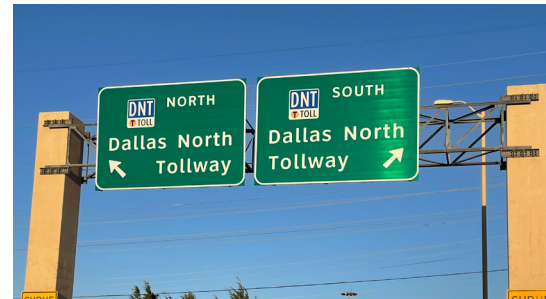




NORTH TEXAS TOLLWAY AUTHORITY

SYSTEM ANNUAL INSPECTION REPORT

Fiscal Year 2023





NTTA Board of Directors

Marcus Knight, Chairman
Mojoy Haddad, Vice Chairman
Lynn Gravley, Director
Pete Kamp, Director
Scott Levine, Director
John Mahalik, Director
George “Tex” Quesada, Director
Glen Whitley, Director
Jane Willard, Director

NTTA Executive Staff

James Hofmann, CEO/Executive Director
Horatio Porter, Chief Financial Officer
Elizabeth Mow, P.E.,
Assistant Executive Director of Infrastructure

NTTA Toll System





September 29, 2023

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

Subject: FY 2023 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 2023 (FY23) System Annual Inspection Report.

VRX completed the System inspections in July 2023 and reports that the system's tollways, bridges, tunnel, and associated facilities have been maintained in good repair, working order and condition. This observation was based on a general visual assessment 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 FY24, the following budgets, which will be presented at the October 18, 2023, Board of Directors' meeting and subject to Board approval at the December 2023 Board Meeting, are recommended:

Operation and Maintenance Fund (OMF): \$240.9 million

Reserve Maintenance Fund (RMF): \$85.1 million

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

Respectfully submitted,

A handwritten signature in black ink that reads "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, Atkins (w/1 copy)
File



TABLE OF CONTENTS

Consulting Engineer Project Director's Letter	i
Table of Contents	ii
Figures	v
Tables	viii
Acronyms and Abbreviations	ix
System Map	x
Executive Summary	xi
1.0 Introduction	1
1.1 Background	1
1.2 Inspection Process	1
1.3 Description of System	3
1.3.1 Dallas North Tollway	3
1.3.2 President George Bush Turnpike	3
1.3.3 Sam Rayburn Tollway	4
1.3.4 Chisholm Trail Parkway	4
1.3.5 Mountain Creek Lake Toll Bridge	4
1.3.6 Lewisville Lake Toll Bridge	4
1.3.7 Addison Airport Toll Tunnel	4
1.3.8 360 Tollway	4
1.3.9 Facilities	5
1.4 Maintenance Program Overview	5
1.4.1 Organization	5
1.4.2 Maintenance Rating Program	6
1.4.3 Specialized Inspections	6
1.4.3.1 Pavement Management Program	6
1.4.3.2 Overhead Sign Structure Inspection Program	7
1.4.3.3 High Mast Illumination Pole Inspection Program	7
1.4.3.4 Bridge Management Program	7
1.4.3.5 Tunnel Management Program	8
1.5 Governmental Accounting Standards Board Requirements	8
2.0 Inspection Findings	9
2.1 Overview	9
2.2 Dallas North Tollway Findings	9
2.2.1 Dallas North Tollway – Roadways	9
2.2.2 Dallas North Tollway – Walls	10
2.2.3 Dallas North Tollway – Bridges	10
2.2.4 Dallas North Tollway – Facilities	11

2.3	President George Bush Turnpike Findings	12
2.3.1	President George Bush Turnpike – Roadway	12
2.3.2	President George Bush Turnpike – Walls	13
2.3.3	President George Bush Turnpike – Bridges	13
2.3.4	President George Bush Turnpike – Facilities	14
2.4	Sam Rayburn Tollway Findings	15
2.4.1	Sam Rayburn Tollway – Roadway	15
2.4.2	Sam Rayburn Tollway – Walls	16
2.4.3	Sam Rayburn Tollway – Bridges	16
2.4.4	Sam Rayburn Tollway – Facilities	17
2.5	Chisholm Trail Parkway Findings	17
2.5.1	Chisholm Trail Parkway – Roadway	17
2.5.2	Chisholm Trail Parkway – Walls	18
2.5.3	Chisholm Trail Parkway – Bridges	18
2.5.4	Chisholm Trail Parkway – Facilities	19
2.6	Mountain Creek Lake Bridge Findings	19
2.6.1	Mountain Creek Lake Bridge – Roadway	19
2.6.2	Mountain Creek Lake Bridge – Walls	19
2.6.3	Mountain Creek Lake Bridge – Bridge	20
2.6.4	Mountain Creek Lake Bridge – Facilities	20
2.7	Lewisville Lake Toll Bridge Findings	21
2.7.1	Lewisville Lake Toll Bridge – Roadway	21
2.7.2	Lewisville Lake Toll Bridge – Walls	21
2.7.3	Lewisville Lake Toll Bridge – Bridge	21
2.7.4	Lewisville Lake Toll Bridge – Facilities	21
2.8	Addison Airport Toll Tunnel Findings	22
2.8.1	Addison Airport Toll Tunnel – Roadway	22
2.8.2	Addison Airport Toll Tunnel – Walls	22
2.8.3	Addison Airport Toll Tunnel – Bridge	22
2.8.4	Addison Airport Toll Tunnel – Facilities	22
2.9	360 Tollway Findings	23
2.9.1	360 Tollway – Roadway	23
2.9.2	360 Tollway – Walls	24
2.9.3	360 Tollway – Bridges	24
2.9.4	360 Tollway – Facilities	25
2.10	Office and Facility Findings (Other)	25
2.10.1	Facilities	25
3.0	Projects Completed Since FY22 Inspections	27
3.1	Dallas North Tollway Completed Projects	27
3.2	President George Bush Turnpike Completed Projects	27

3.3	Sam Rayburn Tollway Completed Projects	27
3.4	Chisholm Trail Parkway Completed Projects	27
3.5	Mountain Creek Lake Bridge Completed Projects	27
3.6	Lewisville Lake Toll Bridge Completed Projects	27
3.7	Addison Airport Toll Tunnel Completed Projects	27
3.8	360 Tollway Completed Projects	27
3.9	Facility Projects	27
4.0	Future Projects and Recommendations	28
4.1	Overview	28
4.2	Dallas North Tollway	28
4.3	President George Bush Turnpike	28
4.4	Sam Rayburn Tollway	29
4.5	Chisholm Trail Parkway	29
4.6	Mountain Creek Lake Bridge	29
4.7	Lewisville Lake Toll Bridge	29
4.8	Addison Airport Toll Tunnel	29
4.9	360 Tollway	30
4.10	Facility/Building	30
4.11	Budget Recommendations	30
5.0	Summary	31
6.0	Appendices	
A	Section 504 of the Amended and Restated Trust Agreement	32
B	Quality Management System Manual Procedure GEC 01 – General Engineering Consultant Annual Inspection of the NTTA System	35
C	NTTA Corridor History	44

FIGURES

Figure 1:	System Map	x
Figure 2:	DNT pavement delamination SBML at IH-635.	9
Figure 3:	DNT concrete rail damage SBML south of Eldorado Pkwy.	9
Figure 4:	DNT erosion SBML S. of Gaylord Pkwy.	9
Figure 5:	DNT pavement edge dropoff.	9
Figure 6:	DNT pavement markings faded or missing NBML north of Arapaho Rd.	9
Figure 7:	DNT curb inlet damage NBML south of Oak Lawn Ave.	9
Figure 8:	DNT MSE racked wall panels exhibiting cracking and spalling NBML south of IH-635.	10
Figure 9:	DNT bridge bent cap spalling with exposed reinforcement SBML at IH-635.	10
Figure 10:	DNT bridge deck deterioration at Northaven Rd.	10
Figure 11:	DNT bridge beam spalling with exposed reinforcement SBML at Eldorado Pkwy.	10
Figure 12:	DNT MLG1 gantry corrosion.	11
Figure 13:	DNT MLG1 rust and paint repair at IT building.	11
Figure 14:	DNT MLG3 minor cracking and chipping at gantry columns.	11
Figure 15:	DNT MLP3 duct issues in mechanical yard.	11
Figure 16:	DNT MLP4 roof deterioration.	11
Figure 17:	DNT MLP4 coating deterioration on plaza structure.	11
Figure 18:	PGBT roadside erosion adjacent to SBML at IH-30 in Garland.	12
Figure 19:	PGBT concrete rail cracking NBML between Miller Rd. and Main St.	12
Figure 20:	PGBT pavement distress NBRF just north of January Ln.	12
Figure 21:	PGBT asphalt shoulder deterioration NBML just south of N. Garland Rd.	12
Figure 22:	PGBT light pedestal cracking NBML just north of Pioneer Pkwy.	12
Figure 23:	PGBT pavement markings faded or missing SBML north of Pioneer Pkwy.	12
Figure 24:	PGBT pavement edge drop-off.	12
Figure 25:	PGBT retaining wall spalls SBML at N. MacArthur Blvd.	13
Figure 26:	PGBT soundwall movement adjacent to NB exit ramp to Frankford Rd.	13
Figure 27:	PGBT bridge deck spalling EBML at DNT.	13
Figure 28:	PGBT bridge bent cap cracking SBML south of S Forum Dr.	13
Figure 29:	PGBT under bridge erosion SBML south of S Forum Dr.	13
Figure 30:	PGBT MLP7 deteriorated masonry joints.	14
Figure 31:	PGBT MLP7 masonry sealant and joint treatments past expected life-cycle.	14
Figure 32:	PGBT MLG6 gantry roof deterioration.	14

Figure 33:	PGBT MLP6 tunnel leaks.	14
Figure 34:	PGBT MLG12 pest control at Fiber Hut.	14
Figure 35:	SRT concrete pavement joint deterioration NBML north of Old Denton Rd.	15
Figure 36:	SRT concrete rail cracking and spalling SBML north of Leadership Dr.	15
Figure 37:	SRT embankment erosion NBML south of DNT.	15
Figure 38:	SRT pavement markings faded or missing NBML south of W Hebron Pkwy.	15
Figure 39:	SRT pavement edge drop-off.	15
Figure 40:	SRT curb damage SBFR south of W. Exchange Pkwy.	15
Figure 41:	SRT retaining wall spalling SBFR at Ohio Dr.	16
Figure 42:	SRT bridge deck distress SBML north of S Lake Forest Dr.	16
Figure 43:	SRT bridge bent cracking SRT DC at US-75.	16
Figure 44:	SRT bridge beam with exposed reinforcement at Ohio Dr.	16
Figure 45:	SRT bridge erosion SRT DC at US-75.	16
Figure 46:	SRT MLG2 corrosion at gantry structure.	17
Figure 47:	SRT MLG3 wall damage at IT building.	17
Figure 48:	SRT Fiber Hut drainage concern and undermining of building.	17
Figure 49:	CTP concrete pavement joint deterioration SBML north of Arborlawn Dr.	17
Figure 50:	CTP concrete barrier SBML south of Arborlawn Dr.	17
Figure 51:	CTP embankment erosion NBML south of Sparks Dr.	17
Figure 52:	CTP pavement edge drop-off.	17
Figure 53:	CTP MSE retaining wall panel cracking NBML north of Southwest Blvd.	18
Figure 54:	CTP MSE racked panels and wall mow strip settlement SBML adjacent to UPRR Rail Yard.	18
Figure 55:	CTP approach slab cracking NBML south of Overton Ridge Blvd.	18
Figure 56:	CTP bridge rail spalling SBML at Sparks Dr.	18
Figure 57:	CTP erosion NBML at IH-20.	18
Figure 58:	CTP Fiber Hut at FM 1187 runoff entering building.	19
Figure 59:	CTP Fiber Hut at IH-20 runoff entering building.	19
Figure 60:	MCLB pavement markings faded or missing.	19
Figure 61:	MCLB approach slab cracking.	20
Figure 62:	MCLB beam spalling with reinforcement exposed.	20
Figure 63:	MCLB gantry camera stand missing bolts.	20
Figure 64:	LLTB coping damage.	21
Figure 65:	LLTB bridge deck spalling EBML.	21
Figure 66:	LLTB bridge abutment spalling with reinforcement exposed.	21

Figure 67:	LLTB rusted utility box on bent cap.	21
Figure 68:	LLTB buoy damage.	21
Figure 69:	AATT concrete pavement distress.	22
Figure 70:	AATT CIP wall cracking and spalling.	22
Figure 71:	AATT MSE wall panel joint seal damaged/missing.	22
Figure 72:	AATT roofing membrane damage.	22
Figure 73:	360T concrete pavement distresses NBFR near Doryn Dr.	23
Figure 74:	360T concrete barrier damage with reinforcement exposed SBML south of SE Green Oaks Blvd.	23
Figure 75:	360T embankment erosion between NB mainlanes and frontage road near Heritage Pkwy.	23
Figure 76:	360T pavement edge drop-off.	23
Figure 77:	360T pavement markings faded or missing SBML at Ragland Rd.	23
Figure 78:	360T MSE wall panel cracking and spalling NBML north of FM 2011.	24
Figure 79:	360T bridge deck spalling SBML north of N Holland Rd.	24
Figure 80:	360T bridge beam and concrete riprap spalling at SE Green Oaks Blvd.	24
Figure 81:	360T bridge rail cracking NBML south of Heritage Pkwy.	24
Figure 82:	Panel board missing schedule.	25
Figure 83:	360T Fiber Hut pest infestation.	25
Figure 84:	Plano Operations Center rust on steel frame of storage facility.	25
Figure 85:	Frisco Operations Center gypsum board removed due to water infiltration at several locations.	26
Figure 86:	Gleneagles Office Complex ferrous metal coating failure.	26
Figure 87:	Gleneagles Office Complex roof deterioration.	26

TABLES

Table 1:	Budget Recommendations	xi
Table 2:	Roadway Inspection Elements	1
Table 3:	Wall Inspection Elements	1
Table 4:	Bridge Inspection Elements	2
Table 5:	Facility Inspection Elements	2
Table 6:	GEC Annual Inspection Rating Scale	3
Table 7:	Corridor Facts	5
Table 8:	Maintenance Responsibilities	5
Table 9:	Budget Recommendations	30

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

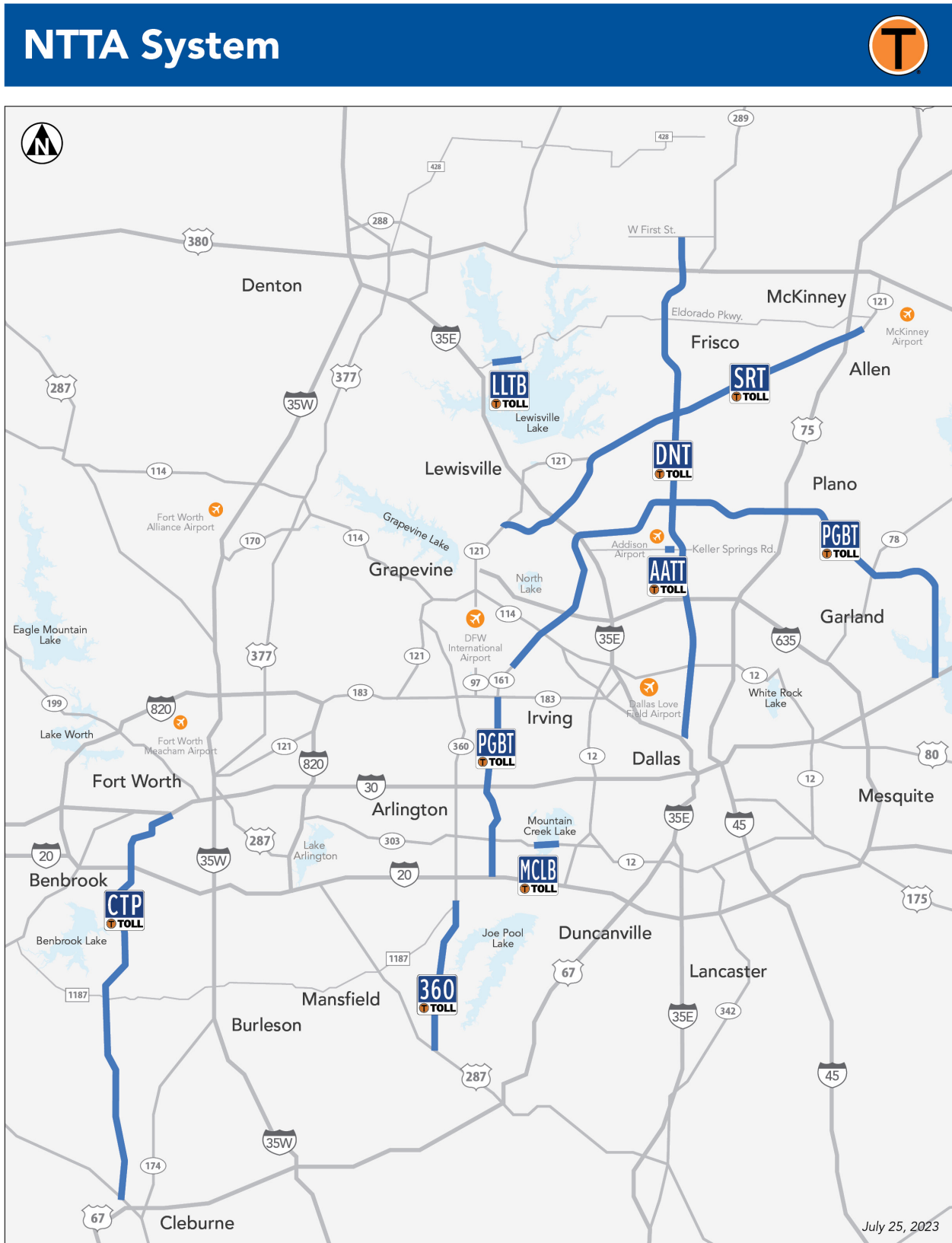


Figure 1: System Map

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 2023 and is pleased to report that the system has been maintained in good repair, working order, and condition. This observation was based on a general visual inspection of the 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 2024 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 18, 2023, and subject to Board approval in December, 2023:

FUNDS	BUDGET
Operation and Maintenance Fund (OMF)	\$240.9 million
Reserve Maintenance Fund (RMF)	\$85.1 million

The overall condition of the System, and funding levels for the System operating budgets, exemplifies 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 observations noted should be monitored or addressed by NTTA, as necessary, to ensure the assets meet their intended life expectancy. These inspections/ observations 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 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

Major office buildings, operation centers, plazas, IT buildings, and the AATT 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 prevention 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 inspection and assessment of asset element features.

No analysis or detailed 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 potential future distress that warrants 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 626 bridges, and one tunnel.



1.3.1 Dallas North Tollway

DNT extends from Interstate 35E (IH-35E) in downtown Dallas north approximately 31 miles to 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 clockwise 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 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 Creek Lake Toll 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	113	43
PGBT	387	56	236	71
SRT	206	154	141	44
CTP	99	0	85	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 Jorgensen 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 but the specific date has yet 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. (Atkins), 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.

1.4.3 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.

1.4.3.1 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.

1.4.3.2 Overhead Sign Structure Inspection Program

The Overhead Sign (OHS) 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 OHS program also includes the structural elements of the toll gantries. The System contains 883 OHS structures. The structures are inspected on a 5-year cycle, with a portion of the overall number of structures being inspected each year. The 2023 inspection consisted of 177 structures.

1.4.3.3 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.

1.4.3.4 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 91.47.

Fast Facts



1.4.3.5 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. Since the 2023 analysis is not yet complete, the 2021 data, along with the visual observations from the GEC's 2023 assessment will serve as the basis for the comments and recommendations in the tunnel portion of this report.

1.5 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 a Board adopted minimum level-of-service of 8.0. The MMC maintains an inventory of NTTA's infrastructure assets whereas 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 2023 GASB 34 rating for the System is 8.9 out of 10.

2.0 INSPECTION FINDINGS

2.1 Overview

Based on the 2023 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.

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 Findings

2.2.1 Dallas North Tollway – Roadways

HMAC pavement delamination areas, mostly along the NB mainlanes between IH-35E and IH-635, were observed, (Figure 2). There were multiple locations of reflective pavement cracking and joint deterioration. Also noted were concrete barrier cracking and spalling (Figure 3). There were areas of erosion in landscape beds north of PGBT (Figure 4). Several locations of pavement edge drop-offs were observed (Figure 5). There were isolated locations of damaged or faded pavement markings (Figure 6). Several locations south of IH-635 had damaged inlet tops (Figure 7).

DNT – Roadways



Figure 2: DNT pavement delamination SBML at IH-635.



Figure 3: DNT concrete rail damage SBML south of Eldorado Pkwy.



Figure 4: DNT erosion SBML S. of Gaylord Pkwy.



Figure 5: DNT pavement edge dropoff.



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



Figure 7: DNT curb inlet damage NBML south of Oak Lawn Ave.

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 as shown in Figure 8. These observations do not confirm nor negate current wall movement. From regularly scheduled coordination meetings with NTTA and the MMC, it is the GEC's understanding that these walls are being further evaluated.

2.2.3 Dallas North Tollway – Bridges

Bridge bent cap spalling, some with exposed reinforcement was observed (Figure 9). There were several locations of approach slab damage and deck deterioration (Figure 10). Also noted were locations of beam spalling, some with exposed reinforcement (Figure 11).

DNT – Walls

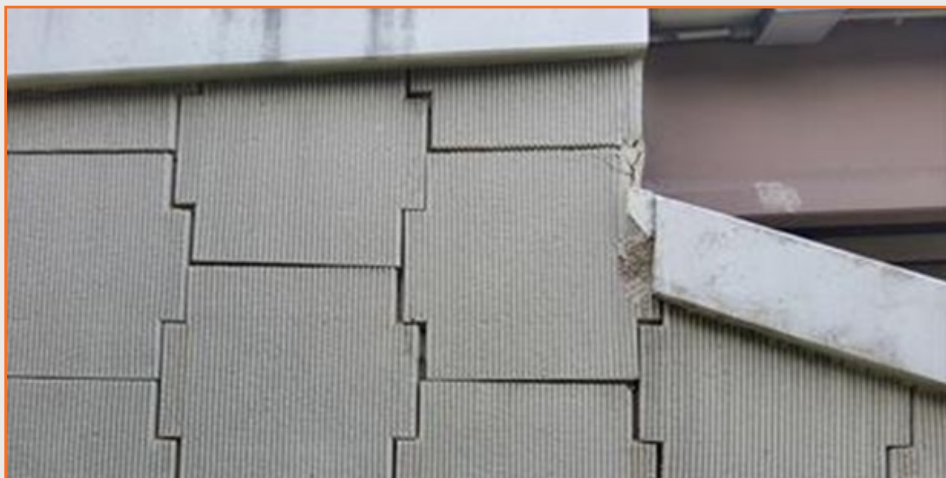


Figure 8: DNT MSE racked wall panels exhibiting cracking and spalling NBML south of IH-635.

DNT – Bridges



Figure 9: DNT bridge bent cap spalling with exposed reinforcement SBML at IH-635.

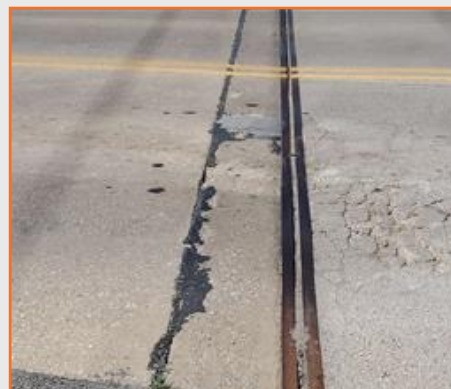


Figure 10: DNT bridge deck deterioration at Northaven Rd.



Figure 11: DNT bridge beam spalling with exposed reinforcement SBML at Eldorado Pkwy.

2.2.4 Dallas North Tollway – Facilities

At MLG1 corrosion and rust were noted at both the gantry and IT building (Figures 12 and 13). IT buildings had insect and janitorial issues. At MLP 2, observations included rusting at slab lifting plates, spalling at gantry columns and loose cable on gantries. At MLG 3, located near Parker Road there was floor damage from inadequate site drainage, and minor cracks and spalls on gantry columns (Figure 14). At the MLP3 Operations Building ceiling damage and loose ducting (Figure 15) and missing insulation were observed in the maintenance yard. At MLP4, significant deterioration of the existing roof (Figure 16) and related water damage inside was observed; it has been reported to the GEC that a roof replacement project is scheduled for 2023. The gantry structure at MLP4 continues to experience coatings failure (Figure 17) which is not yet affecting its function. DNT Fiber Huts have insect and janitorial issues.

DNT – Facilities

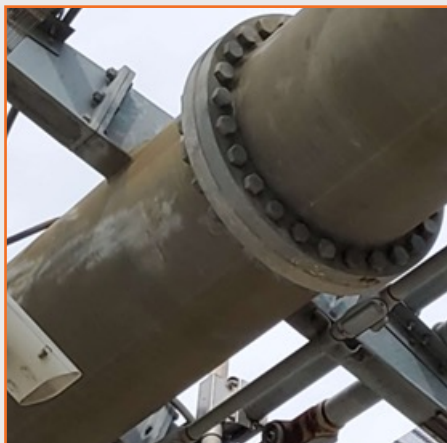


Figure 12: DNT MLG1 gantry corrosion.



Figure 13: DNT MLG1 rust and paint repair at IT building.



Figure 14: DNT MLG3 minor cracking and chipping at gantry columns.



Figure 15: DNT MLP3 duct issues in mechanical yard.



Figure 16: DNT MLP4 roof deterioration.

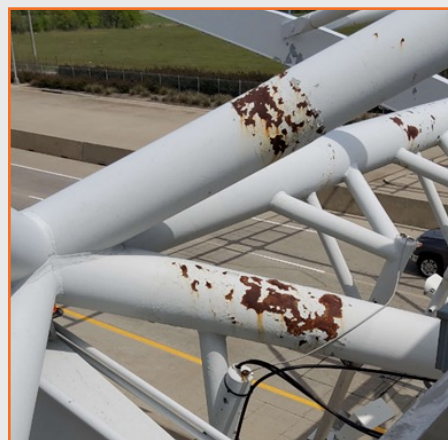


Figure 17: DNT MLP4 coating deterioration on plaza structure.

2.3 President George Bush Turnpike Findings

2.3.1 President George Bush Turnpike – Roadway

Several locations of ditch and embankment erosion (Figure 18) were observed. There were various locations of concrete barrier cracking and spalling (Figure 19). Also noted were locations of concrete pavement cracking and spalling (Figure 20). Asphalt pavement shoulder deterioration was identified at numerous locations (Figure 21). There were several illumination pole pedestals cracking (Figure 22). Multiple locations of damage or faded pavement markings (Figure 23) were identified. Pavement edge drop-offs (Figure 24) were observed at various locations throughout the corridor.

PGBT – Roadways



Figure 18: PGBT roadside erosion adjacent to SBML at IH-30 in Garland.



Figure 19: PGBT concrete rail cracking NBML between Miller Rd. and Main St.



Figure 20: PGBT pavement distress NBFR just north of January Ln.



Figure 21: PGBT asphalt shoulder deterioration NBML just south of N. Garland Rd.



Figure 22: PGBT light pedestal cracking NBML just north of Pioneer Pkwy.



Figure 23: PGBT pavement markings faded or missing SBML north of Pioneer Pkwy.



Figure 24: PGBT pavement edge drop-off.

2.3.2 President George Bush Turnpike – Walls

General visual observations included instances of panels that were racked or experienced some level of spalling or cracking at various locations as shown in Figure 25. In addition, the soundwall along the NB exit to Frankford Rd is settling and leaning (Figure 26). These observations do not confirm nor negate current wall movement. From regularly scheduled coordination meetings with NTTA and the MMC, it is the GEC's understanding that these walls are being further evaluated.

PGBT – Walls



Figure 25: PGBT retaining wall spalls SBML at N. MacArthur Blvd.



Figure 26: PGBT soundwall movement adjacent to NB exit ramp to Frankford Rd.

2.3.3 President George Bush Turnpike – Bridges

Bridge observations include deck and approach slab spalling (Figure 27). There were several locations of bent cap cracking (Figure 28). There were isolated areas experiencing erosion near or around bridge columns (Figure 29).

PGBT – Bridges



Figure 27: PGBT bridge deck spalling EBML at DNT.



Figure 28: PGBT bridge bent cap cracking SBML south of S Forum Dr.



Figure 29: PGBT under bridge erosion SBML south of S Forum Dr.

2.3.4 President George Bush Turnpike – Facilities

Observations identified throughout the facilities included masonry, stucco and exterior concrete joint and sealant deterioration (Figures 30 and 31), gantry roof deterioration over roadway (Figure 32), continuing leaking in tunnels (Figure 33), and insect and janitorial issues (Figure 34) at Fiber Huts and IT buildings.

PGBT – Facilities



Figure 30: PGBT MLP7 deteriorated masonry joints.



Figure 31: PGBT MLP7 masonry sealant and joint treatments past expected life-cycle.



Figure 32: PGBT MLG6 gantry roof deterioration.



Figure 33: PGBT MLP6 tunnel leaks.



Figure 34: PGBT MLG12 pest control at Fiber Hut.

2.4 Sam Rayburn Tollway Findings

2.4.1 Sam Rayburn Tollway – Roadway

Multiple locations are experiencing concrete pavement joint deterioration (Figure 35). Also noted were instances of concrete barrier cracking and spalling (Figure 36). There are several locations with erosion within landscape beds and on embankments (Figure 37). Faded or damaged pavement markings (Figure 38) as well as pavement edge drop-offs (Figure 39) 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 40).

SRT – Roadways

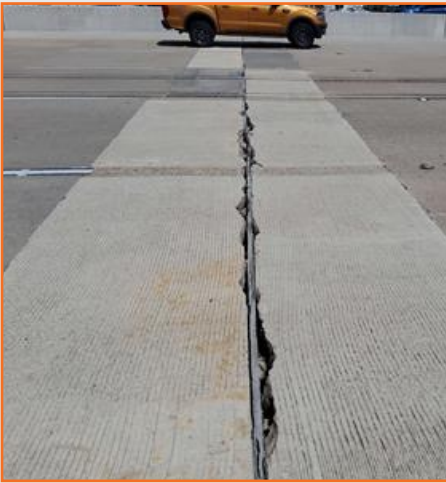


Figure 35: SRT concrete pavement joint deterioration NBML north of Old Denton Rd.



Figure 36: SRT concrete rail cracking and spalling SBML north of Leadership Dr.



Figure 37: SRT embankment erosion NBML south of DNT.



Figure 38: SRT pavement markings faded or missing NBML south of W Hebron Pkwy.



Figure 39: SRT pavement edge drop-off.



Figure 40: SRT curb damage SBFR south of 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 as shown in Figure 41. These observations do not confirm nor negate current wall movement. From regularly scheduled coordination meetings with NTTA and the MMC, it is the GEC's understanding that these walls are being further evaluated.

2.4.3 Sam Rayburn Tollway – Bridges

Bridge deck distresses (Figure 42) were observed. There were several locations of bent cap cracking (Figure 43). Beam spalling with exposed reinforcement (Figure 44) locations were identified. There are several areas experiencing erosion near or adjacent to bridge columns (Figure 45).

SRT – Walls



Figure 41: SRT retaining wall spalling SBFR at Ohio Dr.

SRT – Bridges



Figure 42: SRT bridge deck distress SBML north of S Lake Forest Dr.



Figure 43: SRT bridge bent cracking SRT DC at US-75.

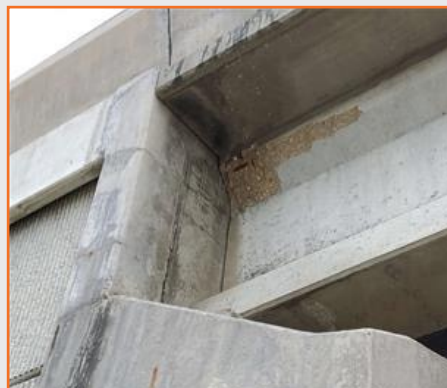


Figure 44: SRT bridge beam with exposed reinforcement at Ohio Dr.



Figure 45: SRT bridge erosion SRT DC at US-75.

2.4.4 Sam Rayburn Tollway – Facilities

There were several observations noted on mainlane gantries including corrosion of the gantry structure (Figure 46), damage to the precast IT Building walls (Figure 47), and poor site drainage concerns at Fiber Huts and IT Buildings (Figure 48) creating water infiltration and undermining issues. Insect infestation is a continuing issue at these facilities.

SRT – Facilities



Figure 46: SRT MLG2 corrosion at gantry structure.



Figure 47: SRT MLG3 wall damage at IT building.



Figure 48: SRT Fiber Hut drainage concern and undermining of building.

2.5 Chisholm Trail Parkway Findings

2.5.1 Chisholm Trail Parkway – Roadway

There were multiple locations with concrete pavement joint deterioration (Figure 49). Also noted were locations of concrete barrier cracking and spalling (Figure 50). There are several locations with ditch and embankment erosion (Figure 51). Numerous locations of pavement edge drop-offs (Figure 52) throughout the corridor.

CTP – Roadway



Figure 49: CTP concrete pavement joint deterioration SBML north of Arborlawn Dr.



Figure 50: CTP concrete barrier SBML south of Arborlawn Dr.



Figure 51: CTP embankment erosion NBML south of Sparks Dr.



Figure 52: CTP pavement edge drop-off.

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 as shown in Figures 53 and 54.

CTP – Walls



Figure 53: CTP MSE retaining wall panel cracking NBML north of Southwest Blvd.



Figure 54: CTP MSE racked panels and wall mow strip settlement SBML adjacent to UPRR Rail Yard.

2.5.3 Chisholm Trail Parkway – Bridges

Bridge approach slab cracking was identified at a few locations (Figure 55). Concrete rail damage (Figure 56) as well as erosion near or adjacent to bridge columns (Figure 57) were observed.

CTP – Bridges



Figure 55: CTP approach slab cracking NBML south of Overton Ridge Blvd.



Figure 56: CTP bridge rail spalling SBML at Sparks Dr.



Figure 57: CTP erosion NBML at IH-20.

2.5.4 Chisholm Trail Parkway – Facilities

Facilities along the CTP corridor are in good condition with only a few drainage issues observed (Figures 58 and 59). Insect infestation and insufficient janitorial service are continuing issues at these facilities.

CTP – Facilities



Figure 58: CTP Fiber Hut at FM 1187 runoff entering building.



Figure 59: CTP Fiber Hut at IH-20 runoff entering building.

2.6 Mountain Creek Lake Bridge Findings

2.6.1 Mountain Creek Lake Bridge – Roadway

Observations noted this year include faded or damaged pavement markings (Figure 60).

MCLB – Roadway

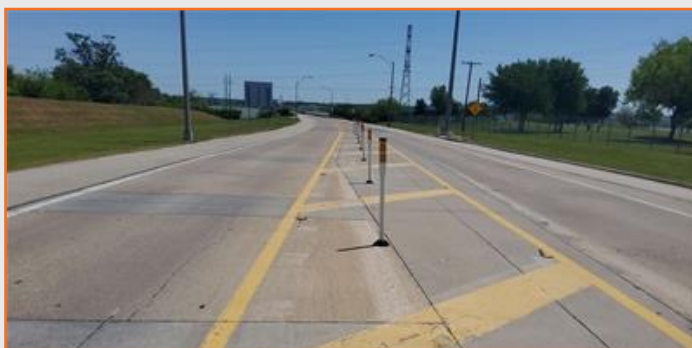


Figure 60: MCLB pavement markings faded or missing.

2.6.2 Mountain Creek Lake Bridge – Walls

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

2.6.3 Mountain Creek Lake Bridge – Bridge

Bridge observations include approach slab cracking (Figure 61) and beam spalling with reinforcement exposed (Figure 62).

2.6.4 Mountain Creek Lake Bridge – Facilities

The MCLB gantry is in generally good condition. One camera stand was noted as inadequately secured due to missing bolts (Figure 63).

MCLB – Bridge



Figure 61: MCLB approach slab cracking.



Figure 62: MCLB beam spalling with reinforcement exposed.

MCLB – Facilities



Figure 63: MCLB gantry camera stand missing bolts.

2.7 Lewisville Lake Toll Bridge Findings

2.7.1 Lewisville Lake Toll Bridge – Roadway

The roadway elements are generally in good condition. No observations were noted.

2.7.2 Lewisville Lake Toll Bridge – Walls

MSE wall coping damage was observed (Figure 64).

2.7.3 Lewisville Lake Toll Bridge – Bridge

Bridge observations include deck spalling (Figure 65) and abutment spalling with reinforcement exposed (Figure 66). Also noted was a damaged utility box on bent cap (Figure 67). There were numerous damaged buoys (Figure 68) observed but will be replaced as part of an LLTB maintenance project which is scheduled to begin in late 2023.

2.7.4 Lewisville Lake Toll Bridge – Facilities

Lewisville Lake Toll Bridge has two gantries on the west end that are in good condition with no notable observations.

LLTB – Walls



Figure 64: LLTB coping damage.

LLTB – Bridges



Figure 65: LLTB bridge deck spalling EBML.



Figure 66: LLTB bridge abutment spalling with reinforcement exposed.



Figure 67: LLTB rusted utility box on bent cap.

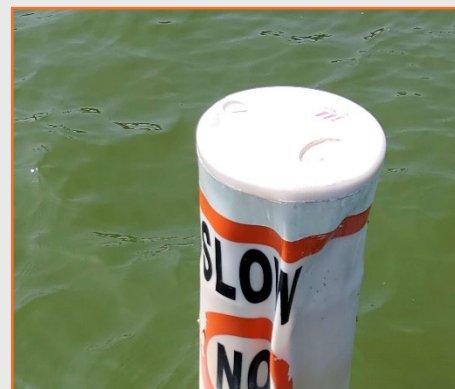


Figure 68: LLTB buoy damage.

2.8 Addison Airport Toll Tunnel Findings

2.8.1 Addison Airport Toll Tunnel – Roadway

Observations include curb damage and concrete pavement distresses (Figure 69).

2.8.2 Addison Airport Toll Tunnel – Walls

The walls leading to the tunnel were observed to have cracking in the MSE and CIP wall panels. Also noted were isolated areas of cracking and spalling on the CIP wall panels (Figure 70) in addition to missing or damaged wall panel joint material (Figure 71)

2.8.3 Addison Airport Toll Tunnel – Bridge

There is no bridge on the AATT.

2.8.4 Addison Airport Toll Tunnel – Facilities

The former MLP building is serving currently as an electrical room and is functioning as required. The gantry structure over the traffic lanes has roofing failure (Figure 72). Construction projects for replacement of the tunnel exhaust fans, the tunnel lighting, and the tunnel liner repairs and recoating were active during the time of inspection this year.

AATT – Roadway

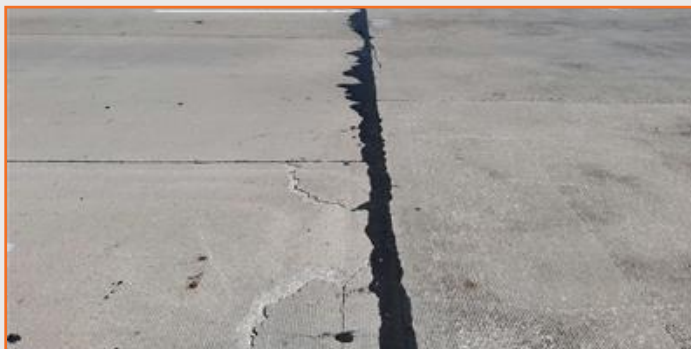


Figure 69: AATT concrete pavement distress.

AATT – Walls

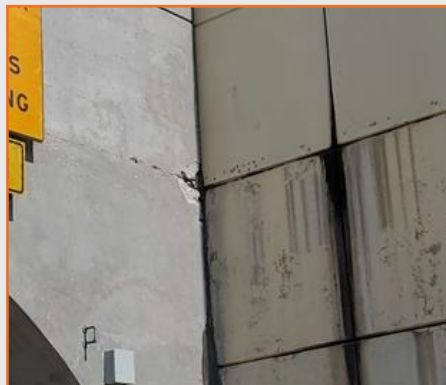


Figure 70: AATT CIP wall cracking and spalling.



Figure 71: AATT MSE wall panel joint seal damaged/missing.

AATT – Facilities



Figure 72: AATT roofing membrane damage.

2.9 360 Tollway Findings

2.9.1 360 Tollway – Roadway

There were locations with concrete pavement distress (Figure 73). Also noted were isolated locations of concrete barrier cracking and spalling, some with reinforcement exposed (Figure 74). There are several locations with ditch and embankment erosion (Figure 75). Numerous locations of pavement edge drop-offs (Figure 76) as well as faded or damaged pavement markings (Figure 77) throughout the corridor.

360T – Roadway



Figure 73: 360T concrete pavement distresses NBFR near Doryn Dr.



Figure 74: 360T concrete barrier damage with reinforcement exposed SBML south of SE Green Oaks Blvd.



Figure 75: 360T embankment erosion between NB mainlanes and frontage road near Heritage Pkwy.



Figure 76: 360T pavement edge drop-off.



Figure 77: 360T pavement markings faded or missing SBML at Ragland Rd.

2.9.2 360 Tollway – Walls

Observations included isolated wall panel and coping cracking and spalling (Figure 78).

360T – Walls



Figure 78: 360T MSE wall panel cracking and spalling NBML north of FM 2011.

2.9.3 360 Tollway – Bridges

Bridge deck spalling was observed at various locations (Figure 79). There were instances of bridge beam spalling (Figure 780) as well as cracking and spalled concrete railing (Figure 81).

360T – Bridges



Figure 79: 360T bridge deck spalling SBML north of N Holland Rd.



Figure 80: 360T bridge beam and concrete riprap spalling at SE Green Oaks Blvd.



Figure 81: 360T bridge rail cracking NBML south of Heritage Pkwy.

2.9.4 360 Tollway – Facilities

There were minor issues observed with the panelboards at 360T-MLG 15 as well as pest infestation (Figures 82 and 83).

360T – Facilities



Figure 82: Panel board missing schedule.



Figure 83: 360T Fiber Hut pest infestation.

2.10 Office and Facility Findings (Other)

2.10.1 Facilities

Other inspected facilities include the Gleneagles Office Complex, the Plano Operations Center, and the Frisco Operations Center. At the time of inspection the Plano Operations Center was under construction for a major expansion, renovation and HVAC replacement project. Observations at the Plano Operations Center outside of the construction area include rust on steel frame of storage facility (Figure 84) and non-operational plumbing fixtures and minor sealant issues at the roof. At the various outbuildings on site, minor rust and paint failure on steel was observed.

Plano Operations Center – Findings



Figure 84: Plano Operations Center rust on steel frame of storage facility.

Observations at the Frisco Operations Center include multiple areas of rust formation, minor safety violations, equipment piping leaks, and exterior sealant and water-proofing failures. In multiple locations interior gypsum board has been removed due to water infiltration (Figure 85).

Frisco Operations Center – Findings



Figure 85: Frisco Operations Center gypsum board removed due to water infiltration at several locations.

Observations at the Gleneagles Office Center at 5900 West Plano Parkway include multiple areas of ferrous metal coatings failure and rust (Figure 86). Other observations included damaged ceiling tiles, minor roofing deterioration and general interior wear and tear.

Observations at the Gleneagles Office Center at 5910 West Plano Parkway include masonry cracking, exterior sealant failures, and multiple locations of water infiltration. Multiple ceiling tiles have been damaged, stained or dislodged, and the roof has multiple areas of failure. It is our understanding that a reroofing project for 5910 is in process (Figure 87).

Gleneagles Office Complex – Findings



Figure 86: Gleneagles Office Complex ferrous metal coating failure.



Figure 87: Gleneagles Office Complex roof deterioration.

3.0 PROJECTS COMPLETED SINCE FY22 INSPECTIONS

Listed below are projects that have been completed or in the process of being completed since the FY22 inspections.

3.1 Dallas North Tollway Completed Projects

- Cross Street Bridge Deck Repair
- Large and Small Sign Replacement (Seg. 1 & 2)
- Raised Pavement Marker Replacement

3.2 President George Bush Turnpike Completed Projects

- Frontage Road Small Roadside Sign Replacement (Seg. 7 & 8)
- Bridge Bent Cap Sealing at IH 35E and IH-30 in Garland

3.3 Sam Rayburn Tollway Completed Projects

- Large and small sign Replacement (Seg. 1 & 2)
- Frontage Road Pavement Rehabilitation
- Frontage Road Restriping (Seg. 3)
- Bridge Bent Cap Sealing at US 75
- Frontage Road Joint and Crack Sealing

3.4 Chisholm Trail Parkway Completed Projects

- Mainlane Shoulder Rehabilitation (Seg. 1)

3.5 Mountain Creek Lake Bridge Completed Projects

- Restriping

3.6 Lewisville Lake Toll Bridge Completed Projects

- Raised Pavement Marker Replacement

3.7 Addison Airport Toll Tunnel Completed Projects

- Tunnel Exhaust Fan Replacement (project on-going)
- Tunnel Lighting and Liner Upgrades (project on-going)

3.8 360 Tollway Completed Projects

- None noted

3.9 Facility Projects

- 5910 Reroofing (project on-going)

4.0 FUTURE PROJECTS AND RECOMMENDATIONS

4.1 Overview

Through coordination with the Project Delivery, Maintenance Department and the MMC, a plan will be developed to repair, replace, or monitor the observations noted during the 2023 Annual Inspection. This section summarizes Project Delivery and Maintenance Department future projects, which are supported by the GEC based on observations noted in their annual inspections. It also includes recommendations for findings that may warrant further attention.

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:

- Mainlane Bridge Deck Rehab (Multiple Locations Seg. 1)
- Mainlane Edgeline restriping (Seg. 3)
- Mainlane and Shoulder Pavement Rehab (Seg. 1 & 2)
- Mainlane and Cross Street Bridge Deck Rehab (Multiple locations Seg. 1)
- Curb Inlet Top Repairs (Seg. 1)
- Landscape Bed Erosion Repairs

It is also recommended that the following observations be monitored for further degradation: HMAC patches; cracking on barriers, rail and coping, spalling on wall panels; abutment backwall cracking.

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 projects include the following:

- Frontage Road Drainage Improvements (Seg. 1)
- Sign Replacement (Seg. 6)
- Bridge Deck Joint Seal Replacement (Various Locations)
- Erosion Repair (Various Locations)
- Mainlane Shoulder Pavement Rehab (Seg. 2)
- Large and Small Sign Replacement (Seg. 7 and 8)
- Mainlane Restriping (Seg. 7 and 8)
- Mainlane Restriping (Capping) (Seg. 2 & 5)
- Mainlane Restriping (Cap Edgelines) (Seg. 4 & 5)

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

It is recommended that the following observations be monitored for further degradation: cracking of illumination pole pedestals; cracking on barriers, rail and coping, spalling on wall panels; and abutment backwall cracking.

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 projects include the following:

- Concrete Shoulder and Rail Rehab (Seg. 1)
- Wall and Drainage Improvements (Seg. 3)
- Mainlane Pavement Repair (Various Locations)
- Frontage Road Pavement Rehab (Seg. 2)
- Mainlane and Frontage Rd. Restriping (Seg. 1-5)

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

4.5 Chisholm Trail Parkway

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

- Mainlane Restriping (Various Locations)

The vast majority of the observations on CTP fall under the scope of routine maintenance. These include various locations of pavement spalls, pavement edge drop-offs, and erosion on embankments, ditches 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 barriers, rail and coping, spalling on wall panels.

4.6 Mountain Creek Lake Bridge

A project is being developed to address substructure concrete spalls and cracks identified during the recent inspections.

It is recommended that the cracking in the abutment backwalls and concrete column casings be monitored for further degradation.

4.7 Lewisville Lake Toll Bridge

A project has been developed or is in the process of being developed to address distresses in the deck, railings, columns and bent caps. This is a 2025 Bridge Repairs project.

4.8 Addison Airport Toll Tunnel

Two projects will be developed to address the needs of the AATT. There will be a Retaining Wall Repair and Coating project in addition to a Fencing Replacement project

It is also recommended that the following observations be monitored for further degradation: cracking wall panels, curb and drainage flumes.

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:

- Roof Replacement (PGBT MLP 9)
- HVAC Replacement (PGBT MLP 8)
- Fire Suppression, HVAC and UPS Upgrades (Gleneagles 5910)
- Campus Facility Repairs (Gleneagles Complex)
- Interior/Exterior Repairs (DNT MLP4)
- Re-roofing (PGBT MLP 6)

NTTA has and continues to plan and execute replacement projects for roofing and HVAC throughout its System. The GEC recommends that it add exterior sealant replacement and ferrous metal recoatings projects to its maintenance schedules.

It is understood that eventually all the original plaza structures will be replaced with all ETC gantries. Because corrosion is occurring at multiple of those prototype structures, the NTTA may wish to assess alternative materials or coatings in its design guidelines. Additionally, the NTTA may wish to assess the need for repairs at the existing gantries against the expected replacement dates.

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 2024 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)	\$240.9 million
Reserve Maintenance Fund (RMF)	\$85.1 million

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 reliable mobility option for 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 NTA 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.

NTTA Projects	Original Issue Date: 07/05/2012	GEC-01
Resource: General Engineering Consultant Procedures	Revision: 0 Issue Date: 07/05/2012	Page 2 of 8
Title: GEC Annual Inspection of the NTTA Systems		

- 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:**
- Perform 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:

- Perform 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.

NTTA Projects	Original Issue Date: 07/05/2012	GEC-01
Resource: General Engineering Consultant Procedures	Revision: 0 Issue Date: 07/05/2012	Page 5 of 8
Title: GEC Annual Inspection of the NTTA Systems		

- 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.

NTTA Projects	Original Issue Date: 07/05/2012	GEC-01
Resource: General Engineering Consultant Procedures	Revision: 0 Issue Date: 07/05/2012	Page 7 of 8
Title: GEC Annual Inspection of the NTTA Systems		

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 CORRIDOR HISTORY



C. 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.

