirement is similar to the NBIS for bridges. NTIS establishes the regulations for the uniformity of tunnel inspections. The Tunnel Operation, Maintenance, Inspection and Evaluation (TOMIE) Manual establishes procedures and practices for tunnel inspection and documentation of deficiencies. The NTIS inspection focuses on structural, electrical, and mechanical elements including the ventilation fans, the fire protection system, drainage sump pumps, and the HVAC components which service the electrical room.

Tunnel inspections are performed on a 2-year cycle; the most recent AATT inspection was performed in August 2023. The 2023 data, along with the visual observations from this year's assessment, serves as the basis for the comments and recommendations in the tunnel portion of this report.

1.6 Governmental Accounting Standards Board Requirements

Governmental Accounting Standards Board (GASB) Statement 34 establishes financial reporting requirements for state and local governments throughout the United States. NTTA elected to adopt the Modified Approach in 2007 to asset depreciation in accordance with GASB 34 which requires a reporting of asset conditions every 3 years. NTTA has elected to develop the GASB 34 rating annually to ensure the System maintains their Board-adopted minimum level-of-service at 8.0. The MMC maintains an inventory of NTTA's infrastructure assets and the GEC gathers and calculates condition ratings and replacement costs for pavement and bridge structure assets. The annual inspection by the GEC provides the foundation for complying with GASB 34. The 2024 GASB 34 rating for the System is 8.9 out of 10.

2.0 INSPECTION FINDINGS

2.1 Overview

Based on the 2024 visual annual inspection, the System has been maintained in good repair, working order, and condition. Using the GEC Annual Inspection Rating Scale in Table 6, no observations were rated below a 2 on the four main elements (roadway, walls, bridges and facilities) inspected. These observations are typical of a network system of this age and reflect the continued pro-active approach of diligent routine maintenance and rehabilitation projects to maintain and extend the useful life of each asset.

The following sections include observations from each corridor with respect to the four main elements. Upcoming projects and additional recommendations to address these observations are presented in Section 4.

2.2 Dallas North Tollway Observations

2.2.1 Dallas North Tollway – Roadways

There were multiple locations of reflective pavement cracking and joint deterioration along the south bound mainlanes between IH-635 and Lomo Alto Dr. (Figure 2). Also noted were concrete barrier cracking and spalling (Figure 3). There were areas of erosion in turf areas (Figure 4) and landscape beds north of PGBT (Figure 5). There were isolated locations of damaged or missing pavement markings (Figure 6). Several locations south of IH-635 had damaged inlet tops (Figure 7).

DNT – Roadways

Figure 2: DNT pavement cracking and spalling SBML north of IH-635.

Figure 3: DNT concrete rail damage NBML south of Maple Ave.

Figure 4: DNT turf erosion SBML south of SRT.

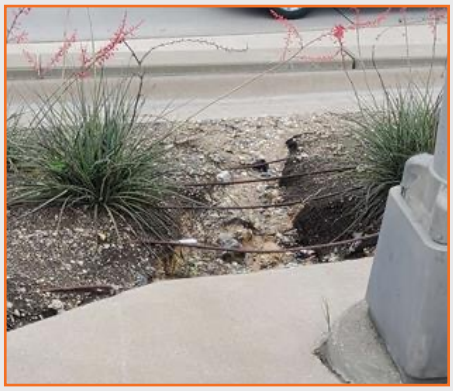


Figure 5: DNT erosion NBML south of Eldorado Pkwy.

Figure 6: DNT pavement markings faded or missing NBML north of Arapaho Rd.

Figure 7: DNT pavement marking deterioration NBML south of W. Park Blvd.

2.2.2 Dallas North Tollway – Walls

General visual observations included instances of panels that were racked or exhibited some level of spalling or cracking at various locations (Figure 8). These observations alone can not confirm nor negate current wall movement. NTTA, the MMC and the GEC hold regular coordination meetings, and NTTA has confirmed that further evaluation of these walls is being conducted.

2.2.3 Dallas North Tollway – Bridges

Common observations along the DNT corridor included deterioration of various bridge decks which occurred primarily within the southern-most segment (Figure 9). Cracking and spalling at abutments were observed at multiple locations throughout the corridor (Figure 10). Also noted were locations of concrete beam spalling, some with exposed reinforcement (Figure 11).

DNT – Walls

Figure 8: DNT MSE wall with racked panels exhibiting cracking and spalling SBML south of IH-635.

DNT – Bridges

Figure 9: DNT bridge deck deterioration at Lomo Alto Dr.

Figure 10: DNT abutment backwall cracking at IH-635.

Figure 11: DNT concrete beam end damage with exposed reinforcement at Forest Ln.

2.2.4 Dallas North Tollway – Facilities

At MLG1, water infiltration (Figure 12) and insect/rodent infestation were noted. At the MLG3 new IT building, spalling at the foundation was observed. At the MLP3 Operations Building, damaged pipe insulation at the yard, foundation spall, joint sealant failure (Figure 13), and ceiling issues were observed. AT MLP4, there is a new roof, but the railing wasn't fully reattached (Figure 14), and while the water-damaged gypsum board had been removed, the new gypsum board was not yet installed (Figure 15). The gantry structure coatings failure was again observed, and a basement wall opening wasn't sealed (Figure 16). At the Fiber Hut near MLP2, the gate lock could not be closed for locking (Figure 17), with water infiltration, insect infestation, and GFCI receptacles issues also observed. GEC has been informed that there is a project to renovate the MLP4 building, and that the DNT widening project will remove the tunnels there.

DNT – Facilities

Figure 12: DNT MLG1 water infiltration.

Figure 13: DNT MLP3 joint sealant failure.

Figure 14: DNT MLP4 roof railing not fully reattached.

Figure 15: DNT MLP4 missing gypsum board.

Figure 16: DNT MLP4 basement wall opening.

Figure 17: DNT MLP2 Fiber Hut inoperable gate lock.

2.3 President George Bush Turnpike Observations

2.3.1 President George Bush Turnpike – Roadway

Several locations of ditch and embankment erosion (Figure 18) were observed. Also noted were locations of concrete pavement distresses (Figure 19). Asphalt pavement shoulder deterioration was identified at numerous locations (Figure 20). There was a location that was exhibiting concrete pavement and MBGF separation at Merritt Rd. (Figure 21). There were several locations of concrete barrier cracking and spalling (Figure 22). Multiple locations of damage or faded pavement markings (Figure 23) were identified.

PGBT – Roadways

Figure 18: PGBT erosion SBML at IH-30 in Garland, TX.

Figure 19: PGBT pavement distress NBML entrance ramp north of Dalworth St.

Figure 20: PGBT asphalt shoulder deterioration NBML at Lookout Dr.

Figure 21: PGBT pavement and mow strip separation NBML at Merritt Rd.

Figure 22: PGBT concrete rail damage WBML at Lavon Dr.

Figure 23: PGBT pavement marking deterioration SBML south of N. Shiloh Rd.

2.3.2 President George Bush Turnpike – Walls

General visual observations included instances of panels that were racked or experiencing some level of spalling or cracking at various locations (Figure 24). The soundwall adjacent to the NB exit to Frankford Rd is leaning (Figure 25). These observations alone can not confirm nor negate current wall movement. NTTA, the MMC and the GEC hold regular coordination meetings, and NTTA has confirmed that further evaluation of these walls is being conducted.

PGBT – Walls

Figure 24: PGBT retaining wall spalls NBML at Las Colinas Blvd.

Figure 25: PGBT soundwall movement adjacent to NB exit ramp to Frankford Rd.

2.3.3 President George Bush Turnpike – Bridges

Typical noted bridge observations along the PGBT included erosion near or around bridge columns (Figure 26), some of which exceed the level of routine maintenance. These locations have been budgeted for construction level projects to occur within the 5-year budget window. Other typical observations included spalling at concrete beam ends due to their contact with abutment backwalls (Figure 27), as well as spalls and cracking of abutment backwalls which were noted at several locations (Figure 28).

PGBT – Bridges

Figure 26: PGBT bridge erosion at Rowlett Creek.

Figure 27: PGBT concrete beam spalling near future Valwood Pkwy.

Figure 28: PGBT abutment spalling north of Sandy Lake Rd.

2.3.4 President George Bush Turnpike – Facilities

Observations at these facilities included: continued exterior and sealant deterioration, sidewalk settling, continued tunnel water infiltration, continued gantry, roofing, and structural deterioration, and tunnel CO sensor issues (Figure 29). At MLP9, there is structural settling/shifting on both sides of the roadway (Figures 30 and 31). At the ramp gantries, roof and lightning protection failures were observed (Figure 32), and at the Midway Road Eastbound On-Ramp gantry, one side panel has a large crack, while another side panel has started separating from the structure (Figures 33 and 34). MLP6 building has a new roof, which eliminated most of previous years' roof observation issues, though a few minor roof issues were observed. MLP gantry roofs continued to deteriorate. At the Fiber Huts, water infiltration, insect infestation and GFCI receptacles issues were observed. NTTA has reported that there is a project to replace the MLP9 roof.

PGBT – Facilities

Figure 29: PGBT MLP7 tunnel damaged CO sensor.

Figure 30: PGBT MLP9 wall separation/ shifting.

Figure 31: PGBT MLP9 stair frame separation/ settling.

Figure 32: PGBT Renner Road On-Ramp Gantry roof deterioration.

Figure 33: PGBT Midway Road On-Ramp Gantry panel crack.

Figure 34: PGBT Midway Road On-Ramp Gantry panel separation.

2.4 Sam Rayburn Tollway Observations

2.4.1 Sam Rayburn Tollway – Roadway

Multiple locations are experiencing concrete pavement deterioration (Figure 35). Also noted were instances of concrete barrier cracking and spalling (Figure 36). There are several locations with erosion within and adjacent to landscape beds (Figures 37and 38) and in turf areas (Figure 39). Faded or damaged pavement markings (Figure 40) were observed at various locations along the corridor. Also noted are the multiple locations along the frontage road and cross streets of inlet top and curb damage (Figure 41).

SRT – Roadways

Figure 35: SRT concrete pavement deterioration SBML north of Hardin Blvd./ Chelsea Blvd.

Figure 36: SRT concrete rail cracking NBML south of Medical Center Dr.

Figure 37: SRT turf and landscape bed erosion NBML at near Custer Rd.

Figure 38: SRT landscape bed erosion NBML at Custer Rd.

Figure 39: SRT erosion SBML at Lebanon Ln.

Figure 40: SRT pavement marking damaged or missing NBML near FM 544/Parker Rd.

Figure 41: SRT curb inlet damage at W. Exchange Pkwy.

2.4.2 Sam Rayburn Tollway – Walls

General visual observations included instances of panels that were racked or exhibited some level of spalling or cracking at various locations (Figure 42). These observations alone can not confirm nor negate current wall movement. NTTA, the MMC and the GEC hold regular coordination meetings, and NTTA has confirmed that further evaluation of these walls is being conducted. Water seepage was observed along the northbound frontage road at Custer (Figure 43). There were a few instances of retaining wall coping cracking and spalling (Figure 44).

SRT – Walls

Figure 42: SRT retaining wall spalling NBML at W. Spring Creek Pkwy.

Figure 43: SRT retaining wall with considerable water seepage NBML at Custer Rd.

Figure 44: SRT retaining wall coping cracking and spalling NBML at Spring Creek Pkwy.

2.4.3 Sam Rayburn Tollway – Bridges

Observations on the SRT for 2024 included multiple closed joints which could contribute to cracking or spalling of the bridge deck or adjacent approach slab pavement (Figure 45). Other noted conditions were related to abutment backwall spalling similar to what has been observed on other corridors (Figure 46). Spalling at concrete beam ends due their contact with the abutment backwall were observed at multiple locations (Figure 47).

SRT – Bridges

Figure 45: SRT closed bridge joint with cracked approach slab pavement at Paige/ Plano Pkwy.

Figure 46: SRT abutment backwall spalling at W. Rowlett Creek.

Figure 47: SRT bridge beam spalling with exposed reinforcement at W. Rowlett Creek.

2.4.4 Sam Rayburn Tollway – Facilities

Sealant failure and insect infiltration were observed at the main lane gantry buildings (Figures 48 and 49). The SRT at DNT winter operations facility restroom has a plumbing (water pipe) leak (Figure 50).

SRT – Facilities

Figure 48: SRT MLG1 failed joint sealant.

Figure 49: SRT MLG3 insect infestation.

Figure 50: SRT (at DNT) Restroom leaking water pipe.

2.5 Chisholm Trail Parkway Observations

2.5.1 Chisholm Trail Parkway – Roadway

Erosion was noted in ditch lines (Figure 51), landscape beds exposing irrigation lines (Figure 52) and included the undermining of drainage flumes (Figure 53). Observations also included multiple locations with concrete pavement joint deterioration (Figure 54).

CTP – Roadway

Figure 51: CTP ditch erosion SBML embankment erosion NBML north of W. FM 917.

Figure 52: CTP landscape erosion NBML at IH 20.

Figure 53: CTP drainage flume undermining SBML north of FM 1187.

Figure 54: CTP concrete pavement distress at on-ramp from McPherson Blvd.

2.5.2 Chisholm Trail Parkway – Walls

General visual observations included instances of panels that were racked or exhibited some level of spalling or cracking at various locations (Figure 55). These observations do not confirm nor negate current wall movement. Unsealed wall joints were noted at a few locations (Figure 56).

CTP – Walls

Figure 55: CTP retaining wall coping spall on SBML at damage NBML at SH-183.

Figure 56: CTP retaining wall panels unsealed NBML at Old University Dr.

2.5.3 Chisholm Trail Parkway – Bridges

Noted observations for bridges on CTP included surface spalling of bridge decks, typically near construction joints (Figure 57). Backwall spalling was seen at several abutments, primarily occurring at the interface of the backwall to the wingwall (Figure 58). Erosion adjacent to bridge approach slabs was also noted at multiple locations along the corridor (Figure 59).

CTP – Bridges

Figure 57: CTP approach slab construction joint spalling at FM 1902.

Figure 58: CTP abutment backwall cracking at IH-20.

Figure 59: CTP erosion at Sparks Dr.

2.5.4 Chisholm Trail Parkway – Facilities

Facilities along the CTP corridor were in good condition, with only minor sealant and paint deterioration (Figure 60), water infiltration (Figure 61), landing deterioration (Figure 62), and seam strip peeling (Figure 63) observed at the southbound side Fiber Huts. At restrooms, door lock and water heater issues were observed.

CTP – Facilities

Figure 60: CTP MLG1 Fiber Hut deteriorated door sealant.

Figure 61: CTP MLG2 Fiber Hut water infiltration.

Figure 62: CTP MLG1 Fiber Hut deteriorated landing.

Figure 63: CTP MLG1 peeling ceiling seam strip.

2.6 Mountain Creek Lake Bridge Observations

2.6.1 Mountain Creek Lake Bridge – Roadway

Observations noted this year include an unsealed drainage flume (Figure 64).

2.6.2 Mountain Creek Lake Bridge – Walls

Mountain Creek Lake Bridge has one retaining wall that is in good condition with no notable observations.

2.6.3 Mountain Creek Lake Bridge – Bridge

Noteworthy bridge observations for 2024 at MCLB included surface spalling of a previous deck repair (Figure 65), as well as observed spalling of a concrete beam end due to contact with the abutment backwall (Figure 66).

2.6.4 Mountain Creek Lake Bridge – Facilities

The MCLB Fiber Hut is generally in good condition with no notable observations.

MCLB – Roadway

Figure 64: MCLB drainage flume unsealed EBML near Mountain Creek Pkwy.

MCLB – Bridge

Figure 65: MCLB east abutment approach slab surface spalling.

Figure 66: MCLB west abutment concrete beam spalling.

2.7 Lewisville Lake Toll Bridge Observations

2.7.1 Lewisville Lake Toll Bridge – Roadway

Roadway observations include a spall on the drainage flume adjacent to the concrete pavement (Figure 67).

2.7.2 Lewisville Lake Toll Bridge – Walls

Wall observations include a damaged wall coping (Figure 68).

LLTB – Roadway

Figure 67: LLTB concrete flume spalling EBML on east approach to bridge.

LLTB – Walls

Figure 68: LLTB retaining wall coping damage.

2.7.3 Lewisville Lake Toll Bridge – Bridge

Significant erosion at the East abutment was noted with the 2024 annual inspection for LLTB (Figure 69). Construction efforts to address the deficiency is to begin 3rd Quarter of 2024. Numerous damaged buoys (Figure 70) were observed that will be repaired as part of the East abutment erosion project. Additionally, spalling with exposed reinforcement at the East abutment (Figure 71) was noted and is to be addressed with the currently scheduled project.

LLTB – Bridge

Figure 69: LLTB east abutment erosion.

Figure 70: LLTB buoy damage.

Figure 71: LLTB east abutment spalling with exposed reinforcement.

2.7.4 Lewisville Lake Toll Bridge – Facilities

Corrosion was observed on electrical conduit/enclosures (most severe at one box — Figure 72), a separated drain pipe (Figure 73), and insect infiltration was noted (Figure 74).

LLTB – Facilities

Figure 72: LLTB corroded electrical box.

Figure 73: LLTB separated drain pipe.

Figure 74: LLTB insect infestation.

2.8 Addison Airport Toll Tunnel Observations

2.8.1 Addison Airport Toll Tunnel – Roadway

Observations on the roadway include faded or missing pavement markings (Figure 75), concrete pavement distresses (Figure 76), unsealed concrete flume (Figure 77) and damaged access control fencing (Figure 78).

2.8.2 Addison Airport Toll Tunnel – Walls

Wall observations include cracked and spalled wall panels (Figures 79 and 80)

2.8.3 Addison Airport Toll Tunnel – Bridge

There is no bridge on the AATT.

AATT – Roadway

Figure 75: AATT pavement marking deterioration.

Figure 76: AATT concrete pavement distress.

Figure 77: AATT concrete drainage flume unsealed.

Figure 78: AATT access control fence damage.

AATT – Walls

Figure 79: AATT retaining wall panel spall on east approach to tunnel.

Figure 80: AATT retaining wall panel cracks, spalls and damaged/missing joint seal on west approach to tunnel.

2.8.4 Addison Airport Toll Tunnel – Facilities

A tunnel fan replacement project, and a recoating and relighting project were in progress at the time of inspection. HVAC RTU condensate pipes were broken (Figure 81) or clogged. The gantry roof condition worsened since the previous inspection (Figure 82), while the toll plaza electrical room roofing has failed (Figure 83). The electrical rooms are functioning as required, though one main electrical room surge protection device has failed (Figure 84).

AATT – Facilities

Figure 81: AATT broken RTU condensate drain pipe.

Figure 82: AATT Gantry roof damage.

Figure 83: AATT Toll Plaza Electrical Room failed roof.

Figure 84: AATT Main Electrical Room failed surge protection device.

2.9 360 Tollway Observations

2.9.1 360 Tollway – Roadway

Observations on the roadway include locations concrete pavement deterioration (Figures 85 and 86) and asphalt overlay delamination (Figure 87). Also noted were locations of ditch line and outfall erosion (Figures 88 and 89). There were locations of damaged concrete curb inlets (Figure 90).

360T – Roadway

Figure 85: 360T concrete pavement deterioration NBML north of Lone Star Rd.

Figure 86: 360T concrete pavement deterioration SBFR north of E. Sublett Rd./W. Camp Wisdom Rd.

Figure 87: 360T asphalt overlay pavement deterioration NBML south of SE Green Oaks Blvd./Kingwood Blvd.

Figure 88: 360T ditch line erosion at Heritage Pkwy.

Figure 89: 360T drainage culvert outfall erosion at N. Holland Rd.

Figure 90: 360T concrete curb inlet damage at Kingswood Blvd. SB U-Turn.

2.9.2 360 Tollway – Walls

Wall observations include isolated cracked and spalled wall panels and copings (Figure 91).

360T – Walls

Figure 91: 360T MSE wall coping and rail cracking and spalling at N. Holland Rd.

2.9.3 360 Tollway – Bridges

Random cracking was observed on several of the bridge decks, some of which also exhibited spalling near construction joints (Figure 92). Other notable observations included erosion around approach slabs and abutment rip rap (Figure 93). Some of the erosion noted occurs around guardrail posts, adjacent to approach slabs. Similar to other corridors, spalling and cracking was noted on the abutment backwalls at their interface with the wingwalls (Figure 94).

360T – Bridges

Figure 92: 360T spalling deck at Walnut Creek.

Figure 93: 360T erosion adjacent to approach slab guardrail at Bowman Branch.

Figure 94: 360T abutment backwall cracking at Fish Creek.

2.9.4 360 Tollway – Facilities

These facilities were in good condition, with water infiltration (Figure 95), electrical GFCI receptacle issues (Figure 96), insect infestation (Figure 97), and sealant failures at the HVAC units (Figure 98) observed.

360T – Facilities

Figure 95: 360T MLG15 water infiltration.

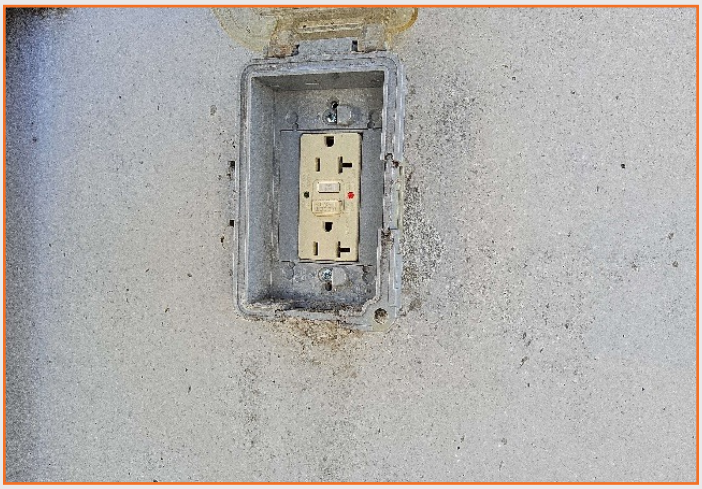


Figure 96: 360T MLG14 faulted GFCI receptacle.

Figure 97: 360T MLG15 insect infestation.

Figure 98: 360T MLG14 failed HVAC unit seal.

2.10 Office and Facility Observations (Plano, Frisco, Gleneagles)

2.10.1 Facilities

Other inspected facilities include the Plano Operations Center, the Frisco Operations Center, and the Gleneagles Office Complex. At the inspection time, the Plano Operations Center was under construction for a major renovation/ expansion project.

Observations at the Plano Operations Center outside the construction zone included: fire riser pipe corrosion (Figure 99), roof fasteners loose (Figure 100), roof pipe penetration boots damaged/improperly installed (Figure 101), gutters damaged (Figure 102), joint sealant failures, and minor rust/paint failure at the outbuildings (Figure 103).

Plano Operations Center – Observations

Figure 99: Plano Operations Center corroded fire riser pipe.

Figure 100: Plano Operations Center loose roof fastener.

Figure 101: Plano Operations Center damaged roof pipe boot.

Figure 102: Plano Operations Center damaged gutter.

Figure 103: Plano Operations Center outbuilding rust.

Frisco Operations Center – Observations

Observations at the Frisco Operations Center included: a deteriorated personnel gate (Figure 104), minor safety violations, exterior areas of rust formation, and joint sealant failures. NTTA has reported that there is a project in design to replace the deteriorated personnel gate.

Figure 104: Frisco Operations Center deteriorated personnel gate.

Gleneagles Office Complex – Observations

Observations at the Gleneagles 5900 West Plano Parkway Office Center included: a loose handrail at the east roof access ladder (Figure 105), roof top unit (RTU) damaged/ bent condensate drain pipes (Figure 106), and continued spalling at a handrail base (Figure 107). Other observations included: RTU non-functioning GFCI receptacles, exterior metal coatings rust, exterior general wear/tear, ceiling issues, minor roof deterioration, and general interior wear/tear. NTTA has reported that there is a project to restore the building exterior finishes.

Figure 105: Gleneagles 5900 Plano Parkway loose roof access handrail.

Figure 106: Gleneagles 5900 Plano Parkway damaged RTU condensate drain pipe.

The Gleneagles 5910 West Plano Parkway Office Center reroofing project was completed by inspection time. This project eliminated most of previous years' roof observation issues, though improper installations at a few locations were observed. Other observations included: a sag/separation in the soffit (Figure 108), ceiling issues, minor plumbing items and exterior general wear/ tear. GEC knows there is a project to restore the building exterior finishes, and a project to upgrade the data center (which will address ceiling observation issues in the data center).

Figure 107: Gleneagles 5900 Plano Parkway handrail base spall.

Figure 108: Gleneagles 5910 Plano Parkway sagging/separated soffit.

3.0 PROJECTS COMPLETED SINCE FY23 INSPECTIONS

3.1 Overview

Since the GEC's 2023 annual and specialized inspections, many maintenance and rehabilitation projects have been completed. These projects are representative of the typical maintenance activities anticipated for a transportation facility the size and age of NTTA's System. The approved 2024 RMF budget provided the necessary funding to not only repair or rehabilitate but to extend the intended useful life expectancy of the individual assets. NTTA's pro-active asset management approach (inspect / plan / budget / design / construct) allows the System to operate at a desired Level-of-Service that its customers have come to expect.

3.2 Dallas North Tollway

- Mainlane Bridge Deck Repairs (Lomo Alto Dr. and IH-35E)
- Cross Street Bridge Repairs (Mockingbird Ln., Northaven Rd., Park Ln., Walnut Hill Ln.)
- Bridge Deck Joint Seal Replacement
- Ramp Joint, Crack and Spall Repairs (south of IH-635)
- Restriping (IH-635 to PGBT)
- Raised Pavement Marker Replacement (entire corridor)
- Northaven Emergency Bridge Beam Repair
- Meaders Emergency Bridge Beam Repair
- Cross Street Chain Link Fence Replacement

3.3 President George Bush Turnpike

- Bridge Bent Cap Sealing (at IH-35E and IH-30)
- Erosion Repairs (Kirby Creek and Lower Tarrant Rd.)
- Erosion Mitigation (between IH-20 and Forum Dr.)
- Shadow Striping Elimination
- Large and Small Sign Replacement (SH-78 to IH-30)
- Restriping (Beltline Rd to DNT and US-75 to IH-30)

3.4 Sam Rayburn Tollway

- Bridge Deck Joint Seal Replacement
- Wall and Drainage Improvements (at Custer Rd.)
- Concrete Pavement Joint and Crack Sealing (Coit Rd. to SH-5)
- Concrete Shoulder and Rail Rehabilitation (Denton Tap Rd. to Lake Vista Dr.)
- Large and Small Sign Replacement (Ohio Rd. to SH-5)
- Raised Pavement Marker Replacement (entire corridor)

3.5 Chisholm Trail Parkway

- Routine maintenance performed by outsourced contractor.

3.6 Mountain Creek Lake Bridge

- Bridge Deck, Beam and Bent Cap Repairs
- Restriping (entire corridor)

3.7 Lewisville Lake Toll Bridge

- Large and Small Sign Replacement
- Raised Pavement Marker Replacement (entire corridor)

3.8 Addison Airport Toll Tunnel

- Tunnel Improvements (project on-going)

3.9 360 Tollway

- Routine maintenance performed by outsourced contractor.

3.10 Facility Projects

- **Dallas North Tollway**
  - New IT Building (MLG 3)
  - Re-roofing (MLP 4)
  - Building Improvements (MLP 4; project on-going)
  - Facility Removal (MLP 4 tunnels; project on-going)
- **President George Bush Turnpike**
  - Re-roofing (MLP 6)
  - HVAC Replacement (MLP 6; project on-going)
  - HVAC Upgrades (MLP 8; project on-going)
  - Re-roofing (MLP 9; project on-going)
- **Addison Airport Toll Tunnel**
  - Exhaust Fan Replacement (project on-going)
- **Office Facilities**
  - Re-roofing (Gleneagles 5910)
  - Parking Lot Pavement Repairs (Gleneagles 5900 and 5910)
  - Fleet Service Building Expansion and HVAC Upgrades (Plano Operations Center; project on-going)

Below are a few examples of some of the completed projects related to roadway, bridges and facilities.

Completed Project Examples

Figure 109: Dallas North Tollway at Park Lane – Partial Depth Deck Replacement.

Figure 110: President George Bush Turnpike at Kirby Creek – Channel Erosion Mitigation.

Figure 111: Addison Airport Toll Tunnel – Lighting Improvements.

Figure 112: Gleneagles Office Complex – 5910 Reroofing.

Figure 113: Sam Rayburn Tollway – Large and Small Sign Replacement.

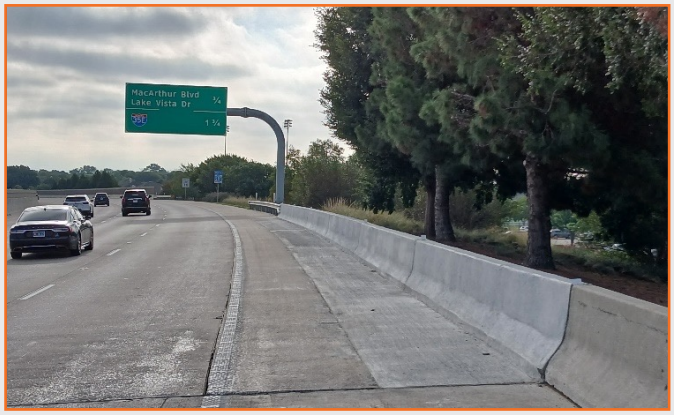


Figure 114: Sam Rayburn Tollway – Concrete Shoulder and Rail Rehabilitation.

Figure 115: Dallas North Tollway at Mockingbird Lane – Bridge Deck Surface Improvements.

4.0 FUTURE PROJECTS AND RECOMMENDATIONS

4.1 Overview

Through continuous coordination with Project Delivery and Maintenance Departments, as well as the MMC, a plan will be developed to address the observations noted during the 2024 annual inspection. This section summarizes future projects and maintenance needs, which are supported by the GEC's observations.

It should be noted that many of the observations on CTP and PGBT fall under the responsibility of the total routine maintenance contractor. These include various locations of pavement cracking and spalls, unsealed pavement joints, pavement edge drop-offs, and erosion on turf embankments, ditches and under bridges which should be addressed to prevent further deterioration of the asset.

4.2 Dallas North Tollway

Several projects have been developed or are in the process of being developed to address the needs of the DNT. These future projects include the following with general project limits:

- Mainlane Restriping (PGBT to SRT)
- Mainlane and Shoulder Pavement Rehabilitation (Northbound; south end to IH-635)
- Mainlane and Shoulder Pavement Rehabilitation (Southbound; south end to IH-635)
- Mainlane Ramp Pavement Repairs (IH-635 to PGBT and SRT to US-380)
- Trailblazer Sign Replacement (Entire corridor)
- Bridge Deck Repair and Joint Seal Replacement (Multiple locations)
- Bridge Deck Repairs (Multiple locations south of IH-635)
- Cross Street Bridge Repairs (Multiple locations)
- Mainlane Bridge Deck Rehabilitation (Southbound Direct Connector)
- Retaining Wall Coating (South of IH-635)
- Retaining Wall Repairs (at IH-635)
- Lighting Upgrade Study (Entire corridor)

4.3 President George Bush Turnpike

Several projects have been developed or are in the process of being developed to address the needs of the PGBT. These future projects include the following with general project limits:

- Erosion Mitigation (Arbor Creek, Dickerson Pkwy., White Rock Creek, and Brand Rd.)
- Mainlane Shoulder Rehabilitation (Beltline Rd. to IH-635 and DNT to SH-78)
- Trailblazer Sign Replacement (Beltline Rd. to SH-78)
- Bridge Repairs (Multiple locations)
- Retaining Wall Repairs (at Dickerson Pkwy)

4.4 Sam Rayburn Tollway

Several projects have been developed or are in the process of being developed to address the needs of the SRT. These future projects include the following with general project limits:

- Mainlane and Frontage Road Restriping (Entire corridor)
- Mainlane and Frontage Road Pavement and Curb Repairs (Old Denton Rd./FM 2281 to Hillcrest Rd.)
- Wall Repairs (Plano Pkwy./Paige Rd.)
- Bridge Repairs (at Coit Rd. and Exchange Pkwy.)
- Bridge Rail Coating
- Bridge Repairs (Plano Pkwy. and Spring Creek Pkwy.)

4.5 Chisholm Trail Parkway

Several projects have been developed or are in the process of being developed to address the needs of the CTP. These future projects include the following with general project limits:

- Mainlane Restriping (Entire corridor)
- Sign Replacement (IH-30 o FM 1178)

4.6 Mountain Creek Lake Bridge

A project is being studied to address illumination needs along the corridor. This future project includes the following with general project limits:

- Lighting Upgrade Study (Entire corridor)

4.7 Lewisville Lake Toll Bridge

Several projects have been developed or are in the process of being developed to address the needs of the LLTB. These future projects include the following with general project limits:

- Bridge Repairs (Multiple locations)
- Bridge Deck Joint Sealing Replacement (Entire corridor)
- Bridge Deck Storm Drain Collector Replacement/Repair

4.8 Addison Airport Toll Tunnel

Several projects have been developed or are in the process of being developed to address the needs of the AATT. These future projects include the following with general project limits:

- Mainlane Restriping (Entire corridor)
- Fence Replacement

4.9 360 Tollway

No projects identified.

The vast majority of the observations on the 360T fall under the scope of routine maintenance. These include various locations of pavement cracking and spalls, pavement edge drop-offs, and erosion on embankments and under bridges. These should be addressed to prevent further damage.

It is also recommended that the following observations be monitored for further degradation: cracking of frontage road pavement; cracking of barriers, rail and coping, and spalling on wall panels.

4.10 Facility/Building

Several projects have been developed or are in the process of being developed to address the needs of NTTA's facilities. These projects include the following:

- Data Center Fire Suppression System Replacement/Upgrade (Gleneagles 5910)
- Campus Repairs, Retaining Wall & Erosion Control (Gleneagles Campus)
- Exterior Building Finishes and Window Seal Replacement (Gleneagles 5900 & 5910)
- Building Improvements & Campus Repairs (Plano Operations Center)
- Gate and Electronic Opening System Replacement (Plano Operations Center & Frisco Operations Center)
- Exterior Improvements (Plano Operations Center & Frisco Operations Center)
- Car Wash Improvements (Plano Operations Center & Frisco Operations Center)
- Gantry Repairs and Recoating (MLP 4)
- Leak Repairs (MLP 7)
- Plaza Exterior Repairs (MLP 6, MLP 7, MLP 8, MLP 9 & MLP 10)
- Incorporate Emergency Generators into Building Management System (MLP's)
- Extend Building Management System to All Gantries and Fiber Huts
- Sump Pump Reconditioning (AATT)
- Improvements to meet code requirements (AATT)
- Parking Lot Restriping (Systemwide Facilities)

4.11 Budget Recommendations

As required by the Amended and Restated Trust Agreement, the GEC also provides recommendations for the OMF as well as the RMF.

The funding levels shown in the 2025 NTTA System preliminary budget for major items associated with administrative and roadway costs for the Operation and Maintenance Fund and Reserve Maintenance Fund are recommended to maintain NTTA major assets at or above the Board-adopted GASB 34 level of 8.9 out of 10.

Table 9: Budget Recommendations

FUNDS	BUDGET
Operation and Maintenance Fund (OMF)	$253.6M
Reserve Maintenance Fund (RMF)	$97.5M

5.0 SUMMARY

Overall, the System has been maintained in good repair, working order and condition. The overall condition of the System shows NTTA's commitment to funding, maintaining, and operating a safe and reliable network of roadways.

Continued routine maintenance and the implementation of Reserve Maintenance Fund projects will ensure the System continues to provide a safe and reliable mobility option for the customers in the North Texas area.

APPENDIX A – SECTION 504 OF THE AMENDED AND RESTATED TRUST AGREEMENT

AMENDED AND RESTATED TRUST AGREEMENT

BY AND BETWEEN

NORTH TEXAS TOLLWAY AUTHORITY

AND

WELLS FARGO BANK, N.A.,
Dallas, Texas

SECURING

SYSTEM REVENUE BONDS

Dated as of April 1, 2008

Section 503. Revenue Fund. The special fund held by the Trustee and created and designated "Tollway Revenue Fund" (hereinafter sometimes called the "Revenue Fund") under the Original Agreement is hereby reaffirmed. The Authority covenants that all gross revenues (all tolls, other revenues, and income) arising or derived by the Authority from the operation and ownership of the Tollway (excepting investment income from all Funds and Accounts other than the Revenue Fund) will be collected by the Authority and deposited daily, as far as practicable, with the Trustee for the credit of the Revenue Fund. It shall be the duty of the Trustee to verify the amount of each such daily deposit separately, and to make a report to the Authority of the amount of each such daily deposit as soon as practicable. Tolls collected on behalf of TxDOT pursuant to a project agreement that provides for revenue sharing with TxDOT shall be collected by the Authority and shall be held and transferred to or upon the order of TxDOT as set forth in the project agreement.

Section 504. Duties of Consulting Engineers. The Authority covenants that it will cause the Consulting Engineers employed by it under the provisions of Section 704 of this Agreement, to make an inspection of the Tollway on or before the 90th day prior to the end of each Fiscal Year and to submit to the Authority a report setting forth (a) their findings whether the Tollway has been maintained in good repair, working order and condition, (b) their advice and recommendations as to the proper maintenance, repair, and operation of the Tollway during the ensuing Fiscal Year and an estimate of the amount of money necessary for such purposes, including their recommendations as to the total amounts and classifications of items and amounts that should be provided for Current Expenses and the Reserve Maintenance Fund in the Annual Budget for the next ensuing Fiscal Year, and (c) their advice and recommendations as to the amounts and types of insurance which should be carried during the ensuing Fiscal Year with respect to the Tollway under the provisions of Article VII of this Agreement. Copies of such reports shall be filed with the Trustee and mailed by the Authority to each bondholder who shall have filed his name with the Board Representative designated for such purpose, which shall initially be the Chief Financial Officer of the Authority.

Section 505. Preliminary Budget of Current Expenses, and Payments into Reserve Maintenance Fund; Hearing on Budget; Annual Budget; Failure to Adopt Annual Budget; Amended or Supplemental Annual Budget; Payments for Maintenance, Repair, and Operations. The Authority covenants that on or before the 60th day prior to the end of each Fiscal Year it will adopt a preliminary budget of Current Expenses and payments into the Reserve Maintenance Fund for the ensuing Fiscal Year. Copies of each such preliminary budget shall be filed with the Trustee and mailed to the Consulting Engineers and each bondholder who shall have filed his name and address with the Board Representative designated for such purpose, which shall initially be the Chief Financial Officer of the Authority.

If the holders of at least five percent (5%) in aggregate principal amount of the bonds then Outstanding shall so request in writing on or before the 60th day prior to the end of any Fiscal Year, the Authority shall hold a public hearing on or before the 30th day prior to the end of such Fiscal Year at which any bondholder may appear in person or by agent or attorney and present any objections he may have to the final adoption of such budget. Notice of the time and place of such hearing shall be mailed, at least ten (10) days before the date fixed by the Authority for the hearing, to the Trustee, the Consulting Engineers, and each bondholder who shall have filed his name and address with the Board Representative designated for such purpose, which shall initially be the Chief Financial Officer of the Authority. The Authority further covenants

APPENDIX B – QUALITY MANAGEMENT SYSTEM MANUAL PROCEDURE GEC-01 — GENERAL ENGINEERING CONSULTANT ANNUAL INSPECTION OF THE NTTA SYSTEM

NTTA Projects	Original Issue Date: 07/05/2012	GEC-01
Resource: General Engineering Consultant Procedures	Revision: 0 Issue Date: 07/05/2012	Page 1 of 8
Title: GEC Annual Inspection of the NTTA Systems		

1.0 PURPOSE:

The purpose of this procedure is to describe the General Engineering Consultant (GEC)'s responsibilities for the general annual visual inspection and assessment of the NTTA System, Special Projects System (SPS), and related facilities as required by Section 504 of the NTTA System Amended and Restated Trust Agreement and Section 710 of the NTTA Special Projects System Trust Agreement.

2.0 RESPONSIBILITIES:

2.1 Project Director (PD) – The PD shall be a licensed civil engineer with prior experience being a program manager or project director, project manager, and field experience. The PD shall:

- Review and understand the trust agreements with the NTTA and ensure the letters to the bond holders, presentations, and all other work performed during annual inspections is in conformance with the trust agreements.
- Coordinate the NTTA staff review of the letters to the bond holders.
- Perform a quality assurance (QA) review of the final letters to the bond holders to ensure they include the inspection findings, advice and recommendations as to the proper maintenance/repair, and cost estimates thereof, per their respective trust agreements.
- Approve, sign, and deliver the final letters to the NTTA for delivery to the bond holders.
- Perform QA review of, and present to the NTTA board, a PowerPoint presentation discussing the significant aspects of the year's inspection results.

2.2 Project Manager (PM) – The PM shall be a licensed civil engineer with prior experience being a project manager as well as inspection field experience. The PM shall:

- Prepare and negotiate the inspection work authorization documents.
- Organize the pre-inspection kick-off meeting by: writing the agenda; inviting field inspectors, Maintenance Management Consultant (MMC) employees and all required NTTA staff; and facilitating the meeting.
- Be the point of contact for the GEC inspection team when communicating with the NTTA and the MMC inspection staff.

- Obtain from NTTA:
  - A list of bridges and bridge class culverts to be inspected, as well as the TxDOT Bridge Inventory Inspection and Appraisal Program (BRINSAP) reports on all bridges listed.
  - 11x17 black-and-white aerial photography plan sheets of all roadways in the systems at a scale of approximately 1 inch = 250 feet. Plan sheets should show the roadway centerline, stationing, cross street names and should encompass all collector/distributor and direct connector ramps.
  - A list of facilities required for inspection.
  - Governmental Accounting Standards Board (GASB) ratings for the System and the SPS from the most recent year available.
- Manage the inspection staff to ensure that both budget goals and schedule deadlines are met.
- Oversee the writing of the two letters to the bond holders, one for the NTTA System and one for the SPS.
- Perform a quality control (QC) review of the letters to the bond holders, observation spreadsheet and PowerPoint presentation prior to final submittal to the NTTA.
- Deliver the observation spreadsheet categorized as described in 6.1.7 to the NTTA Maintenance Department and ensure it functions properly on the NTTA computer servers.

2.3 Roadway Inspector (RI) – the RI shall be a licensed civil engineer (or if approved an Engineer in Training (E.I.T.) with P.E. supervision) with prior roadway and drainage design and/or inspection experience. The RI shall:

- Perform visual inspection and condition assessment of all roadways and appurtenances while being accompanied by an NTTA staff member.

2.4 Retaining Wall Inspector (WI) – the WI shall be a licensed civil engineer (or if approved an E.I.T. with P.E. supervision) with prior retaining wall design and/or inspection experience. The WI shall:

- Perform visual inspection and condition assessment of all retaining wall, sound wall, and tunnel elements while being accompanied by an NTTA staff member.

2.5 Bridge Inspector (BI) – the BI shall be a licensed civil engineer (or if approved an E.I.T. with P.E. supervision) with prior bridge design and/or inspection experience. The BI shall:

- Preform visual inspection and condition assessment of all bridges and bridge-class culverts on the list provided by the NTTA while being accompanied by an NTTA staff member.

NTTA Projects	Original Issue Date: 07/05/2012	GEC-01
Resource: General Engineering Consultant Procedures	Revision: 0 Issue Date: 07/05/2012	Page 3 of 8
Title: GEC Annual Inspection of the NTTA Systems		

2.6 Facilities Inspector (FI) – the FI shall be a licensed architect (or if approved an Associate AIA under the supervision of a licensed architect) with prior architectural design and/or inspection experience. The FI shall:

- Preform visual inspection and condition assessment of all of the NTTA's facilities while being accompanied by an NTTA staff member. The facilities to be inspected shall be as directed by the NTTA and may include main lane plazas, operations buildings, ramp plazas, sand storage enclosures, fiber huts, the central maintenance facility and the Gleneagles administration office complex.

3.0 SCOPE/APPLICABILITY:

This procedure shall apply to the NTTA annual inspections of both the NTTA System and the SPS, as set forth by the Trust Agreements. The NTTA System shall include the Dallas North Tollway (DNT), the President George Bush Turnpike (PGBT), the Eastern Extension of the George Bush Turnpike (PGBT EE), the Sam Rayburn Tollway (SRT), the Addison Airport Toll Tunnel (AATT), the Lewisville Lake Toll Bridge (LLTB), the Mountain Creek Lake Bridge (MCLB) and associated facilities. The SPS shall include the President George Bush Turnpike Western Extension (PGBT WE) and associated facilities. The inspections, letters to the bond holders, observation spreadsheets and presentations shall be complete 90 days prior to the end of the respective NTTA System and SPS fiscal year, as specified in the trust agreements.

4.0 REFERENCES:

- NTTA System Amended and Restated Trust Agreement
- NTTA Special Projects System Trust Agreement
- Prior letters to the bond holders
- Prior observation spreadsheets
- Prior PowerPoint presentations with speaker notes
- BRINSAP reports
- NTTA personnel
- Overhead Sign Structure Inspection
- High Mast Illumination Pole Inspection
- Pavement Management Program
- Texas Accessibility Standards

5.0 DEFINITIONS & ACRONYMS:

N/A

NTTA Projects	Original Issue Date: 07/05/2012	GEC-01
Resource: General Engineering Consultant Procedures	Revision: 0 Issue Date: 07/05/2012	Page 4 of 8
Title: GEC Annual Inspection of the NTTA Systems		

6.0 PROCEDURES:

6.1 General: The following procedures include tasks involving all inspectors, and where specifically mentioned, the PM and PD.

6.1.1 Prior to beginning any field inspections, the PM will schedule and facilitate the kick-off meeting with primary staff involved in the annual inspections (GEC, MMC and NTTA staff). A list of topics to be covered should include at a minimum; the scope, schedule, extent of the maintenance limits, equipment the inspectors will need to perform their tasks, safety protocol, record keeping, and the teaming of NTTA employees with the field inspectors. A contact list with all participants' names, phone numbers and email addresses should be created and distributed to all inspection staff. At the conclusion of the meeting, all participants should be aware of all submittal dates, safety protocol and the extent of the NTTA's maintenance limits.

6.1.2 Each field inspector is responsible for coordinating their respective inspection schedule with the NTTA point of contact provided by the PM. The NTTA will supply qualified staff members to team up with each GEC inspection personnel. The NTTA staff participating in the inspections should be knowledgeable of the systems they will assist in inspecting and the inspection / maintenance limits of that system.

6.1.3 Perform field inspections only between the hours set by the NTTA maintenance staff and within the limits of NTTA maintenance for the roadways. During inspections, all inspectors must wear the required safety equipment and adhere to all safety protocol set forth by the NTTA. Areas outside of NTTA maintenance responsibility are not required to be included in the inspections. When in the vicinity of ongoing construction or maintenance activities, inspections should not be performed within or near active construction areas.

6.1.4 When areas are unsafe or unreachable for pedestrian access during inspections, a rolling lane closure should be requested so that visual inspections may be performed from inside the vehicle. The vehicle shall travel at the slowest safe speed possible for each particular inspection and location, using the roadway shoulder wherever possible. Rolling lane closures should be requested at least 2 weeks in advance, and must be approved and scheduled by the respective NTTA roadway section supervisors. In areas where rolling lane closures are unsafe or where pedestrian access is not feasible, it should be documented as such.

6.1.5 If a safety concern requiring immediate attention by the maintenance department is observed, the inspector shall immediately contact the PM, who must in turn inform the NTTA Maintenance Department Director or Assistant Director.

6.1.6 At the conclusion of each inspection day, store/update all pictures, notes, and spreadsheets digitally on a single drive location accessible by the entire GEC inspection staff. Files should be set up in a clear and consistent manner for all inspectors. In cases where all staff may not have daily access to this drive, work should be downloaded at least every other week to this drive. Backup files should be created regularly to prevent loss of productivity or re-work if by chance system files are lost.

6.1.7 Organize and hyperlink all pictures in an observation spreadsheet in such a manner that they may be sorted by damage description, facility/roadway, station/location, direction of travel, date inspected, priority, and any other useful categories deemed helpful by the NTTA and MMC. All field inspectors will complete the portion of the observation spreadsheet for their discipline. Upon completion of the observation spreadsheet, upload the spreadsheet and all pictures to the NTTA server, and confirm the hyperlinked pictures will work on the server properly.

6.1.8 Determine condition ratings for all locations after the completion of the field inspections, organization of notes and pictures, and the observation spreadsheet. Using this information, assess which specific locations should be mentioned in the bond letter for maintenance, monitoring, or repair, and begin writing the letters to the bond holders. Each member of the inspection team must assist with the writing of the letters to the bond holders by contributing information on the condition of each component of the system, relating general trends as well as noting specific concerns and improvements.

6.1.9 The PM should assemble findings from each inspection team members and prepare the report to submit to the bond holders. The final letters should include the inspection findings, advice and recommendations as to the proper maintenance/repair, and cost estimates thereof, and the GASB ratings provided by the NTTA for the respective systems. The PM will also perform a quality control (QC) review of the letter prior to submitting to the PD for Quality Assurance (QA). Once QC and QA are complete, the PD will submit the letter to the Maintenance Department and MMC for review. The inspection team, working with the PM and PD, should address any comments received from the Maintenance Department and MMC and submit the final version of the letters to the NTTA for final review. The final approved letters must be completed and delivered to the NTTA with sufficient time to mail them to the bond holders 90 days prior to the end of the respective NTTA System and SPS fiscal year.

6.1.10 All field inspectors will assist with the creation of two PowerPoint presentations, one for the NTTA System, and one for the SPS, each summarizing the annual inspection findings for their respective systems. The PowerPoint presentations must be completed in sufficient time to be presented by the PD at the first NTTA board meeting following the delivery of the respective letter to the bond holders.

NTTA Projects	Original Issue Date: 07/05/2012	GEC-01
Resource: General Engineering Consultant Procedures	Revision: 0 Issue Date: 07/05/2012	Page 6 of 8
Title: GEC Annual Inspection of the NTTA Systems		

6.2 Roadway Inspector

6.2.1 Perform visual inspection and condition assessment on the following roadway elements: all drainage structures (storm sewer, ditches, concrete flumes and culverts), erosion issues, signing and striping, both rigid and flexible barriers, and a design safety review of the complete systems.

6.2.2 Perform visual inspections of all roadway elements while riding with the NTTA roadway section supervisors. The supervisor should drive slowly and carefully along both the inside and outside shoulders allowing the RI time to properly inspect the roadway elements. For those areas deemed unsafe to perform inspections in this manner, a rolling lane closure should be requested to accomplish the inspection.

6.2.3 Take pictures of all observed findings along each roadway. At the RI's discretion, pictures may be taken noting overall roadway conditions.

6.2.4 Note the observation, location, date, and direction of each picture on the aerial photography plan sheets provided by the PM.

6.3 Retaining Wall Inspector

6.3.1 Perform visual inspection and condition assessment on the following retaining wall, sound wall, and tunnel elements: panels, joints, coping, flumes, mow strips, inlets, rails, riprap, slope paving, visible underdrain pipes, sound wall columns; and adjacent: sidewalks, curbs, fencing, roadways, shoulders, soil slopes, and landscaping.

6.3.2 Perform visual inspections of every retaining wall on the systems by walking both top and bottom of each wall, except in areas deemed unsafe for pedestrians (i.e. cut sections along PGBT where the main lanes are within 15 feet of the walls; fill sections along DNT where the top of retaining walls coincide with the main lane barrier rail) In areas where it is unsafe to walk the top or bottom of any wall, a rolling lane closure should be requested to accomplish the inspection.

6.3.3 Perform visual inspections of every sound wall by either walking or driving (depending on accessibility) the front and back side.

6.3.4 Take pictures of all observed findings along each wall whether visible from the top or bottom of the wall. General pictures may be taken at each wall location for common types of widespread deterioration, and should be noted as such. Overall condition pictures should be taken at intervals sufficient to encompass all lengths of all walls for documentation of areas that do not exhibit deterioration or areas of concern.

6.3.5 Note the observation, location, date, direction, and number of each picture on the aerial photography plan sheets provided by the PM.

6.4 Bridge Inspector

6.4.1 Review the BRINSAP reports prior to the bridge inspections. Note any deficiency on the reports, especially ratings less than 6, to be specifically investigated during the visual inspection of each bridge.

6.4.2 Perform visual inspections and condition assessment on the following bridge elements: deck, superstructure, substructure, channel and culvert, by walking above, below and alongside the structure, except in areas that are unreachable or deemed unsafe for pedestrians. Such areas are roadways with less than 6 foot shoulders, direct connector ramps, or any other condition which the inspector deems unsafe. Rolling should be requested when inspecting these areas.

6.4.3 Visual inspections must be performed while maintaining a clear, detailed view of all bridges, including high level interchanges and bridges over waterways; binoculars may be used to achieve this level of detail.

6.4.4 Bridges that cross over large bodies of water, such as MCLB and LLTB, shall be inspected from a NTTA provided motorized boat.

6.4.5 Take pictures of all observed findings at each bridge and bridge class culvert location. At the BI's discretion, pictures may be taken noting overall bridge condition.

6.4.6 Note the observation, location, date, direction and number of each picture on the bridge inspection form.

6.5 Facilities Inspector

6.5.1 Perform visual inspection and condition assessment of the exterior and interior of all facilities, observing all readily accessible areas including enclosed but unlocked plenums, attic spaces, and storage areas. Note any evidence of leaks, insect infestation, structural movement, malfunctioning components, impact damage, and general wear and tear. Note any deterioration of elements, in particular those relevant to Texas Accessibility Standards and the Building Code for Life, Health, and Safety Standards. Record any issues reported to the inspectors by occupants. Spot check function of light fixtures, HVAC, and electrical outlets. Verify that areas and elements intended to be secured are secured.

6.5.2 Take pictures of all observed findings at each facility location. General pictures may be taken at each facility for common types of widespread deterioration, and should be noted as such. Take a representative sample of overall condition pictures at intervals sufficient to encompass all facilities for documentation of areas that do not exhibit areas of concern.

6.5.3 Note the observation, location, and date of each picture.

NTTA Projects	Original Issue Date: 07/05/2012	GEC-01
Resource: General Engineering Consultant Procedures	Revision: 0 Issue Date: 07/05/2012	Page 8 of 8
Title: GEC Annual Inspection of the NTTA Systems		

7.0 REGULATORY REQUIREMENTS:

N/A

8.0 RELATED BOARD POLICY:

N/A

9.0 COMPONENT DOCUMENTS:

GEC-01-F1 NTTA Annual Inspection Observations

10.0 FLOWCHART:

N/A

11.0 REVISION HISTORY:

Revision	Revised by:	Date Issued	DRN No.	Reason for Revision
0	Stephanie Halliday	07/05/2012	10408	Original Release

APPENDIX C – NTTA SYSTEM – CORRIDOR HISTORY

NTTA SYSTEM – CORRIDOR HISTORY

The initial section from downtown Dallas to Interstate Highway 635 (IH-635) opened to traffic in June 1968. In 1987 it was extended to Briargrove Lane in far North Dallas and then to State Highway (SH) 121 in Plano in 1994. An extension to Gaylord Parkway in Frisco opened in 2004 and again to US 380 in Frisco in 2007. The DNT/SRT interchange opened in 2011. The DNT continues to expand towards the north with the extension over US 380 to Lovers Parkway in Prosper in 2023. NTTA has continued to extend the original DNT to new destinations as communities to the north have continued to grow

Segment 1, extending from Midway Road to Avenue K in Collin County, opened to traffic in 1999. Segment 2, extending from Avenue K to Brand Road in Garland, opened in 2000. Segment 3, from Midway Road to the IH-35E interchange in Carrollton, opened in 2001. Segment 4, from the IH-35E interchange to the IH-635 interchange in Irving, opened in 2005. Segment 5, extending from the IH-635 interchange to Belt Line Road, opened to traffic in 2001. Segment 6, extends from Brand Road to the IH-30 near Lake Ray Hubbard in Garland, opened in October 2012.

Segments 7 & 8 extend from SH 183 to IH-20 in Grand Prairie. These two segments were constructed in four phases with Phases 1-3 under the direction of TxDOT.

Phase 1, consisting of frontage roads from North Carrier Parkway to IH-20, along with the mainlane interchange at SH 183, was opened in August 2009. Phase 2, which included two mainlanes in each direction from SH 183 to Egyptian Way, also opened to traffic in August 2009. Phase 3, consisting of frontage roads and a third mainlane from Conflans Road to North Carrier Parkway, opened in April 2010. Phase 4 was administered by NTTA under a design-build contract and included two mainlanes in each direction from North Carrier Parkway to IH-20, as well as the interchanges at IH-20 and IH-30. Phase 4 was opened to traffic in October 2012.

The PGBT has been widened to four lanes in each direction to increase capacity between IH-20 in Grand Prairie and SH 183 in Irving and from Belt Line Road in Irving to SH 78 in Garland.

NTTA maintains a portion of the frontage roads along the PGBT corridor. The sections maintained on both sides of the mainlanes include Midway Road to Rosemeade Parkway and Marsh Lane to Frankford Road in Carrollton and IH-20 to IH-30 in Grand Prairie.

Segment 1, extending from Denton Tap Road to Old Denton Road, opened to traffic in 2006. Segment 2, extending from Old Denton Road to Hillcrest Road, opened in 2008. Segments 1 and 2 were constructed under the direction of TxDOT. Segment 3, extending from Hillcrest Road to Hardin Boulevard, opened in 2009. Segment 4, extending from Hardin Boulevard to east of US 75 (including the SRT/US 75 interchange) opened in 2011. Segment 5, the SRT/DNT interchange, also opened in 2011. SRT was widened to four lanes in each direction from Denton Tap Road to US 75 in 2021. The frontage roads of SRT, which retained the SH 121 designation, are maintained by NTTA.

CTP is a six lane controlled access toll road from IH-30 to Altamesa Boulevard; a four lane facility from Altamesa Boulevard to FM 1187; and a two lane facility from FM 1187 to US 67. The CTP provides motorists with an alternate route to Interstate 35W. CTP mainlanes were open to traffic in 2014.

MCLB is an approximate two mile facility that provides an east-west crossing of Mountain Creek Lake from the Spur 303/SE 14th Street intersection in Grand Prairie to the Spur 303/Mountain Creek Parkway intersection in the Oak Cliff section of Dallas. This facility links communities in Tarrant county with those in the southern part of Dallas County and provides convenient access to businesses, recreational facilities, and other destinations in the Mid Cities area MCLB opened to traffic in 1979.

LLTB is an approximately two mile long facility that provides an east-west crossing of the northwestern arm of Lewisville Lake in Denton County. It serves as a unique landmark with a 360-foot steel truss that rises 60 feet above the roadway. The LLTB opened to traffic in 2009.

AATT provides an approximate 3,600 foot, east-west route under Addison Airport in northern Dallas County which includes a 1,650 foot tunnel. This facility relieves congestion in the far North Dallas and Addison areas and provides an alternate route to the heavily traveled Trinity Mills and Belt Line Roads and opened to traffic in 1999. The AATT was opened to traffic in 1999.

360T is an approximate 10-mile toll road located in Tarrant, Ellis, and Johnson Counties, extending from Green Oaks Boulevard in Tarrant County south to US 287 in Ellis County. The 360T was built through a public-private partnership between the TxDOT and NTTA and opened to traffic in 2018.