

# North Texas Tollway Authority Sign and Traffic Control Device Guidelines



May 2008

**NTTA**<sup>®</sup>  
NORTH TEXAS TOLLWAY AUTHORITY

## NTTA Sign and Traffic Control Device Guidelines

1. All new signs and traffic control devices shall meet the requirements of the “Texas Manual on Uniform Traffic Control Devices” (Texas MUTCD), the Federal Highway Administration (FHWA) “Manual on Uniform Traffic Control Devices” (MUTCD), the NTTA Sign Policy, NTTA SGN standard drawings and the Texas Department of Transportation (TxDOT) Standard Highway Sign Designs for Texas (SHSD). All existing signs and traffic control devices not in conformance with these guidelines will be changed when replacement or relocation becomes necessary due to performance, construction or maintenance. In case of conflicts among the requirements, (a) the TMUTCD will govern and take precedence over the FHWA MUTCD, NTTA Sign Policy, NTTA standard drawings and SHSD; (b) the FHWA MUTCD will govern and take precedence over the NTTA Sign Policy, NTTA standard drawings and SHSD; and (c) the NTTA Sign Policy, NTTA standard drawings will govern and take precedence over the SHSD.
2. Toll plazas and gantries generally have regulatory, warning, and toll-related signing. Use of variable ICON signs, such as a light emitting diode (LED) displays, is encouraged for improved operations by allowing flexible lane use by time of day and variable pricing. These signs should be limited to the NTTA approved ICONS, “TollTag”, “TxTag”, “ZipCash”, “Change Made”, “Exact XX¢” and “Lane Closed”. For examples of toll plaza sign usage, refer to **Figures 1 through 6**. For examples of Proposed Electronic Toll Collection (ETC) sign usage, refer to **Figures 7 through 9**. Refer to the NTTA SGN standard drawings for sign sizes.

**Figure 1** – Mainlane Toll Plaza Exit Signing Condition (Interim): This figure shows the proper placement of signs for plazas with an exit condition to cash toll. This interim condition will only apply to Main Lane Plazas 6, 7, 8, and 10 of the President George Bush Turnpike.

**Figure 2** – Mainlane Toll Plaza Advance Signing (Existing) – Overhead Sign Bridge: This figure shows proper sign text, placement, and pavement markings on the main lanes in advance of main lane toll plazas using overhead sign bridges. This figure represents existing signing conditions for Main Lane Plaza 3 of the Dallas North Tollway and Main Lane Plaza 9 of the President George Bush Turnpike.

**Figure 3** – Mainlane Toll Plaza Advance Signing (Existing) – Cantilever Sign Bridge: This figure shows proper sign text, placement, and pavement markings on the main lanes in advance of main lane toll plazas using cantilever overhead sign structures. This figure represents existing signing conditions for Main Lane Plaza 2 of the Dallas North Tollway.

**Figure 4** –Plaza Signing (Existing): This figure shows the proper sign text and placement of plaza signs mounted on the plaza itself.

**Figure 5** – Ramp Plaza Advance Signing (Existing & Proposed): This figure shows the proper sign text and placement in advance of ramp plazas.

**Figure 6** – Typical Trailblazer Placement (Existing & Proposed): This figure shows the proper placement for trailblazers on cross streets to toll facilities that have ramp access.

3. The approach to a mainlane toll plaza should have a consistent pattern of signing in both directions. Fare collection method signing shall be uniform in color, and symbols should be in accordance with the NTTA standard drawings.
4. All ramp plazas, with access to the NTTA system, shall have toll rate schedules in accordance with the NTTA standard drawings.
5. All signs with access to the NTTA System shall be designed in accordance with the specifications in the Texas MUTCD, SHSD for Texas Manual, and NTTA standard drawings.
6. Vertical and Horizontal clearances of signs shall be as required in the TMUTCD and TxDOT SMD Standards.
7. With the exception of large overhead structures, all sign support structures should have breakaway structures when they are exposed to traffic. The design of breakaway supports should conform to TxDOT and American Association of State Highway and Transportation Officials (AASHTO) Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals as well as the FHWA's National Cooperative Highway Research Program (NCHRP) Report 350, "Recommended Procedures for the Safety Performance Evaluation of Highway Features" (Refer to FHWA website for report). Refer to NTTA standard drawings for Overhead Sign Supports Structures.
8. Wooden support posts shall not be used as permanent supports.
9. Rate signs used on advance guide signs, posted as ground-mounted signs near plazas, and those mounted on the plaza (except LED displays) should comply with the NTTA Sign Policy for shape and color for Toll Plaza Signs. Locate rate signs as shown in Figures.
10. Overhead guide signs shall be designed to the appropriate standards as shown in **Table 1**. Overhead guide signs may vary in size depending on the message, amount of text, usage, and symbols contained on a sign. "Freeways" and "Expressways" terms shown in **Table 1** refer specifically to the standards, signing principles and design processes defined in Chapter 2D, 2E and 2J of the Texas MUTCD.

**Table 1 – Overhead Guide Sign Sizes**

<b>Tollway Facility</b>	<b>Guide Sign Sizes</b>
Chisholm Trail Parkway	Freeways (Toll)
Dallas North Tollway (DNT) - North of PGBT	Freeways (Toll)
President George Bush Turnpike (PGBT)	Freeways (Toll)
Southwest Parkway (SWP)	Freeways (Toll)
United States (US) and State Highways (SH) operated and maintained by NTTA	Freeways (Toll)
Managed HOV Lanes	Freeways (Toll)
Addison Airport Toll Tunnel (AATT)	Expressways (Toll)
Dallas North Tollway (DNT) - South of PGBT	Expressways (Toll)
Mountain Creek Lake Bridge (MCLB)	Expressways (Toll)
Lewisville Lake Toll Bridge (LLTB)	Expressways (Toll)
Trinity Parkway	Expressways (Toll)

11. Text on overhead guide signs and large ground mounted signs shall conform to the TxDOT Typical Sign Requirements Standards and NTTA standard drawings for signs. All new overhead guide and large ground-mounted signing containing White legend on Green Backgrounds shall use the Clearview Alphabets rather than the FHWA lettering. Black Legends shall use the FHWA Standard Highway Alphabets (B, C, D, E, Emod or F). Where used, names of the NTTA facilities shall be consistent with Section 2.0 of the NTTA Sign Policy (Chisholm Trail Parkway, Dallas North Tollway, President George Bush Turnpike, Southwest Parkway Addison Airport Toll Tunnel, Mountain Creek Lake Bridge, Lewisville Lake Toll Bridge, Trinity Parkway). Periods shall not be used in text. The route number and the route name should be used on advance and exit guide signs. Destinations and route names shall have a combination of upper / lowercase lettering. The use of Clearview font for replacement signs will be determined on a case-by-case basis. Where multiple signs exist on a sign structure or where signs are grouped closely together and the need arise to replace a sign, it may become necessary to replace all the signs in the vicinity to maintain corridor aesthetics. Text height, interline and edge spacing shall be as specified in the TxDOT SHSD. When more than one sign panel is mounted on the same overhead sign structure and sign face capacity is not exceeded, all signs must have the same height. Refer to NTTA System-Wide Design Guidelines (SWDG) for further guidance.
12. New advance overhead guide signing shall use references to mileage in ¼ mile increments whenever possible.
13. At least two (2) advance guide signs should be posted for minor interchanges and three (3) for major interchanges.
14. Generally, there should be no more than three (3) sign panels mounted on the same overhead sign bridge structure, except in the toll plaza area, for good driver comprehension.

15. The exclusive TollTag lane message should be used on all advance signs where applicable. The Shape and Color of the Toll Plaza signs shall be as indicated in the NTTA Sign Policy.
16. The interoperability TxTag logo should be plaque mounted above overhead or ground-mounted guide signs containing the TollTag lane message as shown in **Figure 1**. The TxTag banner should be mounted above main lane gantry signs as shown in **Figure 7**. The size of the plaque and banner and the applicable TxTag icon shall be as shown in the most current NTTA Standard of Overhead Sign Details.
17. All overhead sign structures within the clear zone shall be protected by guardrail, or other suitable barrier. Whenever possible, sign locations should be adjusted to take advantage of existing guardrail. If this is not possible, a metal beam guard fence should be installed to protect the overhead structure. Refer to Appendix A of the TxDOT's Roadway Design Manual for length of metal beam guard fence and terminal anchor section.
18. Large ground mounted signs installed within the 30-foot clear zone and not protected by a metal beam guard fence or by concrete rail/barrier shall be installed with a breakaway support. For large roadside signs, the level slip base will be used with the bottom stub embedded into a concrete foundation. On larger signs where the required post support is larger, a hinge must be created in the support, just below the sign panel, to enable the post to rotate forward and upward when the base support slips off the foundation. The hinge in these members is created by sawing the post almost through at the front flange and web, leaving only the back flange intact. A fuse plate with slotted, open holes is bolted to the post at the front flange to allow the post to resist wind loads. Breakaway connections shall utilize a fuse plate perforated with holes. The foundation and bottom of slip base assembly of the breakaway supports should not extend more than 4 inches above the finished grade. Refer to TxDOT SMD Standards for large roadside sign supports.
19. All small roadway signs on North Texas Tollway Authority (NTTA) facilities shall conform to the requirements of the Texas MUTCD and the FHWA MUTCD.
20. Small roadway signs should be designed to the appropriate conditions as shown in **Table 2**. "Freeways", "Expressways", and "Low Speed Conventional Road" terms shown in **Table 2** refer specifically to the standards, applications and designs defined in Chapter 2B and 2C of the Texas MUTCD.

**Table 2 – Small Roadway Sign Sizes**

<b>Tollway Facility</b>	<b>Regulatory &amp; Warning Sign Sizes</b>
Chisholm Trail Parkway	Freeways (Toll)
Dallas North Tollway (DNT) - North of PGBT	Freeways (Toll)
President George Bush Turnpike (PGBT)	Freeways (Toll)
Southwest Parkway (SWP)	Freeways (Toll)
United States (US) and State Highways (SH) operated and maintained by NTTA	Freeways (Toll)
Managed HOV Lanes	Freeways (Toll)
Dallas North Tollway (DNT) - South of PGBT	Expressways (Toll)
Trinity Parkway	Expressways (Toll)
Addison Airport Toll Tunnel (AATT)	Low Speed Conventional Roads (Toll)
Mountain Creek Lake Bridge (MCLB)	Low Speed Conventional Roads (Toll)
Lewisville Lake Toll Bridge (LLTB)	Low Speed Conventional Roads (Toll)

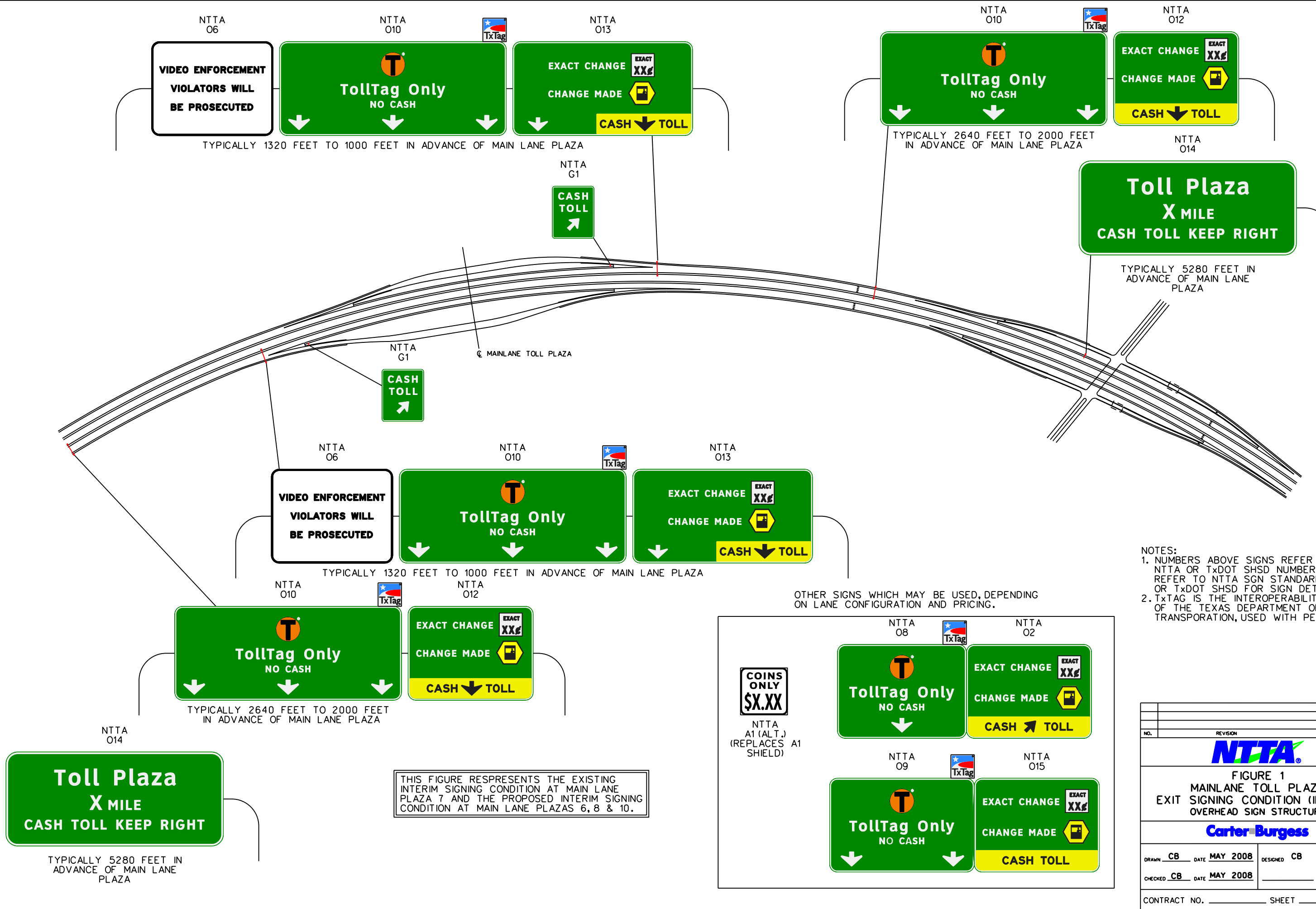
21. Bridge Clearance signs shall be installed on bridges with physical clearance less than 20 feet 0 inches (2" below physical dimension) unless directed otherwise by the NTTA. Supplemental clearance signs shall be installed in advance of bridges with physical clearance less than 20 feet 0 inches. The supplemental clearance sign shall be located such that a vehicle is able to exit safely and detour around the structure. In cases where multiple structures exist without additional access between them, those bridges with higher clearance than the preceding structure in the series do not need to be signed in that direction. Supplemental clearance signs will be installed in advance of all structures (bridges, tunnels and toll plazas) on all systems operated and maintained by NTTA.
22. Wherever possible, a small roadside interchange route marker, including the cardinal direction panel, should be placed 500 feet beyond the end of each entrance ramp.
23. On signs indicating the fare at each toll collection area, the fare should be expressed as the total for the vehicle, such as "3 AXLES \$0.75", rather than "25 cents per axle". The format for the toll rate shall conform to the signs shown in the most current NTTA Standard of Small Roadside Sign Details. Supplemental Rate signs may be placed on change machines.
24. A station marker system should be implemented and maintained for NTTA and emergency use. White legend on green background station markers should be installed at 500-foot intervals on the center median barrier, visible in both directions. The numbers shall be continuous without repetition on any one facility. The signs shall follow those shown on NTTA standard SGN-003. In the event that a center median is not warranted, a ground mounted station marker may be installed in accordance with TMUTCD 2D.46 and the TxDOT D&OM Standards.
25. Trailblazer signs should be installed on major cross streets to each facility within one (1) mile that has direct access to the NTTA facility. The cross streets will only include arterial roadways. Placement of the trailblazer signs

- should be coordinated with the local jurisdiction. **Figure 6** shows the typical signing.
26. Small sign installations within curbed areas will require a slip base design. Exit gore sign post (TxDOT SMD Type G) installations shall incorporate the unidirectional, inclined slip base design to ensure that the post will move upward, allowing the vehicle to pass beneath the dislodged post. Where signs are to be mounted in a concrete median of two-way lanes or within islands surrounded by two-way traffic, the triangular slip base design should be used. These are designed to release when struck from any direction. The foundation and bottom of slip base assembly of the slip bases should not extend more than 4 inches above the finished grade. Refer to TxDOT SMD Standards for design of unidirectional and triangular slip base designs.
  27. Upon approval from the owning or maintaining agency, small signs may also be attached to existing traffic signal poles, overhead sign supports, luminaire supports, or utility poles using strap mounts or other approved, non-destructive mount types.
  28. Upon written approval of the NTTA, construction/maintenance contractors and utility companies will be permitted to install signs for work zone traffic control at work sites to protect the public, workers, and equipment, provided that such signs conform to the latest Texas MUTCD and the FHWA MUTCD.
  29. Proper regulatory and warning signing shall be provided at other NTTA facilities including detention ponds, sand stockpiles and NTTA maintenance roads to ensure public safety.
  30. Electronic Tolling generally consists of tag readers and video capture of license plates. Signing for Electronic Tolling should consist of a combination of toll rate signs to inform motorist of the toll as they enter or exit the system and trailblazers to aid in locating the toll systems from off-system facilities. Toll rate signs may have Light Emitting Diode (LED) displays showing the current toll rate. Per TMUTCD, toll rate signs are to be ground mounted whenever possible. For examples of toll plaza sign usage, refer to Figures 7 through 9. Refer to the NTTA SGN standard drawings for sign sizes.

**Figure 7** – ETC Mainlane (Proposed): This figure shows the proper placement of signs for electronic tolling gantries on mainlanes.

**Figure 8** – ETC Ramp Gantry (Proposed): This figure shows the proper placement of toll rate schedule signs for electronic tolling gantries on entrance or exit ramps.

**Figure 9** – ETC Off-System Approach to Toll Road: This figure shows proper placement of NTTA’s TollTag and ZipCash plaques on off-system signing.



TYPICALLY 1320 FEET TO 1000 FEET IN ADVANCE OF MAIN LANE PLAZA

TYPICALLY 2640 FEET TO 2000 FEET IN ADVANCE OF MAIN LANE PLAZA

TYPICALLY 5280 FEET IN ADVANCE OF MAIN LANE PLAZA

TYPICALLY 1320 FEET TO 1000 FEET IN ADVANCE OF MAIN LANE PLAZA

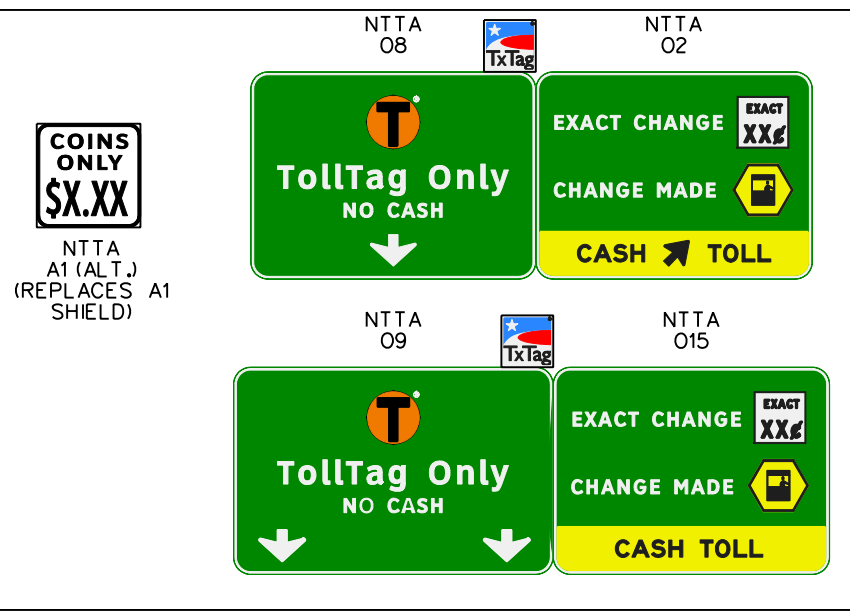
TYPICALLY 2640 FEET TO 2000 FEET IN ADVANCE OF MAIN LANE PLAZA

TYPICALLY 5280 FEET IN ADVANCE OF MAIN LANE PLAZA

THIS FIGURE REPRESENTS THE EXISTING INTERIM SIGNING CONDITION AT MAIN LANE PLAZA 7 AND THE PROPOSED INTERIM SIGNING CONDITION AT MAIN LANE PLAZAS 6, 8 & 10.

OTHER SIGNS WHICH MAY BE USED, DEPENDING ON LANE CONFIGURATION AND PRICING.

- NOTES:
1. NUMBERS ABOVE SIGNS REFER TO NNTA OR TxDOT SHSD NUMBERING. REFER TO NNTA SGN STANDARDS OR TxDOT SHSD FOR SIGN DETAILS.
  2. TxTAG IS THE INTEROPERABILITY ICON OF THE TEXAS DEPARTMENT OF TRANSPORTATION, USED WITH PERMISSION.



NO.				REVISION				BY				DATE			
<b>FIGURE 1</b> MAINLANE TOLL PLAZA EXIT SIGNING CONDITION (INTERIM) OVERHEAD SIGN STRUCTURE															
DRAWN CB				DATE MAY 2008				DESIGNED CB				DATE MAY 2008			
CHECKED CB				DATE MAY 2008								SCALE N.T.S.			
CONTRACT NO. _____ SHEET _____ OF _____															



OTHER SIGNS WHICH MAY BE USED, DEPENDING ON LANE CONFIGURATION.

NTTA 06

**VIDEO ENFORCEMENT  
VIOLATORS WILL  
BE PROSECUTED**

NTTA 09

**TollTag Only  
NO CASH**

SIGNS TO BE DESIGNED BY SECTION ENGINEER.

**EXACT CHANGE  
CHANGE MADE**

TYPICALLY 1320 FEET TO 1000 FEET IN ADVANCE OF MAIN LANE PLAZA

BEGIN 6" SOLID WHITE STRIPE UPSTREAM FROM PLAZA

END 6" SOLID WHITE STRIPE DOWNSTREAM FROM PLAZA

NTTA 08

**TollTag Only  
NO CASH**

NTTA 010

**TollTag Only  
NO CASH**

NOTES:  
1. NUMBERS ABOVE SIGNS REFER TO NTTA OR TxDOT SHSD NUMBERING. REFER TO NTTA SGN STANDARDS OR TxDOT SHSD FOR SIGN DETAILS.

NTTA 09

**TollTag Only  
NO CASH**

SIGNS TO BE DESIGNED BY SECTION ENGINEER.

**EXACT CHANGE  
CHANGE MADE**

TYPICALLY 2640 FEET TO 2000 FEET IN ADVANCE OF MAIN LANE PLAZA

OTHER SIGNS WHICH MAY BE USED DEPENDING ON PRICING.

**COINS ONLY  
\$X.XX**

NTTA A1 (ALT.)  
(REPLACES A1 SHIELD)

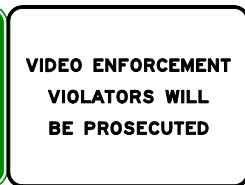
NTTA S12

**DEPOSIT COINS  
CARS \$X.XX  
3AXLES \$X.XX  
4AXLES \$X.XX  
5AXLES \$X.XX**

THIS FIGURE REPRESENTS EXISTING SIGNING CONDITIONS FOR MAIN LANE PLAZAS 3 & 9.

NO.	REVISION	BY	DATE
<b>NTTA</b>			
FIGURE 2 MAINLANE TOLL PLAZA ADVANCE SIGNING (EXISTING) OVERHEAD SIGN BRIDGE			
<b>Carter Burgess</b>			
DRAWN	CB	DATE	MAY 2008
DESIGNED	CB	DATE	MAY 2008
CHECKED	CB	DATE	MAY 2008
		SCALE	N.T.S.
CONTRACT NO.		SHEET _____ OF _____	

SIGN TO BE DESIGNED BY SECTION ENGINEER.



NTTA 06

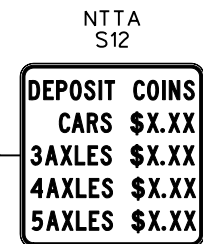
TYPICALLY 1320 FEET TO 1000 FEET IN ADVANCE OF MAIN LANE PLAZA

NOTES:  
1. NUMBERS ABOVE SIGNS REFER TO NTTA OR TxDOT SHSD NUMBERING. REFER TO NTTA SGN STANDARDS OR TxDOT SHSD FOR SIGN DETAILS.

END 6" SOLID WHITE STRIPE DOWNSTREAM FROM PLAZA

BEGIN 6" SOLID WHITE STRIPE UPSTREAM FROM PLAZA

TOLL PLAZA



NTTA S12

SIGNS TO BE DESIGNED BY SECTION ENGINEER.



TYPICALLY 2640 FEET TO 2000 FEET IN ADVANCE OF MAIN LANE PLAZA

OTHER SIGNS WHICH MAY BE USED, DEPENDING ON LANE CONFIGURATION, PRICING AND SIGN AREA CAPACITY.



NTTA A1 (ALT.) (REPLACES A1 SHIELD)

SIGNS TO BE DESIGNED BY SECTION ENGINEER.

NTTA 07

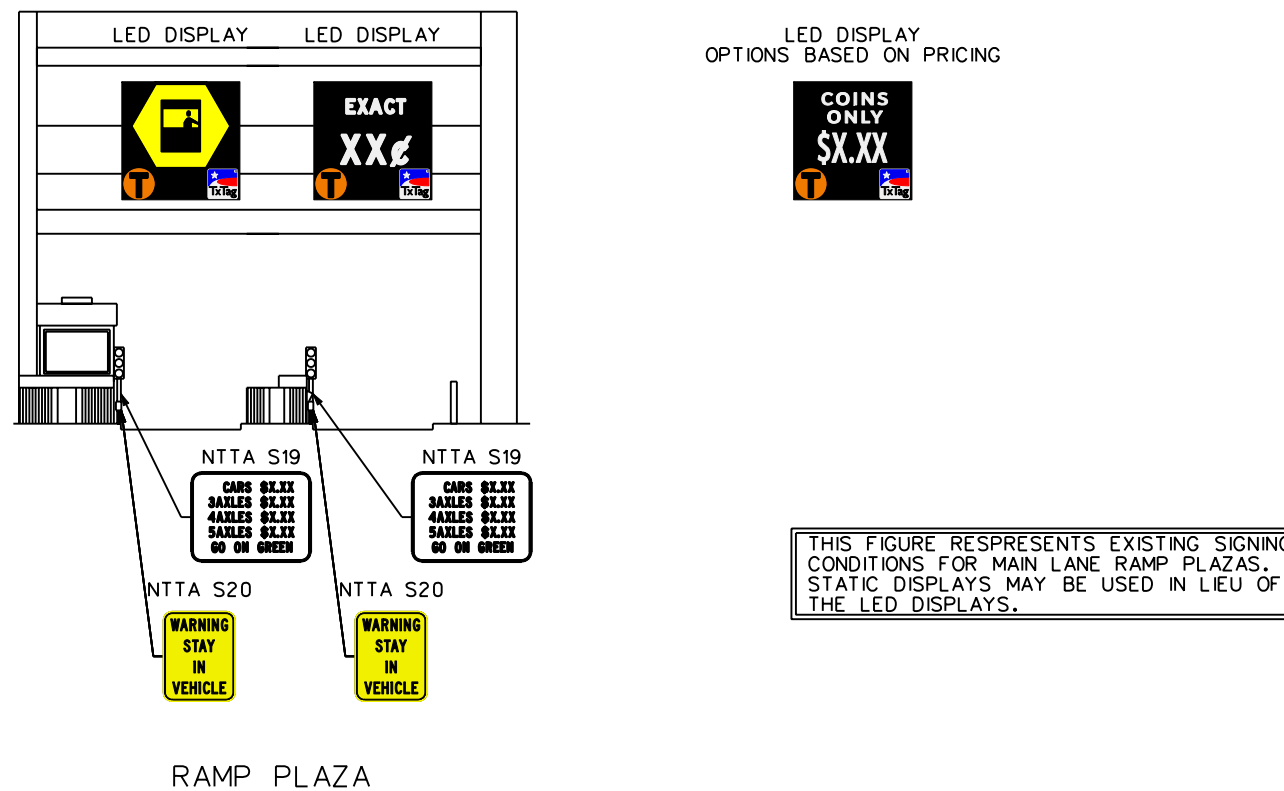
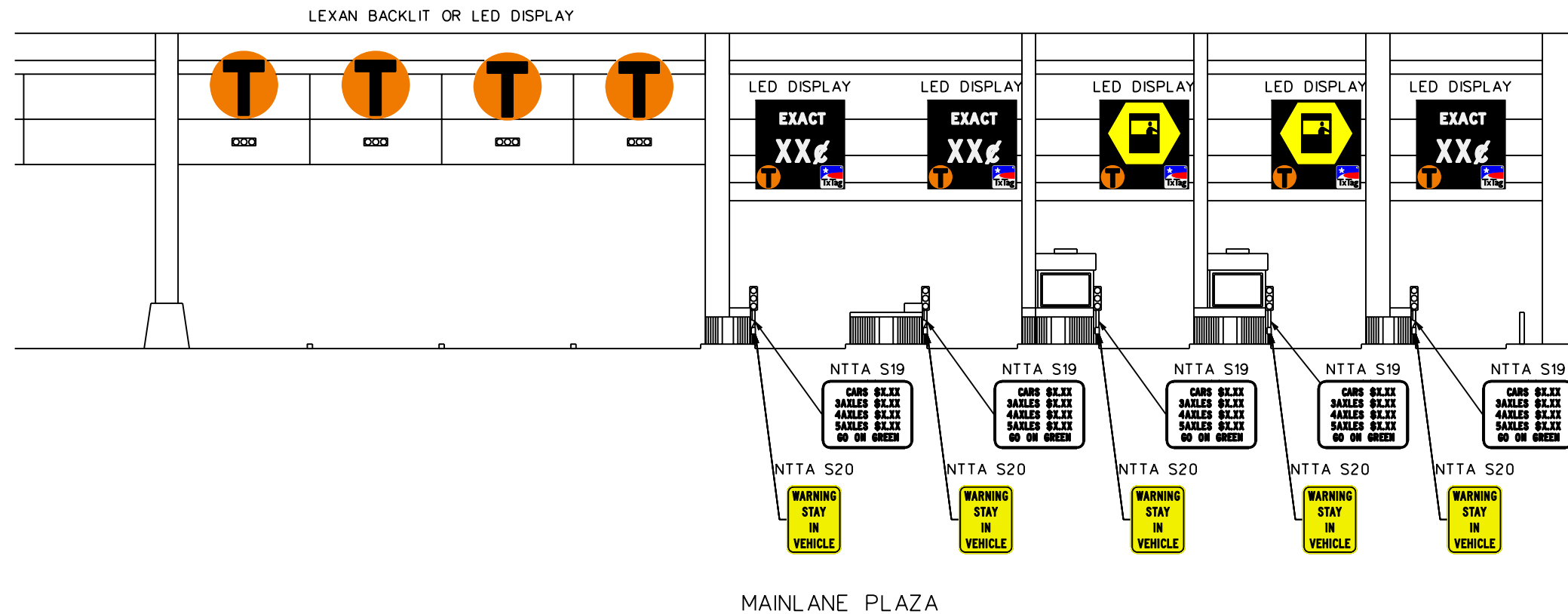


NOTE: THE SIGNING SCENARIO SHOWN SHALL ONLY BE USED WHEN RIGHT OF WAY OR OTHER FACTORS DO NOT ALLOW AN OVERHEAD SIGN BRIDGE TO BE INSTALLED.

THIS FIGURE REPRESENTS EXISTING SIGNING CONDITIONS FOR MAIN LANE PLAZA 2.

NO.		REVISION		BY		DATE	
<b>NTTA</b>							
FIGURE 3 MAINLANE TOLL PLAZA ADVANCE SIGNING (EXISTING) CANTILEVER OVERHEAD SIGN STRUCTURE							
<b>Carter Burgess</b>							
DRAWN	CB	DATE	MAY 2008	DESIGNED	CB	DATE	MAY 2008
CHECKED	CB	DATE	MAY 2008			SCALE	N.T.S.
CONTRACT NO. _____				SHEET _____ OF _____			

NOTES:  
 1. NUMBERS ABOVE SIGNS REFER TO NTTA OR TxDOT SHSD NUMBERING. REFER TO NTTA SGN STANDARDS OR TxDOT SHSD FOR SIGN DETAILS.

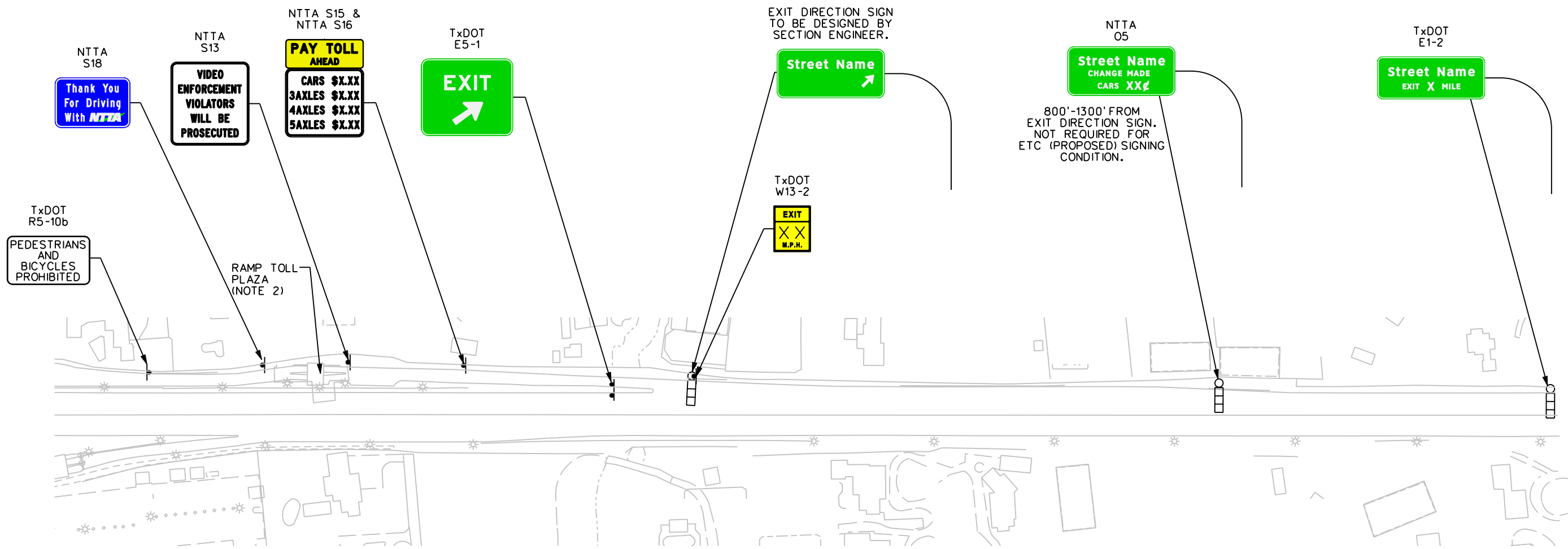


THIS FIGURE REPRESENTS EXISTING SIGNING CONDITIONS FOR MAIN LANE RAMP PLAZAS. STATIC DISPLAYS MAY BE USED IN LIEU OF THE LED DISPLAYS.

NO.		REVISION		BY		DATE	
<b>NTTA</b>							
FIGURE 4 PLAZA SIGNING (EXISTING)							
<b>Carter Burgess</b>							
DRAWN CB DATE MAY 2008				DESIGNED CB DATE MAY 2008			
CHECKED CB DATE MAY 2008				SCALE N.T.S.			
CONTRACT NO. _____ SHEET _____ OF _____							

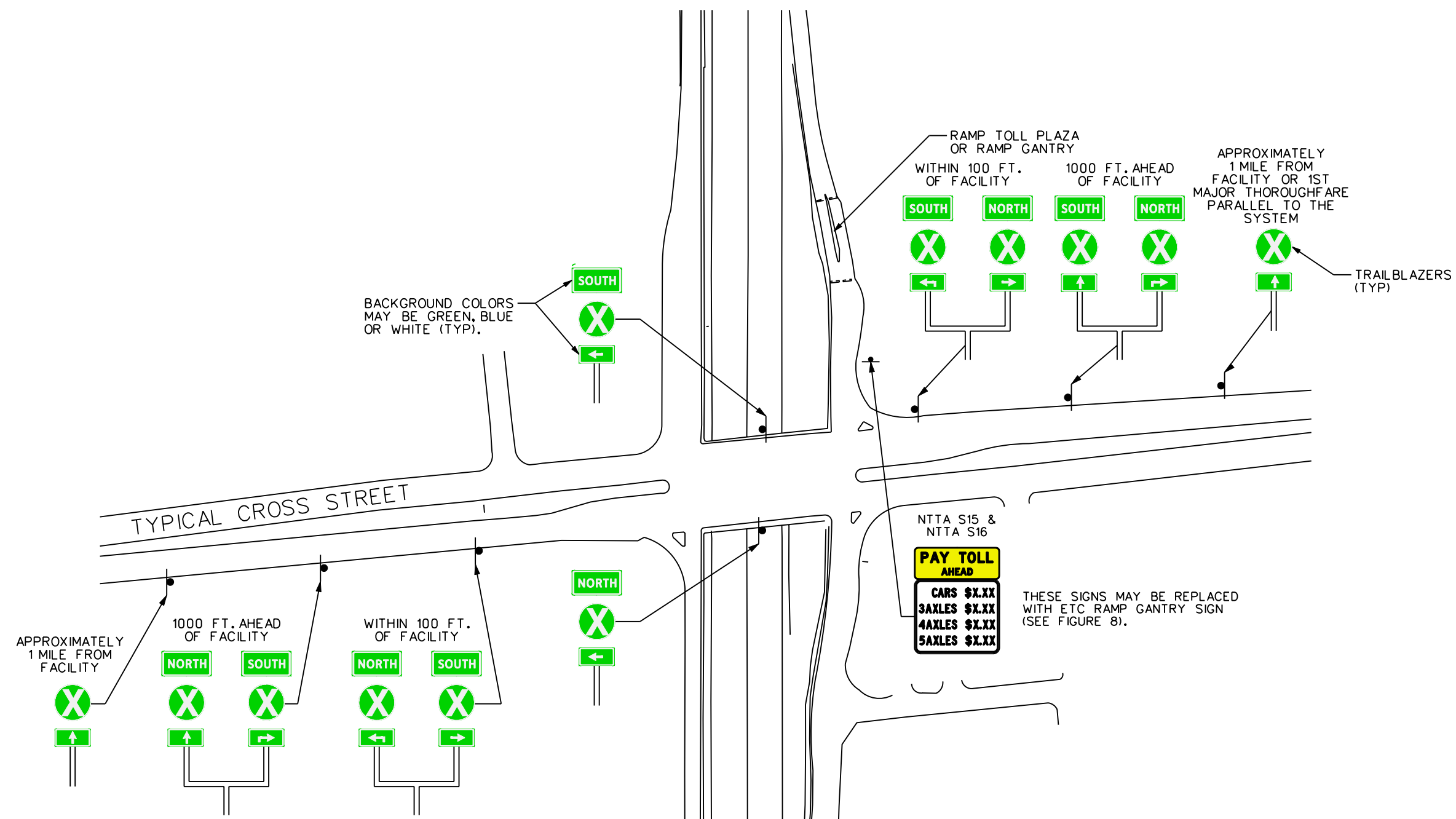
NOTES:  
 1. NUMBERS ABOVE SIGNS REFER TO NTTA OR TxDOT SHSD NUMBERING. REFER TO NTTA SHSD STANDARDS OR TxDOT SHSD FOR SIGN DETAILS.  
 2. SEE FIGURE 4 FOR RAMP TOLL PLAZA SIGNING.

THESE SIGNS MAY BE REPLACED WITH ETC RAMP GANTRY SIGN (SEE FIGURE 8)



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<b>NTTA</b>					
FIGURE 5 RAMP PLAZA ADVANCE SIGNING (EXISTING & PROPOSED)					
<b>Carter Burgess</b>					
DRAWN	CB	DATE	MAY 2008	DESIGNED	CB DATE MAY 2008
CHECKED	CB	DATE	MAY 2008	SCALE	N.T.S.
CONTRACT NO. _____ SHEET _____ OF _____					

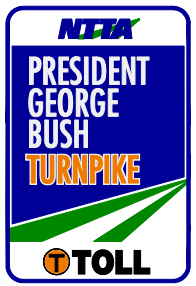
- NOTES:  
 1. TRAILBLAZERS MAY VARY IN COLOR AND SHAPE. REFER TO NTTA SGN STANDARDS FOR SIGN DETAILS.  
 2. ADJUST LOCATION OF TRAILBLAZERS PER FIELD CONDITIONS FOR VISIBILITY.



BACKGROUND COLORS MAY BE GREEN, BLUE OR WHITE (TYP).

APPROXIMATELY 1 MILE FROM FACILITY

X TO BE REPLACED BY NEW TRAILBLAZER



ROADWAY NAMES VARY: ENGINEER SHALL VERIFY NAME OF ROADWAY WITH NTTA STANDARD DESIGN FOR TRAILBLAZER.

NO.		REVISION		BY		DATE	
<b>NTTA</b>							
FIGURE 6 TYPICAL TRAILBLAZER PLACEMENT (EXISTING & PROPOSED)							
<b>Carter Burgess</b>							
DRAWN CB DATE MAY 2008				DESIGNED CB DATE MAY 2008			
CHECKED CB DATE MAY 2008				SCALE N.T.S.			
CONTRACT NO. _____ SHEET _____ OF _____							

NTTA NAME OF GANTRY -  
TO BE DESIGNED BY SECTION ENGINEER

**NTTA GANTRY**

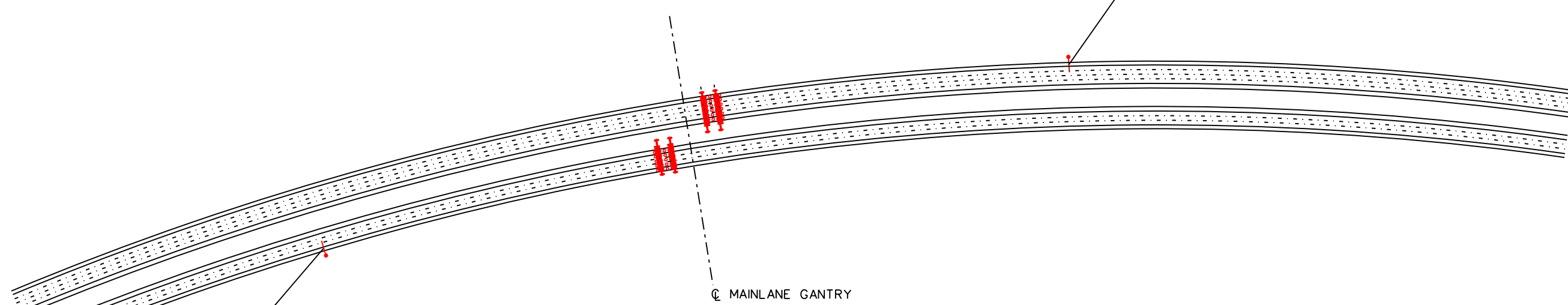


NTTA  
XX



**ADDITIONAL COST PER AXLE**

APPROX. 1000 FEET UPSTREAM FROM GANTRY  
LED FOR VARIABLE PRICING SHOWN AND PREFERRED



NTTA NAME OF GANTRY -  
TO BE DESIGNED BY SECTION ENGINEER

**NTTA GANTRY**



NTTA  
XX



**ADDITIONAL COST PER AXLE**

APPROX. 1000 FEET UPSTREAM FROM GANTRY  
LED FOR VARIABLE PRICING SHOWN AND PREFERRED

ALTERNATE OPTION USING FULL-SIZE LED:



**ADDITIONAL COST PER AXLE**

STATIC RATE OPTION MAY REPLACE  
VARIABLE PRICING LED:



**NOTES:**

1. NUMBERS ABOVE SIGNS REFER TO NTTA OR TxDOT SHSD NUMBERING. REFER TO NTTA SGN STANDARDS OR TxDOT SHSD FOR SIGN DETAILS.
2. TxTAG IS THE INTEROPERABILITY ICON OF THE TEXAS DEPARTMENT OF TRANSPORTATION, USED WITH PERMISSION.
3. LED MAY BE MOUNTED ON FACE OF SIGN OR THROUGH EXTRUDED ALUMINUM PANEL. LED MANUFACTURER SHALL PROVIDE SPECIFICATIONS AND RECOMMENDATIONS FOR MOUNTING.
4. POWER AND FIBER SHALL BE PROVIDED TO THE SIGN LOCATIONS SHOWN ABOVE.

NO.		REVISION		BY		DATE	
<b>NTTA</b>							
FIGURE 7 ETC MAINLANE GANTRY (PROPOSED) OVERHEAD SIGN STRUCTURE							
<b>Carter Burgess</b>							
DRAWN <b>CB</b> DATE <b>MAY 2008</b>				DESIGNED <b>CB</b> DATE <b>MAY 2008</b>			
CHECKED <b>CB</b> DATE <b>MAY 2008</b>				SCALE <b>N.T.S.</b>			
CONTRACT NO. _____ SHEET _____ OF _____							

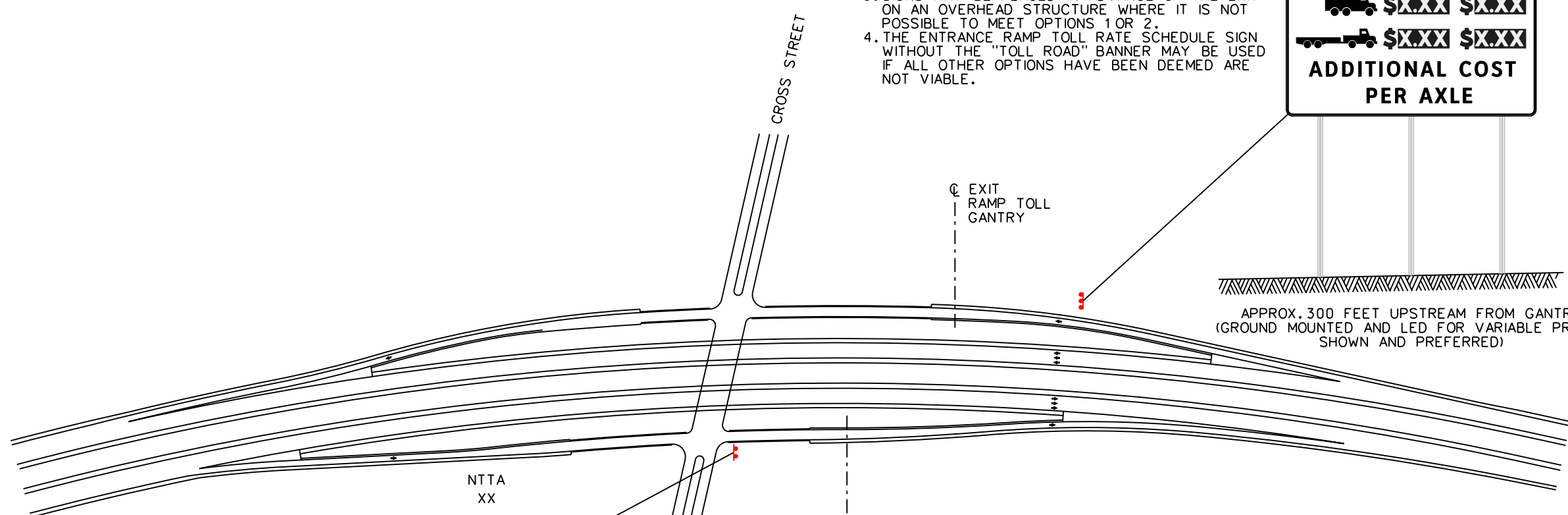
NTTA  
XX

EXIT RAMP TOLL RATE SCHEDULE SIGN OPTIONS:

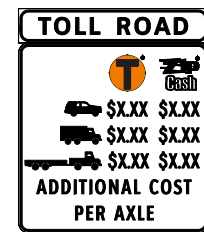
1. A GROUND MOUNTED SIGN IS PREFERRED.
2. IN LOCATIONS WHERE GROUND MOUNTING IS NOT POSSIBLE, AN OVERHEAD COSS OR OSB WOULD BE THE NEXT VIABLE OPTION.
3. SIGNS MAY BE PLACED IN ADVANCE OF THE EXIT ON AN OVERHEAD STRUCTURE WHERE IT IS NOT POSSIBLE TO MEET OPTIONS 1 OR 2.
4. THE ENTRANCE RAMP TOLL RATE SCHEDULE SIGN WITHOUT THE "TOLL ROAD" BANNER MAY BE USED IF ALL OTHER OPTIONS HAVE BEEN DEEMED ARE NOT VIABLE.



APPROX. 300 FEET UPSTREAM FROM GANTRY  
(GROUND MOUNTED AND LED FOR VARIABLE PRICING SHOWN AND PREFERRED)



- ENTRANCE RAMP TOLL RATE SCHEDULE SIGN OPTIONS:
1. A SMALLER SIGN IS SHOWN, HOWEVER, THE LARGER SIGN WITH LED FOR VARIABLE PRICING IS PREFERRED.
  2. IN LOCATIONS WHERE SPACE DOES NOT PERMIT THE INSTALLATION OF THE LARGER SIGN, THE SIGN SHOWN SHALL BE INSTALLED.



APPROX. 300 FEET UPSTREAM FROM GANTRY  
(GROUND MOUNTED SHOWN AND PREFERRED)

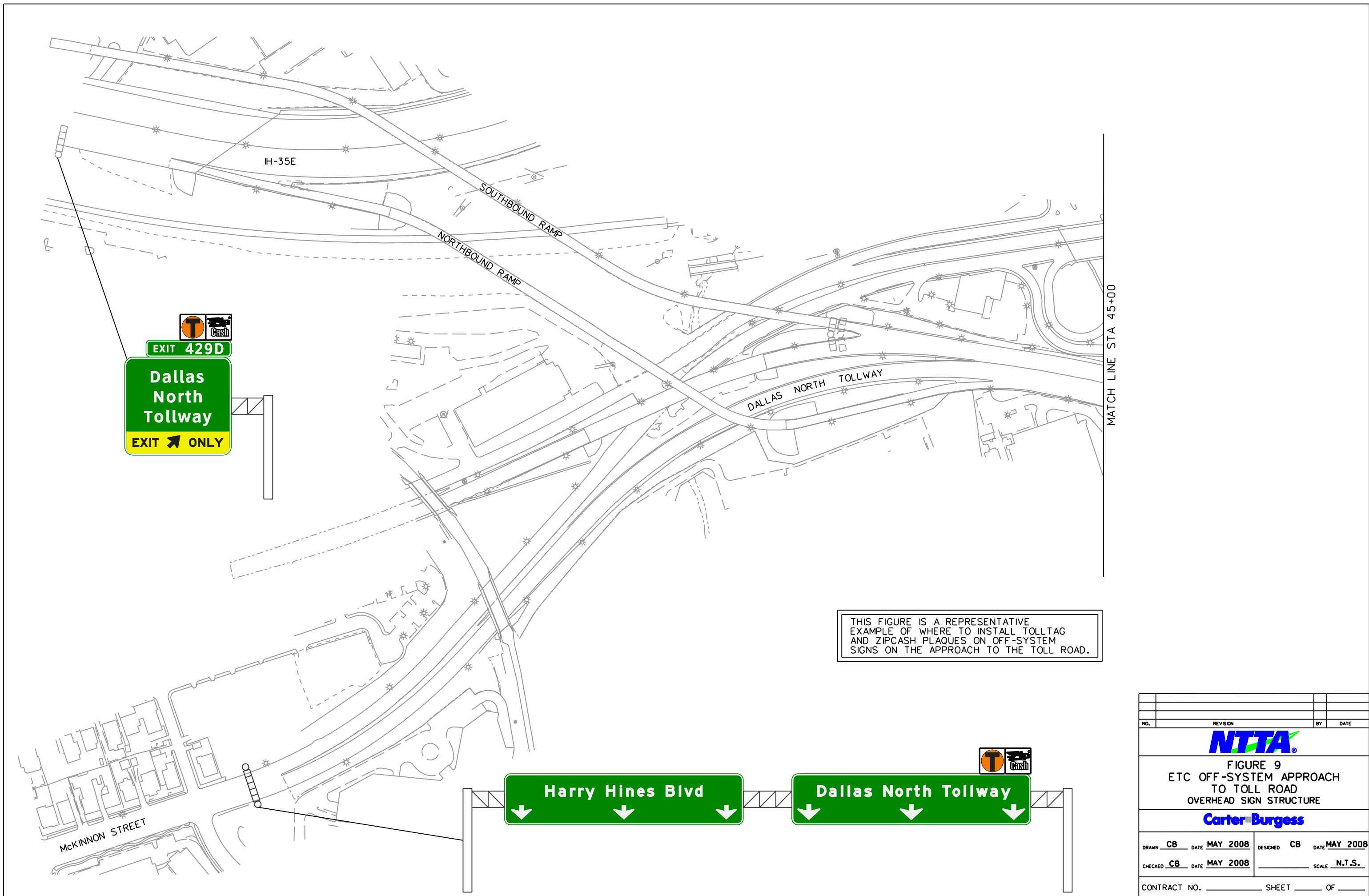
STATIC RATE OPTION MAY REPLACE VARIABLE PRICING LED:



NOTES:

1. NUMBERS ABOVE SIGNS REFER TO NTTA OR TxDOT SHSD NUMBERING. REFER TO NTTA SGN STANDARDS OR TxDOT SHSD FOR SIGN DETAILS.
2. LED MAY BE MOUNTED ON FACE OF SIGN OR THROUGH EXTRUDED ALUMINUM PANEL. LED MANUFACTURER SHALL PROVIDE SPECIFICATIONS AND RECOMMENDATIONS FOR MOUNTING.
3. POWER AND FIBER SHALL BE PROVIDED TO THE SIGN LOCATIONS SHOWN ABOVE.

NO.	REVISION	BY	DATE
<b>NTTA</b>			
FIGURE 8 ETC RAMP GANTRY (PROPOSED) TOLL RATE SCHEDULE SIGNS			
<b>Carter Burgess</b>			
DRAWN	CB	DATE	MAY 2008
DESIGNED	CB	DATE	MAY 2008
CHECKED	CB	DATE	MAY 2008
		SCALE	N.T.S.
CONTRACT NO.		SHEET _____ OF _____	





  
**EXIT 429D**  
**Dallas North Tollway**  
**EXIT ONLY**

THIS FIGURE IS A REPRESENTATIVE EXAMPLE OF WHERE TO INSTALL TOLLTAG AND ZIPCASH PLAQUES ON OFF-SYSTEM SIGNS ON THE APPROACH TO THE TOLL ROAD.

**Harry Hines Blvd**  
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**Dallas North Tollway**  
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NO.	REVISION	BY	DATE
 <b>NTTA</b> FIGURE 9 ETC OFF-SYSTEM APPROACH TO TOLL ROAD OVERHEAD SIGN STRUCTURE  <b>Carter Burgess</b>			
DRAWN	CB	DATE	MAY 2008
DESIGNED	CB	DATE	MAY 2008
CHECKED	CB	DATE	MAY 2008
		SCALE	N.T.S.
CONTRACT NO.		SHEET	OF