INDEX OF SHEETS

SEE SHEET NO 2

STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMENT

STATE AID PROJECT NOS. C 46-8-17, ETC

NET LENGTH OF PROJECT= 914,415 FT.= 173.185 MI.

STATE PROJECT NO.			
C 46-8-17, ETC			
CONT	SECT	JOB	HIGHWAY
0046	08	017	SL 14
DIST	COUNTY		SHEET NO.
ATL	BOWIE, ETC		1

DESIGN SPEED = N/A

FINAL PLANS

LETTING DATE: _____

DATE CONTRACTOR BEGAN WORK: _____

DATE WORK WAS COMPLETED & ACCEPTED: _____

FINAL CONTRACT COST: $ _____

CONTRACTOR : _____

CONTRACTOR ADDRESS: _____

LIST OF APPROVED FIELD CHANGES: _____

FOR THE CONSTRUCTION OF SEAL COAT
CONSISTING OF SEAL COAT AND PAVEMENT MARKINGS

THE CONTRACTOR SHALL MAKE HIS OWN INVESTIGATIONS AND ARRANGEMENTS FOR DELIVERY OF MATERIALS.

REQUIRED SIGNS SHALL BE IN ACCORDANCE WITH THE CURRENT BARRICADE AND CONSTRUCTION OR BC SHEETS AND THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".

0046-08-017, ETC

SL 14, ETC
BOWIE COUNTY, ETC

THE CONSTRUCTION WORK WAS PREFORMED IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT.

P.E. _____ DATE _____

NOTE: SEE PROJECT SUMMARY SHEETS
FOR COMPLETE LISTING OF
CSJs, LIMITS, LENGTHS AND EXCLUSIONS.

SEE SHEET 3 FOR PROJECT LOCATION MAP

EQUATIONS: NONE
EXCLUSIONS: SEE PROJECT SUMMARY SHEETS
RAILROAD CROSSINGS:

1. (CAMP CO.) FM 1519, CPKCR - CROSSING (#331529J) (LAT: 32.987938°, LONG: -95.083066°)
2. (CAMP CO.) FM 556, UNION PACIFIC RAILROAD COMPANY - CROSSING (#789785T) (LAT: 32.99081°, LONG: -94.9686847°)
3. (CASS CO.) FM 2327, UNION PACIFIC RAILROAD COMPANY - CROSSING (#794536X) (LAT: 33.1798395°, LONG: -94.1520759°)
4. (CASS CO.) FM 2327, UNION PACIFIC RAILROAD COMPANY - CROSSING (#794534J) (LAT: 33.2333159°, LONG: -94.1346764°)
5. (CASS CO.) FM 248, UNION PACIFIC RAILROAD COMPANY - CROSSING (#794557R) (LAT: 32.9273095°, LONG: -94.259558°)
6. (HARRISON CO.) SH 43, CPKCR - CROSSING (#331432M) (LAT: 32.674366°, LONG: -94.182619°)
7. (PANOLA CO.) BU 79G, BNSF - CROSSING (#023988F) (LAT: 32.1575616°, LONG: -94.33444°)
8. (PANOLA CO.) SH 149, TEXAS UTILITIES SERVICES RR - CROSSING (#900247P) (LAT: 33.358446°, LONG: -94.254928°)

SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION, SEPTEMBER 1, 2024 AND SPECIFICATION ITEMS LISTED AND DATED AS FOLLOWS, SHALL GOVERN ON THIS PROJECT: REQUIRED SPECIAL LABOR PROVISIONS FOR ALL STATE CONSTRUCTION PROJECTS. (SP 000---005)

RECOMMENDED FOR LETTING: 8/1/2024

DocuSigned by:
Katie Martin, P.E.
3B337C5031074A4...

DISTRICT DIRECTOR OF TRANSPORTATION
PLANNING AND DEVELOPMENT

APPROVED FOR LETTING: 8/1/2024

DocuSigned by:
Rebecca Wilds, P.E.
23686C08B28F4A0...

DISTRICT ENGINEER

DATE: 7/31/2024 6:14:29 PM
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COUNTY BOWIE, ETC PROJ. NO. C 46-8-17, ETC
HWY. NO. SL 14, ETC LETTING DATE OCTOBER 1, 2024
DATE ACCEPTED

		GENERAL
	1	TITLE SHEET
	2	INDEX OF SHEETS
	3	LOCATION MAP
	4-10	COUNTY MAP
	11, 11A-11B	GENERAL NOTES
	12	PROJECT SUMMARY SHEET
	13-16	ROADWAY SUMMARY
	17	MISCELLANEOUS SUMMARIES
	18-21	PAVEMENT MARKING SUMMARY
	22, 22A-22F	ESTIMATE & QUANTITY
	23-24	ATLANTA DISTRICT QA PROGRAM FOR SURFACE TREATMENT AGGREGATES
	25-26	RAILROAD REQUIREMENTS FOR NON-BRIDGE CONSTRUCTION PROJECTS
	27-30, 30A	RAILROAD SCOPE OF WORK
	31	EPIC
		TRAFFIC CONTROL PLAN STANDARDS
#	32-43	BC(1)-21 THRU BC(12)-21
#	44	TCP(SC-1)-22
#	45	TCP(SC-2)-22
#	46	TCP(SC-3)-22
#	47	TCP(SC-4)-22
#	48	TCP(SC-5)-22
#	49	TCP(SC-6)-22
#	50	TCP(SC-7)-22
#	51	TCP(SC-8)-22
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#	53	TCP(3-1)-13
#	54	TCP(3-2)-13
#	55	TCP(3-3)-14
#	56	TCP(3-4)-13
		PAVEMENT MARKING STANDARDS
#	57	PM(1)-22
#	58	PM(2)-22
#	59	PM(3)-22
#	60	PM(4)-22A
#	61	RCD(1)-22
#	62	RCD(2)-22

STATE OF TEXAS
GLENN R. YOWELL
92077
LICENSED
PROFESSIONAL ENGINEER

Glenn R. Yowell, P.E.

8-28-24

THE STANDARD SHEETS SPECIFICALLY IDENTIFIED ABOVE BY A '#' HAVE BEEN ISSUED BY ME AND ARE APPLICABLE TO THIS PROJECT.

INDEX OF SHEETS

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0046	08	017	SL 14
DIST	COUNTY		SHEET NO.
ATL	BOWIE		2

FILE: pw://txdot.projectwiseonline.com:TXDOT5/Documents/19 - ATL/Design Projects/0046080174 - Design/Master Design Files/01 PLANSHEETS/002 INDEX OF SHEETS.dgn
DATE: 8/28/2024 10:21:32 AM

LOCATION MAP

FOR APPROXIMATE LOCATION USE ONLY.
REFER TO THE PROJECT SUMMARY SHEETS
FOR THE EXACT LIMITS OF EACH PROJECT.

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0046	08	017	SL 14
DIST	COUNTY		SHEET NO.
ATL	BOWIE		3

DATE: 5/3/2024 10:54:50 AM
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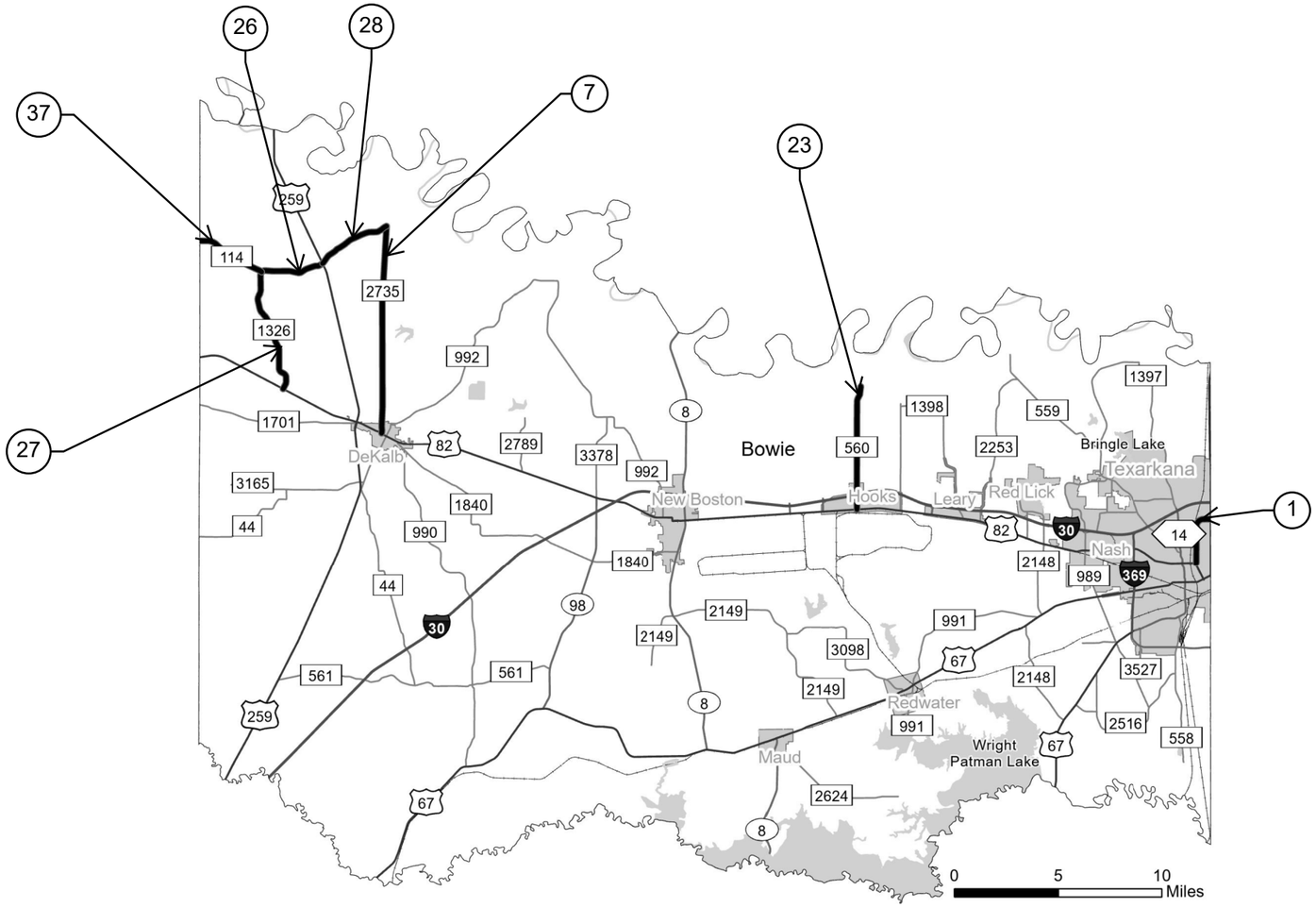

REF	CSJ	COUNTY	HIGHWAY	LIMITS		NET LENGTH MILES
1	0046-08-017	BOWIE	SL 14	FR:	Arkansas S/L	2.223
				TO:	US 82	
7	0085-03-019	BOWIE	FM 2735	FR:	FM 2735N	8.233
				TO:	US 82	
23	1021-01-022	BOWIE	FM 560	FR:	4.082 Mi N of US 82	4.082
				TO:	US 82	
26	1570-02-023	BOWIE	FM 114	FR:	FM 1326	2.546
				TO:	US 259	
27	1570-02-024	BOWIE	FM 1326	FR:	FM 114	5.051
				TO:	US 82	
28	1570-02-025	BOWIE	FM 2735	FR:	US 259	3.048
				TO:	FM 2735N	
37	2730-02-009	BOWIE	FM 114	FR:	Red River C/L	2.846
				TO:	FM 1326	
				TOTAL		28.029

FOR APPROXIMATE LOCATION USE ONLY.
REFER TO THE PROJECT SUMMARY SHEETS
FOR THE EXACT LIMITS OF EACH PROJECT.

COUNTY MAP

SHEET 1 OF 7

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0046	08	017	SL 14
DIST	COUNTY		SHEET NO.
ATL	BOWIE		4

DATE: 7/29/2024 5:03:28 PM
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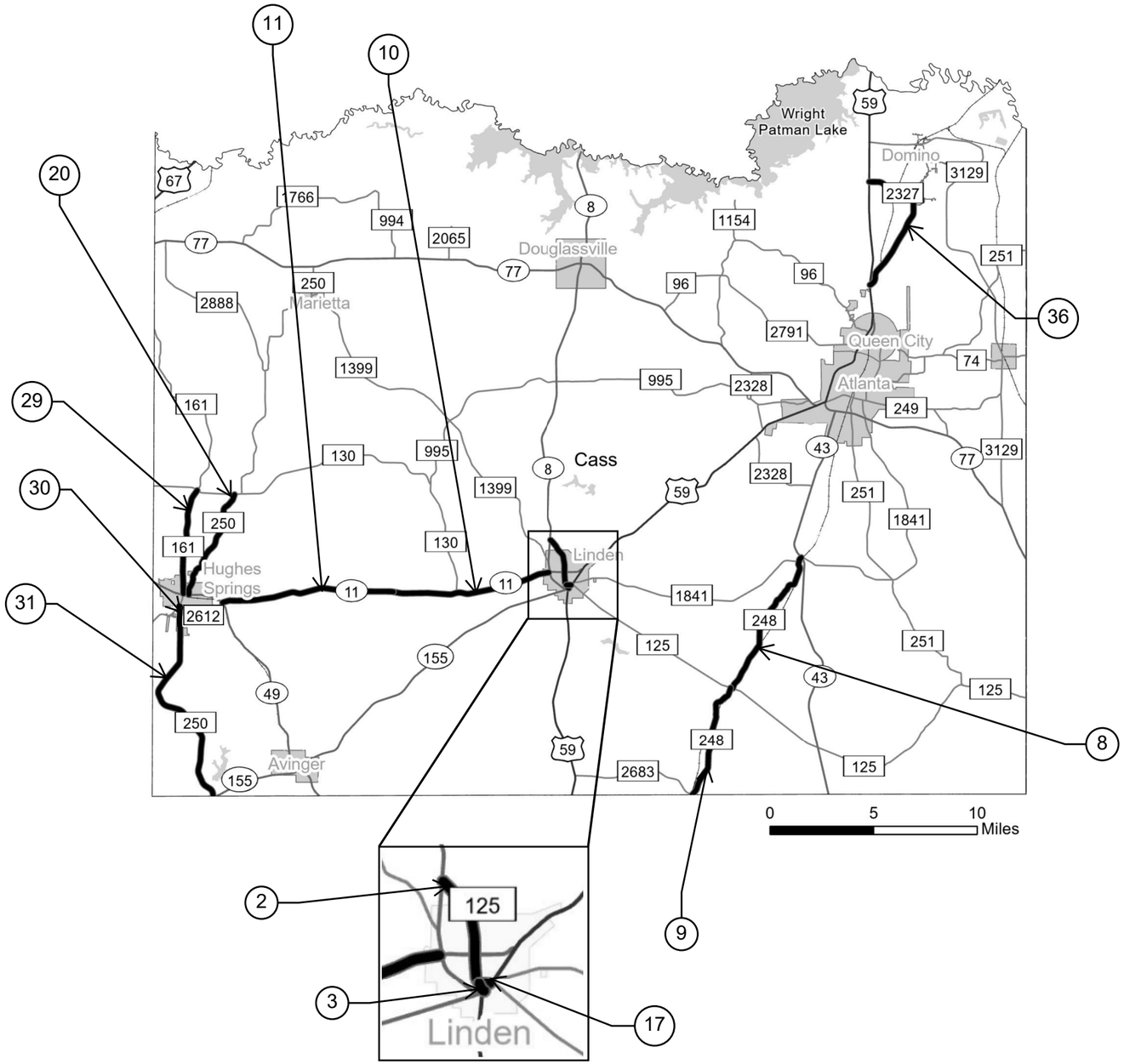

REF	CSJ	COUNTY	HIGHWAY	LIMITS	NET LENGTH MILES
2	0062-08-006	CASS	FM 125	FR: SH 8 TO: FS 125	2.001
3	0062-08-007	CASS	FS 125	FR: FM 125 TO: US 59	0.161
8	0138-10-030	CASS	FM 248	FR: SH 43 TO: FM 125	6.241
9	0138-10-031	CASS	FM 248	FR: FM 125 TO: MARION C/L	4.82
11	0218-05-036	CASS	SH 11	FR: 6.5 Mi E of SH 8 TO: SH 8	6.481
12	0218-06-029	CASS	SH 11	FR: SH 49 TO: 7.0 Mi E of SH 49	7.011
18	0546-09-046	CASS	FM 125	FR: FS 125 TO: US 59	0.201
21	0946-01-048	CASS	FM 250	FR: FM 130 TO: SH 11	4.666
31	1574-02-025	CASS	FM 161	FR: FM 130 TO: SH 11	4.292
32	1574-03-014	CASS	FM 161	FR: FM 250 TO: FM 2612	0.46
33	1574-03-015	CASS	FM 161	FR: FM 2612 TO: SH 155	8.629
38	2241-01-018	CASS	FM 2327	FR: US 59N TO: US 59S	6.043
				TOTAL	51.006

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COUNTY MAP

SHEET 2 OF 7

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0046	08	017	SL 14
DIST	COUNTY		SHEET NO.
ATL	BOWIE		5

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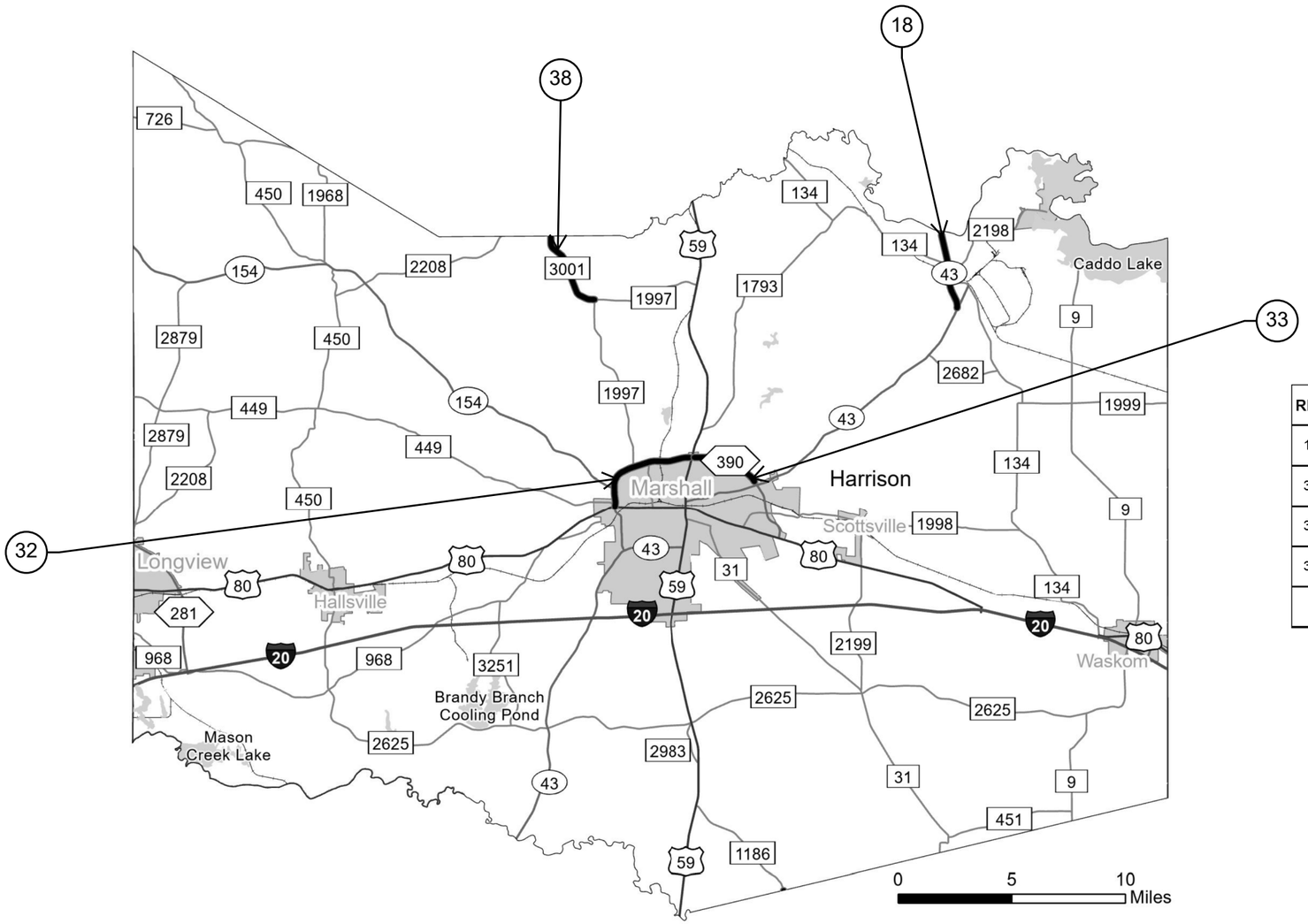

REF	CSJ	COUNTY	HIGHWAY	LIMITS	NET LENGTH MILES
18	0569-04-025	HARRISON	SH 43	FR: MARION C/L TO: SS 449	2.764
32	1575-04-019	HARRISON	SL 390	FR: US 59 TO: US 80	3.978
33	1575-05-028	HARRISON	SL 390	FR: US 59 TO: SH 43N	2.507
38	3041-03-014	HARRISON	FM 3001	FR: MARION C/L TO: FM 1997	3.117
				TOTAL	12.366

FOR APPROXIMATE LOCATION USE ONLY.
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COUNTY MAP

SHEET 3 OF 7

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0046	08	017	SL 14
DIST	COUNTY		SHEET NO.
ATL	BOWIE		6

DATE: 7/29/2024 3:53:36 PM
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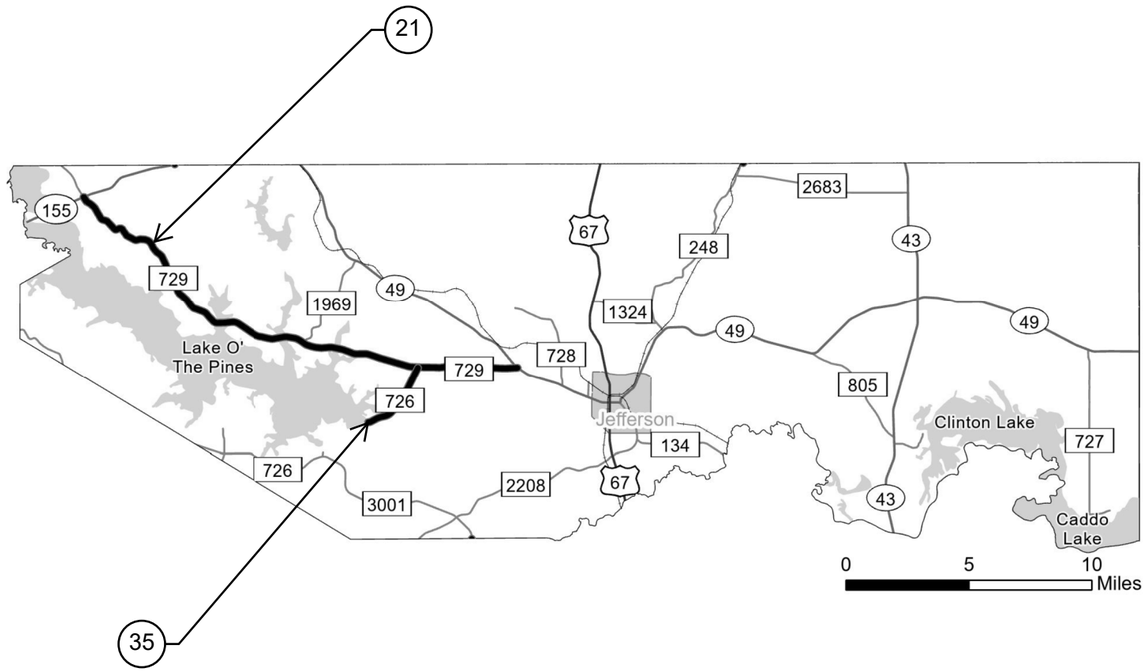
REF	CSJ	COUNTY	HIGHWAY	LIMITS	NET LENGTH MILES
21	1018-03-050	MARION	FM 729	FR: SH 155 TO: SH 49	17.377
35	1895-03-025	MARION	FM 726	FR: 2.7 Mi W of FM 729 TO: FM 729	2.662
				TOTAL	20.039



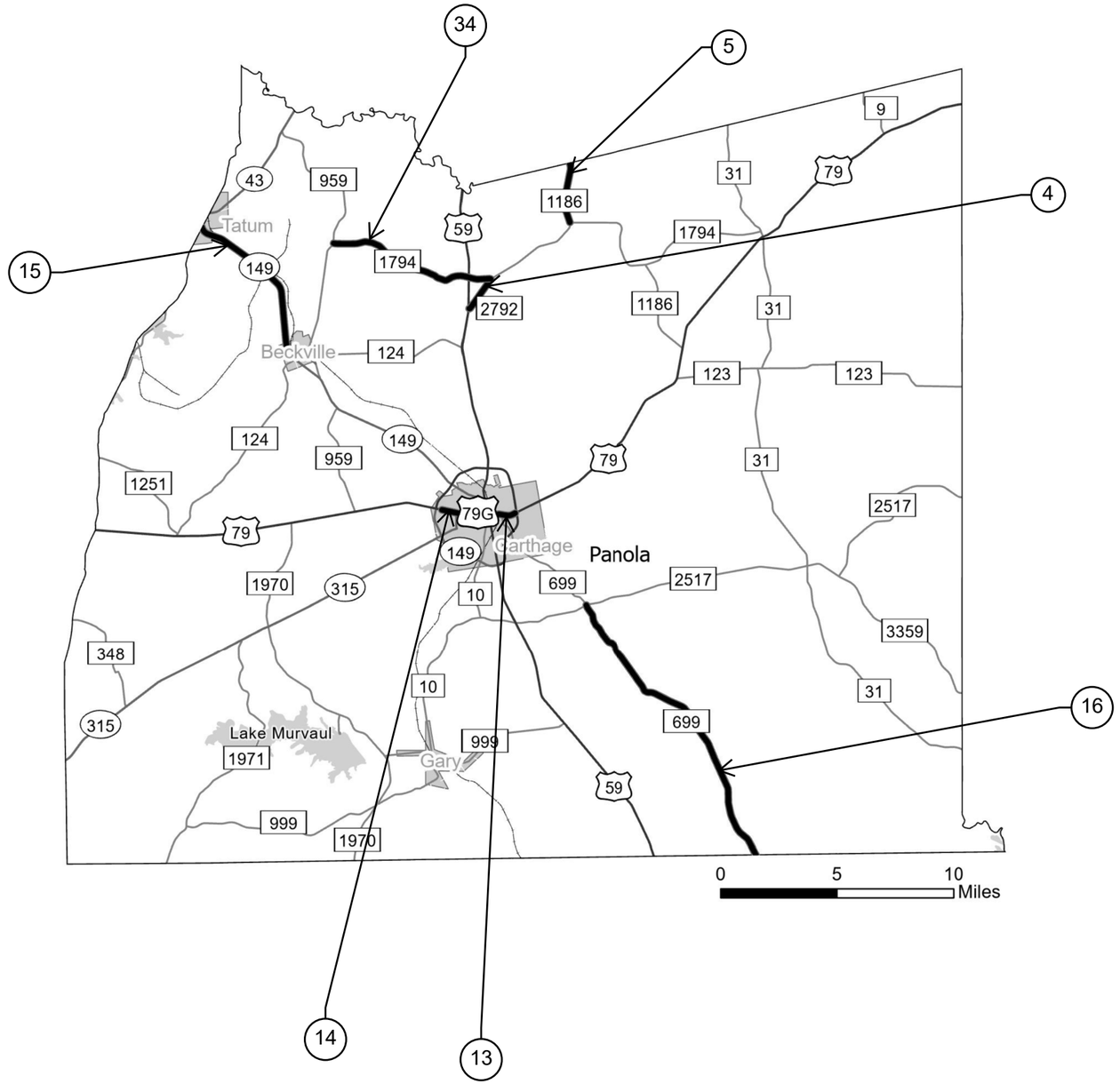
FOR APPROXIMATE LOCATION USE ONLY.
REFER TO THE PROJECT SUMMARY SHEETS
FOR THE EXACT LIMITS OF EACH PROJECT.

COUNTY MAP

SHEET 4 OF 7

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0046	08	017	SL 14
DIST	COUNTY		SHEET NO.
ATL	BOWIE		7



REF	CSJ	COUNTY	HIGHWAY	LIMITS		NET LENGTH MILES
4	0063-02-039	Panola	FM 2792	FR: TO:	FM 1794 US 59N	1.332
5	0063-02-040	Panola	FM 1186	FR: TO:	HARRISON C/L FM 1794W	2.233
13	0246-02-055	Panola	BU 79G	FR: TO:	US 79 BU 59D	1.693
14	0247-01-060	Panola	BU 79G	FR: TO:	BU 59D US 59	0.981
15	0393-03-038	Panola	SH 149	FR: TO:	Rusk C/L SS 152	5.957
16	0394-03-044	Panola	FM 699	FR: TO:	FM 2517 Shelby C/L	11.513
34	1760-01-030	Panola	FM 1794	FR: TO:	FM 959 FM 2792	6.144
				TOTAL		29.853

FOR APPROXIMATE LOCATION USE ONLY.
REFER TO THE PROJECT SUMMARY SHEETS
FOR THE EXACT LIMITS OF EACH PROJECT.

COUNTY MAP

SHEET 5 OF 7

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0046	08	017	SL 14
DIST	COUNTY		SHEET NO.
ATL	BOWIE		8

DATE: 7/29/2024 3:53:29 PM
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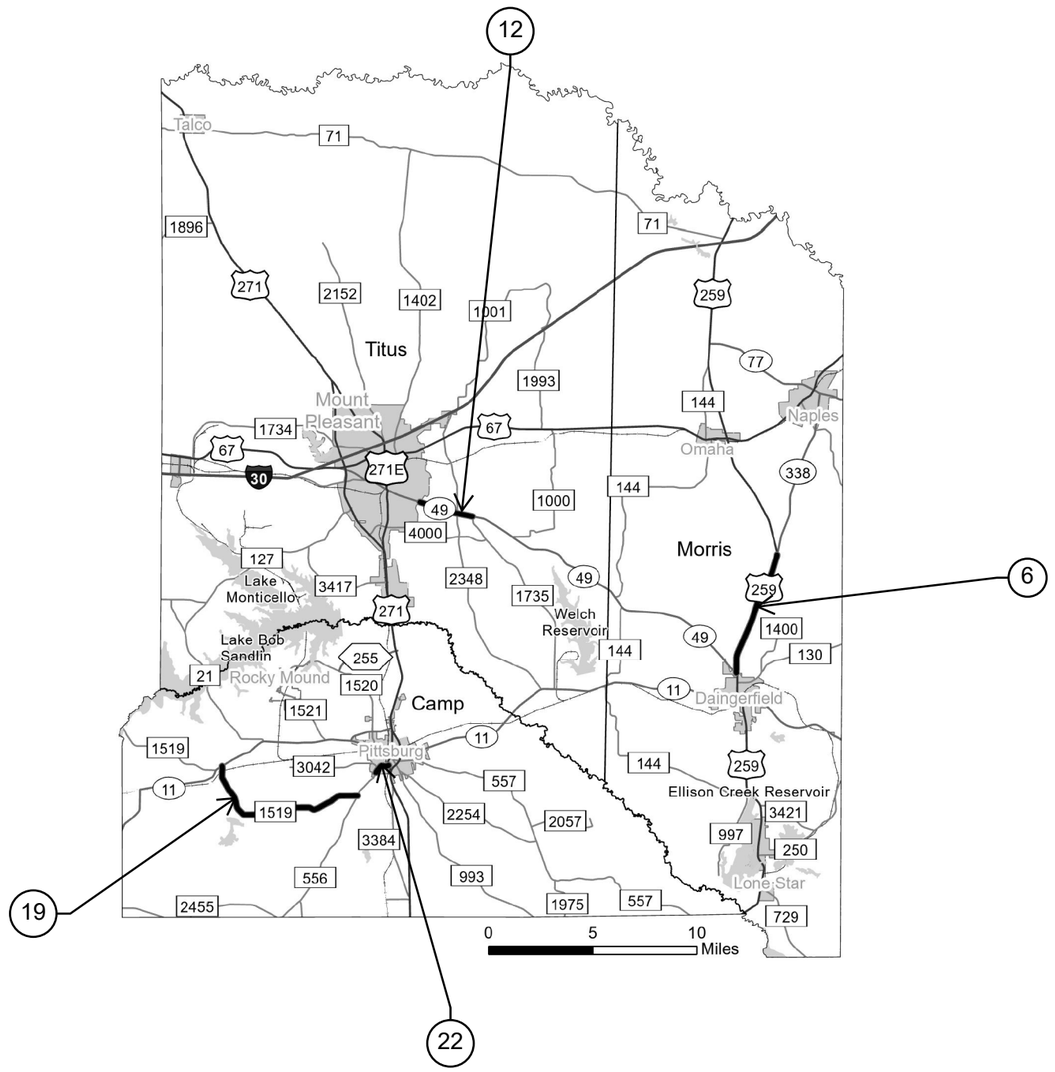

REF	CSJ	COUNTY	HIGHWAY	LIMITS		NET LENGTH MILES
19	0633-05-021	CAMP	FM 1519	FR: TO:	SH 11 FM 556	7.032
6	0084-01-096	MORRIS	US 259	FR: TO:	SH 338 SH 49	5.091
12	0222-01-062	TITUS	SH 49	FR: TO:	Mt. Pleasant C/L FM 1735	2.199
22	1019-01-034	CAMP	FM 556	FR: TO:	US 271H Pittsburg C/L	0.680
				TOTAL		**15.002**

FOR APPROXIMATE LOCATION USE ONLY.
REFER TO THE PROJECT SUMMARY SHEETS
FOR THE EXACT LIMITS OF EACH PROJECT.

COUNTY MAP

SHEET 6 OF 7

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0046	08	017	SL 14
DIST	COUNTY		SHEET NO.
ATL	BOWIE		9

DATE: 7/29/2024 3:53:34 PM
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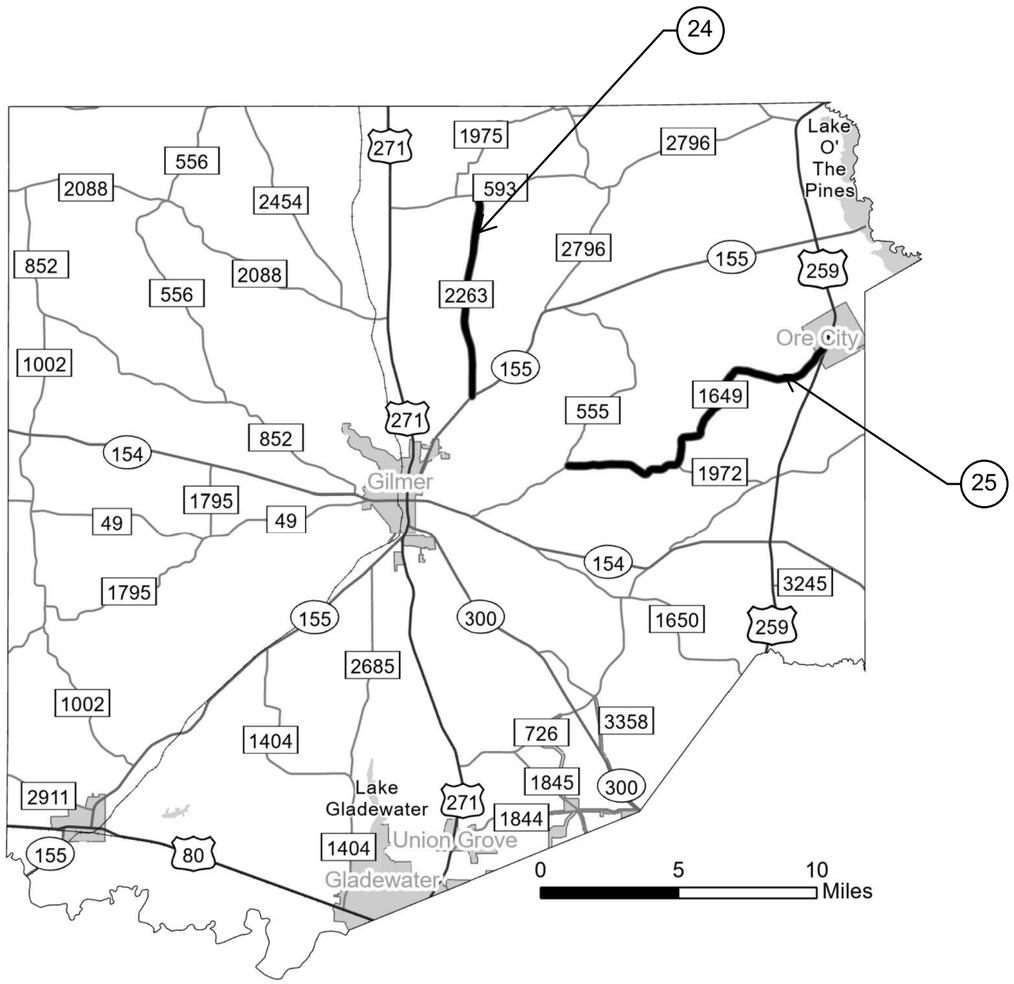

REF	CSJ	COUNTY	HIGHWAY	LIMITS	NET LENGTH MILES
24	1232-04-011	UPSHUR	FM 2263	FR: FM 593 TO: SH 155	6.183
25	1382-04-016	UPSHUR	FM 1649	FR: FM 555 TO: US 259	10.707
				TOTAL	**16.890**

FOR APPROXIMATE LOCATION USE ONLY.
REFER TO THE PROJECT SUMMARY SHEETS
FOR THE EXACT LIMITS OF EACH PROJECT.

COUNTY MAP

SHEET 7 OF 7

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0046	08	017	SL 14
DIST	COUNTY		SHEET NO.
ATL	BOWIE		10

GENERAL NOTES:

General Requirements and Covenants:

Schedule the preconstruction meeting prior to making any aggregate deliveries to the roadway. A representative of the contractor and all suppliers, with the authority to enter into contracts and agreements, shall be present.

Contractor questions on this project are to be addressed to the following individuals:

Area Engineer		Assistant Area Engineer	
Tommy Bruce, P.E.	Tommy.Bruce@txdot.gov	Dana Moore, P.E.	Dana.Moore@txdot.gov

Questions may be submitted via the Letting Pre-Bid Q&A web page. This webpage can be accessed from the Notice to Contractors dashboard located at the following Address:

https://tableau.txdot.gov/views/ProjectInformationDashboard/NoticetoContractors?%

All contractor questions will be reviewed by the Engineer. All questions and any corresponding responses that are generated will be posted through the same Letting Pre-Bid Q&A web page.

The Letting Pre-Bid Q&A web page for each project can be accessed by using the dashboard to navigate to the project you are interested in by scrolling or filtering the dashboard using the controls on the left. Hover over the blue hyperlink for the project you want to view the Q&A for and click on the link in the window that pops up.

ITEM 7 – Legal Relations and Responsibilities:

This project is considered a maintenance activity and is exempt from the Construction General Permit (CGP) coverage.

Work in this contract is required to be done on railroad property. Cooperate with the railroads and comply with all their requirements including obtaining any training they require before performing work on railroad property.

No significant traffic generator events.

ITEM 8 – Prosecution and Progress:

Asphalt Season is May 1 and ends August 31.

The latest roadway start work date is May 27, 2025.

Working days will be charged in accordance with Section 8.3.1.2, “Six-Day Workweek”

Refer to SP 008-002 for additional information regarding beginning of working day charges.

ITEM 302 – Aggregates for Surface Treatment:

Furnish material in accordance with Atlanta District’s QA Program for Surface Treatment Aggregates. This program is included in the plans.

ITEM 316 – Seal Coat:

Refer to SP 316-001 for additional information regarding the requirement of certified Department and Contractor personnel on this districtwide seal coat project.

Asphalt season starts May 1 and ends August 31. Obtain written approval before placing asphaltic materials between August 31 and May 1.

Precoat material with a minimum of 1.0 % of asphalt material or as directed by the Engineer.

Apply anti-stripping agent when using siliceous gravel or other material that is prone to stripping.

Consolidate the aggregate into a uniform stockpile in a manner that will prevent segregation and/or degradation. It is the intent that stockpiling operations be performed continuously during daily deliveries.

Variable transverse asphalt rates may be required as directed by the Engineer.

Equip the distributor spray bar so that the asphalt rate over the wheel paths can be set at a rate different than the application rate over the rest of the travel lane as directed.

Use the same type of aggregate on each individual project.

Patch, repair, clean up each project and apply work zone pavement markings to each individual project before conducting further sealing operations.

Seal intersections before sealing the main lanes. Seal all existing roadway surfaces, including extra widths, crossovers, roadside parks, picnic areas, mailbox turnouts, public road intersections, and public drives, within the limits of each project. Do not seal intersections surfaced with ACP or constructed of concrete.

For final surfaces, furnish aggregate with a minimum “A” surface aggregate classification.

Any remaining aggregate from a stockpile shall be used on a subsequent reference.

Contact the maintenance supervisor in each county prior to beginning any stockpile activity.

County	Telephone
Panola	903-693-6331
Morris/Camp/Titus	903-645-2519
Upshur	903-797-3100
Marion	903-665-2692
Harrison	903-935-2809
Cass	903-756-7118
Bowie (West)	903-628-2321
Bowie (East)	903-838-8574

Deliver aggregate Monday through Friday during daylight hours only. Deliveries outside of these hours will cause all stockpiled aggregate to be removed from material on hand.

The Department may require the use of emulsion instead of AC if conditions so dictate. Apply AC unless otherwise directed.

Cure the surface treatment under traffic a minimum of 14 days before placement of any subsequent surface courses.

Final brooming, of the patched or repaired areas, may take place the working day after the individual project is completed.

Materials remaining on the right of way after final payment has been made will become property of the State.

If any of the remaining aggregate at the end of the project is to be purchased by the State, the aggregate shall be placed in a consolidated stockpile at a central location as approved by the Engineer.

ITEM 502 – Barricades, Signs, and Traffic Handling:

The Contractor Force Account “Safety Contingency” that has been established for this project is intended to be utilized for work zone enhancements, to improve the effectiveness of the Traffic Control Plan, that could not be foreseen in the project planning and design stage. These enhancements will be mutually agreed upon by the Engineer and the Contractor’s Responsible Person based on weekly or more frequent traffic management reviews on the project. The Engineer may choose to use existing bid items if it does not slow the implementation of enhancement.

The Contractor's responsible person (CRP) will be responsible for ensuring that the signs and traffic control devices are in place and functioning properly. Notify the Engineer in writing of the name, address, and telephone number of this employee or these employees.

The CRP will inspect and ensure any deficiencies are corrected each and every day throughout the duration of this contract.

Restrict the movement of equipment across traffic lanes to an absolute minimum.

Use strobe lights or rotating beacons on all motorized equipment, operating on or adjacent to the road surface.

Erect signs within forty-eight (48) hours prior to sealing an individual project.

ITEM 503 – Portable Changeable Message Sign:

Portable Changeable Message signs will be used on this contract. They may be required at various locations as directed by the Engineer. The Engineer will provide the Contractor with the location and the messages to be displayed for each specific event. The Engineer or his representative will inspect each location once the Contractor has placed the message boards to verify that the placement and message is correct. The Contractor will change the message board location and modify the message being displayed as directed before leaving the location to the satisfaction of the Engineer or his representative. The Portable Changeable Message Signs will be paid for by the day after installed and fully operational. The Engineer will notify the Contractor when the Portable Changeable Message Signs are needed, and the Contractor will have the Portable Changeable Message Signs on location and fully operational in 5 working days. In cases of emergency the Contractor will have the Portable Changeable Message Signs on location and fully operational in 3 working days. Refer to traffic control plan sheets for typical temporary portable changeable message sign layout.

ITEM 505–Truck Mounted Attenuator (TMA) and Trailer Attenuator (TA):

The shadow vehicle with truck mounted attenuator (TMA) will not be optional but will be required as shown on the appropriate traffic control plan sheets.

A total of one (2) shadow vehicle with TMA will be required for work. The contractor will be responsible for determining if one or more of these operations will be ongoing at the same time to determine the total number of TMA’s needed for the project.

A total of two (2) shadow vehicles with TMA will be required for Pavement Marking Operations.

ITEM 506 – Temporary Erosion, Sedimentation, and Environmental Controls:

It is the intent of this contract that no disturbance of vegetation occurs as a result of roadway operations. In the event vegetation is disturbed, place erosion or pollution control measures deemed necessary by the Engineer. Work performed for which there are no applicable pay items in the contract will be reimbursed in accordance with Article 9.7, "Payment for Extra Work and Force Account Method".

The project is exempt from the Texas Pollutant Discharge Elimination System (TPDES) General Permit (TXR15000). Exempt projects are those that disturb less than one acre or routine maintenance activities that maintain the original line and grade, hydraulic capacity, or original purposes of the site. No temporary erosion control measures or Storm Water Pollution Prevention Plan (SW3P) have been included in the plans.

ITEM 662 – Work Zone Pavement Markings:

Patch, repair, clean up each project and apply work zone pavement markings to each individual project before conducting further sealing operations.

ITEM 666 - Reflectorized Pavement Markings:

Furnish and place a double drop of Type II and Type III drop-on glass beads.

Place pavement markings only after the surface treatment has cured to the satisfaction of the Engineer.

Place pavement markings within 14 days after completion of the final surface.

Mark the lateral locations of pavement markings with pilot lines. Obtain approval of the location and alignment of the pilot lines before application of permanent markings.
Record the location of "passing" and "no passing" zones before beginning roadway work to re-establish these zones in their original location. Provide a copy of the record to the Engineer.

REF	COUNTY	HIGHWAY	CSJ	LIMITS	[1] BEGIN STATION	[1] END STATION	BEGIN REF MRK	END REF MRK	[2] EXCLUSIONS	LENGTH FEET	LENGTH MILES	ADT (2022)	[3] TRUCK ADT
1	Bowie	SL 14	0046-08-017	FR: Arkansas S/L TO: US 82	10+00	127+37.00	212 -0.076	212 +2.147	NONE	11,737	2.223	14,440	491
2	Cass	FM 125	0062-08-006	FR: SH 8 TO: FS 125	10+00	115+65.00	728 -0.024	730 +0.060	NONE	10,565	2.001	2,157	173
3	Cass	FS 125	0062-08-007	FR: FM 125 TO: US 59	10+00	18+50.00	730 +0.000	730 +0.161	NONE	850	0.161	917	100
4	Panola	FM 2792	0063-02-039	FR: FM 1794 TO: US 59N	10+00	80+33.00	294 -0.027	296 +0.042	NONE	7,033	1.332	746	90
5	Panola	FM 1186	0063-02-040	FR: Harrison C/L TO: FM 1794W	10+00	127+90.00	284 +4.611	290 +0.126	109+57-114+93	11,790	2.233	1,046	110
6	Morris	US 259	0084-01-096	FR: SH 338 TO: SH 49	10+00	278+80.00	238 +0.404	242 +1.502	NONE	26,880	5.091	8,718	1,177
7	Bowie	FM 2735	0085-03-019	FR: FM 2735N TO: US 82	10+00	444+70.00	204 +1.057	212 +1.326	NONE	43,470	8.233	974	58
8	Cass	FM 248	0138-10-030	FR: SH 43 TO: FM 125	10+00	339+52.00	242 -0.031	248 +0.235	154+89-162+81, 171+99-192+51	32,952	6.241	252	40
9	Cass	FM 248	0138-10-031	FR: FM 125 TO: Marion C/L	10+00	264+50.00	250 -1.641	252 +1.187	138+15-143+28	25,450	4.820	173	15
10	Cass	SH 11	0218-05-036	FR: 6.5 Mi E of SH 8 TO: SH 8	10+00	352+20.00	752 +0.037	758 +0.536	NONE	34,220	6.481	1,741	207
11	Cass	SH 11	0218-06-029	FR: SH 49 TO: 7.0 Mi E of SH 49	10+00	380+18.00	744 +0.920	752 +0.037	NONE	37,018	7.011	2,443	215
12	Titus	SH 49	0222-01-062	FR: Mt. Pleasant C/L TO: FM 1735	10+00	126+11.00	692 +1.270	694 +1.623	NONE	11,611	2.199	8,087	768
13	Panola	BU 79G	0246-02-055	FR: US 79 TO: BU 59D	10+00	99+39.00	732 +0.025	732 +1.718	NONE	8,939	1.693	10,346	228
14	Panola	BU 79G	0247-01-060	FR: BU 59D TO: US 59	10+00	61+80.00	734-0.031	734 +0.950	NONE	5,180	0.981	7,771	202
15	Panola	SH 149	0393-03-038	FR: Rusk C/L TO: SS 152	10+00	324+53.00	298 +0.257	304 +1.932	NONE	31,453	5.957	6,295	548
16	Panola	FM 699	0394-03-044	FR: FM 2517 TO: Shelby C/L	10+00	617+89.00	306 +0.754	316 +2.316	156+64-160+99, 169+38-172+91	60,789	11.513	1,188	109
17	Cass	FM 125	0546-09-046	FR: FS 125 TO: US 59	10+00	20+61.00	730 +0.069	730 +0.270	NONE	1,061	0.201	1,219	118
18	Harrison	SH 43	0569-04-025	FR: Marion C/L TO: SS 449	10+00	155+94.00	266 +1.096	270 +0.909	NONE	14,594	2.764	1,658	230
19	Camp	FM 1519	0633-05-021	FR: SH 11 TO: FM 556	10+00	381+29.00	688 -1.183	694 +0.040	NONE	37,129	7.032	569	79
20	Cass	FM 250	0946-01-048	FR: FM 130 TO: SH 11	10+00	256+36.00	254 +1.303	260 +0.032	43+68-47+70	24,636	4.666	870	98
21	Marion	FM 729	1018-03-050	FR: SH 155 TO: SH 49	10+00	927+51.00	710 +1.41	726 +2.828	NONE	91,751	17.377	1,856	100
22	Camp	FM 556	1019-01-034	FR: US 271H TO: Pittsburg C/L	10+00	45+90.00	246 -0.010	246 +0.670	NONE	3,590	0.680	2,981	227
23	Bowie	FM 560	1021-01-022	FR: 4.082 Mi N of US 82 TO: US 82	10+00	225+53.00	206 +0.816	210 +0.899	NONE	21,553	4.082	3,900	296
24	Upshur	FM 2263	1232-04-011	FR: FM 593 TO: SH 155	10+00	336+46.00	254 -0.027	260 +0.028	NONE	32,646	6.183	609	80
25	Upshur	FM 1649	1382-04-016	FR: FM 555 TO: US 259	10+00	575+33.00	702 -2.005	710 +0.686	NONE	56,533	10.707	773	89
26	Bowie	FM 114	1570-02-023	FR: FM 1326 TO: US 259	10+00	144+43.00	706 +0.824	708 +1.409	397+45-401+46	13,443	2.546	163	34
27	Bowie	FM 1326	1570-02-024	FR: FM 114 TO: US 82	10+00	276+69.00	204 -0.048	208 +1.061	NONE	26,669	5.051	276	43
28	Bowie	FM 2735	1570-02-025	FR: US 259 TO: FM 2735N	10+00	170+93.00	202 -0.031	204 +1.057	NONE	16,093	3.048	136	14
29	Cass	FM 161	1574-02-025	FR: FM 130 TO: SH 11	10+00	236+62.00	240 +1.913	246 +0.261	NONE	22,662	4.292	2,847	214
30	Cass	FM 161	1574-03-014	FR: FM 250 TO: FM 2612	10+00	34+29.00	248 -1.240	248 -0.780	NONE	2,429	0.460	1,034	108
31	Cass	FM 161	1574-03-015	FR: FM 2612 TO: SH 155	10+00	465+61.00	248 -0.745	254 +1.891	NONE	45,561	8.629	591	79
32	Harrison	SL 390	1575-04-019	FR: US 59 TO: US 80	10+00	220+04.00	726 +0.665	730 +0.636	NONE	21,004	3.978	10,576	518
33	Harrison	SL 390	1575-05-028	FR: US 59 TO: SH 43N	10+00	142+37.00	730 +0.808	732 +1.475	NONE	13,237	2.507	4,471	308
34	Panola	FM 1794	1760-01-030	FR: FM 959 TO: FM 2792	10+00	334+40.00	728 -1.306	732 +0.859	NONE	32,440	6.144	510	76
35	Marion	FM 726	1895-03-025	FR: 2.7 Mi W of FM 729 TO: FM 729	10+00	150+55.00	730 -1.566	730 +1.096	NONE	14,055	2.662	901	69
36	Cass	FM 2327	2241-01-018	FR: US 59N TO: US 59S	10+01	329+07.00	226 -0.026	232 +0.037	NONE	31,907	6.043	582	78
37	Bowie	FM 114	2730-02-009	FR: Red River C/L TO: FM 1326	10+02	160+27.00	702 +0.840	706 +0.824	NONE	15,027	2.846	125	24
38	Harrison	FM 3001	3041-03-014	FR: Marion C/L TO: FM 1997	10+03	174+58.00	726 +0.007	728 +1.112	69+51-86+35	16,458	3.117	725	89
PROJECT TOTALS										**914,415**	**173.185**		

[1] STATIONING IS FOR CONSTRUCTION PURPOSES ONLY.
[2] AREAS THAT WILL NOT BE SEAL COATED, THIS HAS BEEN REFLECTED IN THE QUANTITIES
[3] THIS IS A PERCENTAGE OF THE ADT (2022)

PROJECT SUMMARY SHEET

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0046	08	017	SL 14
DISTRICT	COUNTY		SHEET
ATL	BOWIE		12

FILE:
DATE
3:40:11 PM

REF	COUNTY	HIGHWAY	CSJ	LIMITS	ADT	DESCRIPTION OF WORK	[2] LENGTH OF ROAD	[2] WIDTH	[2] SURFACE AREA	ASPHALT 316 7023 AC-20-5TR FOR GR 4 AGGR 0.36 GAL/SY		FOR GR 3 AGGR 0.50 GAL/SY		AGGREGATE GRADE 4 1CY/140SY	AGGREGATE GRADE 3 1CY/110SY	316 7259 TY PB GR 4 SAC-A	316 7260 TY PB GR 3 SAC-A	[1] ONYX 3001 7001 FRICTIONAL ASPH SURF PRESERV TRTMT
							MI	LF	SY	[2] GAL	[3] TON	[2] GAL	[3] TON	[2] CY		2,320 LB/CY TON	2,317 LB/CY TON	SY
1	Bowie	SL 14	0046-08-017	FR: Arkansas S/L TO: US 82	14,440	TRAF LANES	2.223	12	78,246	28,169	121.08			559		648		
						SHOULDERS		-										
						CSJ TOTALS			78,246	28,169	121.08	0	0.00	559	0	648	0	0
2	Cass	FM 125	0062-08-006	FR: SH 8 TO: FS 125	2,157	TRAF LANES	2.001	12	30,521	10,988	47.23			218		253		
						SHOULDERS		-										
						EXTRA WIDTH (2)			1,305	470	2.02			9		10		
						CSJ TOTALS			31,826	11,458	49.25	0	0.00	227	0	263	0	0
3	Cass	FS 125	0062-08-007	FR: FM 125 TO: US 59	917	TRAF LANES	0.161	12	2,267	816	3.51			16		19		
						SHOULDERS		-										
						CSJ TOTALS			2,267	816	3.51	0	0.00	16	0	19	0	0
4	Panola	FM 2792	0063-02-039	FR: FM 1794 TO: US 59N	746	TRAF LANES	1.332	12	20,318			10,159	43.67		185		214	
						SHOULDERS		-										
						CSJ TOTALS			20,318	0	0.00	10,159	43.67	0.00	185	0	214	0
5	Panola	FM 1186	0063-02-040	FR: Harrison C/L TO: FM 1794W	1,046	TRAF LANES	2.233	12	30,011	10,804	46.44			214		248		
						SHOULDERS		-										
						EXTRA WIDTH (2)			2,775	999	4.29			20		23		
						CSJ TOTALS			32,786	11,803	50.73	0	0.00	234	0	271	0	0
6	Morris	US 259	0084-01-096	FR: SH 338 TO: SH 49	8,718	TRAF LANES	5.091	12	143,360	51,610	221.84			1,024		1188		
						SHOULDERS		10	59,733									59,733
						CSJ TOTALS			203,093	51,610	221.84	0	0.00	1,024	0	1,188	0	59,733
7	Bowie	FM 2735	0085-03-019	FR: FM 2735N TO: US 82	974	TRAF LANES	8.233	12	115,920			57,960	249.13		1,054	0	1,221	
						SHOULDERS		-										
						CSJ TOTALS			115,920	0	0.00	57,960	249.13	0	1,054	0	1,221	0
8	Cass	FM 248	0138-10-030	FR: SH 43 TO: FM 125	252	TRAF LANES	6.241	12	83,633			41,817	179.74		760		880	
						SHOULDERS		-										
						CSJ TOTALS			83,633	0	0.00	41,817	179.74	0	760	0	880	0
9	Cass	FM 248	0138-10-031	FR: FM 125 TO: Marion C/L	173	TRAF LANES	4.82	12	69,269			34,635	148.87		630		730	
						SHOULDERS		-										
						CSJ TOTALS			69,269	0	0.00	34,635	148.87	0	630	0	730	0
10	Cass	SH 11	0218-05-036	FR: 6.5 Mi E of SH 8 TO: SH 8	1,741	TRAF LANES	6.481	12	108,442	39,039	167.80			775		899		
						SHOULDERS		-										
						EXTRA WIDTH (3)			2,433	876	3.77			17		20		
						INTERSECTIONS (1) [4]			699	252	1.08			5		6		
						CSJ TOTALS			111,574	40,167	172.65	0	0.00	797	0	925	0	0
11	Cass	SH 11	0218-06-029	FR: SH 49 TO: 7.0 Mi E of SH 49	2,443	TRAF LANES	7.011	12	116,700	42,012	180.58			834		967		
						SHOULDERS		-										
						EXTRA WIDTH (1)			250	90	0.39			2		2		
						CSJ TOTALS			116,950	42,102	180.97	0	0.00	836	0	969	0	0
12	Titus	SH 49	0222-01-062	FR: Mt. Pleasant C/L TO: FM 1735	8,087	TRAF LANES	2.199	12	81,277	29,260	125.77			581		674		
						SHOULDERS		10	25,802									25,802
						INTERSECTIONS (2) [4]			1,534	552	2.37			11		13		
						CSJ TOTALS			108,613	29,812	128.14	0	0.00	592	0	687	0	25,802
SHEET 1 SUBTOTALS									**974,495**	**215,937**	**928.17**	**144,571**	**621.41**	**4,285**	**2,629**	**4,970**	**3,045**	**85,535**

[1] TO BE APPLIED IN ACCORDANCE WITH SPECIAL SPEC 3001 OR AS DIRECTED BY THE ENGINEER

[2] FOR CONTRACTOR'S INFORMATION ONLY

[3] CALCULATED AT 1 TON / 232.65 GAL

[4] SEE MISCELLANEOUS SUMMARIES FOR MORE INFORMATION

ROADWAY SUMMARY

Texas Department of Transportation

SHEET 1 OF 4			
CONT	SECT	JOB	HIGHWAY
0046	08	017	SL 14
DISTRICT	COUNTY		SHEET
ATL	BOWIE		13

REF	COUNTY	HIGHWAY	CSJ	LIMITS	ADT	DESCRIPTION OF WORK	[2] LENGTH OF ROAD	[2] WIDTH	[2] SURFACE AREA	ASPHALT 316 7023 AC-20-5TR				AGGREGATE		316 7259	316 7260	[1] ONYX 3001 7001
										FOR GR 4 AGGR 0.36 GAL/SY		FOR GR 3 AGGR 0.50 GAL/SY		GRADE 4 1CY/140SY	GRADE 3 1CY/110SY	TY PB GR 4 SAC-A	TY PB GR 3 SAC-A	FRICTIONAL ASPH SURF PRESERV TRTMT
							MI	LF	SY	[2] GAL	[3] TON	[2] GAL	[3] TON	[2] CY		2,320 LB/CY TON	2,317 LB/CY TON	SY
13	Panola	BU 79G	0246-02-055	FR: US 79 TO: BU 59D	10,346	TRAF LANES	1.693	12	36,960	13,306	57.19			264		306		
						SHOULDERS		10	17,186									17,186
						CSJ TOTALS			54,146	13,306	57.19	0	0.00	264	0	306	0	17,186
14	Panola	BU 79G	0247-01-060	FR: BU 59D TO: US 59	7,771	TRAF LANES	0.981	12	22,517	8,106	34.84			161		187		
						SHOULDERS		7	7,419									7,419
						CSJ TOTALS			29,936	8,106	34.84	0	0.00	161	0	187	0	7,419
15	Panola	SH 149	0393-03-038	FR: Rusk C/L TO: SS 152	6,295	TRAF LANES	5.957	12	93,905	33,806	145.31			671		778		
						SHOULDERS		9	36,462									36,462
						CSJ TOTALS			130,367	33,806	145.31	0	0.00	671	0	778	0	36,462
16	Panola	FM 699	0394-03-044	FR: FM 2517 TO: Shelby C/L	1,188	TRAF LANES	11.513	13	187,743	67,587	290.51			1,341		1556		
						SHOULDERS												0
						EXTRA WIDTH (3)			865	311	1.34			6		7		
						CSJ TOTALS			188,608	67,898	291.85	0	0.00	1,347.00	0	1,563	0	0
17	Cass	FM 125	0546-09-046	FR: FS 125 TO: US 59	1,219	TRAF LANES	0.201	13	2,829	1,018	4.38			20		23		
						SHOULDERS		-										
						CSJ TOTALS			2,829	1,018	4.38	0	0.00	20	0	23	0	0
18	Harrison	SH 43	0569-04-025	FR: Marion C/L TO: SS 449	1,658	TRAF LANES	2.764	12	45,307	16,311	70.11			324		376		
						SHOULDERS		11	35,132									35,132
						INTERSECTIONS (3) [4]			1,217	438	1.88			9		10		
						CSJ TOTALS			81,656	16,749	71.99	0	0.00	333	0	386	0	35,132
19	Camp	FM 1519	0633-05-021	FR: SH 11 TO: FM 556	569	TRAF LANES	7.032	12	107,262			53,631	230.52		975		1,130	
						SHOULDERS												0
						CSJ TOTALS			107,262	0	0.00	53,631	230.52	0	975	0	1,130	0
20	Cass	FM 250	0946-01-048	FR: FM 130 TO: SH 11	870	TRAF LANES	4.666	12	67,317			33,659	144.68		612		709	
						SHOULDERS		-										
						CSJ TOTALS			67,317	0	0.00	33,659	144.68	0.00	612	0	709	0
21	Marion	FM 729	1018-03-050	FR: SH 155 TO: SH 49	1,856	TRAF LANES	17.377	12	264,294	95,146	408.97			1,888		2190		
						SHOULDERS		-	37,058									37,058
						INTERSECTIONS (2) [4]			455	164	0.70			3		3		
						MAILBOX TURNOUTS (25)			3,750	1,350	5.80			27		31		
						CSJ TOTALS			305,557	96,660	415.47	0	0.00	1,918.00	0	2224	0	37,058
22	Camp	FM 556	1019-01-034	FR: US 271H TO: Pittsburg C/L	2,981	TRAF LANES	0.68	11	11,877	4,276	18.38			85		99		
						SHOULDERS												
						CSJ TOTALS			11,877	4,276	18.38	0	0.00	85	0	99	0	0
23	Bowie	FM 560	1021-01-022	FR: 4.082 Mi N of US 82 TO: US 82	3,900	TRAF LANES	4.082	12	59,869	21,553	92.64			428		496		
						SHOULDERS		-										
						CSJ TOTALS			59,869	21,553	92.64	0	0.00	428	0	496	0	0
24	Upshur	FM 2263	1232-04-011	FR: FM 593 TO: SH 155	609	TRAF LANES	6.183	12	90,683	32,646	140.32			648		752		
						SHOULDERS		-										
						CSJ TOTALS			90,683	32,646	140.32	0	0.00	648	0	752	0	0
SHEET 2 SUBTOTALS									**1,130,107**	**296,018**	**1,272.37**	**87,290**	**375.20**	**5,875**	**1,587**	**6,814**	**1,839**	**133,257**

[1] TO BE APPLIED IN ACCORDANCE WITH SPECIAL SPEC 3001 OR AS DIRECTED BY THE ENGINEER

[2] FOR CONTRACTOR'S INFORMATION ONLY

[3] CALCULATED AT 1 TON / 232.65 GAL

[4] SEE MISCELLANEOUS SUMMARIES FOR MORE INFORMATION

ROADWAY SUMMARY

Texas Department of Transportation

SHEET 2 OF 4			
CONT	SECT	JOB	HIGHWAY
0046	08	017	SL 14
DISTRICT	COUNTY		SHEET
ATL	BOWIE		14

REF	COUNTY	HIGHWAY	CSJ	LIMITS	ADT	DESCRIPTION OF WORK	[2] LENGTH OF ROAD	[2] WIDTH	[2] SURFACE AREA	ASPHALT 316 7023 AC-20-5TR FOR GR 4 AGGR 0.36 GAL/SY		ASPHALT 316 7023 AC-20-5TR FOR GR 3 AGGR 0.50 GAL/SY		AGGREGATE GRADE 4 1CY/140SY	AGGREGATE GRADE 3 1CY/110SY	AGGREGATE 316 7259 TY PB GR 4 SAC-A	AGGREGATE 316 7260 TY PB GR 3 SAC-A	[1] ONYX 3001 7001 FRICTIONAL ASPH SURF PRESERV TRTMT
							MI	LF	SY	[2] GAL	[3] TON	[2] GAL	[3] TON	[2] CY		2,320 LB/CY TON	2,317 LB/CY TON	SY
25	Upshur	FM 1649	1382-04-016	FR: FM 555 TO: US 259	773	TRAF LANES	10.707	12	155,922			77,961	335.10		1,417		1,642	
						SHOULDERS		-										
						INTERSECTIONS (1) [4]			422			211	0.91		4		5	
						CSJ TOTALS			156,344	0	0.00	78,172	336.01	0	1,421	0	1,647	0
26	Bowie	FM 114	1570-02-023	FR: FM 1326 TO: US 259	163	TRAF LANES	2.546	11	32,861			16,431	70.63		299		346	
						SHOULDERS												
						CSJ TOTALS			32,861	0	0.00	16,431	70.63	0	299	0	346	0
27	Bowie	FM 1326	1570-02-024	FR: FM 114 TO: US 82	276	TRAF LANES	5.051	11	65,191			32,596	140.11		593		687	
						SHOULDERS		-										
						CSJ TOTALS			65,191	0	0.00	32,596	140.11	0	593	0	687	0
28	Bowie	FM 2735	1570-02-025	FR: US 259 TO: FM 2735N	136	TRAF LANES	3.048	12	39,338			19,669	84.54		358		415	
						SHOULDERS		-										
						CSJ TOTALS			39,338	0	0.00	19,669	84.54	0.00	358	0	415	0
29	Cass	FM 161	1574-02-025	FR: FM 130 TO: SH 11	2,847	TRAF LANES	4.292	12	64,594	23,254	99.95			461		535		
						SHOULDERS		-										
						CSJ TOTALS			64,594	23,254	99.95	0	0.00	461	0	535	0	0
30	Cass	FM 161	1574-03-014	FR: FM 250 TO: FM 2612	1,034	TRAF LANES	0.46	12	6,477	2,332	10.02			46		53		
						SHOULDERS												
						CSJ TOTALS			6,477	2,332	10.02	0	0.00	46	0	53	0	0
31	Cass	FM 161	1574-03-015	FR: FM 2612 TO: SH 155	591	TRAF LANES	8.629	12	126,558			63,279	271.99		1,151		1,333	
						SHOULDERS		-										
						CSJ TOTALS			126,558	0	0.00	63,279	271.99	0	1,151	0	1,333	0
32	Harrison	SL 390	1575-04-019	FR: US 59 TO: US 80	10,576	TRAF LANES	3.978	12	99,900	35,964	154.58			714		828		
						SHOULDERS		10	44,453									44,453
						INTERSECTIONS (5) [4]			2,145	772	3.32			15		17		
						CSJ TOTALS			146,498	36,736	157.90	0	0.00	729	0	845	0	44,453
33	Harrison	SL 390	1575-05-028	FR: US 59 TO: SH 43N	4,471	TRAF LANES	2.507	12	42,423	15,272	65.64			303		351		
						SHOULDERS		10	29,415									29,415
						EXTRA WIDTH (2)			1,701	612	2.63			12		14		
						CSJ TOTALS			73,539	15,884	68.27	0	0.00	315	0	365	0	29,415
34	Panola	FM 1794	1760-01-030	FR: FM 959 TO: FM 2792	510	TRAF LANES	6.144	12	93,716			46,858	201.41		852		987	
						SHOULDERS		-										
						CSJ TOTALS			93,716	0	0.00	46,858	201.41	0	852	0	987	0
35	Marion	FM 726	1895-03-025	FR: 2.7 Mi W of FM 729 TO: FM 729	901	TRAF LANES	2.662	12	39,042			19,521	83.91		355		411	
						SHOULDERS												
						CSJ TOTALS			39,042	0	0.00	19,521	83.91	0	355	0	411	0
36	Cass	FM 2327	2241-01-018	FR: US 59N TO: US 59S	582	TRAF LANES	6.043	12	84,533			42,267	181.68		768		890	
						SHOULDERS		-										
						CSJ TOTALS			84,533	0	0.00	42,267	181.68	0	768	0	890	0
SHEET 3 SUBTOTALS									**928,691**	**78,206**	**336.14**	**318,793**	**1,370.28**	**1,551**	**5,797**	**1,798**	**6,716**	**73,868**

[1] TO BE APPLIED IN ACCORDANCE WITH SPECIAL SPEC 3001 OR AS DIRECTED BY THE ENGINEER
[2] FOR CONTRACTOR'S INFORMATION ONLY
[3] CALCULATED AT 1 TON / 232.65 GAL
[4] SEE MISCELLANEOUS SUMMARIES FOR MORE INFORMATION

ROADWAY SUMMARY

Texas Department of Transportation

SHEET 3 OF 4			
CONT	SECT	JOB	HIGHWAY
0046	08	017	SL 14
DISTRICT	COUNTY		SHEET
ATL	BOWIE		15

REF	COUNTY	HIGHWAY	CSJ	LIMITS	ADT	DESCRIPTION OF WORK	[2] LENGTH OF ROAD	[2] WIDTH	[2] SURFACE AREA	ASPHALT 316 7023 AC-20-5TR				AGGREGATE		316 7259	316 7260	[1] ONYX 3001 7001
										FOR GR 4 AGGR 0.36 GAL/SY		FOR GR 3 AGGR 0.50 GAL/SY		GRADE 4 1CY/140SY	GRADE 3 1CY/110SY	TY PB GR 4 SAC-A	TY PB GR 3 SAC-A	FRICTIONAL ASPH SURF PRESERV TRTMT
							MI	LF	SY	[2] GAL	[3] TON	[2] GAL	[3] TON	[2] CY		2,320 LB/CY TON	2,317 LB/CY TON	SY
37	Bowie	FM 114	2730-02-009	FR: Marion C/L TO: FM 1997	125	TRAF LANES	2.846	12	36,733			18,367	78.95		334		387	
						SHOULDERS		-										
						CSJ TOTALS			36,733	0	0.00	18,367	78.95	0	334	0	387	0
38	Harrison	FM 3001	3041-03-014	FR: Marion C/L TO: FM 1997	725	TRAF LANES	3.117	12	41,039			20,520	88.20		373	0	432	
						SHOULDERS												
						CSJ TOTALS			41,039	0	0.00	20,520	88.20	0	373	0	432	0
SHEET 4 SUBTOTALS									77,772	0	0	38,887	167	0	707	0	819	0
SHEET 1 SUBTOTALS									974,495	215,937	928.17	144,571	621.41	4,285	2,629	4,970	3,045	85,535
SHEET 2 SUBTOTALS									1,130,107	296,018	1,272.37	87,290	375.20	5,875	1,587	6,814	1,839	133,257
SHEET 3 SUBTOTALS									928,691	78,206	336.14	318,793	1,370.28	1,551	5,797	1,798	6,716	73,868
PROJECT TOTALS									3,111,065	590,161	2,536.68	589,541	2,533.89	11,711	10,720	13,582	12,419	292,660

[1] TO BE APPLIED IN ACCORDANCE WITH SPECIAL SPEC 3001 OR AS DIRECTED BY THE ENGINEER

[2] FOR CONTRACTOR'S INFORMATION ONLY

[3] CALCULATED AT 1 TON / 232.65 GAL

FILE: c:\txdot\pw_online\txdot5\chad.heldt\d1216365\[0046-08-017_M.xlsx]ROADWAY SUMMARY (4 OF 4)

DATE: 3:41:19 PM

ROADWAY SUMMARY

SHEET 4 OF 4			
CONT	SECT	JOB	HIGHWAY
0046	08	017	SL 14
DISTRICT	COUNTY		SHEET
ATL	BOWIE		16

INTERSECTION SUMMARY

REF	COUNTY	HIGHWAY	CSJ	INTERSECTING ROADWAY				
				ROADWAY	LENGTH	[1] WIDTH 1	[2] WIDTH 2	[3] SY
				(US, SH, FM, ETC.)	(LF)	(LF)	(LF)	
10	CASS	SH 11	0218-05-036	FM 130	88	25	118	699
12	TITUS	SH 49	0222-01-062	FM 2348	70	30	89	463
				FM 2348	126	90	63	1071
18	HARRISON	SH 43	0569-04-025	FM 2198	62	36	124	551
				FM 134 (N)	60	25	87	373
				FM 134 (S)	32	75	90	293
21	MARION	FM 729	1018-03-050	FM 726	26	54	118	248
				FM 1969	25	65	84	207
25	UPSHUR	FM 1649	1382-04-016	FM 1972	95	25	55	422
32	HARRISON	SL 390	1575-04-019	FM 449	50	37	100	381
				FM 154	50	53	80	369
				FM 154	68	37	98	510
				FM 1997	85	27	65	434
				FM 1997	78	24	80	451
TOTALS								6,472

[1] MEASURED TRANSVERSELY AT R.O.W.
[2] MEASURED TRANSVERSELY AT HIGHWAY
[3] FOR CONTRACTOR'S INFORMATION ONLY

RAILROAD CROSSING SUMMARY [4] [5]

DOT #	CROSSING TYPE	OWNER	RR MILEPOST	RR SUBDIVISION	CITY	COUNTY	ROADWAY	CSJ	LATTITUDE	LONGITUDE
794536X	AT GRADE	UP	19.14	LITTLE ROCK	QUEEN CITY	CASS	FM 2327	2241-01-018	33.1798032	-94.152105
794534J	AT GRADE	UP	15.21	LITTLE ROCK	DOMINO	CASS	FM 2327	2241-01-018	33.2333395	-94.1346125
794557R	AT GRADE	UP	38.19	LITTLE ROCK	JEFFERSON	CASS	FM 248	0138-10-031	32.9273197	-94.2595763
859610J	RR UNDER	UP	0.00	LITTLE ROCK	MARSHALL	HARRISON	SL 390	1575-04-019	32.5732757	-94.3670027
789785T	AT GRADE	UP	491.56	PINE BLUFF	PITTSBURGH	CAMP	FM 556	1019-01-034	32.99081	-94.9686847

[4] FOR CONTRACTOR'S INFORMATION ONLY
[5] SEE RAILROAD SCOPE OF WORK FOR MORE INFORMATION

MISCELLANEOUS SUMMARIES

CONT	SECT	JOB	HIGHWAY
0046	08	17	SL14
DISTRICT		COUNTY	SHEET
ATL		BOWIE	17

REF	COUNTY	HIGHWAY	CSJ	LIMITS	SHORT TERM 662		REF PAV MRK TY II 666				
					7112	7114	7172	7175	7179	7211	7213
					TAB TY W	TAB TY Y-2	(W) 6 IN (BRK)	(W) 6 IN (SLD)	(W) 8 IN (SLD)	(Y) 6 IN (BRK)	(Y) 6 IN (SLD)
					EA	EA	LF	LF	LF	LF	LF
1	Bowie	SL 14	0046-08-017	FR: Arkansas S/L TO: US 82	579	699	5,589		560	5,590	22,356
2	Cass	FM 125	0062-08-006	FR: SH 8 TO: FS 125	4	445		21,130		100	17,704
3	Cass	FS 125	0062-08-007	FR: FM 125 TO: US 59		43		1,700			1,700
4	Panola	FM 2792	0063-02-039	FR: FM 1794 TO: US 59N		267		14,066		800	9,874
5	Panola	FM 1186	0063-02-040	FR: Harrison C/L TO: FM 1794W		332		23,580		2,400	10,891
6	Morris	US 259	0084-01-096	FR: SH 338 TO: SH 49	196	1,344	13,440	53,760			53,760
7	Bowie	FM 2735	0085-03-019	FR: FM 2735N TO: US 82	4	636		86,940		7,590	17,865
8	Cass	FM 248	0138-10-030	FR: SH 43 TO: FM 125		1,379		65,904		2,590	52,571
9	Cass	FM 248	0138-10-031	FR: FM 125 TO: Marion C/L	8	915		50,900		3,340	33,257
10	Cass	SH 11	0218-05-036	FR: 6.5 Mi E of SH 8 TO: SH 8		1,387		68,440		3,230	52,251
11	Cass	SH 11	0218-06-029	FR: SH 49 TO: 7.0 Mi E of SH 49		1,328		74,036		4,080	49,023
12	Titus	SH 49	0222-01-062	FR: Mt. Pleasant C/L TO: FM 1735	120	732	5,810	23,222	470	5,810	23,472
13	Panola	BU 79G	0246-02-055	FR: US 79 TO: BU 59D	411	912	2,460	18,528	400	500	18,528
14	Panola	BU 79G	0247-01-060	FR: BU 59D TO: US 59	30	260	1,480	10,360	53		10,360
15	Panola	SH 149	0393-03-038	FR: Rusk C/L TO: SS 152		912		62,906		5,510	30,964
16	Panola	FM 699	0394-03-044	FR: FM 2517 TO: Shelby C/L		2,247		121,578		7,350	82,549
17	Cass	FM 125	0546-09-046	FR: FS 125 TO: US 59	2	53		2,122			2,122
18	Harrison	SH 43	0569-04-025	FR: Marion C/L TO: SS 449	64	605	650	29,188		1,150	23,066
19	Camp	FM 1519	0633-05-021	FR: SH 11 TO: FM 556	10	1,517		74,258		3,670	56,991
20	Cass	FM 250	0946-01-048	FR: FM 130 TO: SH 11		1,163		49,272		930	45,574
21	Marion	FM 729	1018-03-050	FR: SH 155 TO: SH 49	25	3,360	1,890	183,502		11,110	123,299
22	Camp	FM 556	1019-01-034	FR: US 271H TO: Pittsburg C/L	8	230		9,180			9,180
23	Bowie	FM 560	1021-01-022	FR: 4.082 Mi N of US 82 TO: US 82	4	680		43,106		2,970	24,249
24	Upshur	FM 2263	1232-04-011	FR: FM 593 TO: SH 155		1,204		65,292		4,570	43,609
25	Upshur	FM 1649	1382-04-016	FR: FM 555 TO: US 259	2	2,690		113,066		1,830	105,773
26	Bowie	FM 114	1570-02-023	FR: FM 1326 TO: US 259		387		26,886		860	14,626
27	Bowie	FM 1326	1570-02-024	FR: FM 114 TO: US 82		895		53,338		4,350	31,454
28	Bowie	FM 2735	1570-02-025	FR: US 259 TO: FM 2735N		521		32,186		910	19,937
29	Cass	FM 161	1574-02-025	FR: FM 130 TO: SH 11	20	988		45,324		1,500	38,034
30	Cass	FM 161	1574-03-014	FR: FM 250 TO: FM 2612		121		4,858			4,858
SHEET 1 SUBTOTALS					**1,487**	**28,252**	**31,319**	**1,428,628**	**1,483**	**82,740**	**1,029,897**

PAVEMENT MARKING SUMMARY

Texas Department of Transportation

SHEET 1 OF 4			
CONT	SECT	JOB	HIGHWAY
0046	08	17	SL 14
DISTRICT		COUNTY	SHEET
ATL		BOWIE	18

FILE: DATE: 3:41:19 PM

REF	COUNTY	HIGHWAY	CSJ	LIMITS	SHORT TERM 662		REF PAV MRK TY II 666				
					7112	7114	7172	7175	7179	7211	7213
					TAB TY W	TAB TY Y-2	(W) 6 IN (BRK)	(W) 6 IN (SLD)	(W) 8 IN (SLD)	(Y) 6 IN (BRK)	(Y) 6 IN (SLD)
					EA	EA	LF	LF	LF	LF	LF
31	Cass	FM 161	1574-03-015	FR: FM 2612 TO: SH 155		1,861		91,122		4,400	70,048
32	Harrison	SL 390	1575-04-019	FR: US 59 TO: US 80	285	1,249	7,960	47,008	1,792	1,620	48,324
33	Harrison	SL 390	1575-05-028	FR: US 59 TO: SH 43N		430		26,474		2,360	14,858
34	Panola	FM 1794	1760-01-030	FR: FM 959 TO: FM 2792	12	1,329		64,880		3,740	49,432
35	Marion	FM 726	1895-03-025	FR: 2.7 Mi W of FM 729 TO: FM 729	8	378		28,110		2,670	12,443
36	Cass	FM 2327	2241-01-018	FR: US 59N TO: US 59S	26	1,073		63,400		880	42,029
37	Bowie	FM 114	2730-02-009	FR: Red River C/L TO: FM 1326	2	200		30,054		2,450	5,547
38	Harrison	FM 3001	3041-03-014	FR: Marion C/L TO: FM 1997		607		32,916		2,210	22,088
SHEET 2 PROJECT SUBTOTALS					**333**	**7,127**	**7,960**	**383,964**	**1,792**	**20,330**	**264,769**
SHEET 1 PROJECT SUBTOTALS					**1,487**	**28,252**	**31,319**	**1,428,628**	**1,483**	**82,740**	**1,029,897**
PROJECT TOTALS					**1,820**	**35,379**	**39,279**	**1,812,592**	**3,275**	**103,070**	**1,294,666**

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DATE: 3:41:19 PM

PAVEMENT MARKING SUMMARY

SHEET 2 OF 4			
CONT	SECT	JOB	HIGHWAY
0046	08	17	SL 14
DISTRICT		COUNTY	SHEET
ATL		BOWIE	19

REF	COUNTY	HIGHWAY	CSJ	LIMITS	PREFAB PAV MRK TY C						RAISED REFL PAV MRKR	
					668						672	
					7089	7091	7100	7103	7108	7127	7002	7004
					(W) 24 IN (SLD)	(W) (ARROW)	(W)(LN REDUCT ARROW)	(W) (WORD)	(W) (RR XING)	(Y)(24") (SLD)	TY I-C	TY II A-A
					LF	EA	EA	EA	EA	LF	EA	EA
1	Bowie	SL 14	0046-08-017	FR: Arkansas S/L TO: US 82	366	26		8			88	699
2	Cass	FM 125	0062-08-006	FR: SH 8 TO: FS 125	84							445
3	Cass	FS 125	0062-08-007	FR: FM 125 TO: US 59								43
4	Panola	FM 2792	0063-02-039	FR: FM 1794 TO: US 59N								267
5	Panola	FM 1186	0063-02-040	FR: Harrison C/L TO: FM 1794W								332
6	Morris	US 259	0084-01-096	FR: SH 338 TO: SH 49		2		5			168	1,344
7	Bowie	FM 2735	0085-03-019	FR: FM 2735N TO: US 82	12							636
8	Cass	FM 248	0138-10-030	FR: SH 43 TO: FM 125								1,379
9	Cass	FM 248	0138-10-031	FR: FM 125 TO: Marion C/L	42				2			915
10	Cass	SH 11	0218-05-036	FR: 6.5 Mi E of SH 8 TO: SH 8								1,387
11	Cass	SH 11	0218-06-029	FR: SH 49 TO: 7.0 Mi E of SH 49								1,328
12	Titus	SH 49	0222-01-062	FR: Mt. Pleasant C/L TO: FM 1735	156	7		6			80	732
13	Panola	BU 79G	0246-02-055	FR: US 79 TO: BU 59D	654	14	2	7		600	327	491
14	Panola	BU 79G	0247-01-060	FR: BU 59D TO: US 59	45	2		1	2			260
15	Panola	SH 149	0393-03-038	FR: Rusk C/L TO: SS 152								912
16	Panola	FM 699	0394-03-044	FR: FM 2517 TO: Shelby C/L				2				2,247
17	Cass	FM 125	0546-09-046	FR: FS 125 TO: US 59	13							53
18	Harrison	SH 43	0569-04-025	FR: Marion C/L TO: SS 449		7		7			8	605
19	Camp	FM 1519	0633-05-021	FR: SH 11 TO: FM 556	30				2			1,517
20	Cass	FM 250	0946-01-048	FR: FM 130 TO: SH 11								1,163
21	Marion	FM 729	1018-03-050	FR: SH 155 TO: SH 49	30							3,360
22	Camp	FM 556	1019-01-034	FR: US 271H TO: Pittsburg C/L	24				2			230
23	Bowie	FM 560	1021-01-022	FR: 4.082 Mi N of US 82 TO: US 82	83							680
24	Upshur	FM 2263	1232-04-011	FR: FM 593 TO: SH 155								1,204
25	Upshur	FM 1649	1382-04-016	FR: FM 555 TO: US 259	48							2,690
26	Bowie	FM 114	1570-02-023	FR: FM 1326 TO: US 259								387
27	Bowie	FM 1326	1570-02-024	FR: FM 114 TO: US 82								895
28	Bowie	FM 2735	1570-02-025	FR: US 259 TO: FM 2735N								521
29	Cass	FM 161	1574-02-025	FR: FM 130 TO: SH 11	78			3	1			988
30	Cass	FM 161	1574-03-014	FR: FM 250 TO: FM 2612								121
SHEET 1 SUBTOTALS					**1,665**	**58**	**2**	**39**	**9**	**600**	**671**	**27,831**

PAVEMENT MARKING SUMMARY

Texas Department of Transportation

SHEET 3 OF 4			
CONT	SECT	JOB	HIGHWAY
0046	08	17	SL 14
DISTRICT		COUNTY	SHEET
ATL		BOWIE	20

FILE: c:\txdot\pw_onlinetxdot5\chad.heldt\d1216365\[0046-08-017_M.xlsx]PAVEMENT MRK SUMMARY (3)
DATE: 3:41:19 PM

REF	COUNTY	HIGHWAY	CSJ	LIMITS	PREFAB PAV MRK TY C						RAISED REFL PAV MRKR	
					668						672	
					7089	7091	7100	7103	7108	7111	7002	7004
					(W) 24 IN (SLD)	(W) (ARROW)	(W)(LN REDUCT ARROW)	(W) (WORD)	(W) (RR XING)	(Y)(24") (SLD)	TY I-C	TY II A-A
					LF	EA	EA	EA	EA	LF	EA	EA
31	Cass	FM 161	1574-03-015	FR: FM 2612 TO: SH 155								1,861
32	Harrison	SL 390	1575-04-019	FR: US 59 TO: US 80	193	24		20				1,249
33	Harrison	SL 390	1575-05-028	FR: US 59 TO: SH 43N								430
34	Panola	FM 1794	1760-01-030	FR: FM 959 TO: FM 2792				3				1,329
35	Marion	FM 726	1895-03-025	FR: 2.7 Mi W of FM 729 TO: FM 729		2						378
36	Cass	FM 2327	2241-01-018	FR: US 59N TO: US 59S	36				3			1,073
37	Bowie	FM 114	2730-02-009	FR: Red River C/L TO: FM 1326	12							200
38	Harrison	FM 3001	3041-03-014	FR: Marion C/L TO: FM 1997								607
SHEET 2 PROJECT SUBTOTALS					**241**	**26**	**0**	**23**	**3**	**0**	**0**	**7,127**
SHEET 1 PROJECT SUBTOTALS					**1,665**	**58**	**2**	**39**	**9**	**600**	**671**	**27,831**
PROJECT TOTALS					**1,906**	**84**	**2**	**62**	**12**	**600**	**671**	**34,958**

TRAFFIC CONTROL SUMMARY		
503 7001	505 7001	505 7003
[1] PORTABLE CHANGEABLE MESSAGE SIGN	[2] [3] TMA (STATIONARY)	[2] TMA (MOBILE OPERATION)
DAY	DAY	DAY
4	26	132

[1] TO BE USED AS DIRECTED BY THE ENGINEER
[2] THIS QUANTITY IS FOR 2 TMAs
[3] FOR USE ON MULTI-LANE HIGHWAYS AS DIRECTED

PAVEMENT MARKING SUMMARY

SHEET 4 OF 4			
CONT	SECT	JOB	HIGHWAY
0046	08	17	SL 14
DISTRICT		COUNTY	SHEET
ATL		BOWIE	21

FILE: c:\txdot\pw_online\txdot5\chad.held\d1216365\[0046-08-017_M.xlsx]PAVEMENT MRK SUMMARY (4)
DATE: 3:41:19 PM

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0046-08-017

DISTRICT Atlanta **COUNTY** Bowie, Camp, Cass, Harrison, Marion, Morris, Panola, Titus, Upshur

HIGHWAY BU 79G, FM 114, FM 1186, FM 125, FM 1326, FM 1519, FM 161, FM 1649, FM 1794, FM 2263, FM 2327, FM 248, FM 250, FM 2735, FM 2792, FM 3001, FM 556, FM 560, FM 699, FM 726, FM 729, FS 125, SH 11, SH 149, SH 43, SH 49, SL 14, SL 390, US 259

			CONTROL SECTION JOB		**0046-08-017**		**0062-08-006**		**0062-08-007**		**0063-02-039**		**0063-02-040**		**0084-01-096**	
			PROJECT ID		**A00188623**		**A00195256**		**A00195258**		**A00195242**		**A00195244**		**A00206870**	
			COUNTY		**Bowie**		**Cass**		**Cass**		**Panola**		**Panola**		**Morris**	
			HIGHWAY		**SL 14**		**FM 125**		**FS 125**		**FM 2792**		**FM 1186**		**US 259**	
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL
	316-7023	ASPH (AC-20-5TR)	TON	121.080		49.250		4.870		43.670		50.730		221.840	
	316-7259	AGGR (TY PB GR 4 SAC-A)	TON	648.000		263.000		19.000				271.000		1,188.000	
	316-7260	AGGR (TY PB GR 3 SAC-A)	TON							214.000					
	500-7001	MOBILIZATION	LS	1.000											
	502-7004	BARRICADES, SIGNS AND TRAFFIC HANDLING	EA	38.000											
	503-7001	PORTABLE CHANGEABLE MESSAGE SIGN	DAY	4.000											
	505-7001	TMA (STATIONARY)	DAY	26.000											
	505-7003	TMA (MOBILE OPERATION)	DAY	132.000											
	662-7112	WK ZN PAV MRK SHT TERM (TAB)TY W	EA	579.000		4.000								196.000	
	662-7114	WK ZN PAV MRK SHT TERM (TAB)TY Y-2	EA	699.000		445.000		43.000		267.000		332.000		1,344.000	
	666-7172	RE PM TY II (W) 6" (BRK)	LF	5,589.000										13,440.000	
	666-7175	RE PM TY II (W) 6" (SLD)	LF			21,130.000		1,700.000		14,066.000		23,580.000		53,760.000	
	666-7179	RE PM TY II (W) 8" (SLD)	LF	560.000											
	666-7211	RE PM TY II (Y) 6" (BRK)	LF	5,590.000		100.000				800.000		2,400.000			
	666-7213	RE PM TY II (Y) 6" (SLD)	LF	22,356.000		17,704.000		1,700.000		9,874.000		10,891.000		53,760.000	
	668-7089	PREFAB PM TY C (W)(24")(SLD)	LF	366.000		84.000									
	668-7091	PREFAB PM TY C (W)(ARROW)	EA	26.000										2.000	
	668-7100	PREFAB PM TY C (W)(LN REDUCT ARROW)	EA												
	668-7103	PREFAB PM TY C (W)(WORD)	EA	8.000										5.000	
	668-7108	PREFAB PM TY C (W)(RR XING)	EA												
	668-7127	PREFAB PM TY C (Y)(24")(SLD)	LF												
	672-7002	REFL PAV MRKR TY I-C	EA	88.000										168.000	
	672-7004	REFL PAV MRKR TY II-A-A	EA	699.000		445.000		43.000		267.000		332.000		1,344.000	
	3001-7001	FRICTIONAL ASPH SURF PRESERV TRTMT	SY											59,733.000	
	12	RAILROAD FLAGGING: RAILROAD FORCE ACCOUNT WORK (PART)	LS	1.000											
	18	SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS	1.000											
		EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS	1.000											

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0046-08-017

DISTRICT Atlanta

COUNTY Bowie, Camp, Cass, Harrison, Marion, Morris, Panola, Titus, Upshur

HIGHWAY BU 79G, FM 114, FM 1186, FM 125, FM 1326, FM 1519, FM 161, FM 1649, FM 1794, FM 2263, FM 2327, FM 248, FM 250, FM 2735, FM 2792, FM 3001, FM 556, FM 560, FM 699, FM 726, FM 729, FS 125, SH 11, SH 149, SH 43, SH 49, SL 14, SL 390, US 259

				0085-03-019		0138-10-030		0138-10-031		0218-05-036		0218-06-029		0222-01-062	
		CONTROL SECTION JOB													
		PROJECT ID		A00188622		A00188650		A00188651		A00188637		A00188635		A00195313	
		COUNTY		Bowie		Cass		Cass		Cass		Cass		Titus	
		HIGHWAY		FM 2735		FM 248		FM 248		SH 11		SH 11		SH 49	
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL
	316-7023	ASPH (AC-20-5TR)	TON	249.130		179.740		148.870		172.650		180.970		128.140	
	316-7259	AGGR (TY PB GR 4 SAC-A)	TON							925.000		969.000		687.000	
	316-7260	AGGR (TY PB GR 3 SAC-A)	TON	1,221.000		880.000		730.000							
	500-7001	MOBILIZATION	LS												
	502-7004	BARRICADES, SIGNS AND TRAFFIC HANDLING	EA												
	503-7001	PORTABLE CHANGEABLE MESSAGE SIGN	DAY												
	505-7001	TMA (STATIONARY)	DAY												
	505-7003	TMA (MOBILE OPERATION)	DAY												
	662-7112	WK ZN PAV MRK SHT TERM (TAB)TY W	EA	4.000				8.000						120.000	
	662-7114	WK ZN PAV MRK SHT TERM (TAB)TY Y-2	EA	636.000		1,379.000		915.000		1,387.000		1,328.000		732.000	
	666-7172	RE PM TY II (W) 6" (BRK)	LF											5,810.000	
	666-7175	RE PM TY II (W) 6" (SLD)	LF	86,940.000		65,904.000		50,900.000		68,440.000		74,036.000		23,222.000	
	666-7179	RE PM TY II (W) 8" (SLD)	LF											470.000	
	666-7211	RE PM TY II (Y) 6" (BRK)	LF	7,590.000		2,590.000		3,340.000		3,230.000		4,080.000		5,810.000	
	666-7213	RE PM TY II (Y) 6" (SLD)	LF	17,865.000		52,571.000		33,257.000		52,251.000		49,023.000		23,472.000	
	668-7089	PREFAB PM TY C (W)(24")(SLD)	LF	12.000				42.000						156.000	
	668-7091	PREFAB PM TY C (W)(ARROW)	EA											7.000	
	668-7100	PREFAB PM TY C (W)(LN REDUCT ARROW)	EA												
	668-7103	PREFAB PM TY C (W)(WORD)	EA											6.000	
	668-7108	PREFAB PM TY C (W)(RR XING)	EA					2.000							
	668-7127	PREFAB PM TY C (Y)(24")(SLD)	LF												
	672-7002	REFL PAV MRKR TY I-C	EA											80.000	
	672-7004	REFL PAV MRKR TY II-A-A	EA	636.000		1,379.000		915.000		1,387.000		1,328.000		732.000	
	3001-7001	FRICTIONAL ASPH SURF PRESERV TRTMT	SY											25,802.000	
	12	RAILROAD FLAGGING: RAILROAD FORCE ACCOUNT WORK (PART)	LS												
	18	SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS												
		EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS												

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0046-08-017

DISTRICT Atlanta

COUNTY Bowie, Camp, Cass, Harrison, Marion, Morris, Panola, Titus, Upshur

HIGHWAY BU 79G, FM 114, FM 1186, FM 125, FM 1326, FM 1519, FM 161, FM 1649, FM 1794, FM 2263, FM 2327, FM 248, FM 250, FM 2735, FM 2792, FM 3001, FM 556, FM 560, FM 699, FM 726, FM 729, FS 125, SH 11, SH 149, SH 43, SH 49, SL 14, SL 390, US 259

			CONTROL SECTION JOB		**0246-02-055**		**0247-01-060**		**0393-03-038**		**0394-03-044**		**0546-09-046**		**0569-04-025**	
			PROJECT ID		**A00195226**		**A00195228**		**A00188679**		**A00188682**		**A00195257**		**A00195253**	
			COUNTY		**Panola**		**Panola**		**Panola**		**Panola**		**Cass**		**Harrison**	
			HIGHWAY		**BU 79G**		**BU 79G**		**SH 149**		**FM 699**		**FM 125**		**SH 43**	
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL
	316-7023	ASPH (AC-20-5TR)	TON	57.190		34.840		145.310		291.850		4.380		71.990	
	316-7259	AGGR (TY PB GR 4 SAC-A)	TON	306.000		187.000		778.000		1,563.000		23.000		386.000	
	316-7260	AGGR (TY PB GR 3 SAC-A)	TON												
	500-7001	MOBILIZATION	LS												
	502-7004	BARRICADES, SIGNS AND TRAFFIC HANDLING	EA												
	503-7001	PORTABLE CHANGEABLE MESSAGE SIGN	DAY												
	505-7001	TMA (STATIONARY)	DAY												
	505-7003	TMA (MOBILE OPERATION)	DAY												
	662-7112	WK ZN PAV MRK SHT TERM (TAB)TY W	EA	411.000		30.000						2.000		64.000	
	662-7114	WK ZN PAV MRK SHT TERM (TAB)TY Y-2	EA	912.000		260.000				2,247.000		53.000		605.000	
	666-7172	RE PM TY II (W) 6" (BRK)	LF	2,460.000		1,480.000								650.000	
	666-7175	RE PM TY II (W) 6" (SLD)	LF	18,528.000		10,360.000		62,906.000		121,578.000		2,122.000		29,188.000	
	666-7179	RE PM TY II (W) 8" (SLD)	LF	400.000		53.000									
	666-7211	RE PM TY II (Y) 6" (BRK)	LF	500.000				5,510.000		7,350.000				1,150.000	
	666-7213	RE PM TY II (Y) 6" (SLD)	LF	18,528.000		10,360.000		30,964.000		82,549.000		2,122.000		23,066.000	
	668-7089	PREFAB PM TY C (W)(24")(SLD)	LF	654.000		45.000						13.000			
	668-7091	PREFAB PM TY C (W)(ARROW)	EA	14.000		2.000								7.000	
	668-7100	PREFAB PM TY C (W)(LN REDUCT ARROW)	EA	2.000											
	668-7103	PREFAB PM TY C (W)(WORD)	EA	7.000		1.000				2.000				7.000	
	668-7108	PREFAB PM TY C (W)(RR XING)	EA			2.000									
	668-7127	PREFAB PM TY C (Y)(24")(SLD)	LF	600.000											
	672-7002	REFL PAV MRKR TY I-C	EA	327.000										8.000	
	672-7004	REFL PAV MRKR TY II-A-A	EA	491.000		260.000		912.000		2,247.000		53.000		605.000	
	3001-7001	FRICTIONAL ASPH SURF PRESERV TRTMT	SY	17,186.000		7,419.000		36,462.000						35,132.000	
	12	RAILROAD FLAGGING: RAILROAD FORCE ACCOUNT WORK (PART)	LS												
	18	SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS												
		EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS												

Estimate & Quantity Sheet

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DISTRICT Atlanta

COUNTY Bowie, Camp, Cass, Harrison, Marion, Morris, Panola, Titus, Upshur

HIGHWAY BU 79G, FM 114, FM 1186, FM 125, FM 1326, FM 1519, FM 161, FM 1649, FM 1794, FM 2263, FM 2327, FM 248, FM 250, FM 2735, FM 2792, FM 3001, FM 556, FM 560, FM 699, FM 726, FM 729, FS 125, SH 11, SH 149, SH 43, SH 49, SL 14, SL 390, US 259

			CONTROL SECTION JOB		**0633-05-021**		**0946-01-048**		**1018-03-050**		**1019-01-034**		**1021-01-022**		**1232-04-011**	
			PROJECT ID		**A00188652**		**A00206871**		**A00188638**		**A00195312**		**A00195317**		**A00195252**	
			COUNTY		**Camp**		**Cass**		**Marion**		**Camp**		**Bowie**		**Upshur**	
			HIGHWAY		**FM 1519**		**FM 250**		**FM 729**		**FM 556**		**FM 560**		**FM 2263**	
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL
	316-7023	ASPH (AC-20-5TR)	TON	230.520		144.680		415.470		18.380		92.640		140.320	
	316-7259	AGGR (TY PB GR 4 SAC-A)	TON					2,224.000		99.000		496.000			
	316-7260	AGGR (TY PB GR 3 SAC-A)	TON	1,130.000		709.000								752.000	
	500-7001	MOBILIZATION	LS												
	502-7004	BARRICADES, SIGNS AND TRAFFIC HANDLING	EA												
	503-7001	PORTABLE CHANGEABLE MESSAGE SIGN	DAY												
	505-7001	TMA (STATIONARY)	DAY												
	505-7003	TMA (MOBILE OPERATION)	DAY												
	662-7112	WK ZN PAV MRK SHT TERM (TAB)TY W	EA	10.000				25.000		8.000		4.000			
	662-7114	WK ZN PAV MRK SHT TERM (TAB)TY Y-2	EA	1,517.000		1,163.000		3,360.000		230.000		680.000		1,204.000	
	666-7172	RE PM TY II (W) 6" (BRK)	LF					1,890.000							
	666-7175	RE PM TY II (W) 6" (SLD)	LF	74,258.000		49,272.000		183,502.000		9,180.000		43,106.000		65,292.000	
	666-7179	RE PM TY II (W) 8" (SLD)	LF												
	666-7211	RE PM TY II (Y) 6" (BRK)	LF	3,670.000		930.000		11,110.000				2,970.000		4,570.000	
	666-7213	RE PM TY II (Y) 6" (SLD)	LF	56,991.000		45,574.000		123,299.000		9,180.000		24,249.000		43,609.000	
	668-7089	PREFAB PM TY C (W)(24")(SLD)	LF	30.000				30.000		24.000		83.000			
	668-7091	PREFAB PM TY C (W)(ARROW)	EA												
	668-7100	PREFAB PM TY C (W)(LN REDUCT ARROW)	EA												
	668-7103	PREFAB PM TY C (W)(WORD)	EA												
	668-7108	PREFAB PM TY C (W)(RR XING)	EA	2.000						2.000					
	668-7127	PREFAB PM TY C (Y)(24")(SLD)	LF												
	672-7002	REFL PAV MRKR TY I-C	EA												
	672-7004	REFL PAV MRKR TY II-A-A	EA	1,517.000		1,163.000		3,360.000		230.000		680.000		1,204.000	
	3001-7001	FRICTIONAL ASPH SURF PRESERV TRTMT	SY					37,058.000							
	12	RAILROAD FLAGGING: RAILROAD FORCE ACCOUNT WORK (PART)	LS												
	18	SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS												
		EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS												

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DISTRICT Atlanta

COUNTY Bowie, Camp, Cass, Harrison, Marion, Morris, Panola, Titus, Upshur

HIGHWAY BU 79G, FM 114, FM 1186, FM 125, FM 1326, FM 1519, FM 161, FM 1649, FM 1794, FM 2263, FM 2327, FM 248, FM 250, FM 2735, FM 2792, FM 3001, FM 556, FM 560, FM 699, FM 726, FM 729, FS 125, SH 11, SH 149, SH 43, SH 49, SL 14, SL 390, US 259

			CONTROL SECTION JOB	**1382-04-016**		**1570-02-023**		**1570-02-024**		**1570-02-025**		**1574-02-025**		**1574-03-014**	
			PROJECT ID	**A00188657**		**A00188606**		**A00188612**		**A00188619**		**A00195246**		**A00195248**	
			COUNTY	**Upshur**		**Bowie**		**Bowie**		**Bowie**		**Cass**		**Cass**	
			HIGHWAY	**FM 1649**		**FM 114**		**FM 1326**		**FM 2735**		**FM 161**		**FM 161**	
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL
	316-7023	ASPH (AC-20-5TR)	TON	336.010		70.630		140.110		84.540		99.950		10.020	
	316-7259	AGGR (TY PB GR 4 SAC-A)	TON									535.000		53.000	
	316-7260	AGGR (TY PB GR 3 SAC-A)	TON	1,647.000		346.000		687.000		415.000					
	500-7001	MOBILIZATION	LS												
	502-7004	BARRICADES, SIGNS AND TRAFFIC HANDLING	EA												
	503-7001	PORTABLE CHANGEABLE MESSAGE SIGN	DAY												
	505-7001	TMA (STATIONARY)	DAY												
	505-7003	TMA (MOBILE OPERATION)	DAY												
	662-7112	WK ZN PAV MRK SHT TERM (TAB)TY W	EA	2.000								20.000			
	662-7114	WK ZN PAV MRK SHT TERM (TAB)TY Y-2	EA	2,690.000		387.000		895.000		521.000		988.000		121.000	
	666-7172	RE PM TY II (W) 6" (BRK)	LF												
	666-7175	RE PM TY II (W) 6" (SLD)	LF	113,066.000		26,886.000		53,338.000		32,186.000		45,324.000		4,858.000	
	666-7179	RE PM TY II (W) 8" (SLD)	LF												
	666-7211	RE PM TY II (Y) 6" (BRK)	LF	1,830.000		860.000		4,350.000		910.000		1,500.000			
	666-7213	RE PM TY II (Y) 6" (SLD)	LF	105,773.000		14,626.000		31,454.000		19,937.000		38,034.000		4,858.000	
	668-7089	PREFAB PM TY C (W)(24")(SLD)	LF	48.000								78.000			
	668-7091	PREFAB PM TY C (W)(ARROW)	EA												
	668-7100	PREFAB PM TY C (W)(LN REDUCT ARROW)	EA												
	668-7103	PREFAB PM TY C (W)(WORD)	EA									3.000			
	668-7108	PREFAB PM TY C (W)(RR XING)	EA									1.000			
	668-7127	PREFAB PM TY C (Y)(24")(SLD)	LF												
	672-7002	REFL PAV MRKR TY I-C	EA												
	672-7004	REFL PAV MRKR TY II-A-A	EA	2,690.000		387.000		895.000		521.000		988.000		121.000	
	3001-7001	FRICTIONAL ASPH SURF PRESERV TRTMT	SY												
	12	RAILROAD FLAGGING: RAILROAD FORCE ACCOUNT WORK (PART)	LS												
	18	SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS												
		EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS												

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DISTRICT Atlanta

COUNTY Bowie, Camp, Cass, Harrison, Marion, Morris, Panola, Titus, Upshur

HIGHWAY BU 79G, FM 114, FM 1186, FM 125, FM 1326, FM 1519, FM 161, FM 1649, FM 1794, FM 2263, FM 2327, FM 248, FM 250, FM 2735, FM 2792, FM 3001, FM 556, FM 560, FM 699, FM 726, FM 729, FS 125, SH 11, SH 149, SH 43, SH 49, SL 14, SL 390, US 259

			CONTROL SECTION JOB	**1574-03-015**		**1575-04-019**		**1575-05-028**		**1760-01-030**		**1895-03-025**		**2241-01-018**	
			PROJECT ID	**A00195249**		**A00195266**		**A00195264**		**A00206868**		**A00206869**		**A00188632**	
			COUNTY	**Cass**		**Harrison**		**Harrison**		**Panola**		**Marion**		**Cass**	
			HIGHWAY	**FM 161**		**SL 390**		**SL 390**		**FM 1794**		**FM 726**		**FM 2327**	
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL
	316-7023	ASPH (AC-20-5TR)	TON	271.990		157.900		68.270		201.410		83.910		181.680	
	316-7259	AGGR (TY PB GR 4 SAC-A)	TON			845.000		365.000							
	316-7260	AGGR (TY PB GR 3 SAC-A)	TON	1,333.000						987.000		411.000		890.000	
	500-7001	MOBILIZATION	LS												
	502-7004	BARRICADES, SIGNS AND TRAFFIC HANDLING	EA												
	503-7001	PORTABLE CHANGEABLE MESSAGE SIGN	DAY												
	505-7001	TMA (STATIONARY)	DAY												
	505-7003	TMA (MOBILE OPERATION)	DAY												
	662-7112	WK ZN PAV MRK SHT TERM (TAB)TY W	EA			285.000				12.000		8.000		26.000	
	662-7114	WK ZN PAV MRK SHT TERM (TAB)TY Y-2	EA	1,861.000		1,249.000		430.000		1,329.000		378.000		1,073.000	
	666-7172	RE PM TY II (W) 6" (BRK)	LF			7,960.000									
	666-7175	RE PM TY II (W) 6" (SLD)	LF	91,122.000		47,008.000		26,474.000		64,880.000		28,110.000		63,400.000	
	666-7179	RE PM TY II (W) 8" (SLD)	LF			1,792.000									
	666-7211	RE PM TY II (Y) 6" (BRK)	LF	4,400.000		1,620.000		2,360.000		3,740.000		2,670.000		880.000	
	666-7213	RE PM TY II (Y) 6" (SLD)	LF	70,048.000		48,324.000		14,858.000		49,432.000		12,443.000		42,029.000	
	668-7089	PREFAB PM TY C (W)(24")(SLD)	LF			193.000								36.000	
	668-7091	PREFAB PM TY C (W)(ARROW)	EA			24.000						2.000			
	668-7100	PREFAB PM TY C (W)(LN REDUCT ARROW)	EA												
	668-7103	PREFAB PM TY C (W)(WORD)	EA			20.000				3.000					
	668-7108	PREFAB PM TY C (W)(RR XING)	EA											4.000	
	668-7127	PREFAB PM TY C (Y)(24")(SLD)	LF												
	672-7002	REFL PAV MRKR TY I-C	EA												
	672-7004	REFL PAV MRKR TY II-A-A	EA	1,861.000		1,249.000		430.000		1,329.000		378.000		1,073.000	
	3001-7001	FRICTIONAL ASPH SURF PRESERV TRTMT	SY			44,453.000		29,415.000							
	12	RAILROAD FLAGGING: RAILROAD FORCE ACCOUNT WORK (PART)	LS												
	18	SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS												
		EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS												

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DISTRICT Atlanta

COUNTY Bowie, Camp, Cass, Harrison, Marion, Morris, Panola, Titus, Upshur

HIGHWAY BU 79G, FM 114, FM 1186, FM 125, FM 1326, FM 1519, FM 161, FM 1649, FM 1794, FM 2263, FM 2327, FM 248, FM 250, FM 2735, FM 2792, FM 3001, FM 556, FM 560, FM 699, FM 726, FM 729, FS 125, SH 11, SH 149, SH 43, SH 49, SL 14, SL 390, US 259

			CONTROL SECTION JOB		**2730-02-009**		**3041-03-014**		TOTAL EST.	TOTAL FINAL
			PROJECT ID		**A00188581**		**A00195255**			
			COUNTY		**Bowie**		**Harrison**			
			HIGHWAY		**FM 114**		**FM 3001**			
ALT	**BID CODE**	**DESCRIPTION**		**UNIT**	EST.	FINAL	EST.	FINAL		
	316-7023	ASPH (AC-20-5TR)		TON	78.950		88.200		5,072.080	
	316-7259	AGGR (TY PB GR 4 SAC-A)		TON					12,830.000	
	316-7260	AGGR (TY PB GR 3 SAC-A)		TON	387.000		432.000		13,171.000	
	500-7001	MOBILIZATION		LS					1.000	
	502-7004	BARRICADES, SIGNS AND TRAFFIC HANDLING		EA					38.000	
	503-7001	PORTABLE CHANGEABLE MESSAGE SIGN		DAY					4.000	
	505-7001	TMA (STATIONARY)		DAY					26.000	
	505-7003	TMA (MOBILE OPERATION)		DAY					132.000	
	662-7112	WK ZN PAV MRK SHT TERM (TAB)TY W		EA	2.000				1,820.000	
	662-7114	WK ZN PAV MRK SHT TERM (TAB)TY Y-2		EA	200.000		607.000		34,467.000	
	666-7172	RE PM TY II (W) 6" (BRK)		LF					39,279.000	
	666-7175	RE PM TY II (W) 6" (SLD)		LF	30,054.000		32,916.000		1,812,592.000	
	666-7179	RE PM TY II (W) 8" (SLD)		LF					3,275.000	
	666-7211	RE PM TY II (Y) 6" (BRK)		LF	2,450.000		2,210.000		103,070.000	
	666-7213	RE PM TY II (Y) 6" (SLD)		LF	5,547.000		22,088.000		1,294,666.000	
	668-7089	PREFAB PM TY C (W)(24")(SLD)		LF	12.000				1,906.000	
	668-7091	PREFAB PM TY C (W)(ARROW)		EA					84.000	
	668-7100	PREFAB PM TY C (W)(LN REDUCT ARROW)		EA					2.000	
	668-7103	PREFAB PM TY C (W)(WORD)		EA					62.000	
	668-7108	PREFAB PM TY C (W)(RR XING)		EA					13.000	
	668-7127	PREFAB PM TY C (Y)(24")(SLD)		LF					600.000	
	672-7002	REFL PAV MRKR TY I-C		EA					671.000	
	672-7004	REFL PAV MRKR TY II-A-A		EA	200.000		607.000		34,958.000	
	3001-7001	FRICTIONAL ASPH SURF PRESERV TRTMT		SY					292,660.000	
	12	RAILROAD FLAGGING: RAILROAD FORCE ACCOUNT WORK (PART)		LS					1.000	
	18	SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PART)		LS					1.000	
		EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)		LS					1.000	

ATLANTA DISTRICT QA PROGRAM FOR SURFACE TREATMENT AGGREGATES:

The purpose of this program is to ensure quality aggregates are used for construction of seal coats.

The Contractor will perform QC (Quality Control) sampling and testing on surface treatment aggregates. All sampling and testing methods will be in accordance with TxDOT's Manual of Testing Procedures. Texas Asphalt Pavement Association (TxAPA) Level IA and AGG 101 certifications are required.

Contractor-performed QC sampling and testing will not be used as part of the acceptance decision.

The Producer is the same as, and has the same definition as, the Contractor (Article 1.3.38 of the Standard Specifications) throughout this document.

Provide aggregates that meet the requirements of TxDOT's:

1) Plans, 2024 Standard Specifications, Special Specifications, and Special Provisions.
2) Bituminous Rated Source Quality Catalog.
3) Atlanta District Quality Assurance Program which includes QC and QA sampling, testing, inspection, material inventory and tracking, documentation, reporting, and material shelf life.
4) Quality Assurance Program for Design-Bid-Build Projects amended as follows:

a) **3.3 Testing Equipment**, fourth paragraph, first sentence. remove "in making an acceptance decision" and do not replace.
b) **6.3 Who Must Be Qualified?** first paragraph, first sentence. remove "for acceptance," and do not replace.
c) remove "statewide" and replace with "local" throughout this document,

General Requirements:

1) All individuals performing testing on seal coat aggregate must have current certification/qualification records filed with Atlanta District Lab.
2) All testing equipment subject to inspection by TxDOT at random,
3) Provide TxDOT Atlanta District a minimum of 2 weeks' notice of the need for inspection, or testing.
4) TxDOT reserves the right to prioritize or reschedule any inspection and testing services and shall not be cause for additional project time.
5) All non-TxDOT laboratories will be responsible for calibration and documentation of testing equipment conforming to the American Association for Laboratory Accreditation (A2LA) ISO17025 certification. AASHTO accreditation will not be required for non-TxDOT laboratories.
6) Testing of seal coat aggregate is limited to sampling, deleterious material, decantation, flakiness index, gradation, crushed faces, asphalt content, and boil test. Project acceptance testing will be performed by the Engineer after a review of the Producer's QC test results by TxDOT.
7) Sample stockpiles at the source with a front end loader following test method Tex-400-A.
8) All accepted stockpiled materials shall be reserved for exclusive use on Texas Department of Transportation Atlanta District construction contracts, maintenance contracts, and materials requisitions. The Producer will obtain written permission from the Engineer to use this accepted material on other TxDOT projects.
9) The stockpiles shall be in a designated area, approved by the Engineer, removed from the main plant operations and roadways to prevent the accumulation, of excessive detrimental dust. However, these areas must be conveniently located for inspection and shipment control. Excessive contamination, in the opinion of the Engineer, will warrant rejection of all or a portion of the stockpile(s).
10) The stockpiles shall be constructed sufficiently apart so that the materials in one stockpile will not blend with that in another. Stockpiles shall be built in a manner acceptable to representatives of the Engineer.
11) All stockpiles intended for TxDOT use shall be adequately marked or signed (stockpile identification, producer, pit identification, quantity, status: QC, QC w/approval to precoat, QC precoated, or Accepted), as approved by the Engineer. No material shall be added to a stockpile once the request to accept or precoat is made to the Engineer. Adding material under these circumstances will be cause for stockpile rejection. The stockpile can be re-tested when requested by the Producer and when deemed desirable by the Department. The Engineer will enact Article 6.2 of the Standard Specifications if warranted.
12) It is the responsibility of the Producer to maintain the stockpiles and the stockpile area in a neat and orderly fashion. Each stockpile shall be properly maintained until depleted.
13) All stockpiles must be accessible to the Department at all times.
14) All costs associated with this QA Program will be the responsibility of the Producer and shall be subsidiary to Item 316.
15) The Producer is expected to make approved materials available to Contractors proposing to use the material on Department projects.
16) A stockpile shall have an acceptance life of three months from the date of testing when stockpiled off of State of Texas property. Seal coat aggregate remaining in stockpile after three months may be resubmitted for testing.
17) The stockpile size shall be 3000 CY with a tolerance of 300 CY. Minimum quantities do not apply when material is left over from stockpiles that have been previously tested and accepted. Smaller project specific stockpiles may be created. Measure the stockpile size in CY with "Stockpile Reports" (www.stockpilereports.com) and report to the Engineer with QC test results prior to Department acceptance testing.
18) When building a stockpile the Producer will perform the following production QC tests:
    - Tex-200-F Part I (grad.) once every 3 hours of production per day*
    - Tex-217-F Part I (deleterious) once per day of production*
    - Tex-224-F (flakiness index) once every 5 hours of production per day*
    - Tex-406-A (decantation) once per day of production*
    - Tex-460-A Part I (cru. faces) once every 5 hours of production per day*

*minimum testing frequency per stockpile, or fraction thereof.

ATLANTA DISTRICT QA PROGRAM FOR SURFACE TREATMENT AGGREGATES

 Texas Department of Transportation

SHEET 1 OF 2

FHWA TEXAS DIVISION	FEDERAL AID PROJECT NO.		SHEET NO.
			23
STATE	DISTRICT	COUNTY	
TEXAS	ATL	BOWIE	
CONTROL	SECTION	JOB	HIGHWAY NO.
0046	08	017	SL 14

19) After building the stockpile and prior to precoat the Producer will perform the following QC tests on the stockpile:
- Tex-200-F Part I (grad.) four per stockpile, one per quadrant*
- Tex-217-F Part I (deleterious) once per stockpile*
- Tex-224-F (flakiness index) once per stockpile*
- Tex-406-A (decantation) once per stockpile*
- Tex-460-A Part I (crushed faces) once per stockpile*

*minimum testing frequency per stockpile

20) The Producer will review all QC tests for a stockpile and forward the individual complete QC test reports to the Engineer. The Engineer will determine from the QC test reports if the stockpile is ready for acceptance testing (non-precoat aggregate) or for precoat. The Engineer's receipt of QC stockpile test reports will serve as notification by the Producer that a stockpile is ready for acceptance testing or further processing.

21) The Engineer will perform acceptance sampling and testing on non-precoat (will receive no coating) stockpiles based on Producer QC test results. The Engineer will sample four quadrants of each 3000 CY stockpile. A lesser sampling and testing scheme may be used for smaller stockpiles. The Engineer will afford the Producer the opportunity to take split samples of each quadrant sampled. Acceptance testing frequency shall meet the requirements of TxDOT's Guide Schedule of Sampling and Testing. The Engineer will notify the Contractor and Producer that a stockpile is accepted or rejected based on QA test results. A stockpile that has been accepted may be transported to a TxDOT project.
22) The Engineer will notify the Producer that a stockpile is ready for precoat based on the Producers QC test results. The Producer will perform the following QC tests during the precoat process:
- Tex-236-F (ignition AC) once per stockpile*
- Tex-530-C (boil test) once per day per stockpile*

*minimum testing frequency per stockpile

23) The Producer will review all QC tests for a precoated stockpile and forward the individual complete QC test reports to the Engineer. The Engineer will determine from the QC test reports if the precoated stockpile is ready for acceptance testing. The Engineer's receipt of QC stockpile test reports will serve as notification by the Producer that a stockpile is ready for acceptance testing. The Engineer will perform acceptance (QA) testing on precoated aggregate stockpiles for:
- Tex-200-F Part I (gradation)
- Tex-217-F Part I (deleterious material)
- Tex-224-F (flakiness index)
- Tex-236-F (AC removal by ignition)
- Tex-406-A (decantation)
- Tex-460-A Part I (crushed faces)
- Tex-530-C (boil test)

24) The Engineer will sample four quadrants of each 3000 CY precoated stockpile. A lesser sampling and testing scheme may be used for smaller stockpiles. The Engineer will afford the Producer the opportunity to take split samples of each quadrant sampled. Acceptance testing frequency shall meet the requirements of TxDOT's Guide Schedule of Sampling and Testing. The Engineer will notify the Contractor and Producer that a precoated stockpile is accepted or rejected based on QA test results. A stockpile that has been accepted may be transported to a TxDOT project.
25) Each stockpile transported to a project without acceptance documentation from the Engineer, the Contractor will be assessed $500 to cover the cost of travel, sampling, testing, and reporting. This cost will be deducted from the Contractor's estimate as stated in Article 6.2 of the Standard Specifications. TxDOT may also require the stockpile to be removed. All costs associated with producing, testing, shipping, removing, and disposing of this stockpile shall be the responsibility of the Contractor as stated in Article 5.3.2 of the Standard Specifications.
26) The Producer shall maintain records of all individual truck or rail exports from the source. Each record shall include the following as a minimum and included on the delivery ticket:
- project CSJ or RMC #
- material Type (ex: B, PB, L, PL)
- material Grade (ex: 3, 4, 5)
- quantity in Tons
- date of shipment
- stockpile number, District Lab number, or both
- producer (ex: MM or Hanson)
- pit or source (ex: Sawyer or Little River)
- reference number

27) The Contractor will provide delivery tickets for materials delivered to the project by the following Monday.
28) When in the opinion of the Engineer the Producer's QC operation is consistently producing stockpiles that comply reasonably well with all the requirements set forth above. The Engineer may exclude the requirement for QC Technician qualification, lab equipment calibration, and allow for a QC testing schedule other than the one detailed above.
29) Failure to comply with any of the requirements above or at the Contractor's request, all acceptance sampling and testing will be performed on seal coat aggregate delivered to the roadway.
30) Roadway stockpiles will be constructed as approved by the Engineer. Individual truck piles are unacceptable.

ATLANTA DISTRICT QA PROGRAM FOR SURFACE TREATMENT AGGREGATES

FHWA TEXAS DIVISION	FEDERAL AID PROJECT NO.		SHEET NO.
			24
STATE	DISTRICT	COUNTY	
TEXAS	ATL	BOWIE	
CONTROL	SECTION	JOB	HIGHWAY NO.
0046	08	017	SL 14

PART 1 - GENERAL

1.01 DESCRIPTION

This project includes construction work within the right of way and/or properties of the Railroad and adjacent to its tracks, wire lines and other facilities. These sheets describe the minimum special requirements for coordination with the Railroad when working upon, over or under Railroad Right of Way or when impacting current or future Railroad operations. Coordinate with the Railroad while performing the work outlined herein, and afford the same cooperation with the Railroad as with TxDOT. Complete all submittals and work in accordance with TxDOT Standard Specifications, Railroad Guidelines and AREMA recommendations as modified by these minimum special requirements or as directed in writing by the Railroad Designated Representative.

For purposes of this project, the Railroad Designated Representative is the person or persons designated by the Railroad Manager of Industry and Public Projects to handle specific tasks related to the project.

1.02 REQUEST FOR INFORMATION / CLARIFICATION

Submit Requests for Information ("RFI") involving work within any Railroad Right of Way to the TxDOT Engineer. The TxDOT Engineer will submit the RFI to the Railroad Designated Representative for review and approval for RFI's corresponding to work within Railroad Right of Way. Allow six (6) weeks total time for review and approval, which includes four (4) weeks for review and approval by the Railroad.

1.03 PLANS / SPECIFICATIONS

TxDOT has received written Railroad approval of the plans and specifications for this project. Any revisions or changes in the plans after award of the Contract must have the approval of TxDOT and the Railroad.

PART 2 - UTILITIES AND FIBER OPTIC

Construct all utility installations in accordance with current AREMA recommendations, Railroad, TxDOT and owning utility specifications and requirements. Railroad general guidelines can be found on the Railroad website or by contacting the Railroad Designated Representative.

PART 3 - CONSTRUCTION

3.01 GENERAL

A. Perform all work in compliance with all applicable Railroad, Federal Railroad Administration (FRA), and TxDOT rules and regulations. Arrange and conduct work in a manner that does not endanger or interfere with the safe operation of the tracks and property of the Railroad and the traffic moving on such tracks, or the wires, signals and other property of the Railroad, its tenants or licensees, at or in the vicinity of the Work. The safe operation of railroad train movements takes precedence over any work to be performed by the Contractor. The Contractor is responsible for train delay cost and lost revenue claims due to any delays or interruption of train operations resulting from Contractor's construction or other activities.

B. Construction activities within 15 feet of the operational tracks will only be allowed if absolutely necessary and the Railroad's Designated Representative grants approval. Construction activities within 15 feet of the operational track(s) preferably allow the tracks to stay operational. In such cases, coordination and approval by the Railroad Track Manager is required with regard to schedule, flagging, and slow orders. See Sections 3.07 and 3.08 for additional information.

C. Provide track protection for all work equipment (including rubber tired equipment) operating within 25 feet from nearest rail. When not in use, keep Contractor machinery and materials at least 50 feet from the Railroad's nearest track.

D. Vehicular crossings of railroad track are allowed only at existing crossings, or haul road crossings developed with Railroad approval.

E. The Contractor is also advised that new railroad facilities within the project may be built by the Railroad. If applicable, these facilities are delineated in the plans. Be aware of the limits of responsibilities and coordinate efforts with the Railroad and TxDOT.

F. Railroad requirements do not allow work within 50 feet of track centers when a train passes the work site and all personnel must clear the area within 50 feet of the track centerline and secure all equipment. Additional allowances may be pursued as outlined in 3.02 and 3.03.

G. All permanent clearances shall be verified before project closing.

3.02 RAILROAD OPERATIONS

A. Trains and/or equipment are expected on any track, at any time, in either direction. Become familiar with the train schedules in this location and structure bid assuming intermittent track windows in this period, as defined in Paragraph B that follows.

B. All railroad tracks within and adjacent to the contract site are active, and rail traffic over these facilities shall be maintained throughout the Project. Activities may include both through moves and switching moves to local customers. railroad traffic and operations will occur continuously throughout the day and night on these tracks and shall be maintained at all times as defined herein. Coordinate and schedule the work so that construction activities do not interfere with railroad operations.

C. Coordinate work windows with TxDOT and the Railroad's Designated Representative. Types of work windows include Conditional Work Windows and Absolute Work Windows, as defined below:

1. Conditional Work Window: A Conditional Work Window is a period of time that railroad operations have priority over construction activities. When construction activities may occur on and/or adjacent to the railroad tracks within 25 feet of the nearest track, a railroad flag person will be required. At the direction of the railroad flag person, upon approach of a train, and when trains are present on the tracks, the tracks must be cleared (i.e., no construction equipment, materials or personnel within 25 feet, or as directed by the Railroad Designated Representative, from the tracks). Conditional Work Windows are available for the Project.

2. Absolute Work Window: An Absolute Work Window is a period of time that construction activities are given priority over railroad operations. During this time frame, the designated railroad track(s) will be inactive for train movements and may be fouled by the Contractor. At the end of an Absolute Work Window, the railroad tracks and/or signals must be completely operational for train operations and all Railroad, Public Utilities Commission (PUC) and FRA requirements, codes and regulations for operational tracks must be satisfied. In the situation where the operating tracks and/or signals have been affected, the Railroad will perform inspections of the work prior to placing that track back into service. Railroad flag persons will be required for construction activities requiring an Absolute Work Window. Absolute Work Windows will not generally be granted. Any request will require a detailed explanation for Railroad review.

3.03 RIGHT OF ENTRY, ADVANCE NOTICE AND WORK STOPPAGES

A. Do not perform any work within Railroad Right of Way without a valid executed Right of Entry Agreement if required on this project.

B. Give advance notice to the Railroad as required in the "Contractor's Right of Entry Agreement" before commencing work in connection with construction upon or over Railroad Right of Way and observe the Railroad's rules and regulations with respect thereto.

C. Perform all work upon Railroad Right of Way in a manner to avoid interference with or endanger the operations of the Railroad. Whenever work may affect the operations or safety of trains, submit the work method to the Railroad Designated Representative for approval. Approval does not relieve the Contractor from liability. Do not commence any work which requires flagging service or inspection service until the flagging protection required by the Railroad is available at the job site. See Section 3.15 for railroad flagging requirements.

D. Make requests in writing for both Absolute and Conditional Work Windows, at least 30 days in advance of any work. Include in the written request:
1. Exactly what the work entails.
2. The days and hours that work will be performed.
3. The exact location of work, and proximity to the tracks.
4. The type of window requested and the amount of time requested.
5. The designated contact person.

Provide a written confirmation notice to the Railroad at least 48 hours before commencing work in connection with approved work windows when work is within 25 feet of nearest rail. Perform all work in accordance with previously approved work plans.

E. Make provisions to protect operations and property of the Railroad should a condition arising from, or in connection with the work, require immediate and unusual action. If in the judgment of the Railroad Designated Representative such provisions are insufficient, the Railroad Designated Representative may require or provide such provisions as deemed necessary. In any event, such provisions shall be at the Contractor's expense and without cost to the Railroad or TxDOT. The Railroad or TxDOT shall have the right to order the Contractor to temporarily cease operations in the event of an emergency or, if in the opinion of the Railroad Designated Representative, the Contractor's operations could endanger railroad operations. In the event of such an order, immediately notify TxDOT of the order.

3.04 INSURANCE

Do not begin work upon or over Railroad Right of Way until furnishing the Railroad with the insurance policies, binders, certificates and endorsements required by the "Contractor's Right of Entry Agreement", and until the Railroad Designated Representative has advised TxDOT that such insurance is in accordance with the Agreement.

3.05 RAILROAD SAFETY ORIENTATION

A. Complete the railroad course "Orientation for Contractor's Safety", and maintain current registration prior to working on railroad property. This course is required to be completed annually by Contractor and Subcontractor personnel working on site.

"UPRR, BNSF, KCS/TEXMEX will not accept on-track safety training certificates from other railroads. Refer to Railroad specific contractor right of entry for training information."

B. Know and follow the "Contractor's Right of Entry Agreement" EXHIBIT D, MINIMUM SAFETY REQUIREMENTS regarding clothing, personal protective equipment, and general safety requirements.

3.06 COOPERATION

The Railroad will cooperate with Contractor so that work may be conducted in an efficient manner, and will cooperate with Contractor in enabling use of Railroad Right of Way in performing the work.

3.07 MINIMUM CONSTRUCTION CLEARANCES FOR FALSEWORK AND OTHER TEMPORARY STRUCTURES

Abide by the following minimum temporary clearances during the course of construction:
A. 15' - 0" (BNSF)(UPRR)and 14'-0" (KCS) horizontal from centerline of track
B. 22' (KCS) and 21' - 6" (UPRR & BNSF) vertically above top of rail.

For construction clearance less than listed above, obtain local Railroad Operating Unit review and approval.

3.08 APPROVAL OF REDUCED CLEARANCES

A. Maintain minimum track clearances during construction as specified in Section 3.07.

B. Submit any proposed infringement on the specified minimum clearances to the Railroad Designated Representative through TxDOT at least 30 days in advance of the work. Do not proceed with such infringement without written approval by the Railroad Designated Representative.

C. Do not commence work involving an approved infringement without receiving written assurance from the Railroad Designated Representative that arrangements have been made for any necessary flagging service.

Texas Department of Transportation | Rail Division

RAILROAD REQUIREMENTS FOR NON-BRIDGE CONSTRUCTION PROJECTS

FILE:	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT October 2018	CONT	SECT	JOB	HIGHWAY
REVISIONS March 2020	0046	08	017	SL 14
	DIST	COUNTY		SHEET NO.
	ATL	BOWIE		25

3.09 MAINTENANCE OF RAILROAD FACILITIES

A. Maintain all ditches and drainage structures free of silt or other obstructions resulting from Contractor's operations. Repair eroded areas and any other damage within Railroad Right of Way and repair any other damage to the property of the Railroad, or its tenants.

B. Perform all such maintenance and repair of damages due to the Contractors's operations at Contractor's expense.

C. Submit a proposed method of erosion control for review by the Railroad prior to beginning any grading on the project site. Comply with all applicable local, state and federal regulations when developing and implementing such erosion control.

3.10 SITE INSPECTIONS BY RAILROAD's DESIGNATED REPRESENTATIVE

A. In addition to the office reviews of construction submittals, site inspections may be performed by the Railroad Designated Representative at significant points during construction, including the following if applicable:
   1. Pre-construction meetings.
   2. Pile driving/drilling of caissons or drilled shafts.
   3. Reinforcement and concrete placement for railroad bridge substructure and/or superstructure.
   4. Erection of precast concrete or steel bridge superstructure.
   5. Placement of waterproofing (prior to placing ballast on bridge deck).
   6. Completion of the bridge structure.

B. Site inspection is not limited to the milestone events listed above. Site visits to check progress of the work may be performed at any time throughout the construction as deemed necessary by the Railroad.

C. Provide a detailed construction schedule, including the proposed temporary horizontal and vertical clearances and construction sequence for all work to TxDOT for submittal to the Railroad Designated Representative for review prior to commencement of work. Include the anticipated dates when the above listed events will occur. Update this schedule for the above listed events as necessary and each month at a minimum to allow the Railroad to schedule site inspections.

3.11 RAILROAD REPRESENTATIVES

Railroad representatives, conductors, flag person or watch person will be provided by the Railroad at expense of TxDOT to protect Railroad facilities, property and movements of its trains or engines. In general, the Railroad will furnish such personnel or other protective services as follows:

A. When any part of any equipment is standing or being operated within 25 feet, measured horizontally, from nearest rail of any track on which trains may operate, or when any object is off the ground and any dimension thereof could extend inside the 25 foot limit, or when any erection or construction activities are in progress within such limits, regardless of elevation above or below track.

B. For any excavation below elevation of track subgrade if, in the opinion of the Railroad Designated Representative, track or other railroad facilities may be subject to settlement or movement.

C. During any clearing, grubbing, excavation or grading in proximity to railroad facilities, which, in the opinion of the Railroad Designated Representative, may endanger railroad facilities or operations.

D. During any Contractor's operations when, in the opinion of the Railroad Designated Representative, railroad facilities, including, but not limited to, tracks, buildings, signals, wire lines, or pipe lines, may be endangered.

E. Arrange with the Railroad Designated Representative to provide the adequate number of flag persons to accomplish the work.

3.12 COMMUNICATIONS AND SIGNAL LINES

If required, the Railroad will rearrange its communications and signal lines, its grade crossing warning devices, train signals and tracks, and facilities that are in use and maintained by the Railroad's forces in connection with its operation at expense of TxDOT. This work by the Railroad will be done by its own forces and it is not a part of the Work under this Contract.

3.13 TRAFFIC CONTROL

Coordinate any operations that control traffic across or around railroad facilities with the Railroad Designated Representative.

3.14 CONSTRUCTION EXCAVATIONS AND BORING ACTIVITIES UNDER TRACK

A. Take special precaution and care in connection with excavating and shoring. Excavations for construction of footings, piers, columns, walls or other facilities that require shoring shall comply with requirements of TxDOT, OSHA, AREMA and Railroad "Guidelines for Temporary Shoring".

B. The project plans indicate whether there are fiber optic lines or other such telecommunications systems that require consideration. Regardless, contact the necessary call center to determine if such cable systems are present:

   UPRR 1-800-336-9193
   7:00 AM to 9:00 PM CST Monday-Friday except holidays,
   staffed 24 hrs/day for emergencies
   48 hrs notice required

   BNSF 1-800-533-2891
   24 hour number
   5 working days notice required

   KCS 1-800-344-8377
   Texas One Call, a 24 hour number
   48 hrs notice required, excluding weekends and holidays

   If a telecommunications system is buried anywhere on or near railroad property, coordinate with TxDOT, the Railroad and the Telecommunication Company(ies) to arrange for relocation or protective measures prior to beginning work on or near railroad property. Refer to the project General Notes for additional information.

C. Projects involving a boring or jack and bore operation under track such as drainage pipes or culverts and utilities require an installation plan reviewed and approved by the Railroad and TxDOT prior to proceeding with such construction. A railroad inspector and contractor assisted monitoring of ground and track movement is required to maintain safe passage of rail traffic. Stop installation and do not allow passage of trains if movements in excess of $\frac{1}{4}$ inch vertical or horizontal is detected in the tracks. Immediately repair the damage to the satisfaction of TxDOT and the Railroad before proceeding.

3.15 RAILROAD FLAGGING

Per the Right of Entry Agreement for flagging, notify the Railroad Representative at least 10 working days in advance of Contractor's work and at least 30 working days in advance of any Contractor's work in which any person or equipment will be within 25 feet of nearest rail or as specified in the Contractor Right of Entry (CROE).

3.16 CLEANING OF RIGHT-OF-WAY

When work is complete, remove all tools, implements, and other materials brought into Railroad Right of Way and leave the right of Way in a clean and presentable condition to the satisfaction of TxDOT and the Railroad.

Texas Department of Transportation — Rail Division

RAILROAD REQUIREMENTS FOR NON-BRIDGE CONSTRUCTION PROJECTS

FILE:	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT October 2018	CONT	SECT	JOB	HIGHWAY
REVISIONS March 2020	0046	08	017	SL 14
	DIST	COUNTY		SHEET NO.
	ATL	BOWIE		26

I. WORK AT CROSSING LOCATIONS (AT GRADE, HIGHWAY OVERPASS, HIGHWAY UNDERPASS, PEDESTRIAN, OR CLOSED/ABANDONED)

☐ This project is adjacent or parallel work, not within RR ROW:

DOT No.: SEE MISCELLANEOUS SUMMARIES FOR MORE INFORMATION
Crossing Type: SEE MISCELLANEOUS SUMMARIES FOR MORE INFORMATION
RR Company Operating Track at Crossing: UNION PACIFIC RAILROAD
RR Company Owning Track at Crossing: UNION PACIFIC RAILROAD
RR MP: SEE MISCELLANEOUS SUMMARIES FOR MORE INFORMATION
RR Subdivision: SEE MISCELLANEOUS SUMMARIES FOR MORE INFORMATION
City: SEE MISCELLANEOUS SUMMARIES FOR MORE INFORMATION
County: SEE MISCELLANEOUS SUMMARIES FOR MORE INFORMATION
CSJ at this Crossing: SEE MISCELLANEOUS SUMMARIES FOR MORE INFORMATION
Latitude: SEE MISCELLANEOUS SUMMARIES FOR MORE INFORMATION
Longitude: SEE MISCELLANEOUS SUMMARIES FOR MORE INFORMATION

Scope of Work, including any TCP, to be performed by State Contractor:

Seal coat maintenance Consisting of installing and maintaining traffic control devices, as well as spraying oil, laying rock, and traffic pavement markings. Railroad flagger will be required for DOT 859610J SL 390 to make sure nothing falls and fouls the track below.

Scope of Work to be performed by Railroad Company:

Railroad Protective Flagging with the R.O.W. limits for seal coat operations.

II. FLAGGING & INSPECTION

No. of Days of Railroad Flagging Expected: 8

On this project, night or weekend flagging is:

☐ Expected
☑ Not Expected

Flagging services will be provided by:

☐ Railroad Company: 1) Txdot will pay flagging invoices. Flagging Agreement with railroad will be needed or, 2) Permitted crossing. Railroad company to provide flagging.
☑ Outside Party: Contractor will pay flagging invoices to be reimbursed by TxDOT

Contractor must incorporate flaggers into anticipated construction schedule. The Railroad requires a 30-day notice if their flaggers are to be utilized. If Contractor falls behind schedule due to their own negligence and is not ready for scheduled flaggers, any flagging charges will be paid by Contractor.

Contact Information for Flagging:

☑ **UPRR** UP.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging
UP.request@nrssinc.net
Call Center 877-984-6777

☐ **BNSF** BNSFinfo@railprosfs.com
Call Center 877-315-0513, Select #1 for flagging

☐ **CPKCR** KCS.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging
Bottom Line On-Track Safety Services
bottomline076@aol.com, 903-767-7630

☐ OTHERS:

Contractor must incorporate railroad construction inspection into anticipated construction schedule.

☑ Not Required
☐ Required. Contact Information for Construction Inspection:

III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

☐ Required.
☑ Not Required

Railroad Point of Contact: _____

Coordinate with TxDOT for any work to be performed by the Railroad Company. TxDOT must issue a work order for any work done by the Railroad Company prior to the work being performed.

IV. RAILROAD INSURANCE REQUIREMENTS

The Contractor shall confirm the insurance requirements with the Railroad as the insurance limits are subject to change without notice.

Insurance policies and corresponding certificates of insurance must be issued by the contractor on behalf of the Railroad. Separate insurance policies and certificates are required when more than one Railroad Company is operating on the same right of way, or when several Railroad Companies are involved and operate on their own separate right of ways.

No direct compensation will be made to the Contractor for providing the insurance coverages shown below or any deductibles. These costs are incidental to the various bid items.

Escalated Limits

Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	$500,000 / $500,000 / $500,000
Commercial General Liability	$2,000,000 / $4,000,000
Business Automobile	$2,000,000

Railroad Protective Liability Limits

☐ Not Required	
☑ Non - Bridge/Typical Maintenance Projects. Includes repairs to overpass/underpass and culvert structures	$2,000,000 / $6,000,000
☐ Bridge Structure Projects. Includes new construction or replacement of overpass/ underpass structures	$5,000,000 / $10,000,000
☐ Other: _____	

V. CONTRACTOR'S RIGHT OF ENTRY (CROE)

☐ Not Required
☑ Required: UPRR Maintenance Consent Letter. TxDOT to assist
☐ Required: TxDOT to assist in obtaining the UPRR CROE
☐ Required: Contractor to obtain
- ☐ BNSF: _____
  https://bnsf.railpermitting.com
- ☐ CPKCR
  https://jllrpg.360works.com/fmi/webd/rpo_web_kcs.fmp12
- ☐ Other Railroads: _____

To view previously approved CROE templates agreed upon between the State and Railroad, see: https://www.txdot.gov/business/resources/railroad-highway-crossing/sample-right-of-entry-agreements.html

Approved CROE templates are not to be modified by the Contractor.

Contractor shall not operate within Railroad Right of Way without an executed Construction & Maintenance Agreement between the State and the Railroad and an executed CROE between the Contractor and the Railroad if required on project.

VI. RAILROAD COORDINATION MEETING

A Railroad Coordination Meeting is required. See item 5, Article 8.1, of the Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges Manual for more details.

VII. RAILROAD SAFETY ORIENTATION

A. Complete the Railroad's course "Orientation for Contractor's Safety," and maintain registration prior to working on the Railroad's property. This course is required to be completed annually by Contractor and Subcontractor personnel working on site.

UPRR, BNSF, CPKCR will not accept on-track safety training certificates from other Railroads. Refer to each Railroad's specific contractor right of entry for training information.

Know and follow the Contractor's Right of Entry Agreement EXHIBIT D, MINIMUM SAFETY REQUIREMENTS regarding clothing, personal protective equipment, and general safety requirements.

VIII. SUBCONTRACTORS

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are subject to the same insurance requirements as the Prime Contractor.

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency
Call: Union Pacific Railroad
Railroad Emergency Line at: 800-848-8715
Location: DOT SEE MISCELLANEOUS SUMMARIES FOR MORE INFORMATION
RR Milepost: SEE MISCELLANEOUS SUMMARIES FOR MORE INFORMATION
Subdivision: SEE MISCELLANEOUS SUMMARIES FOR MORE INFORMATION

RRD Review Only
Initials: KS
Date: 5-15-2024

Texas Department of Transportation — Rail Division

RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS

FILE: rr-scope-of-work.pdf	DN: TxDOT	CK:	DW:	CK:		
© TxDOT June 2014	CONT	SECT	JOB	HIGHWAY		
REVISIONS	0046	08	017	SL 14		
6/2023	DIST	COUNTY		SHEET NO.		
	ATL.	BOWIE		27		

I. WORK AT CROSSING LOCATIONS (AT GRADE, HIGHWAY OVERPASS, HIGHWAY UNDERPASS, PEDESTRIAN, OR CLOSED/ABANDONED)

☐ This project is adjacent or parallel work, not within RR ROW:

DOT No.: 331432M
Crossing Type: RR Under
RR Company Operating Track at Crossing: CPKCR
RR Company Owning Track at Crossing: CPKCR
RR MP: 37.770
RR Subdivision: Greenville
City: Karnack
County: Harrison
CSJ at this Crossing: 0569-04-025
Latitude: 32.6743628
Longitude: -94.1826431

Scope of Work, including any TCP, to be performed by State Contractor:

Seal coat maintenance Consisting of installing and maintaining traffic control devices, as well as spraying oil, laying rock, and traffic pavement markings. RR flagger on site to make sure track below is not fouled.

Scope of Work to be performed by Railroad Company:

Railroad Protective Flagging with the R.O.W. limits for seal coat operations.

II. FLAGGING & INSPECTION

No. of Days of Railroad Flagging Expected: 2

On this project, night or weekend flagging is:

☐ Expected
☑ Not Expected

Flagging services will be provided by:

☐ Railroad Company: 1) Txdot will pay flagging invoices. Flagging Agreement with railroad will be needed or, 2) Permitted crossing. Railroad company to provide flagging.
☑ Outside Party: Contractor will pay flagging invoices to be reimbursed by TxDOT

Contractor must incorporate flaggers into anticipated construction schedule. The Railroad requires a 30-day notice if their flaggers are to be utilized. If Contractor falls behind schedule due to their own negligence and is not ready for scheduled flaggers, any flagging charges will be paid by Contractor.

Contact Information for Flagging:

☐ **UPRR** UP.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging
UP.request@nrssinc.net
Call Center 877-984-6777

☐ **BNSF** BNSFinfo@railprosfs.com
Call Center 877-315-0513, Select #1 for flagging

☑ **CPKCR** KCS.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging
Bottom Line On-Track Safety Services
bottomline076@aol.com, 903-767-7630

☐ OTHERS:

Contractor must incorporate railroad construction inspection into anticipated construction schedule.

☑ Not Required
☐ Required. Contact Information for Construction Inspection:

III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

☐ Required.
☑ Not Required

Railroad Point of Contact: _____

Coordinate with TxDOT for any work to be performed by the Railroad Company. TxDOT must issue a work order for any work done by the Railroad Company prior to the work being performed.

IV. RAILROAD INSURANCE REQUIREMENTS

The Contractor shall confirm the insurance requirements with the Railroad as the insurance limits are subject to change without notice.

Insurance policies and corresponding certificates of insurance must be issued by the contractor on behalf of the Railroad. Separate insurance policies and certificates are required when more than one Railroad Company is operating on the same right of way, or when several Railroad Companies are involved and operate on their own separate right of ways.

No direct compensation will be made to the Contractor for providing the insurance coverages shown below or any deductibles. These costs are incidental to the various bid items.

Escalated Limits

Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	$500,000 / $500,000 / $500,000
Commercial General Liability	$2,000,000 / $4,000,000
Business Automobile	$2,000,000

Railroad Protective Liability Limits

☐ Not Required	
☑ Non - Bridge/Typical Maintenance Projects. Includes repairs to overpass/underpass and culvert structures	$2,000,000 / $6,000,000
☐ Bridge Structure Projects. Includes new construction or replacement of overpass/ underpass structures	$5,000,000 / $10,000,000
☐ Other: _____	

V. CONTRACTOR'S RIGHT OF ENTRY (CROE)

☐ Not Required
☐ Required: UPRR Maintenance Consent Letter. TxDOT to assist
☐ Required: TxDOT to assist in obtaining the UPRR CROE
☑ Required: Contractor to obtain
- ☐ BNSF: _____
  https://bnsf.railpermitting.com
- ☑ CPKCR
  https://jllrpg.360works.com/fmi/webd/rpo_web_kcs.fmp12
- ☐ Other Railroads: _____

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IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency
Call: CPKCR
Railroad Emergency Line at: 877-527-9464
Location: DOT 331432M
RR Milepost: 37.770
Subdivision: Greenville

RRD Review Only
Initials: KS
Date: 3-21-2024

Texas Department of Transportation — Rail Division

RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS

FILE: rr-scope-of-work.pdf	DN: TxDOT	CK:	DW:	CK:		
© TxDOT June 2014	CONT	SECT	JOB	HIGHWAY		
REVISIONS	0046	08	017	SL 14		
6/2023	DIST	COUNTY			SHEET NO.	
	ATL.	BOWIE			28	

I. WORK AT CROSSING LOCATIONS (AT GRADE, HIGHWAY OVERPASS, HIGHWAY UNDERPASS, PEDESTRIAN, OR CLOSED/ABANDONED)

☐ This project is adjacent or parallel work, not within RR ROW:

DOT No.: 331432M
Crossing Type: RR Under
RR Company Operating Track at Crossing: CPKCR
RR Company Owning Track at Crossing: CPKCR
RR MP: 37.770
RR Subdivision: Greenville
City: Karnack
County: Harrison
CSJ at this Crossing: 0569-04-025
Latitude: 32.6743628
Longitude: -94.1826431

Scope of Work, including any TCP, to be performed by State Contractor:

Seal coat maintenance Consisting of installing and maintaining traffic control devices, as well as spraying oil, laying rock, and traffic pavement markings. RR flagger on site to make sure track below is not fouled.

Scope of Work to be performed by Railroad Company:

Railroad Protective Flagging with the R.O.W. limits for seal coat operations.

II. FLAGGING & INSPECTION

No. of Days of Railroad Flagging Expected: 2

On this project, night or weekend flagging is:

☐ Expected
☑ Not Expected

Flagging services will be provided by:

☐ Railroad Company: 1) Txdot will pay flagging invoices. Flagging Agreement with railroad will be needed or, 2) Permitted crossing. Railroad company to provide flagging.
☑ Outside Party: Contractor will pay flagging invoices to be reimbursed by TxDOT

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Contact Information for Flagging:

☐ **UPRR** UP.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging
UP.request@nrssinc.net
Call Center 877-984-6777

☐ **BNSF** BNSFinfo@railprosfs.com
Call Center 877-315-0513, Select #1 for flagging

☑ **CPKCR** KCS.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging
Bottom Line On-Track Safety Services
bottomline076@aol.com, 903-767-7630

☐ OTHERS:

Contractor must incorporate railroad construction inspection into anticipated construction schedule.

☑ Not Required
☐ Required. Contact Information for Construction Inspection:

III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

☐ Required.
☑ Not Required

Railroad Point of Contact: _____

Coordinate with TxDOT for any work to be performed by the Railroad Company. TxDOT must issue a work order for any work done by the Railroad Company prior to the work being performed.

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Escalated Limits

Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	$500,000 / $500,000 / $500,000
Commercial General Liability	$2,000,000 / $4,000,000
Business Automobile	$2,000,000

Railroad Protective Liability Limits

☐ Not Required	
☑ Non - Bridge/Typical Maintenance Projects. Includes repairs to overpass/underpass and culvert structures	$2,000,000 / $6,000,000
☐ Bridge Structure Projects. Includes new construction or replacement of overpass/ underpass structures	$5,000,000 / $10,000,000
☐ Other: _____	

V. CONTRACTOR'S RIGHT OF ENTRY (CROE)

☐ Not Required
☐ Required: UPRR Maintenance Consent Letter. TxDOT to assist
☐ Required: TxDOT to assist in obtaining the UPRR CROE
☑ Required: Contractor to obtain
- ☐ BNSF: _____
  https://bnsf.railpermitting.com
- ☑ CPKCR
  https://jllrpg.360works.com/fmi/webd/rpo_web_kcs.fmp12
- ☐ Other Railroads: _____

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VIII. SUBCONTRACTORS

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IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency
Call: CPKCR
Railroad Emergency Line at: 877-527-9464
Location: DOT 331432M
RR Milepost: 37.770
Subdivision: Greenville

RRD Review Only
Initials: KS
Date: 3-21-2024

Texas Department of Transportation — *Rail Division*

RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS

FILE: rr-scope-of-work.pdf		DN: TxDOT	CK:	DW:		CK:
© TxDOT June 2014		CONT	SECT	JOB		HIGHWAY
REVISIONS		0046	08	017		SL 14
6/2023		DIST	COUNTY			SHEET NO.
		ATL.	BOWIE			29

I. WORK AT CROSSING LOCATIONS (AT GRADE, HIGHWAY OVERPASS, HIGHWAY UNDERPASS, PEDESTRIAN, OR CLOSED/ABANDONED)

☐ This project is adjacent or parallel work, not within RR ROW:

DOT No.: 023988F
Crossing Type: At Grade
RR Company Operating Track at Crossing: BNSF
RR Company Owning Track at Crossing: BNSF
RR MP: 171.72
RR Subdivision: Longview
City: Carthage
County: Panola
CSJ at this Crossing: 0247-01-060
Latitude: 32.1572865
Longitude: -94.3344449

Scope of Work, including any TCP, to be performed by State Contractor:

Seal coat maintenance Consisting of installing and maintaining traffic control devices, as well as spraying oil, laying rock, and traffic pavement markings.

Scope of Work to be performed by Railroad Company:

Railroad Protective Flagging with the R.O.W. limits for seal coat operations.

II. FLAGGING & INSPECTION

No. of Days of Railroad Flagging Expected: 2

On this project, night or weekend flagging is:

☐ Expected
☑ Not Expected

Flagging services will be provided by:

☐ Railroad Company: 1) Txdot will pay flagging invoices. Flagging Agreement with railroad will be needed or, 2) Permitted crossing. Railroad company to provide flagging.
☑ Outside Party: Contractor will pay flagging invoices to be reimbursed by TxDOT

Contractor must incorporate flaggers into anticipated construction schedule. The Railroad requires a 30-day notice if their flaggers are to be utilized. If Contractor falls behind schedule due to their own negligence and is not ready for scheduled flaggers, any flagging charges will be paid by Contractor.

Contact Information for Flagging:

☐ **UPRR** UP.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging
UP.request@nrssinc.net
Call Center 877-984-6777

☑ **BNSF** BNSFinfo@railprosfs.com
Call Center 877-315-0513, Select #1 for flagging

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Call Center 877-315-0513, Select #1 for flagging
Bottom Line On-Track Safety Services
bottomline076@aol.com, 903-767-7630

☐ OTHERS:

Contractor must incorporate railroad construction inspection into anticipated construction schedule.

☑ Not Required
☐ Required. Contact Information for Construction Inspection:

III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

☐ Required.
☑ Not Required

Railroad Point of Contact: _____

Coordinate with TxDOT for any work to be performed by the Railroad Company. TxDOT must issue a work order for any work done by the Railroad Company prior to the work being performed.

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Escalated Limits

Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	$500,000 / $500,000 / $500,000
Commercial General Liability	$2,000,000 / $4,000,000
Business Automobile	$2,000,000

Railroad Protective Liability Limits

☐ Not Required	
☑ Non - Bridge/Typical Maintenance Projects. Includes repairs to overpass/underpass and culvert structures	$2,000,000 / $6,000,000
☐ Bridge Structure Projects. Includes new construction or replacement of overpass/ underpass structures	$5,000,000 / $10,000,000
☐ Other: _____	

V. CONTRACTOR'S RIGHT OF ENTRY (CROE)

☐ Not Required
☐ Required: UPRR Maintenance Consent Letter. TxDOT to assist
☐ Required: TxDOT to assist in obtaining the UPRR CROE
☑ Required: Contractor to obtain
- ☑ BNSF: Tim HUya Email: Tim.Huya@bnsf.com
  https://bnsf.railpermitting.com
- ☐ CPKCR
  https://jllrpg.360works.com/fmi/webd/rpo_web_kcs.fmp12
- ☐ Other Railroads: _____

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VIII. SUBCONTRACTORS

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are subject to the same insurance requirements as the Prime Contractor.

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency
Call: BNSF
Railroad Emergency Line at: 817-352-1549
Location: DOT 023988F
RR Milepost: 171.72
Subdivision: Longview

RRD Review Only
Initials: KS
Date: 5-15-24

Texas Department of Transportation — *Rail Division*

RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS

FILE: rr-scope-of-work.pdf	DN: TxDOT	CK:	DW:	CK:		
© TxDOT June 2014	CONT	SECT	JOB	HIGHWAY		
REVISIONS	0046	08	017	SL 14		
6/2023	DIST	COUNTY		SHEET NO.		
	ATL.	BOWIE		30		

I. WORK AT CROSSING LOCATIONS (AT GRADE, HIGHWAY OVERPASS, HIGHWAY UNDERPASS, PEDESTRIAN, OR CLOSED/ABANDONED)

☐ This project is adjacent or parallel work, not within RR ROW:

DOT No.: 789785T
Crossing Type: At Grade
RR Company Operating Track at Crossing: UNION PACIFIC RAILROAD
RR Company Owning Track at Crossing: UNION PACIFIC RAILROAD
RR MP: 491.56
RR Subdivision: Pine Bluff
City: Pittsburg
County: Camp
CSJ at this Crossing: 1019-01-034
Latitude: 32.9907926
Longitude: -94.9687292

Scope of Work, including any TCP, to be performed by State Contractor:

Seal coat maintenance Consisting of installing and maintaining traffic control devices, as well as spraying oil, laying rock, and traffic pavement markings. If contractor performs seal coat operations outside of the RR ROW, but creates a traffic contra-flow condition that causes vehicles to cross the railroad tracks in an opposing lane a railroad. is also required to be on-site for the duration of the contra-flow traffic control plan for the at grade crossings.

Scope of Work to be performed by Railroad Company:

Railroad Protective Flagging with the R.O.W. limits for seal coat operations.

II. FLAGGING & INSPECTION

No. of Days of Railroad Flagging Expected: 2

On this project, night or weekend flagging is:

☐ Expected
☑ Not Expected

Flagging services will be provided by:

☐ Railroad Company: 1) Txdot will pay flagging invoices. Flagging Agreement with railroad will be needed or, 2) Permitted crossing. Railroad company to provide flagging.
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Contractor must incorporate railroad construction inspection into anticipated construction schedule.

☑ Not Required
☐ Required. Contact Information for Construction Inspection:

III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

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☑ Not Required

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Railroad Protective Liability Limits

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☐ Other: _____	

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☐ Not Required
☑ Required: UPRR Maintenance Consent Letter. TxDOT to assist
☐ Required: TxDOT to assist in obtaining the UPRR CROE
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  https://bnsf.railpermitting.com
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  https://jllrpg.360works.com/fmi/webd/rpo_web_kcs.fmp12
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Call: Union Pacific Railroad
Railroad Emergency Line at: 800-848-8715
Location: DOT 789785T
RR Milepost: 491.56
Subdivision: Pine Bluff

RRD Review Only
Initials: KS
Date: 8-2-24

Texas Department of Transportation | Rail Division

RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS

FILE: rr-scope-of-work.pdf		DN: TxDOT	CK:	DW:		CK:	
© TxDOT June 2014		CONT	SECT	JOB		HIGHWAY	
REVISIONS		0046	08	017		SL 14	
6/2023		DIST	COUNTY			SHEET NO.	
		ATL.	BOWIE			30A	

DATE: 5/3/2024
FILE: pw://txdot.projectwiseonline.com:TXDOT5/Documents/19 - ATL/Design Projects/0046080174 - Design/Master Design Files/01 PLANSHEETS/043 EPIC.dgn

I. STORMWATER POLLUTION PREVENTION-CLEAN WATER ACT SECTION 402

TPDES TXR 150000: Stormwater Discharge Permit or Construction General Permit required for projects with 1 or more acres disturbed soil. Projects with any disturbed soil must protect for erosion and sedimentation in accordance with Item 506.

List MS4 Operator(s) that may receive discharges from this project. They may need to be notified prior to construction activities.

1. N/A

☐ No Action Required ☒ Required Action

Action No.

1. This project is considered a maintenance activity and is exempt from the requirements of TPDES TX 150000.

Commitment No.

II. WORK IN OR NEAR STREAMS, WATERBODIES AND WETLANDS CLEAN WATER ACT SECTIONS 401 AND 404

USACE Permit required for filling, dredging, excavating or other work in any water bodies, rivers, creeks, streams, wetlands or wet areas.

The Contractor must adhere to all of the terms and conditions associated with the following permit(s):

☒ No Permit Required
☐ Nationwide Permit 14 - PCN not Required (less than 1/10th acre waters or wetlands affected)
☐ Nationwide Permit 14 - PCN Required (1/10 to <1/2 acre, 1/3 in tidal waters)
☐ Individual 404 Permit Required
☐ Other Nationwide Permit Required: NWP# _____

Required Actions: List waters of the US permit applies to, location in project and check Best Management Practices planned to control erosion, sedimentation and post-project TSS.

1.

2.

3.

4.

The elevation of the ordinary high water marks of any areas requiring work to be performed in the waters of the US requiring the use of a nationwide permit can be found on the Bridge Layouts.

Best Management Practices:

Erosion	Sedimentation	Post-Construction TSS
☐ Temporary Vegetation	☐ Silt Fence	☐ Vegetative Filter Strips
☐ Blankets/Matting	☐ Rock Berm	☐ Retention/Irrigation Systems
☐ Mulch	☐ Triangular Filter Dike	☐ Extended Detention Basin
☐ Sodding	☐ Sand Bag Berm	☐ Constructed Wetlands
☐ Interceptor Swale	☐ Straw Bale Dike	☐ Wet Basin
☐ Diversion Dike	☐ Brush Berms	☐ Erosion Control Compost
☐ Erosion Control Compost	☐ Erosion Control Compost	☐ Mulch Filter Berm and Socks
☐ Mulch Filter Berm and Socks	☐ Mulch Filter Berm and Socks	☐ Compost Filter Berm and Socks
☐ Compost Filter Berm and Socks	☐ Compost Filter Berm and Socks	☐ Vegetation Lined Ditches
	☐ Stone Outlet Sediment Traps	☐ Sand Filter Systems
	☐ Sediment Basins	☐ Grassy Swales

III. CULTURAL RESOURCES

Refer to TxDOT Standard Specifications in the event historical issues or archeological artifacts are found during construction. Upon discovery of archeological artifacts (bones, burnt rock, flint, pottery, etc.) cease work in the immediate area and contact the Engineer immediately.

☒ No Action Required ☐ Required Action

Action No.

1.

2.

3.

4.

IV. VEGETATION RESOURCES

Preserve native vegetation to the extent practical.
Contractor must adhere to Construction Specification Requirements Specs 162, 164, 192, 193, 506, 730, 751, 752 in order to comply with requirements for invasive species, beneficial landscaping, and tree/brush removal commitments.

☒ No Action Required ☐ Required Action

Action No.

1.

2.

3.

4.

V. FEDERAL LISTED, PROPOSED THREATENED, ENDANGERED SPECIES, CRITICAL HABITAT, STATE LISTED SPECIES, CANDIDATE SPECIES AND MIGRATORY BIRDS.

☒ No Action Required ☐ Required Action

Action No.

1.

2.

3.

4.

If any of the listed species are observed, cease work in the immediate area, do not disturb species or habitat and contact the Engineer immediately. The work may not remove active nests from bridges and other structures during nesting season of the birds associated with the nests. If caves or sinkholes are discovered, cease work in the immediate area, and contact the Engineer immediately.

LIST OF ABBREVIATIONS

BMP:	Best Management Practice	SPCC:	Spill Prevention Control and Countermeasure
CGP:	Construction General Permit	SW3P:	Storm Water Pollution Prevention Plan
DSHS:	Texas Department of State Health Services	PCN:	Pre-Construction Notification
FHWA:	Federal Highway Administration	PSL:	Project Specific Location
MOA:	Memorandum of Agreement	TCEQ:	Texas Commission on Environmental Quality
MOU:	Memorandum of Understanding	TPDES:	Texas Pollutant Discharge Elimination System
MS4:	Municipal Separate Stormwater Sewer System	TPWD:	Texas Parks and Wildlife Department
MBTA:	Migratory Bird Treaty Act	TxDOT:	Texas Department of Transportation
NOT:	Notice of Termination	T&E:	Threatened and Endangered Species
NWP:	Nationwide Permit	USACE:	U.S. Army Corps of Engineers
NOI:	Notice of Intent	USFWS:	U.S. Fish and Wildlife Service

VI. HAZARDOUS MATERIALS OR CONTAMINATION ISSUES

General (applies to all projects):

Comply with the Hazard Communication Act (the Act) for personnel who will be working with hazardous materials by conducting safety meetings prior to beginning construction and making workers aware of potential hazards in the workplace. Ensure that all workers are provided with personal protective equipment appropriate for any hazardous materials used.

Obtain and keep on-site Material Safety Data Sheets (MSDS) for all hazardous products used on the project, which may include, but are not limited to the following categories: Paints, acids, solvents, asphalt products, chemical additives, fuels and concrete curing compounds or additives. Provide protected storage, off bare ground and covered, for products which may be hazardous. Maintain product labelling as required by the Act.

Maintain an adequate supply of on-site spill response materials, as indicated in the MSDS. In the event of a spill, take actions to mitigate the spill as indicated in the MSDS, in accordance with safe work practices, and contact the District Spill Coordinator immediately. The Contractor shall be responsible for the proper containment and cleanup of all product spills.

Contact the Engineer if any of the following are detected:
* Dead or distressed vegetation (not identified as normal)
* Trash piles, drums, canister, barrels, etc.
* Undesirable smells or odors
* Evidence of leaching or seepage of substances

Does the project involve any bridge class structure rehabilitation or replacements (bridge class structures not including box culverts)?

☐ Yes ☒ No

If "No", then no further action is required.
If "Yes", then TxDOT is responsible for completing asbestos assessment/inspection.

Are the results of the asbestos inspection positive (is asbestos present)?

☐ Yes ☐ No

If "Yes", then TxDOT must retain a DSHS licensed asbestos consultant to assist with the notification, develop abatement/mitigation procedures, and perform management activities as necessary. The notification form to DSHS must be postmarked at least 15 working days prior to scheduled demolition.

If "No", then TxDOT is still required to notify DSHS 15 working days prior to any scheduled demolition.

In either case, the Contractor is responsible for providing the date(s) for abatement activities and/or demolition with careful coordination between the Engineer and asbestos consultant in order to minimize construction delays and subsequent claims.

Any other evidence indicating possible hazardous materials or contamination discovered on site. Hazardous Materials or Contamination Issues Specific to this Project:

☒ No Action Required ☐ Required Action

Action No.

1.

2.

3.

VII. OTHER ENVIRONMENTAL ISSUES

(includes regional issues such as Edwards Aquifer District, etc.)

☒ No Action Required ☐ Required Action

Action No.

1.

2.

3.

Texas Department of Transportation — Design Division Standard

ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS

EPIC

FILE: epic.dgn	DN: TxDOT	CK: RG	DW: VP	CK: AR
©TxDOT: February 2015	CONT	SECT	JOB	HIGHWAY
REVISIONS 12-12-2011 (DS)	0046	08	017	SL 14
05-07-14 ADDED NOTE SECTION IV.	DIST	COUNTY		SHEET NO.
01-23-2015 SECTION I (CHANGED ITEM 1122 TO ITEM 506, ADDED GRASSY SWALES.	ATL	BOWIE		31

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FILE: pw://txdot.projectwiseonline.com:TXDOT5/Documents/19 - ATL/Design Projects/0046080174 - Design/Master Design Files/04 STANDARDS/000 BC(1)-21.dgn

BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

1. The Barricade and Construction Standard Sheets (BC sheets) are intended to show typical examples for placement of temporary traffic control devices, construction pavement markings, and typical work zone signs. The information contained in these sheets meet or exceed the requirements shown in the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).

2. The development and design of the Traffic Control Plan (TCP)is the responsibility of the Engineer.

3. The Contractor may propose changes to the TCP that are signed and sealed by a licensed professional engineer for approval. The Engineer may develop, sign and seal Contractor proposed changes.

4. The Contractor is responsible for installing and maintaining the traffic control devices as shown in the plans. The Contractor may not move or change the approximate location of any device without the approval of the Engineer.

5. Geometric design of lane shifts and detours should, when possible, meet the applicable design criteria contained in manuals such as the American Association of State Highway and Transportation Officials (AASHTO), "A Policy on Geometric Design of Highways and Streets," the TxDOT "Roadway Design Manual" or engineering judgment.

6. When projects abut, the Engineer(s) may omit the END ROAD WORK, TRAFFIC FINES DOUBLE, and other advance warning signs if the signing would be redundant and the work areas appear continuous to the motorists. If the adjacent project is completed first, the Contractor shall erect the necessary warning signs as shown on these sheets, the TCP sheets or as directed by the Engineer. The BEGIN ROAD WORK NEXT X MILES sign shall be revised to show appropriate work zone distance.

7. The Engineer may require duplicate warning signs on the median side of divided highways where median width will permit and traffic volumes justify the signing.

8. All signs shall be constructed in accordance with the details found in the "Standard Highway Sign Designs for Texas," latest edition. Sign details not shown in this manual shall be shown in the plans or the Engineer shall provide a detail to the Contractor before the sign is manufactured.

9. The temporary traffic control devices shown in the illustrations of the BC sheets are examples. As necessary, the Engineer will determine the most appropriate traffic control devices to be used.

10. Where highway construction or maintenance work is being undertaken, other than mobile operations as defined by the Texas Manual on Uniform Traffic Control Devices, CSJ limit signs are required. CSJ limit signs are shown on BC(2). The OBEY WARNING SIGNS STATE LAW sign, STAY ALERT TALK OR TEXT LATER and the WORK ZONE TRAFFIC FINES DOUBLE sign with plaque shall be erected in advance of the CSJ limits. The BEGIN ROAD WORK NEXT X MILES, CONTRACTOR and END ROAD WORK signs shall be erected at or near the CSJ limits. For mobile operations, CSJ limit signs are not required.

11. Traffic control devices should be in place only while work is actually in progress or a definite need exists.

12. The Engineer has the final decision on the location of all traffic control devices.

13. Inactive equipment and work vehicles, including workers' private vehicles must be parked away from travel lanes. They should be as close to the right-of-way line as possible, or located behind a barrier or guardrail, or as approved by the Engineer.

WORKER SAFETY NOTES:

1. Workers on foot who are exposed to traffic or to construction equipment within the right-of-way shall wear high-visibility safety apparel meeting the requirements of ISEA "American National Standard for High-Visibility Apparel," or equivalent revisions, and labeled as ANSI 107-2004 standard performance for Class 2 or 3 risk exposure. Class 3 garments should be considered for high traffic volume work areas or night time work.

2. Except in emergency situations, flagger stations shall be illuminated when flagging is used at night.

COMPLIANT WORKZONE TRAFFIC CONTROL DEVICES

1. Only pre-qualified products shall be used. The "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources.

2. Work zone traffic control devices shall be compliant with the Manual for Assessing safety Hardware (MASH).

THE DOCUMENTS BELOW CAN BE FOUND ON-LINE AT http://www.txdot.gov
COMPLIANT WORK ZONE TRAFFIC CONTROL DEVICES LIST (CWZTCD)
DEPARTMENTAL MATERIAL SPECIFICATIONS (DMS)
MATERIAL PRODUCER LIST (MPL)
ROADWAY DESIGN MANUAL - SEE "MANUALS (ONLINE MANUALS)"
STANDARD HIGHWAY SIGN DESIGNS FOR TEXAS (SHSD)
TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD)
TRAFFIC ENGINEERING STANDARD SHEETS

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Texas Department of Transportation — Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS

BC(1)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0046	08	017	SL 14
4-03 7-13	DIST	COUNTY		SHEET NO.
9-07 8-14	ATL	BOWIE		32
5-10 5-21				

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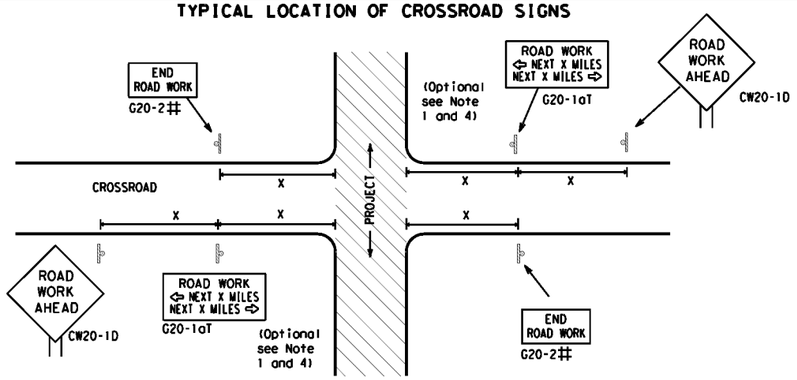
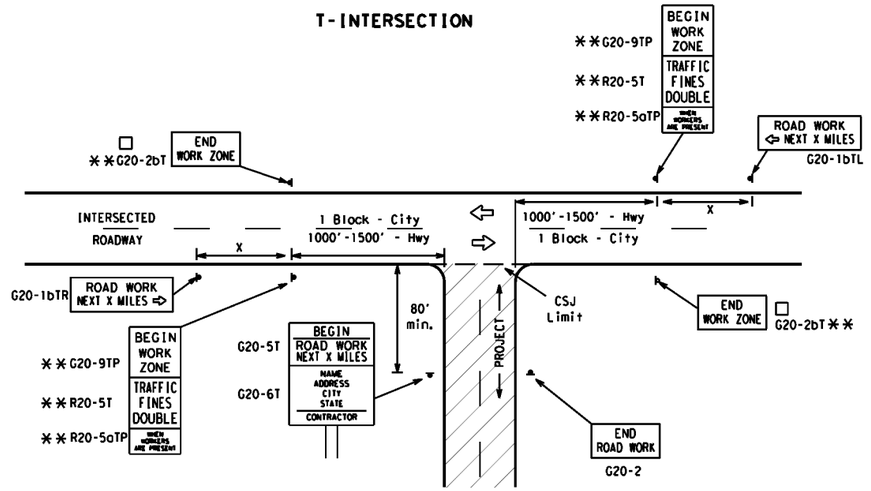
TYPICAL LOCATION OF CROSSROAD SIGNS



May be mounted on back of "ROAD WORK AHEAD"(CW20-1D) sign with approval of Engineer. (See note 2 below)

1. The typical minimum signing on a crossroad approach should be a "ROAD WORK AHEAD" (CW20-1D)sign and a (G20-2) "END ROAD WORK" sign, unless noted otherwise in plans.
2. The Engineer may use the reduced size 36" x 36" ROAD WORK AHEAD (CW20-1D) sign mounted back to back with the reduced size 36" x 18" "END ROAD WORK"(G20-2) sign on low volume crossroads (see Note 4 under "Typical Construction Warning Sign Size and Spacing"). See the "Standard Highway Sign Designs for Texas" manual for sign details. The Engineer may omit the advance warning signs on low volume crossroads. The Engineer will determine whether a road is low volume as per TMUTCD Part 5. This information shall be shown in the plans.
3. Based on existing field conditions, the Engineer/Inspector may require additional signs such as FLAGGER AHEAD, LOOSE GRAVEL, or other appropriate signs. When additional signs are required, these signs will be considered part of the minimum requirements. The Engineer/Inspector will determine the proper location and spacing of any sign not shown on the BC sheets, Traffic Control Plan sheets or the Work Zone Standard Sheets.
4. The "ROAD WORK NEXT X MILES"(G20-1aT)sign shall be required at high volume crossroads to advise motorists of the length of construction in either direction from the intersection. The Engineer will determine whether a roadway is considered high volume.
5. Additional traffic control devices may be shown elsewhere in the plans for higher volume crossroads.
6. When work occurs in the intersection area, appropriate traffic control devices, as shown elsewhere in the plans or as determined by the Engineer/Inspector, shall be in place.

T-INTERSECTION



CSJ LIMITS AT T-INTERSECTION

1. The Engineer will determine the types and location of any additional traffic control devices, such as a flagger and accompanying signs, or other signs, that should be used when work is being performed at or near an intersection.
2. If construction closes the road at a T-intersection, the Contractor shall place the "CONTRACTOR NAME"(G20-6T) sign behind the Type 3 Barricades for the road closure (see BC(10) also). The "ROAD WORK NEXT X MILES" left arrow(G20-1bTL) and "ROAD WORK NEXT X MILES" right arrow (G20-1bTR)" signs shall be replaced by the detour signing called for in the plans.

TYPICAL CONSTRUCTION WARNING SIGN SIZE AND SPACING[1,5,6]

SIZE

Sign Number or Series	Conventional Road	Expressway/ Freeway
CW20[4] CW21 CW22 CW23 CW25	48" x 48"	48" x 48"
CW1, CW2, CW7, CW8, CW9, CW11, CW14	36" x 36"	48" x 48"
CW3, CW4, CW5, CW6, CW8-3, CW10, CW12	48" x 48"	48" x 48"

SPACING

Posted Speed	Sign △ Spacing "X"
MPH	Feet (Apprx.)
30	120
35	160
40	240
45	320
50	400
55	500[2]
60	600[2]
65	700[2]
70	800[2]
75	900[2]
80	1000[2]
*	*[3]

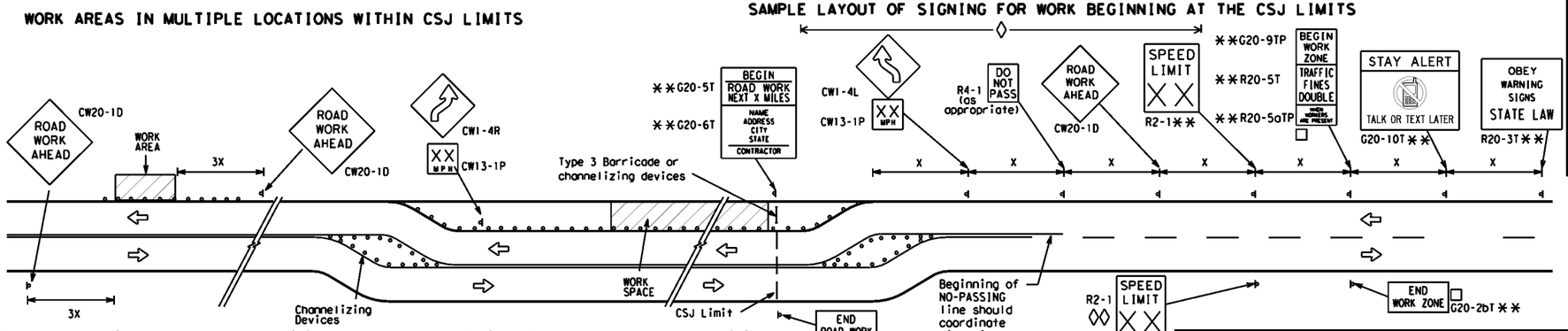
* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

△ Minimum distance from work area to first Advance Warning sign nearest the work area and/or distance between each additional sign.

GENERAL NOTES

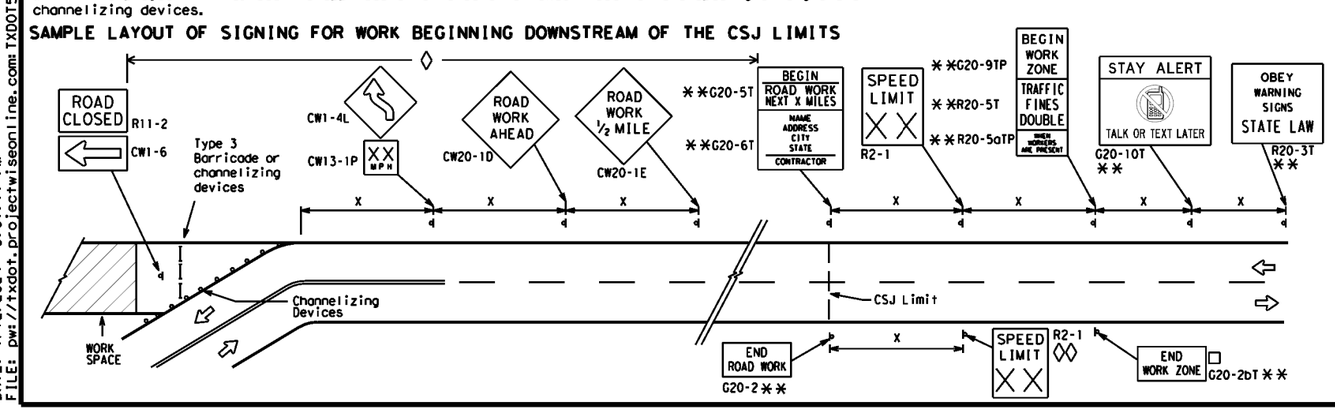
1. Special or larger size signs may be used as necessary.
2. Distance between signs should be increased as required to have 1500 feet advance warning.
3. Distance between signs should be increased as required to have 1/2 mile or more advance warning.
4. 36" x 36" "ROAD WORK AHEAD" (CW20-1D)signs may be used on low volume crossroads at the discretion of the Engineer as per TMUTCD Part 5. See Note 2 under "Typical Location of Crossroad Signs".
5. Only diamond shaped warning sign sizes are indicated.
6. See sign size listing in "TMUTCD", Sign Appendix or the "Standard Highway Sign Designs for Texas" manual for complete list of available sign design sizes.

WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS



When extended distances occur between minimal work spaces, the Engineer/Inspector should ensure additional "ROAD WORK AHEAD"(CW20-1D)signs are placed in advance of these work areas to remind drivers they are still within the project limits. See the applicable TCP sheets for exact location and spacing of signs and channelizing devices.

SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING DOWNSTREAM OF THE CSJ LIMITS



NOTES

The Contractor shall determine the appropriate distance to be placed on the G20-1 series signs and "BEGIN ROAD WORK NEXT X MILES"(G20-5T)sign for each specific project. This distance shall replace the "X" and shall be rounded to the nearest whole mile with the approval of the Engineer. No decimals shall be used.

□ The "BEGIN WORK ZONE"(G20-9TP) and "END WORK ZONE" (G20-2bT) shall be used as shown on the sample layout when advance signs are required outside the CSJ Limits. They inform the motorist of entering or leaving a part of the work zone lying outside the CSJ Limits where traffic fines may double if workers are present.

** CSJ limit signing is required for highway construction and maintenance work, with the exception of mobile operations.

◊ Area for placement of "ROAD WORK AHEAD" (CW20-1D)sign and other signs or devices as called for on the Traffic Control Plan.

◊◊ Contractor will install a regulatory speed limit sign at the end of the work zone.

LEGEND

⟼	Type 3 Barricade
o o o	Channelizing Devices
▬	Sign
X	See Typical Construction Warning Sign Size and Spacing chart or the TMUTCD for sign spacing requirements.

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Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PROJECT LIMIT

BC(2)-21

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©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0046	08	017	SL 14
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	ATL	BOWIE		33

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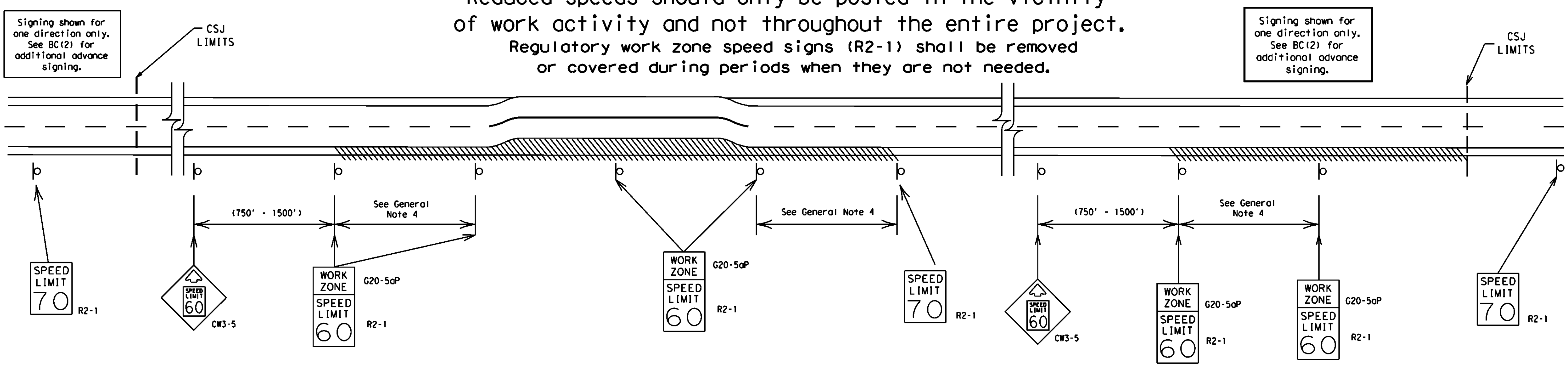
TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

Work zone speed limits shall be regulatory, established in accordance with the "Procedures for Establishing Speed Zones," and approved by the Texas Transportation Commission, or by City Ordinance when within Incorporated City Limits.

Reduced speeds should only be posted in the vicinity of work activity and not throughout the entire project.

Regulatory work zone speed signs (R2-1) shall be removed or covered during periods when they are not needed.



GUIDANCE FOR USE:

LONG/INTERMEDIATE TERM WORK ZONE SPEED LIMITS

This type of work zone speed limit should be included on the design of the traffic control plans when restricted geometrics with a lower design speed are present in the work zone and modification of the geometrics to a higher design speed is not feasible.

Long/Intermediate Term Work Zone Speed Limit signs, when approved as described above, should be posted and visible to the motorist when work activity is present. Work activity may also be defined as a change in the roadway that requires a reduced speed for motorists to safely negotiate the work area, including:

a) rough road or damaged pavement surface
b) substantial alteration of roadway geometrics (diversions)
c) construction detours
d) grade
e) width
f) other conditions readily apparent to the driver

As long as any of these conditions exist, the work zone speed limit signs should remain in place.

SHORT TERM WORK ZONE SPEED LIMITS

This type of work zone speed limit may be included on the design of the traffic control plans when workers or equipment are not behind concrete barrier, when work activity is within 10 feet of the traveled way or actually in the traveled way.

Short Term Work Zone Speed Limit signs should be posted and visible to the motorists only when work activity is present. When work activity is not present, signs shall be removed or covered. (See Removing or Covering on BC(4)).

GENERAL NOTES

1. Regulatory work zone speed limits should be used only for sections of construction projects where speed control is of major importance.
2. Regulatory work zone speed limit signs shall be placed on supports at a 7 foot minimum mounting height.
3. Speed zone signs are illustrated for one direction of travel and are normally posted for each direction of travel.
4. Frequency of work zone speed limit signs should be:
   40 mph and greater — 0.2 to 2 miles
   35 mph and less — 0.2 to 1 mile
5. Regulatory speed limit signs shall have black legend and border on a white reflective background (See "Reflective Sheeting" on BC(4)).
6. Fabrication, erection and maintenance of the "ADVANCE SPEED LIMIT" (CW3-5) sign, "WORK ZONE" (G20-5aP) plaque and the "SPEED LIMIT" (R2-1) signs shall not be paid for directly, but shall be considered subsidiary to Item 502.
7. Turning signs from view, laying signs over or down will not be allowed, unless as otherwise noted under "REMOVING OR COVERING" on BC(4).
8. Techniques that may help reduce traffic speeds include but are not limited to:
   A. Law enforcement.
   B. Flagger stationed next to sign.
   C. Portable changeable message sign (PCMS).
   D. Low-power (drone) radar transmitter.
   E. Speed monitor trailers or signs.
9. Speeds shown on details above are for illustration only. Work Zone Speed Limits should only be posted as approved for each project.
10. For more specific guidance concerning the type of work, work zone conditions and factors impacting allowable regulatory construction speed zone reduction see TxDOT form #1204 in the TxDOT e-form system.

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Texas Department of Transportation — Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT

BC(3)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0046	08	017	SL 14
9-07 8-14	DIST		COUNTY	SHEET NO.
7-13 5-21	ATL		BOWIE	34

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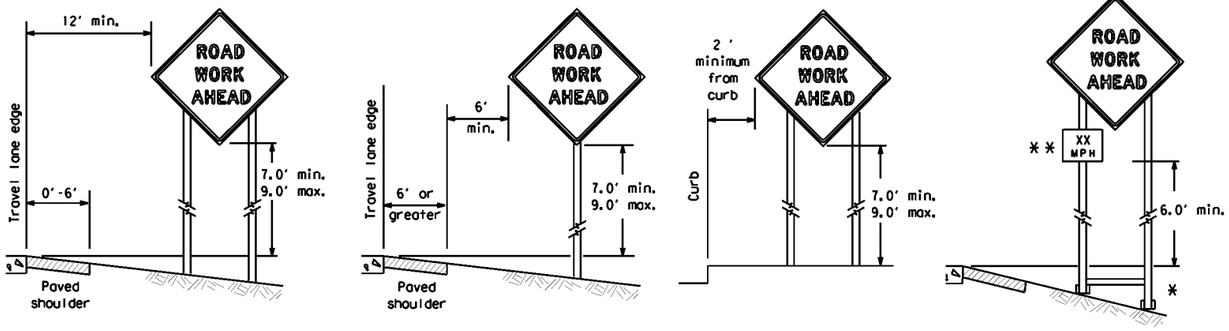
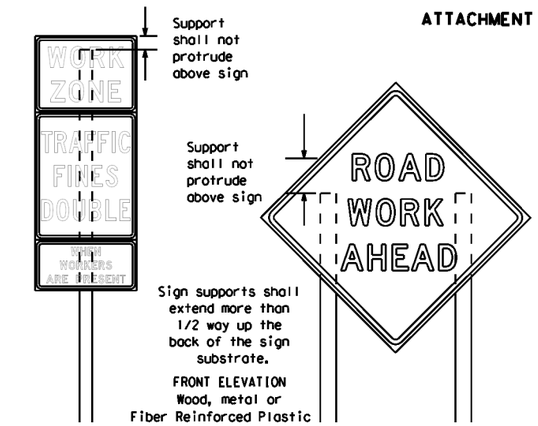
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS

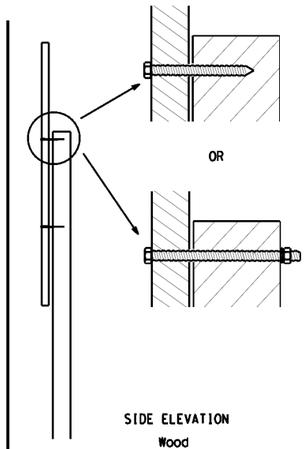


* When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

** When plaques are placed on dual-leg supports, they should be attached to the upright nearest the travel lane. Supplemental plaques (advisory or distance) should not cover the surface of the parent sign.

ATTACHMENT FOR SIGN SUPPORTS





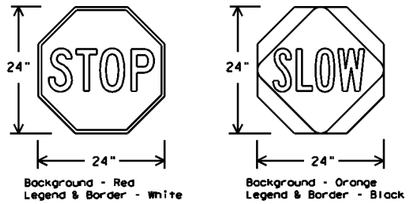
Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

Nails shall NOT be allowed. Each sign shall be attached directly to the sign support. Multiple signs shall not be joined or spliced by any means. Wood supports shall not be extended or repaired by splicing or other means.

Splicing embedded perforated square metal tubing in order to extend post height will only be allowed when the splice is made using four bolts, two above and two below the spice point. Splice must be located entirely behind the sign substrate, not near the base of the support. Splice insert lengths should be at least 5 times nominal post size, centered on the splice and of at least the same gauge material.

STOP/SLOW PADDLES

1. STOP/SLOW paddles are the primary method to control traffic by flaggers. The STOP/SLOW paddle size should be 24" x 24".
2. STOP/SLOW paddles shall be retroreflectorized when used at night.
3. STOP/SLOW paddles may be attached to a staff with a minimum length of 6' to the bottom of the sign.
4. Any lights incorporated into the STOP or SLOW paddle faces shall only be as specifically described in Section 6E.03 Hand Signaling Devices in the TMUTCD.



SHEETING REQUIREMENTS (WHEN USED AT NIGHT)		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	RED	TYPE B OR C SHEETING
BACKGROUND	ORANGE	TYPE B_{FL} OR C_{FL} SHEETING
LEGEND & BORDER	WHITE	TYPE B OR C SHEETING
LEGEND & BORDER	BLACK	ACRYLIC NON-REFLECTIVE FILM

CONTRACTOR REQUIREMENTS FOR MAINTAINING PERMANENT SIGNS WITHIN THE PROJECT LIMITS

1. Permanent signs are used to give notice of traffic laws or regulations, call attention to conditions that are potentially hazardous to traffic operations, show route designations, destinations, directions, distances, services, points of interest, and other geographical, recreational, specific service (LOGO), or cultural information. Drivers proceeding through a work zone need the same, if not better route guidance as normally installed on a roadway without construction.
2. When permanent regulatory or warning signs conflict with work zone conditions, remove or cover the permanent signs until the permanent sign message matches the roadway condition. For details for covering large guide signs see the TS-CD standard.
3. When existing permanent signs are moved and relocated due to construction purposes, they shall be visible to motorists at all times.
4. If existing signs are to be relocated on their original supports, they shall be installed on crashworthy bases as shown on the SMD Standard sheets. The signs shall meet the required mounting heights shown on the BC Sheets or the SMD Standards. This work should be paid for under the appropriate pay item for relocating existing signs.
5. If permanent signs are to be removed and relocated using temporary supports, the Contractor shall use crashworthy supports as shown on the BC standard sheets, TLRS standard sheets or the CWZTCD list. The signs shall meet the required mounting heights shown on the BC, or the SMD standard sheets during construction. This work should be paid for under the appropriate pay item for relocating existing signs.
6. Any sign or traffic control device that is struck or damaged by the Contractor or his/her construction equipment shall be replaced as soon as possible by the Contractor to ensure proper guidance for the motorists. This will be subsidiary to Item 502.

GENERAL NOTES FOR WORK ZONE SIGNS

1. Contractor shall install and maintain signs in a straight and plumb condition and/or as directed by the Engineer.
2. Wooden sign posts shall be painted white.
3. Barricades shall NOT be used as sign supports.
4. All signs shall be installed in accordance with the plans or as directed by the Engineer. Signs shall be used to regulate, warn, and guide the traveling public safely through the work zone.
5. The Contractor may furnish either the sign design shown in the plans or in the "Standard Highway Sign Designs for Texas" (SHSD). The Engineer/Inspector may require the Contractor to furnish other work zone signs that are shown in the TMUTCD but may have been omitted from the plans. Any variation in the plans shall be documented by written agreement between the Engineer and the Contractor's Responsible Person. All changes must be documented in writing before being implemented. This can include documenting the changes in the Inspector's TxDOT diary and having both the Inspector and Contractor initial and date the agreed upon changes.
6. The Contractor shall furnish sign supports listed in the "Compliant Work Zone Traffic Control Device List" (CWZTCD) for small roadside signs. Supports for temporary large roadside signs shall meet the requirements detailed on the Temporary Large Roadside Signs (TLRS) standard sheets. The Contractor shall install the sign support in accordance with the manufacturer's recommendations. If there is a question regarding installation procedures, the Contractor shall furnish the Engineer a copy of the manufacturer's installation recommendations so the Engineer can verify the correct procedures are being followed.
7. The Contractor is responsible for installing signs on approved supports and replacing signs with damaged or cracked substrates and/or damaged or marred reflective sheeting as directed by the Engineer/Inspector.
8. Identification markings may be shown only on the back of the sign substrate. The maximum height of letters and/or company logos used for identification shall be 1 inch.
9. The Contractor shall replace damaged wood posts. New or damaged wood sign posts shall not be spliced.

DURATION OF WORK (as defined by the "Texas Manual on Uniform Traffic Control Devices" Part 6)

1. The types of sign supports, sign mounting height, the size of signs, and the type of sign substrates can vary based on the type of work being performed. The Engineer is responsible for selecting the appropriate size sign for the type of work being performed. The Contractor is responsible for ensuring the sign support, sign mounting height and substrate meets manufacturer's recommendations in regard to crashworthiness and duration of work requirements.
   a. Long-term stationary - work that occupies a location more than 3 days.
   b. Intermediate-term stationary - work that occupies a location more than one daylight period up to 3 days, or nighttime work lasting more than one hour.
   c. Short-term stationary - daytime work that occupies a location for more than 1 hour in a single daylight period.
   d. Short, duration - work that occupies a location up to 1 hour.
   e. Mobile - work that moves continuously or intermittently (stopping for up to approximately 15 minutes.)

SIGN MOUNTING HEIGHT

1. The bottom of Long-term/Intermediate-term signs shall be at least 7 feet, but not more than 9 feet, above the paved surface, except as shown for supplemental plaques mounted below other signs.
2. The bottom of Short-term/Short Duration signs shall be a minimum of 1 foot above the pavement surface but no more than 2 feet above the ground.
3. Long-term/Intermediate-term Signs may be used in lieu of Short-term/Short Duration signing.
4. Short-term/Short Duration signs shall be used only during daylight and shall be removed at the end of the workday or raised to appropriate Long-term/Intermediate sign height.
5. Regulatory signs shall be mounted at least 7 feet, but not more than 9 feet, above the paved surface regardless of work duration.

SIZE OF SIGNS

1. The Contractor shall furnish the sign sizes shown on BC (2) unless otherwise shown in the plans or as directed by the Engineer.

SIGN SUBSTRATES

1. The Contractor shall ensure the sign substrate is installed in accordance with the manufacturer's recommendations for the type of sign support that is being used. The CWZTCD lists each substrate that can be used on the different types and models of sign supports.
2. "Mesh" type materials are NOT an approved sign substrate, regardless of the tightness of the weave.
3. All wooden individual sign panels fabricated from 2 or more pieces shall have one or more plywood cleat, 1/2" thick by 6" wide, fastened to the back of the sign and extending fully across the sign. The cleat shall be attached to the back of the sign using wood screws that do not penetrate the face of the sign panel. The screws shall be placed on both sides of the splice and spaced at 6" centers. The Engineer may approve other methods of splicing the sign face.

REFLECTIVE SHEETING

1. All signs shall be retroreflective and constructed of sheeting meeting the color and retro-reflectivity requirements of DMS-8300 for rigid signs or DMS-8310 for roll-up signs. The web address for DMS specifications is shown on BC(1).
2. White sheeting, meeting the requirements of DMS-8300 Type A, shall be used for signs with a white background.
3. Orange sheeting, meeting the requirements of DMS-8300 Type B_{FL} or Type C_{FL}, shall be used for rigid signs with orange backgrounds.

SIGN LETTERS

1. All sign letters and numbers shall be clear, and open rounded type uppercase alphabet letters as approved by the Federal Highway Administration (FHWA) and as published in the "Standard Highway Sign Design for Texas" manual. Signs, letters and numbers shall be of first class workmanship in accordance with Department Standards and Specifications.

REMOVING OR COVERING

1. When sign messages may be confusing or do not apply, the signs shall be removed or completely covered.
2. Long-term stationary or intermediate stationary signs installed on square metal tubing may be turned away from traffic 90 degrees when the sign message is not applicable. This technique may not be used for signs installed in the median of divided highways or near any intersections where the sign may be seen from approaching traffic.
3. Signs installed on wooden skids shall not be turned at 90 degree angles to the roadway. These signs should be removed or completely covered when not required.
4. When signs are covered, the material used shall be opaque, such as heavy mil black plastic, or other materials which will cover the entire sign face and maintain their opaque properties under automobile headlights at night, without damaging the sign sheeting.
5. Burlap shall NOT be used to cover signs.
6. Duct tape or other adhesive material shall NOT be affixed to a sign face.
7. Signs and anchor stubs shall be removed and holes backfilled upon completion of work.

SIGN SUPPORT WEIGHTS

1. Where sign supports require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand should be used.
2. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight.
3. Rock, concrete, iron, steel or other solid objects shall not be permitted for use as sign support weights.
4. Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs.
5. Sandbags shall be made of a durable material that tears upon vehicular impact. Rubber (such as tire inner tubes) shall NOT be used.
6. Rubber ballasts designed for channelizing devices should not be used for ballast on portable sign supports. Sign supports designed and manufactured with rubber bases may be used when shown on the CWZTCD list.
7. Sandbags shall only be placed along or laid over the base supports of the traffic control device and shall not be suspended above ground level or hung with rope, wire, chains or other fasteners. Sandbags shall be placed along the length of the skids to weigh down the sign support.
8. Sandbags shall NOT be placed under the skid and shall not be used to level sign supports placed on slopes.

FLAGS ON SIGNS

1. Flags may be used to draw attention to warning signs. When used, the flag shall be 16 inches square or larger and shall be orange or fluorescent red-orange in color. Flags shall not be allowed to cover any portion of the sign face.

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

BC(4)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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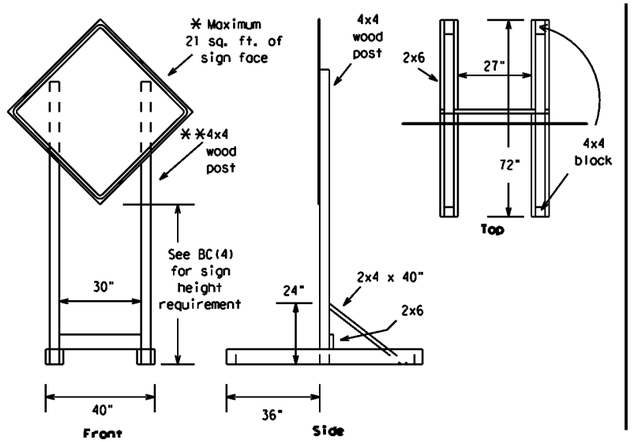
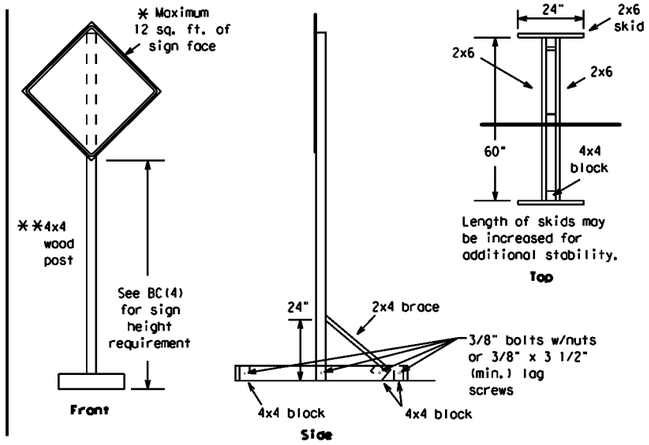
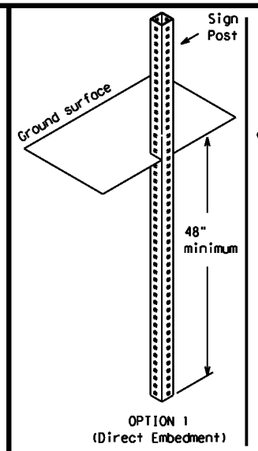
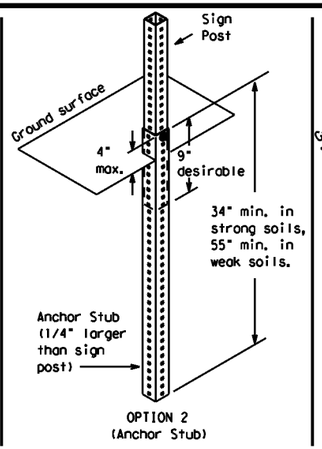


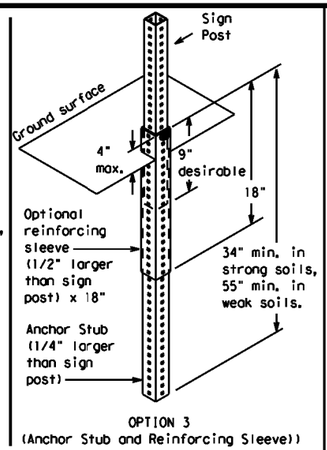


SKID MOUNTED WOOD SIGN SUPPORTS

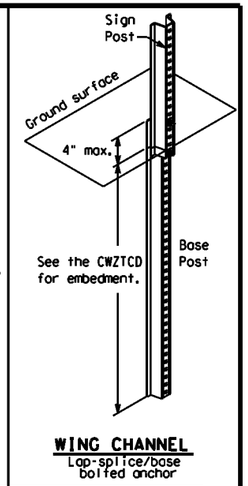
*** LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS**







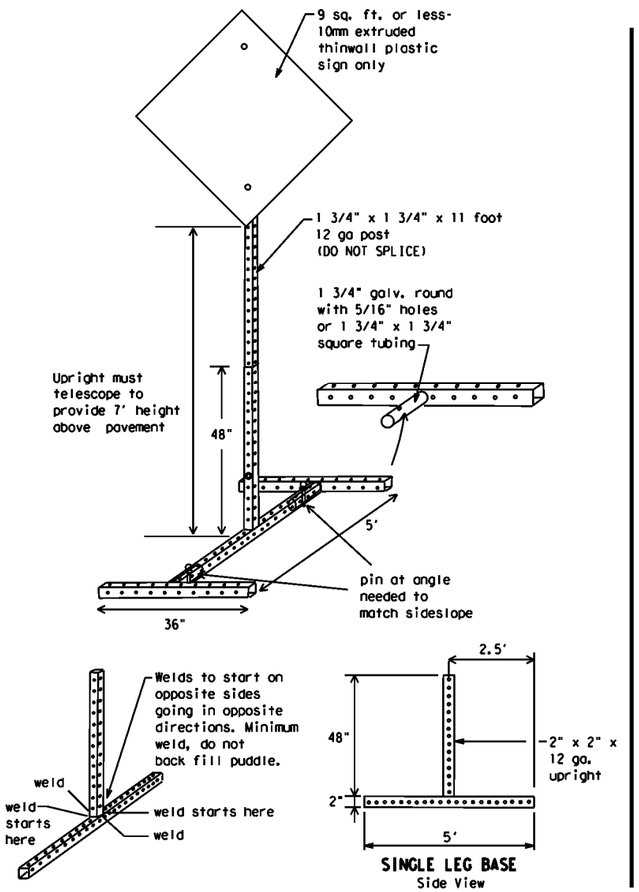
PERFORATED SQUARE METAL TUBING

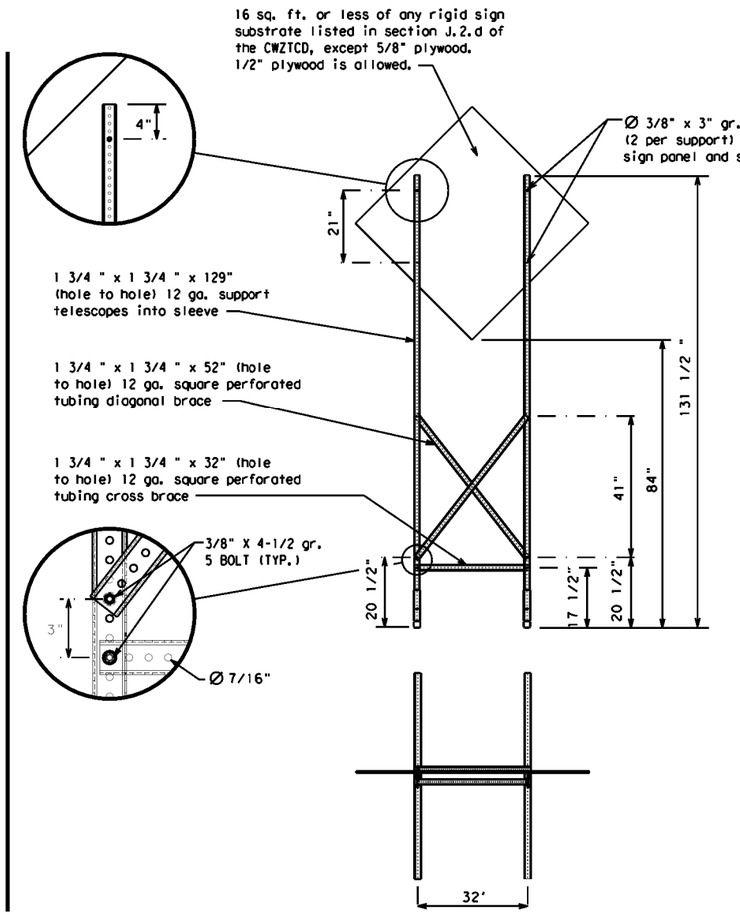


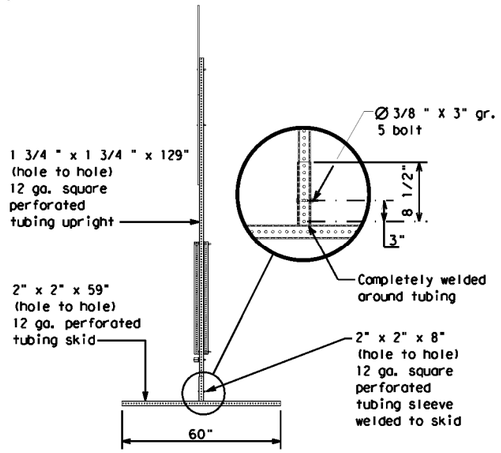
WING CHANNEL
Lap-splice/base bolted anchor

GROUND MOUNTED SIGN SUPPORTS

Refer to the CWZTCD and the manufacturer's installation procedure for each type sign support.
The maximum sign square footage shall adhere to the manufacturer's recommendation.
Two post installations can be used for larger signs.







SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS

*** LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS**

WEDGE ANCHORS

Both steel and plastic Wedge Anchor Systems as shown on the SMD Standard Sheets may be used as temporary sign supports for signs up to 10 square feet of sign face. They may be set in concrete or in sturdy soils if approved by the Engineer. (See web address for "Traffic Engineering Standard Sheets" on BC(1)).

OTHER DESIGNS

MORE DETAILS OF APPROVED LONG/INTERMEDIATE AND SHORT TERM SUPPORTS CAN BE FOUND ON THE CWZTCD LIST. SEE BC(1) FOR WEBSITE LOCATION.

GENERAL NOTES

1. Nails may be used in the assembly of wooden sign supports, but 3/8" bolts with nuts or 3/8" x 3 1/2" lag screws must be used on every joint for final connection.
2. No more than 2 sign posts shall be placed within a 7 ft. circle, except for specific materials noted on the CWZTCD List.
3. When project is completed, all sign supports and foundations shall be removed from the project site. This will be considered subsidiary to Item 502.

* See BC(4) for definition of "Work Duration."

** Wood sign posts MUST be one piece. Splicing will NOT be allowed. Posts shall be painted white.

□ See the CWZTCD for the type of sign substrate that can be used for each approved sign support.

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5)-21

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©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
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9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	ATL	BOWIE		36

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WHEN NOT IN USE, REMOVE THE PCMS FROM THE RIGHT-OF-WAY OR PLACE THE PCMS BEHIND BARRIER OR GUARDRAIL WITH SIGN PANEL TURNED PARALLEL TO TRAFFIC

PORTABLE CHANGEABLE MESSAGE SIGNS

1. The Engineer/Inspector shall approve all messages used on portable changeable message signs (PCMS).
2. Messages on PCMS should contain no more than 8 words (about four to eight characters per word), not including simple words such as "TO," "FOR," "AT," etc.
3. Messages should consist of a single phase, or two phases that alternate. Three-phase messages are not allowed. Each phase of the message should convey a single thought, and must be understood by itself.
4. Use the word "EXIT" to refer to an exit ramp on a freeway; i.e., "EXIT CLOSED." Do not use the term "RAMP."
5. Always use the route or interstate designation (IH, US, SH, FM) along with the number when referring to a roadway.
6. When in use, the bottom of a stationary PCMS message panel should be a minimum 7 feet above the roadway, where possible.
7. The message term "WEEKEND" should be used only if the work is to start on Saturday morning and end by Sunday evening at midnight. Actual days and hours of work should be displayed on the PCMS if work is to begin on Friday evening and/or continue into Monday morning.
8. The Engineer/Inspector may select one of two options which are available for displaying a two-phase message on a PCMS. Each phase may be displayed for either four seconds each or for three seconds each.
9. Do not "flash" messages or words included in a message. The message should be steady burn or continuous while displayed.
10. Do not present redundant information on a two-phase message; i.e., keeping two lines of the message the same and changing the third line.
11. Do not use the word "Danger" in message.
12. Do not display the message "LANES SHIFT LEFT" or "LANES SHIFT RIGHT" on a PCMS. Drivers do not understand the message.
13. Do not display messages that scroll horizontally or vertically across the face of the sign.
14. The following table lists abbreviated words and two-word phrases that are acceptable for use on a PCMS. Both words in a phrase must be displayed together. Words or phrases not on this list should not be abbreviated, unless shown in the TMUTCD.
15. PCMS character height should be at least 18 inches for trailer mounted units. They should be visible from at least 1/2 (.5) mile and the text should be legible from at least 600 feet at night and 800 feet in daylight. Truck mounted units must have a character height of 10 inches and must be legible from at least 400 feet.
16. Each line of text should be centered on the message board rather than left or right justified.
17. If disabled, the PCMS should default to an illegible display that will not alarm motorists and will only be used to alert workers that the PCMS has malfunctioned. A pattern such as a series of horizontal solid bars is appropriate.

WORD OR PHRASE	ABBREVIATION
Access Road	ACCS RD
Alternate	ALT
Avenue	AVE
Best Route	BEST RTE
Boulevard	BLVD
Bridge	BRDG
Cannot	CANT
Center	CTR
Construction Ahead	CONST AHD
CROSSING	XING
Detour Route	DETOUR RTE
Do Not	DONT
East	E
Eastbound	(route) E
Emergency	EMER
Emergency Vehicle	EMER VEH
Entrance, Enter	ENT
Express Lane	EXP LN
Expressway	EXPWY
XXXX Feet	XXXX FT
Fog Ahead	FOG AHD
Freeway	FRWY, FWY
Freeway Blocked	FWY BLKD
Friday	FRI
Hazardous Driving	HAZ DRIVING
Hazardous Material	HAZMAT
High-Occupancy	HOV
Vehicle Highway	HWY
Hour(s)	HR, HRS
Information	INFO
It Is	ITS
Junction	JCT
Left	LFT
Left Lane	LFT LN
Lane Closed	LN CLOSED
Lower Level	LWR LEVEL
Maintenance	MAINT

WORD OR PHRASE	ABBREVIATION
Major	MAJ
Miles	MI
Miles Per Hour	MPH
Minor	MNR
Monday	MON
Normal	NORM
North	N
Northbound	(route) N
Parking	PKING
Road	RD
Right Lane	RT LN
Saturday	SAT
Service Road	SERV RD
Shoulder	SHLDR
Slippery	SLIP
South	S
Southbound	(route) S
Speed	SPD
Street	ST
Sunday	SUN
Telephone	PHONE
Temporary	TEMP
Thursday	THURS
To Downtown	TO DWNTN
Traffic	TRAF
Travelers	TRVLRS
Tuesday	TUES
Time Minutes	TIME MIN
Upper Level	UPR LEVEL
Vehicles (s)	VEH, VEHS
Warning	WARN
Wednesday	WED
Weight Limit	WT LIMIT
West	W
Westbound	(route) W
Wet Pavement	WET PVMT
Will Not	WONT

Roadway designation ≠ IH-number, US-number, SH-number, FM-number

RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

(The Engineer may approve other messages not specifically covered here.)

Phase 1: Condition Lists

Road/Lane/Ramp Closure List

FREEWAY CLOSED X MILE	FRONTAGE ROAD CLOSED
ROAD CLOSED AT SH XXX	SHOULDER CLOSED XXX FT
ROAD CLSD AT FM XXXX	RIGHT LN CLOSED XXX FT
RIGHT X LANES CLOSED	RIGHT X LANES OPEN
CENTER LANE CLOSED	DAYTIME LANE CLOSURES
NIGHT LANE CLOSURES	I-XX SOUTH EXIT CLOSED
VARIOUS LANES CLOSED	EXIT XXX CLOSED X MILE
EXIT CLOSED	RIGHT LN TO BE CLOSED
MALL DRIVEWAY CLOSED	X LANES CLOSED TUE - FRI
XXXXXXXX BLVD CLOSED	

Other Condition List

ROADWORK XXX FT	ROAD REPAIRS XXXX FT
FLAGGER XXXX FT	LANE NARROWS XXXX FT
RIGHT LN NARROWS XXXX FT	TWO-WAY TRAFFIC XX MILE
MERGING TRAFFIC XXXX FT	CONST TRAFFIC XXX FT
LOOSE GRAVEL XXXX FT	UNEVEN LANES XXXX FT
DETOUR X MILE	ROUGH ROAD XXXX FT
ROADWORK PAST SH XXXX	ROADWORK NEXT FRI-SUN
BUMP XXXX FT	US XXX EXIT X MILES
TRAFFIC SIGNAL XXXX FT	LANES SHIFT *

* LANES SHIFT in Phase 1 must be used with STAY IN LANE in Phase 2.

Phase 2: Possible Component Lists

Action to Take/Effect on Travel List

MERGE RIGHT	FORM X LINES RIGHT
DETOUR NEXT X EXITS	USE XXXXX RD EXIT
USE EXIT XXX	USE EXIT I-XX NORTH
STAY ON US XXX SOUTH	USE I-XX E TO I-XX N
TRUCKS USE US XXX N	WATCH FOR TRUCKS
WATCH FOR TRUCKS	EXPECT DELAYS
EXPECT DELAYS	PREPARE TO STOP
REDUCE SPEED XXX FT	END SHOULDER USE
USE OTHER ROUTES	WATCH FOR WORKERS
STAY IN LANE *	

Location List

AT FM XXXX
BEFORE RAILROAD CROSSING
NEXT X MILES
PAST US XXX EXIT
XXXXXXX TO XXXXXXX
US XXX TO FM XXXX

Warning List

SPEED LIMIT XX MPH
MAXIMUM SPEED XX MPH
MINIMUM SPEED XX MPH
ADVISORY SPEED XX MPH
RIGHT LANE EXIT
USE CAUTION
DRIVE SAFELY
DRIVE WITH CARE

** Advance Notice List

TUE-FRI XX AM- X PM
APR XX-XX X PM-X AM
BEGINS MONDAY
BEGINS MAY XX
MAY X-X XX PM - XX AM
NEXT FRI-SUN
XX AM TO XX PM
NEXT TUE AUG XX
TONIGHT XX PM- XX AM

* LANES SHIFT in Phase 1 must be used with STAY IN LANE in Phase 2.

** See Application Guidelines Note 6.

APPLICATION GUIDELINES

1. Only 1 or 2 phases are to be used on a PCMS.
2. The 1st phase (or both) should be selected from the "Road/Lane/Ramp Closure List" and the "Other Condition List".
3. A 2nd phase can be selected from the "Action to Take/Effect on Travel, Location, General Warning, or Advance Notice Phase Lists".
4. A Location Phase is necessary only if a distance or location is not included in the first phase selected.
5. If two PCMS are used in sequence, they must be separated by a minimum of 1000 ft. Each PCMS shall be limited to two phases, and should be understandable by themselves.
6. For advance notice, when the current date is within seven days of the actual work date, calendar days should be replaced with days of the week. Advance notification should typically be for no more than one week prior to the work.

WORDING ALTERNATIVES

1. The words RIGHT, LEFT and ALL can be interchanged as appropriate.
2. Roadway designations IH, US, SH, FM and LP can be interchanged as appropriate.
3. EAST, WEST, NORTH and SOUTH (or abbreviations E, W, N and S) can be interchanged as appropriate.
4. Highway names and numbers replaced as appropriate.
5. ROAD, HIGHWAY and FREEWAY can be interchanged as needed.
6. AHEAD may be used instead of distances if necessary.
7. FT and MI, MILE and MILES interchanged as appropriate.
8. AT, BEFORE and PAST interchanged as needed.
9. Distances or AHEAD can be eliminated from the message if a location phase is used.

PCMS SIGNS WITHIN THE R.O.W. SHALL BE BEHIND GUARDRAIL OR CONCRETE BARRIER OR SHALL HAVE A MINIMUM OF FOUR (4) PLASTIC DRUMS PLACED PERPENDICULAR TO TRAFFIC ON THE UPSTREAM SIDE OF THE PCMS, WHEN EXPOSED TO ONE DIRECTION OF TRAFFIC. WHEN EXPOSED TO TWO WAY TRAFFIC, THE FOUR DRUMS SHOULD BE PLACED WITH ONE DRUM AT EACH OF THE FOUR CORNERS OF THE UNIT.

FULL MATRIX PCMS SIGNS

1. When Full Matrix PCMS signs are used, the character height and legibility/visibility requirements shall be maintained as listed in Note 15 under "PORTABLE CHANGEABLE MESSAGE SIGNS" above.
2. When symbol signs, such as the "Flagger Symbol"(CW20-7) are represented graphically on the Full Matrix PCMS sign and, with the approval of the Engineer, it shall maintain the legibility/visibility requirement listed above.
3. When symbol signs are represented graphically on the Full Matrix PCMS, they shall only supplement the use of the static sign represented, and shall not substitute for, or replace that sign.
4. A full matrix PCMS may be used to simulate a flashing arrow board provided it meets the visibility, flash rate and dimming requirements on BC(7), for the same size arrow.

Texas Department of Transportation — Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

BC(6)-21

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7-13 5-21	ATL	BOWIE		37

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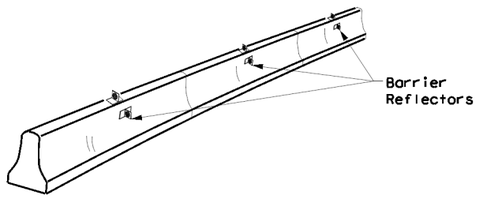
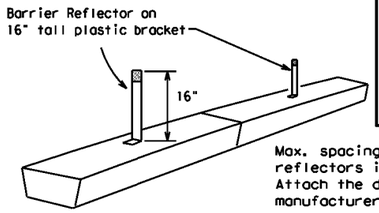
1. Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
2. Color of Barrier Reflectors shall be as specified in the TMUTCD. The cost of the reflectors shall be considered subsidiary to Item 512.



CONCRETE TRAFFIC BARRIER (CTB)

3. Where traffic is on one side of the CTB, two (2) Barrier Reflectors shall be mounted in approximately the midsection of each section of CTB. An alternate mounting location is uniformly spaced at one end of each CTB. This will allow for attachment of a barrier grapple without damaging the reflector. The Barrier Reflector mounted on the side of the CTB shall be located directly below the reflector mounted on top of the barrier, as shown in the detail above.
4. Where CTB separates two-way traffic, three barrier reflectors shall be mounted on each section of CTB. The reflector unit on top shall have two yellow reflective faces (Bi-Directional)while the reflectors on each side of the barrier shall have one yellow reflective face, as shown in the detail above.
5. When CTB separates traffic traveling in the same direction, no barrier reflectors will be required on top of the CTB.
6. Barrier Reflector units shall be yellow or white in color to match the edgeline being supplemented.
7. Maximum spacing of Barrier Reflectors is forty (40) feet.
8. Pavement markers or temporary flexible-reflective roadway marker tabs shall NOT be used as CTB delineation.
9. Attachment of Barrier Reflectors to CTB shall be per manufacturer's recommendations.
10. Missing or damaged Barrier Reflectors shall be replaced as directed by the Engineer.
11. Single slope barriers shall be delineated as shown on the above detail.

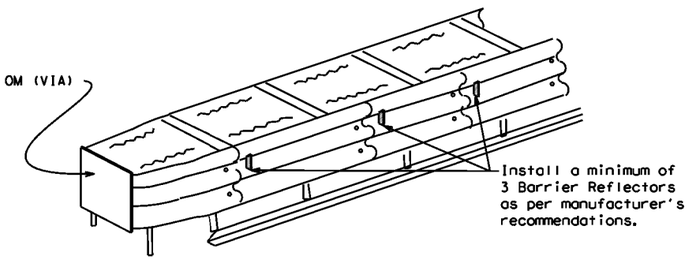


Max. spacing of barrier reflectors is 20 feet. Attach the delineators as per manufacturer's recommendations.

LOW PROFILE CONCRETE BARRIER (LPCB) USED IN WORK ZONES

LPCB is approved for use in work zone locations, where the posted speed is 45mph, or less. See Roadway Standard Sheet LPCB.

LOW PROFILE CONCRETE BARRIER (LPCB)

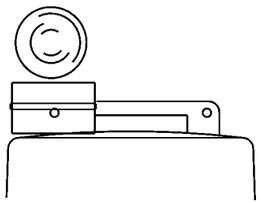


DELINEATION OF END TREATMENTS

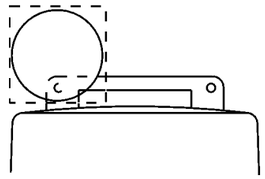
END TREATMENTS FOR CTB'S USED IN WORK ZONES

End treatments used on CTB's in work zones shall meet the appropriate crashworthy standards as defined in the Manual for Assessing Safety Hardware (MASH). Refer to the CWZTCD List for approved end treatments and manufacturers.

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS



Type C Warning Light or approved substitute mounted on a drum adjacent to the travel way.



Warning reflector may be round or square. Must have a yellow reflective surface area of at least 30 square inches

WARNING LIGHTS

1. Warning lights shall meet the requirements of the TMUTCD.
2. Warning lights shall NOT be installed on barricades.
3. Type A-Low Intensity Flashing Warning Lights are commonly used with drums. They are intended to warn of or mark a potentially hazardous area. Their use shall be as indicated on this sheet and/or other sheets of the plans by the designation "FL". The Type A Warning Lights shall not be used with signs manufactured with Type B_{FL} or C_{FL} Sheeting meeting the requirements of Departmental Material Specification DMS-8300.
4. Type-C and Type D 360 degree Steady Burn Lights are intended to be used in a series for delineation to supplement other traffic control devices. Their use shall be as indicated on this sheet and/or other sheets of the plans by the designation "SB".
5. The Engineer/Inspector or the plans shall specify the location and type of warning lights to be installed on the traffic control devices.
6. When required by the Engineer, the Contractor shall furnish a copy of the warning lights certification. The warning light manufacturer will certify the warning lights meet the requirements of the latest ITE Purchase Specifications for Flashing and Steady-Burn Warning Lights.
7. When used to delineate curves, Type-C and Type D Steady Burn Lights should only be placed on the outside of the curve, not the inside.
8. The location of warning lights and warning reflectors on drums shall be as shown elsewhere in the plans.

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

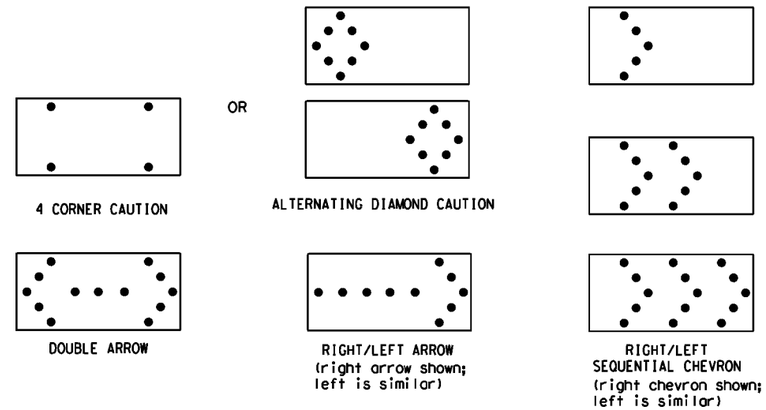
1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
3. A series of sequential flashing warning lights placed on channelizing devices to form a merging taper may be used for delineation. If used, the successive flashing of the sequential warning lights should occur from the beginning of the taper to the end of the merging taper in order to identify the desired vehicle path. The rate of flashing for each light shall be 65 flashes per minute, plus or minus 10 flashes.
4. Type C and D steady-burn warning lights are intended to be used in a series to delineate the edge of the travel lane on detours, on lane changes, on lane closures, and on other similar conditions.
5. Type A, Type C and Type D warning lights shall be installed at locations as detailed on other sheets in the plans.
6. Warning lights shall not be installed on a drum that has a sign, chevron or vertical panel.
7. The maximum spacing for warning lights on drums should be identical to the channelizing device spacing.

WARNING REFLECTORS MOUNTED ON PLASTIC DRUMS AS A SUBSTITUTE FOR TYPE C (STEADY BURN) WARNING LIGHTS

1. A warning reflector or approved substitute may be mounted on a plastic drum as a substitute for a Type C, steady burn warning light at the discretion of the Contractor unless otherwise noted in the plans.
2. The warning reflector shall be yellow in color and shall be manufactured using a sign substrate approved for use with plastic drums listed on the CWZTCD.
3. The warning reflector shall have a minimum retroreflective surface area (one-side) of 30 square inches.
4. Round reflectors shall be fully reflectorized, including the area where attached to the drum.
5. Square substrates must have a minimum of 30 square inches of reflectorized sheeting. They do not have to be reflectorized where it attaches to the drum.
6. The side of the warning reflector facing approaching traffic shall have sheeting meeting the color and retroreflectivity requirements for DMS 8300-Type B or Type C.
7. When used near two-way traffic, both sides of the warning reflector shall be reflectorized.
8. The warning reflector should be mounted on the side of the handle nearest approaching traffic.
9. The maximum spacing for warning reflectors should be identical to the channelizing device spacing requirements.

Arrow Boards may be located behind channelizing devices in place for a shoulder taper or merging taper, otherwise they shall be delineated with four (4) channelizing devices placed perpendicular to traffic on the upstream side of traffic.

1. The Flashing Arrow Board should be used for all lane closures on multi-lane roadways, or slow moving maintenance or construction activities on the travel lanes.
2. Flashing Arrow Boards should not be used on two-lane, two-way roadways, detours, diversions or work on shoulders unless the "CAUTION" display (see detail below) is used.
3. The Engineer/Inspector shall choose all appropriate signs, barricades and/or other traffic control devices that should be used in conjunction with the Flashing Arrow Board.
4. The Flashing Arrow Board should be able to display the following symbols:



5. The "CAUTION" display consists of four corner lamps flashing simultaneously, or the Alternating Diamond Caution mode as shown.
6. The straight line caution display is NOT ALLOWED.
7. The Flashing Arrow Board shall be capable of minimum 50 percent dimming from rated lamp voltage. The flashing rate of the lamps shall not be less than 25 nor more than 40 flashes per minute.
8. Minimum lamp "on time" shall be approximately 50 percent for the flashing arrow and equal intervals of 25 percent for each sequential phase of the flashing chevron.
9. The sequential arrow display is NOT ALLOWED.
10. The flashing arrow display is the TxDOT standard; however, the sequential chevron display may be used during daylight operations.
11. The Flashing Arrow Board shall be mounted on a vehicle, trailer or other suitable support.
12. A Flashing Arrow Board SHALL NOT BE USED to laterally shift traffic.
13. A full matrix PCMS may be used to simulate a Flashing Arrow Board provided it meets visibility, flash rate and dimming requirements on this sheet for the same size arrow.
14. Minimum mounting height of trailer mounted Arrow Boards should be 7 feet from roadway to bottom of panel.

REQUIREMENTS			
TYPE	MINIMUM SIZE	MINIMUM NUMBER OF PANEL LAMPS	MINIMUM VISIBILITY DISTANCE
B	30 x 60	13	3/4 mile
C	48 x 96	15	1 mile

ATTENTION

Flashing Arrow Boards shall be equipped with automatic dimming devices.

WHEN NOT IN USE, REMOVE THE ARROW BOARD FROM THE RIGHT-OF-WAY OR PLACE THE ARROW BOARD BEHIND CONCRETE TRAFFIC BARRIER OR GUARDRAIL.

FLASHING ARROW BOARDS

TRUCK-MOUNTED ATTENUATORS

1. Truck-mounted attenuators (TMA) used on TxDOT facilities must meet the requirements outlined in the Manual for Assessing Safety Hardware (MASH).
2. Refer to the CWZTCD for the requirements of Level 2 or Level 3 TMAs.
3. Refer to the CWZTCD for a list of approved TMAs.
4. TMAs are required on freeways unless otherwise noted in the plans.
5. A TMA should be used anytime that it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the work performance.
6. The only reason a TMA should not be required is when a work area is spread down the roadway and the work crew is an extended distance from the TMA.

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION ARROW PANEL, REFLECTORS, WARNING LIGHTS & ATTENUATOR

BC(7)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0046	08	017	SL 14
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	ATL	BOWIE		38

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GENERAL NOTES

1. For long term stationary work zones on freeways, drums shall be used as the primary channelizing device.
2. For intermediate term stationary work zones on freeways, drums should be used as the primary channelizing device but may be replaced in tangent sections by vertical panels, or 42" two-piece cones. In tangent sections, one-piece cones may be used with the approval of the Engineer but only if personnel are present on the project at all times to maintain the cones in proper position and location.
3. For short term stationary work zones on freeways, drums are the preferred channelizing device but may be replaced in tapers, transitions and tangent sections by vertical panels, two-piece cones or one-piece cones as approved by the Engineer.
4. Drums and all related items shall comply with the requirements of the current version of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) and the "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
5. Drums, bases, and related materials shall exhibit good workmanship and shall be free from objectionable marks or defects that would adversely affect their appearance or serviceability.
6. The Contractor shall have a maximum of 24 hours to replace any plastic drums identified for replacement by the Engineer/Inspector. The replacement device must be an approved device.

GENERAL DESIGN REQUIREMENTS

Pre-qualified plastic drums shall meet the following requirements:

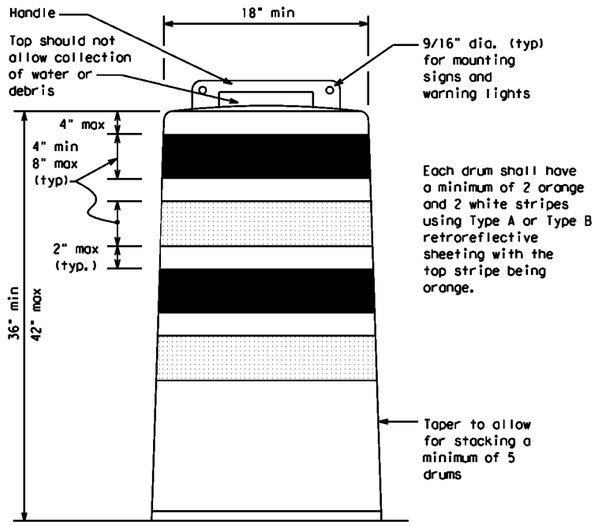
1. Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents accidental separation due to normal handling and/or air turbulence created by passing vehicles.
3. Plastic drums shall be constructed of lightweight flexible, and deformable materials. The Contractor shall NOT use metal drums or single piece plastic drums as channelization devices or sign supports.
4. Drums shall present a profile that is a minimum of 18 inches in width at the 36 inch height when viewed from any direction. The height of drum unit (body installed on base) shall be a minimum of 36 inches and a maximum of 42 inches.
5. The top of the drum shall have a built-in handle for easy pickup and shall be designed to drain water and not collect debris. The handle shall have a minimum of two widely spaced 9/16 inch diameter holes to allow attachment of a warning light, warning reflector unit or approved compliant sign.
6. The exterior of the drum body shall have a minimum of four alternating orange and white retroreflective circumferential stripes not less than 4 inches nor greater than 8 inches in width. Any non-reflectorized space between any two adjacent stripes shall not exceed 2 inches in width.
7. Bases shall have a maximum width of 36 inches, a maximum height of 4 inches, and a minimum of two footholds of sufficient size to allow base to be held down while separating the drum body from the base.
8. Plastic drums shall be constructed of ultra-violet stabilized, orange, high-density polyethylene (HDPE) or other approved material.
9. Drum body shall have a maximum unballasted weight of 11 lbs.
10. Drum and base shall be marked with manufacturer's name and model number.

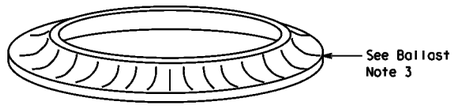
RETROREFLECTIVE SHEETING

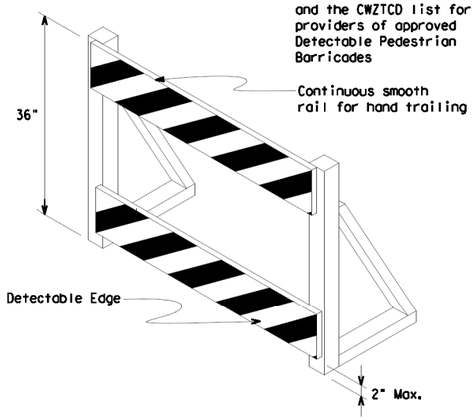
1. The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Deportmental Materials Specification DMS-8300, "Sign Face Materials." Type A or Type B reflective sheeting shall be supplied unless otherwise specified in the plans.
2. The sheeting shall be suitable for use on and shall adhere to the drum surface such that, upon vehicular impact, the sheeting shall remain adhered in-place and exhibit no delaminating, cracking, or loss of retroreflectivity other than that loss due to abrasion of the sheeting surface.

BALLAST

1. Unballasted bases shall be large enough to hold up to 50 lbs. of sand. This base, when filled with the ballast material, should weigh between 35 lbs (minimum) and 50 lbs (maximum). The ballast may be sand in one to three sandbags separate from the base, sand in a sand-filled plastic base, or other ballasting devices as approved by the Engineer. Stacking of sandbags will be allowed, however height of sandbags above pavement surface may not exceed 12 inches.
2. Bases with built-in ballast shall weigh between 40 lbs. and 50 lbs. Built-in ballast can be constructed of an integral crumb rubber base or a solid rubber base.
3. Recycled truck tire sidewalls may be used for ballast on drums approved for this type of ballast on the CWZTCD list.
4. The ballast shall not be heavy objects, water, or any material that would become hazardous to motorists, pedestrians, or workers when the drum is struck by a vehicle.
5. When used in regions susceptible to freezing, drums shall have drainage holes in the bottoms so that water will not collect and freeze becoming a hazard when struck by a vehicle.
6. Ballast shall not be placed on top of drums.
7. Adhesives may be used to secure base of drums to pavement.



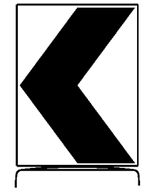




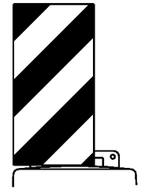
This detail is not intended for fabrication. See note 3 and the CWZTCD list for providers of approved Detectable Pedestrian Barricades

DETECTABLE PEDESTRIAN BARRICADES

1. When existing pedestrian facilities are disrupted, closed, or relocated in a TTC zone, the temporary facilities shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility. Refer to WZ(BTS-2) for Pedestrian Control requirements for Sidewalk Diversions, Sidewalk Detours and Crosswalk Closures.
2. Where pedestrians with visual disabilities normally use the closed sidewalk, a Detectable Pedestrian Barricade shall be placed across the full width of the closed sidewalk instead of a Type 3 Barricade.
3. Detectable pedestrian barricades similar to the one pictured above, longitudinal channelizing devices, some concrete barriers, and wood or chain link fencing with a continuous detectable edging can satisfactorily delineate a pedestrian path.
4. Tape, rope, or plastic chain strung between devices are not detectable, do not comply with the design standards in the "Americans with Disabilities Act Accessibility Guidelines (ADAAG)" and should not be used as a control for pedestrian movements.
5. Warning lights shall not be attached to detectable pedestrian barricades.
6. Detectable pedestrian barricades should use 8" nominal barricade rails as shown on BC(10) provided that the top rail provides a smooth continuous rail suitable for hand trailing with no splinters, burrs, or sharp edges.



18" x 24" Sign
(Maximum Sign Dimension)
Chevron CW1-8, Opposing Traffic Lane Divider, Driveway sign D70a, Keep Right R4 series or other signs as approved by Engineer



12" x 24"
Vertical Panel
mount with diagonals sloping down towards travel way

Plywood, Aluminum or Metal sign substrates shall NOT be used on plastic drums

SIGNS, CHEVRONS, AND VERTICAL PANELS MOUNTED ON PLASTIC DRUMS

1. Signs used on plastic drums shall be manufactured using substrates listed on the CWZTCD.
2. Chevrons and other work zone signs with an orange background shall be manufactured with Type B_{FL} or Type C_{FL} Orange sheeting meeting the color and retroreflectivity requirements of DMS-8300, "Sign Face Material," unless otherwise specified in the plans.
3. Vertical Panels shall be manufactured with orange and white sheeting meeting the requirements of DMS-8300 Type A or Type B. Diagonal stripes on Vertical Panels shall slope down toward the intended traveled lane.
4. Other sign messages (text or symbolic) may be used as approved by the Engineer. Sign dimensions shall not exceed 18 inches in width or 24 inches in height, except for the R9 series signs discussed in note 8 below.
5. Signs shall be installed using a 1/2 inch bolt (nominal) and nut, two washers, and one locking washer for each connection.
6. Mounting bolts and nuts shall be fully engaged and adequately torqued. Bolts should not extend more than 1/2 inch beyond nuts.
7. Chevrons may be placed on drums on the outside of curves, on merging tapers or on shifting tapers. When used in these locations, they may be placed on every drum or spaced not more than on every third drum. A minimum of three (3) should be used at each location called for in the plans.
8. R9-9, R9-10, R9-11 and R9-11a Sidewalk Closed signs which are 24 inches wide may be mounted on plastic drums, with approval of the Engineer.

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(8)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0046	08	017	SL 14
4-03 8-14	DIST	COUNTY		SHEET NO.
9-07 5-21	ATL	BOWIE		39
7-13				

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DATE: 7/12/2024 3:02:16 PM
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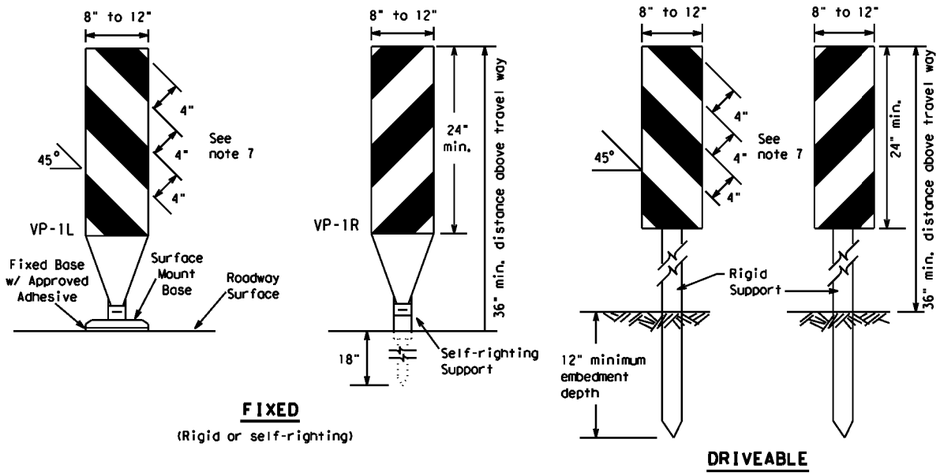
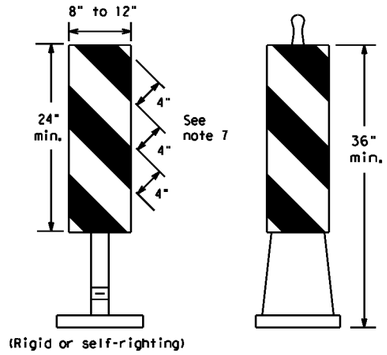


FIXED
(Rigid or self-righting)

DRIVEABLE

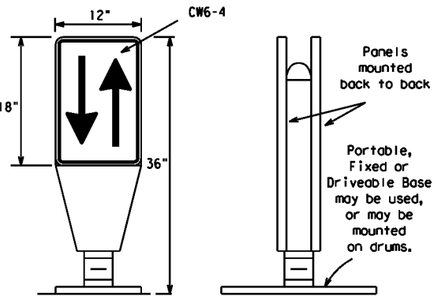


(Rigid or self-righting)

PORTABLE

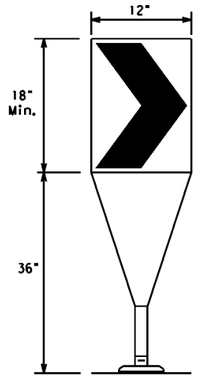
1. Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
2. VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is required. The Engineer/Inspector shall refer to the Roadway Design Manual for additional requirements on the use VP's for drop-offs.
3. VP's should be mounted back to back if used at the edge of cuts adjacent to two-way two lane roadways. Stripes are to be reflective orange and reflective white and should always slope downward toward the travel lane.
4. VP's used on expressways and freeways or other high speed roadways, may have more than 270 square inches of retroreflective area facing traffic.
5. Self-righting supports are available with portable base. See "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
6. Sheeting for the VP's shall be retroreflective Type A or Type B conforming to Departmental Material Specification DMS-8300, unless noted otherwise.
7. Where the height of reflective material on the vertical panel is 36 inches or greater, a panel stripe of 6 inches shall be used.

VERTICAL PANELS (VPs)



1. Opposing Traffic Lane Dividers (OTLD) are delineation devices designed to convert a normal one-way roadway section to two-way operation. OTLD's are used on temporary centerlines. The upward and downward arrows on the sign's face indicate the direction of traffic on either side of the divider. The base is secured to the pavement with an adhesive or rubber weight to minimize movement caused by a vehicle impact or wind gust.
2. The OTLD may be used in combination with 42" cones or VPs.
3. Spacing between the OTLD shall not exceed 500 feet. 42" cones or VPs placed between the OTLD's should not exceed 100 foot spacing.
4. The OTLD shall be orange with a black non-reflective legend. Sheeting for the OTLD shall be retroreflective Type B_{FL} or Type C_{FL} conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.

OPPOSING TRAFFIC LANE DIVIDERS (OTLD)



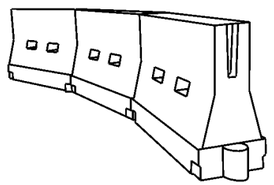
Fixed Base w/ Approved Adhesive (Driveable Base, or Flexible Support can be used)

1. The chevron shall be a vertical rectangle with a minimum size of 12 by 18 inches.
2. Chevrons are intended to give notice of a sharp change of alignment with the direction of travel and provide additional emphasis and guidance for vehicle operators with regard to changes in horizontal alignment of the roadway.
3. Chevrons, when used, shall be erected on the outside of a sharp curve or turn, or on the far side of an intersection. They shall be in line with and at right angles to approaching traffic. Spacing should be such that the motorist always has three in view, until the change in alignment eliminates its need.
4. To be effective, the chevron should be visible for at least 500 feet.
5. Chevrons shall be orange with a black nonreflective legend. Sheeting for the chevron shall be retroreflective Type B_{FL} or Type C_{FL} conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.
6. For Long Term Stationary use on tapers or transitions on freeways and divided highways, self-righting chevrons may be used to supplement plastic drums but not to replace plastic drums.

CHEVRONS

GENERAL NOTES

1. Work Zone channelizing devices illustrated on this sheet may be installed in close proximity to traffic and are suitable for use on high or low speed roadways. The Engineer/Inspector shall ensure that spacing and placement is uniform and in accordance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
2. Channelizing devices shown on this sheet may have a driveable, fixed or portable base. The requirement for self-righting channelizing devices must be specified in the General Notes or other plan sheets.
3. Channelizing devices on self-righting supports should be used in work zone areas where channelizing devices are frequently impacted by errant vehicles or vehicle related wind gusts making alignment of the channelizing devices difficult to maintain. Locations of these devices shall be detailed elsewhere in the plans. These devices shall conform to the TMUTCD and the "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
4. The Contractor shall maintain devices in a clean condition and replace damaged, nonreflective, faded, or broken devices and bases as required by the Engineer/Inspector. The Contractor shall be required to maintain proper device spacing and alignment.
5. Portable bases shall be fabricated from virgin and/or recycled rubber. The portable bases shall weigh a minimum of 30 lbs.
6. Pavement surfaces shall be prepared in a manner that ensures proper bonding between the adhesives, the fixed mount bases and the pavement surface. Adhesives shall be prepared and applied according to the manufacturer's recommendations.
7. The installation and removal of channelizing devices shall not cause detrimental effects to the final pavement surfaces, including pavement surface discoloration or surface integrity. Driveable bases shall not be permitted on final pavement surfaces. The Engineer/Inspector shall approve all application and removal procedures of fixed bases.



LONGITUDINAL CHANNELIZING DEVICES (LCD)

1. LCDs are crashworthy, lightweight, deformable devices that are highly visible, have good target value and can be connected together. They are not designed to contain or redirect a vehicle on impact.
2. LCDs may be used instead of a line of cones or drums.
3. LCDs shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
4. LCDs should not be used to provide positive protection for obstacles, pedestrians or workers.
5. LCDs shall be supplemented with retroreflective delineation as required for temporary barriers on BC(7) when placed roughly parallel to the travel lanes.
6. LCDs used as barricades placed perpendicular to traffic should have at least one row of reflective sheeting meeting the requirements for barricade rails as shown on BC(10). Place reflective sheeting near the top of the LCD along the full length of the device.

WATER BALLASTED SYSTEMS USED AS BARRIERS

1. Water ballasted systems used as barriers shall not be used solely to channelize road users, but also to protect the work space per the appropriate Manual for Assessing Safety Hardware (MASH) crashworthiness requirements based on roadway speed and barrier application.
2. Water ballasted systems used to channelize vehicular traffic shall be supplemented with retroreflective delineation or channelizing devices to improve daytime/nighttime visibility. They may also be supplemented with pavement markings.
3. Water ballasted systems used as barriers shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
4. Water ballasted systems used as barriers should not be used for a merging taper except in low speed (less than 45 MPH) urban areas. When used on a taper in a low speed urban area, the taper shall be delineated and the taper length should be designed to optimize road user operations considering the available geometric conditions.
5. When water ballasted systems used as barriers have blunt ends exposed to traffic, they should be attenuated as per manufacturer recommendations or flared to a point outside the clear zone.

If used to channelize pedestrians, longitudinal channelizing devices or water ballasted systems must have a continuous detectable bottom for users of long canes and the top of the unit shall not be less than 32 inches in height.

HOLLOW OR WATER BALLASTED SYSTEMS USED AS LONGITUDINAL CHANNELIZING DEVICES OR BARRIERS

Posted Speed	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices: On a Taper	On a Tangent
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'
35		205'	225'	245'	35'	70'
40		265'	295'	320'	40'	80'
45	L=WS	450'	495'	540'	45'	90'
50		500'	550'	600'	50'	100'
55		550'	605'	660'	55'	110'
60		600'	660'	720'	60'	120'
65		650'	715'	780'	65'	130'
70		700'	770'	840'	70'	140'
75		750'	825'	900'	75'	150'
80		800'	880'	960'	80'	160'

**Taper lengths have been rounded off.
L=Length of Taper (FT.) W=Width of Offset (FT.)
S=Posted Speed (MPH)

SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESIRABLE TAPER LENGTHS

SHEET 9 OF 12

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(9)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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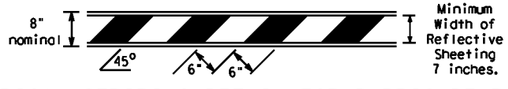
REVISIONS	0046	08	017	SL 14
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	ATL	BOWIE		40

DATE: 7/12/2024 3:02:25 PM
FILE: pw://txdot.projectwiseonline.com:TXDOT5/Documents/19 - ATL/Design Projects/00460801/74 - 301/74 - Design/Master Design Files/04 STANDARDS/000 BC(10)-21.dgn

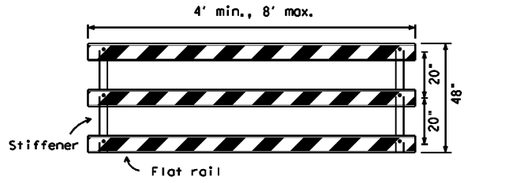
TYPE 3 BARRICADES

1. Refer to the Compliant Work Zone Traffic Control Devices List (CWZTCD) for details of the Type 3 Barricades and a list of all materials used in the construction of Type 3 Barricades.
2. Type 3 Barricades shall be used at each end of construction projects closed to all traffic.
3. Barricades extending across a roadway should have stripes that slope downward in the direction toward which traffic must turn in detouring. When both right and left turns are provided, the chevron striping may slope downward in both directions from the center of the barricade. Where no turns are provided at a closed road, striping should slope downward in both directions toward the center of roadway.
4. Striping of rails, for the right side of the roadway, should slope downward to the left. For the left side of the roadway, striping should slope downward to the right.
5. Identification markings may be shown only on the back of the barricade rails. The maximum height of letters and/or company logos used for identification shall be 1".
6. Barricades shall not be placed parallel to traffic unless an adequate clear zone is provided.
7. Warning lights shall NOT be installed on barricades.
8. Where barricades require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand is recommended. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight. Sand bags shall not be stocked in a manner that covers any portion of a barricade rails reflective sheeting. Rock, concrete, iron, steel or other solid objects will NOT be permitted. Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs. Sandbags shall be made of a durable material that tears upon vehicular impact. Rubber (such as tire inner tubes) shall not be used for sandbags. Sandbags shall only be placed along or upon the base supports of the device and shall not be suspended above ground level or hung with rope, wire, chains or other fasteners.
9. Sheeting for barricades shall be retroreflective Type A or Type B conforming to Departmental Material Specification DMS-8300 unless otherwise noted.

Barricades shall NOT be used as a sign support.



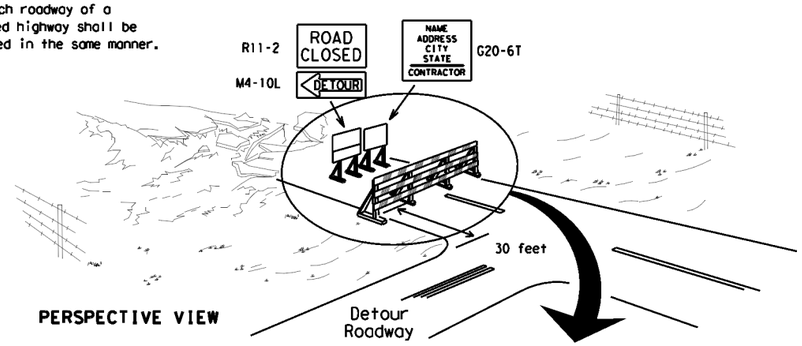
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



Stiffener may be inside or outside of support, but no more than 2 stiffeners shall be allowed on one barricade.

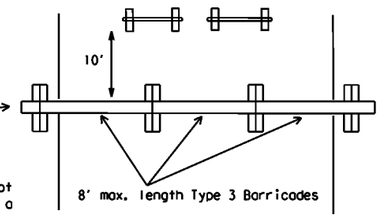
TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES

Each roadway of a divided highway shall be barricaded in the same manner.



PERSPECTIVE VIEW

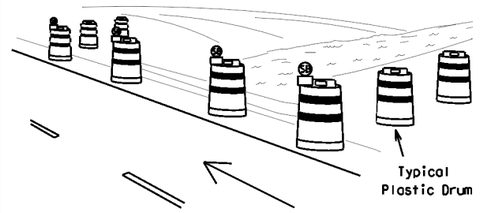
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic.
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

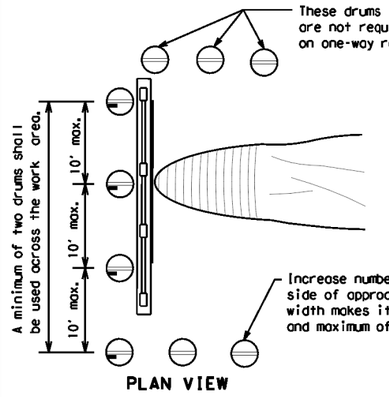
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

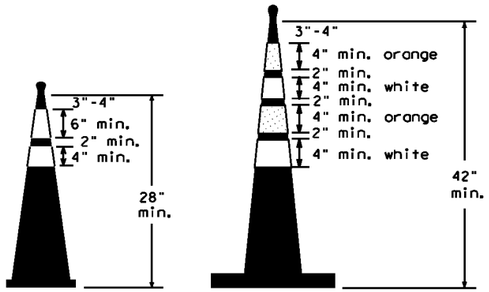
1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder width is greater than 12 feet, steady-burn lights may be omitted if drums are used.
5. Drums must extend the length of the culvert widening.



LEGEND	
	Plastic drum
	Plastic drum with steady burn light or yellow warning reflector
SB	Steady burn warning light or yellow warning reflector

PLAN VIEW

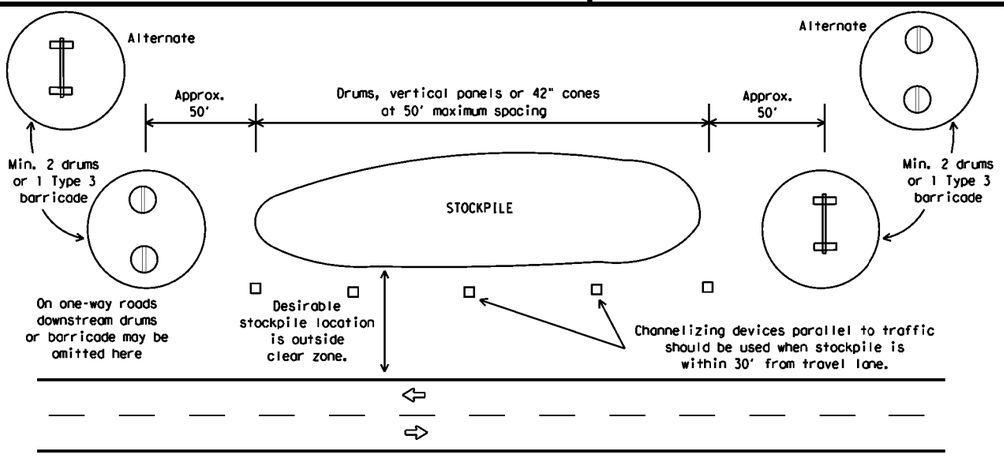
CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



28" Cones shall have a minimum weight of 9 1/2 lbs.

42" 2-piece cones shall have a minimum weight of 30 lbs. including base.

1. Traffic cones and tubular markers shall be predominantly orange, and meet the height and weight requirements shown above.
2. One-piece cones have the body and base of the cone molded in one consolidated unit. Two-piece cones have a cone shaped body and a separate rubber base, or ballast, that is added to keep the device upright and in place.
3. Two-piece cones may have a handle or loop extending up to 8" above the minimum height shown, in order to aid in retrieving the device.
4. Cones or tubular markers shall have white or white and orange reflective bands as shown above. The reflective bands shall have a smooth, sealed outer surface and meet the requirements of Departmental Material Specification DMS-8300 Type A or Type B.
5. 28" cones and tubular markers are generally suitable for short duration and short-term stationary work as defined on BC(4). These should not be used for intermediate-term or long-term stationary work unless personnel is on-site to maintain them in their proper upright position.
6. 42" two-piece cones, vertical panels or drums are suitable for all work zone durations.
7. Cones or tubular markers used on each project should be of the same size and shape.



TRAFFIC CONTROL FOR MATERIAL STOCKPILES

SHEET 10 OF 12

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(10)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS 9-07 8-14 7-13 5-21	0046	08	017	SL 14
	DIST	COUNTY		SHEET NO.
	ATL	BOWIE		41

104

WORK ZONE PAVEMENT MARKINGS

GENERAL

1. The Contractor shall be responsible for maintaining work zone and existing pavement markings, in accordance with the standard specifications and special provisions, on all roadways open to traffic within the CSJ limits unless otherwise stated in the plans.
2. Color, patterns and dimensions shall be in conformance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
3. Additional supplemental pavement marking details may be found in the plans or specifications.
4. Pavement markings shall be installed in accordance with the TMUTCD and as shown on the plans.
5. When short term markings are required on the plans, short term markings shall conform with the TMUTCD, the plans and details as shown on the Standard Plan Sheet WZ(STPM).
6. When standard pavement markings are not in place and the roadway is opened to traffic, DO NOT PASS signs shall be erected to mark the beginning of the sections where passing is prohibited and PASS WITH CARE signs at the beginning of sections where passing is permitted.
7. All work zone pavement markings shall be installed in accordance with Item 662, "Work Zone Pavement Markings."

RAISED PAVEMENT MARKERS

1. Raised pavement markers are to be placed according to the patterns on BC(12).
2. All raised pavement markers used for work zone markings shall meet the requirements of Item 672, "RAISED PAVEMENT MARKERS" and Departmental Material Specification DMS-4200 or DMS-4300.

PREFABRICATED PAVEMENT MARKINGS

1. Removable prefabricated pavement markings shall meet the requirements of DMS-8241.
2. Non-removable prefabricated pavement markings (foil back) shall meet the requirements of DMS-8240.

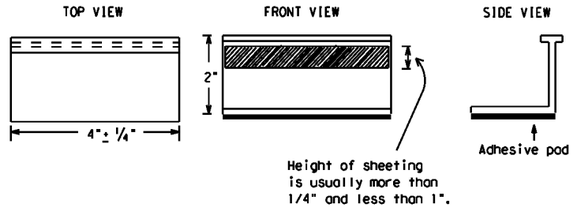
MAINTAINING WORK ZONE PAVEMENT MARKINGS

1. The Contractor will be responsible for maintaining work zone pavement markings within the work limits.
2. Work zone pavement markings shall be inspected in accordance with the frequency and reporting requirements of work zone traffic control device inspections as required by Form 599.
3. The markings should provide a visible reference for a minimum distance of 300 feet during normal daylight hours and 160 feet when illuminated by automobile low-beam headlights at night, unless sight distance is restricted by roadway geometrics.
4. Markings failing to meet this criteria within the first 30 days after placement shall be replaced at the expense of the Contractor as per Specification Item 662.

REMOVAL OF PAVEMENT MARKINGS

1. Pavement markings that are no longer applicable, could create confusion or direct a motorist toward or into the closed portion of the roadway shall be removed or obliterated before the roadway is opened to traffic.
2. The above shall not apply to detours in place for less than three days, where flaggers and/or sufficient channelizing devices are used in lieu of markings to outline the detour route.
3. Pavement markings shall be removed to the fullest extent possible, so as not to leave a discernable marking. This shall be by any method approved by TxDOT Specification Item 677 for "Eliminating Existing Pavement Markings and Markers".
4. The removal of pavement markings may require resurfacing or seal coating portions of the roadway as described in Item 677.
5. Subject to the approval of the Engineer, any method that proves to be successful on a particular type pavement may be used.
6. Blast cleaning may be used but will not be required unless specifically shown in the plans.
7. Over-painting of the markings SHALL NOT BE permitted.
8. Removal of raised pavement markers shall be as directed by the Engineer.
9. Removal of existing pavement markings and markers will be paid for directly in accordance with Item 677, "ELIMINATING EXISTING PAVEMENT MARKINGS AND MARKERS," unless otherwise stated in the plans.
10. Black-out marking tape may be used to cover conflicting existing markings for periods less than two weeks when approved by the Engineer.

Temporary Flexible-Reflective Roadway Marker Tabs



STAPLES OR NAILS SHALL NOT BE USED TO SECURE TEMPORARY FLEXIBLE-REFLECTIVE ROADWAY MARKER TABS TO THE PAVEMENT SURFACE

1. Temporary flexible-reflective roadway marker tabs used as guidemarks shall meet the requirements of DMS-8242.
2. Tabs detailed on this sheet are to be inspected and accepted by the Engineer or designated representative. Sampling and testing is not normally required, however at the option of the Engineer, either "A" or "B" below may be imposed to assure quality before placement on the roadway.
   A. Select five (5) or more tabs at random from each lot or shipment and submit to the Construction Division, Materials and Pavement Section to determine specification compliance.
   B. Select five (5) tabs and perform the following test. Affix five (5) tabs at 24 inch intervals on an asphaltic pavement in a straight line. Using a medium size passenger vehicle or pickup, run over the markers with the front and rear tires at a speed of 35 to 40 miles per hour, four (4) times in each direction. No more than one (1) out of the five (5) reflective surfaces shall be lost or displaced as a result of this test.
3. Small design variances may be noted between tab manufacturers.
4. See Standard Sheet WZ(STPM) for tab placement on new pavements. See Standard Sheet TCP(7-1) for tab placement on seal coat work.

RAISED PAVEMENT MARKERS USED AS GUIDEMARKS

1. Raised pavement markers used as guidemarks shall be from the approved product list, and meet the requirements of DMS-4200.
2. All temporary construction raised pavement markers provided on a project shall be of the same manufacturer.
3. Adhesive for guidemarks shall be bituminous material hot applied or butyl rubber pad for all surfaces, or thermoplastic for concrete surfaces.

Guidemarks shall be designated as:
YELLOW - (two amber reflective surfaces with yellow body).
WHITE - (one silver reflective surface with white body).

DEPARTMENTAL MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
TRAFFIC BUTTONS	DMS-4300
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240
TEMPORARY REMOVABLE, PREFABRICATED PAVEMENT MARKINGS	DMS-8241
TEMPORARY FLEXIBLE, REFLECTIVE ROADWAY MARKER TABS	DMS-8242

A list of prequalified reflective raised pavement markers, non-reflective traffic buttons, roadway marker tabs and other pavement markings can be found at the Material Producer List web address shown on BC(1).

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

BC(11)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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11-02 8-14				

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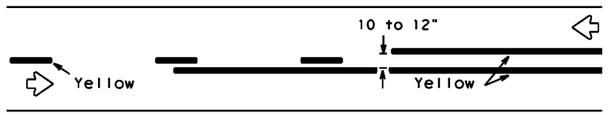
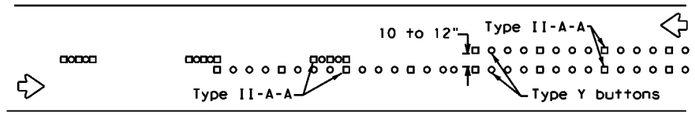
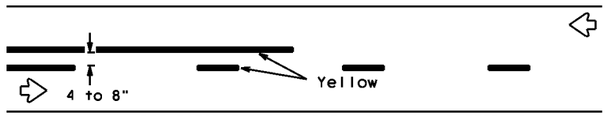
PAVEMENT MARKING PATTERNS



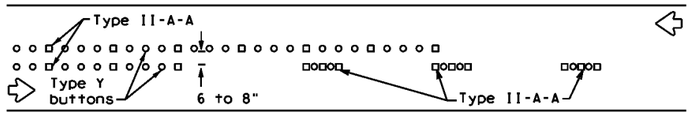
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



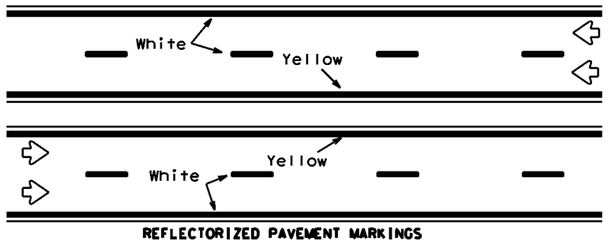
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



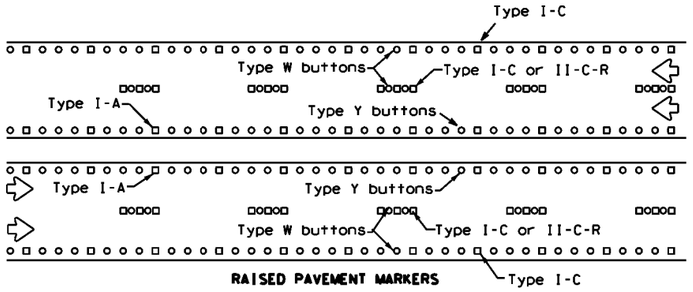
RAISED PAVEMENT MARKERS - PATTERN B

Pattern A is the TXDOT Standard, however Pattern B may be used if approved by the Engineer.
Prefabricated markings may be substituted for reflectorized pavement markings.

CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO-LANE, TWO-WAY HIGHWAYS



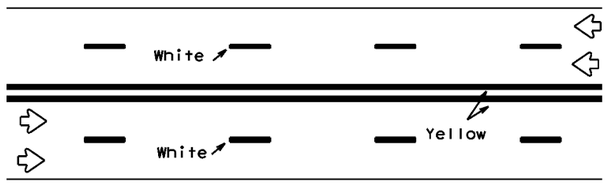
REFLECTORIZED PAVEMENT MARKINGS



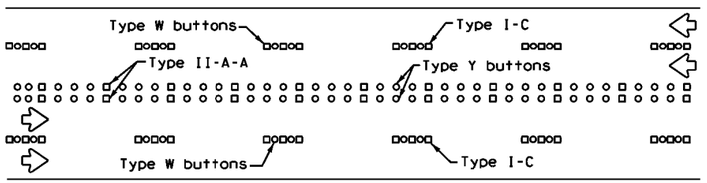
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



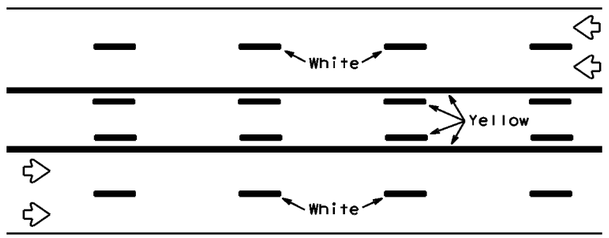
REFLECTORIZED PAVEMENT MARKINGS



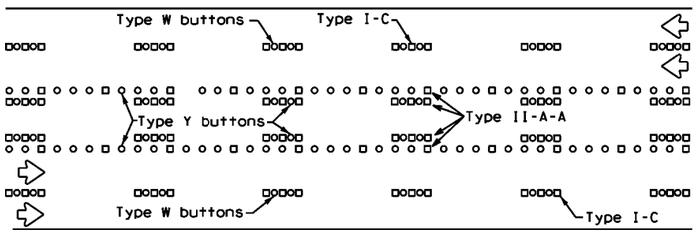
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS



RAISED PAVEMENT MARKERS

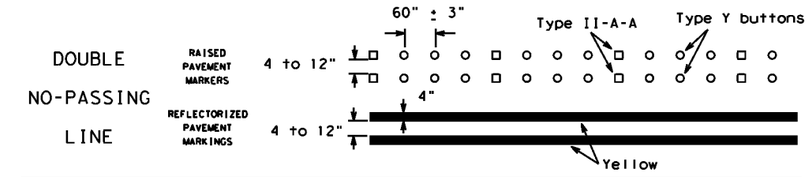
Prefabricated markings may be substituted for reflectorized pavement markings.

TWO-WAY LEFT TURN LANE

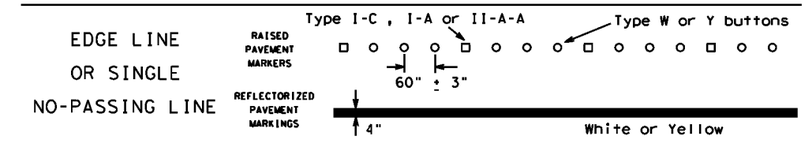
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

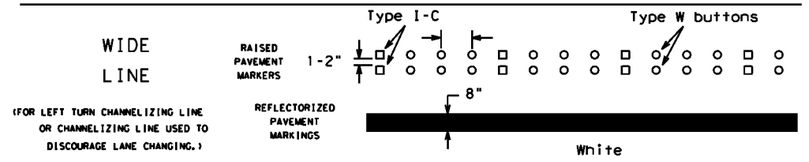


EDGE LINE OR SINGLE NO-PASSING LINE



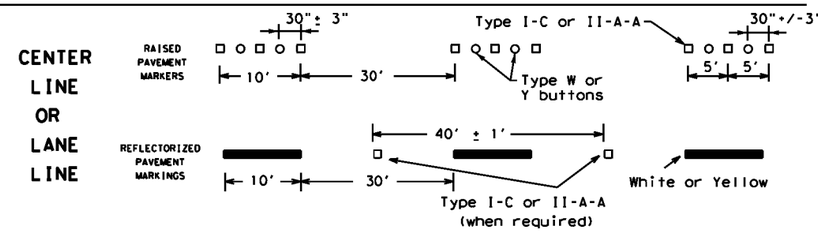
WIDE LINE

(FOR LEFT TURN CHANNELIZING LINE OR CHANNELIZING LINE USED TO DISCOURAGE LANE CHANGING.)

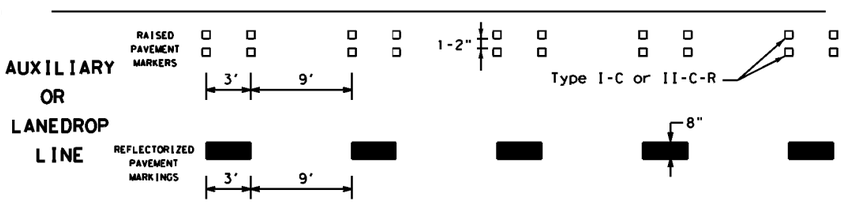


BROKEN LINES

CENTER LINE OR LANE LINE

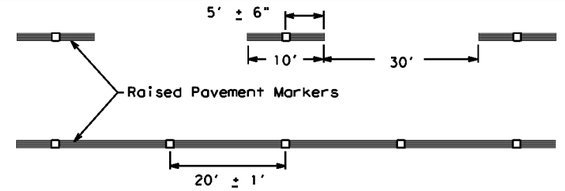


AUXILIARY OR LANEDROP LINE



REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

If raised pavement markers are used to supplement REMOVABLE markings, the markers shall be applied to the top of the tape at the approximate mid length of tape used for broken lines or at 20 foot spacing for solid lines. This allows an easier removal of raised pavement markers and tape.



Centerline only - not to be used on edge lines

Raised pavement markers used as standard pavement markings shall be from the approved products list and meet the requirements of Item 672 "RAISED PAVEMENT MARKERS."

SHEET 12 OF 12

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC(12)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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1-97 9-07 5-21	DIST	COUNTY		SHEET NO.
2-98 7-13	ATL	BOWIE		43
11-02 8-14				

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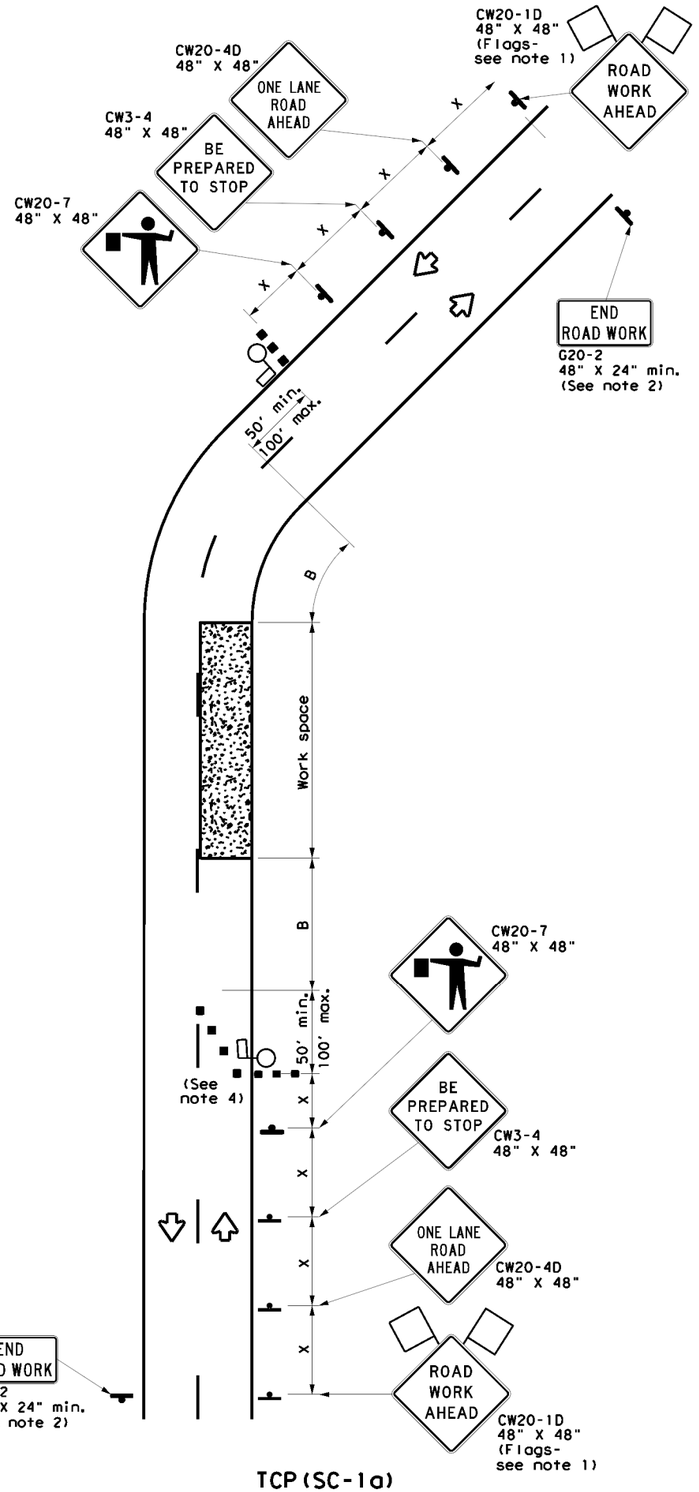
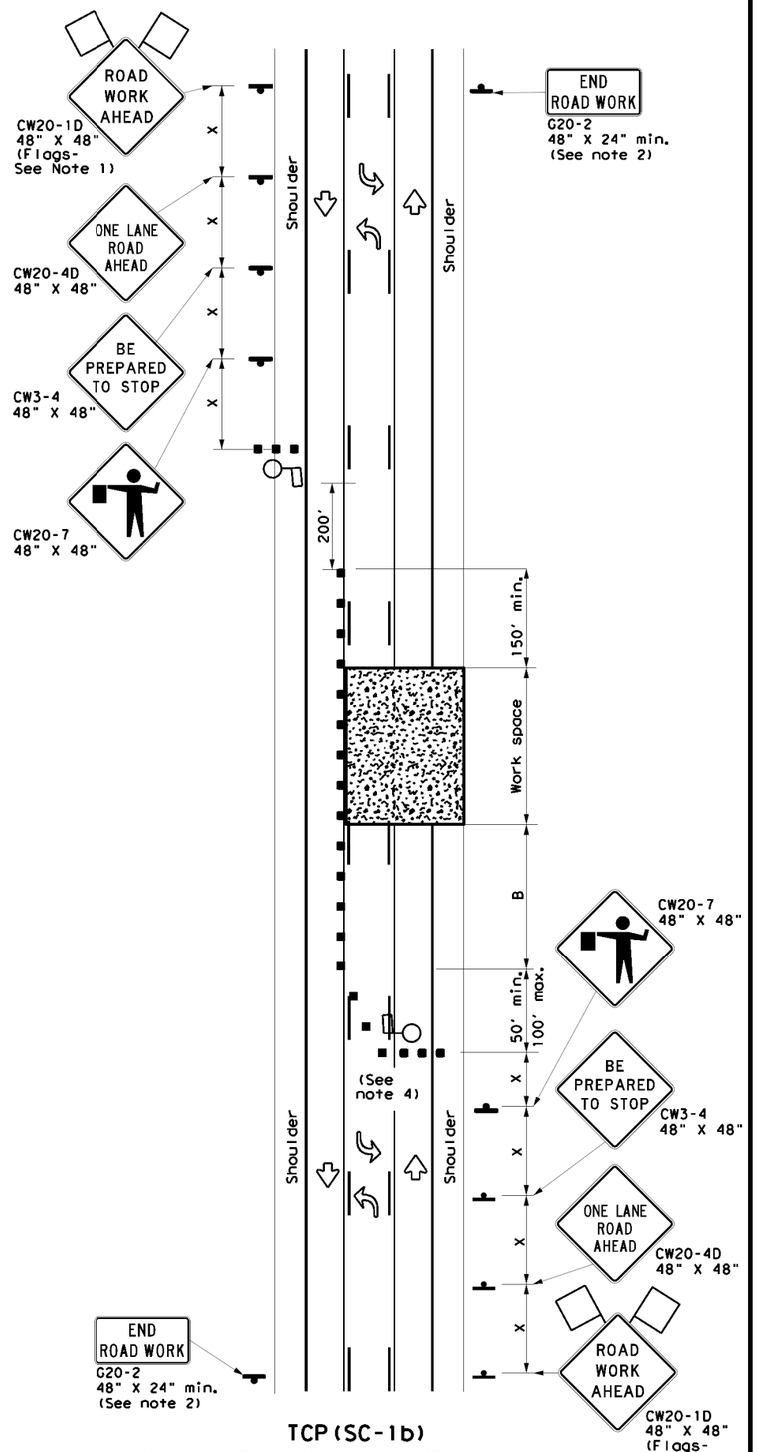


TCP(SC-1a)

ONE LANE TWO-WAY (TWO LANES) CONTROL WITH PILOT VEHICLE



TCP(SC-1b)

ONE LANE TWO-WAY (THREE LANES) CONTROL WITH PILOT VEHICLE AND CHANNELIZING DEVICES

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board	M	Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices: On a Taper	On a Tangent	Minimum Sign Spacing Distance "X"	Suggested Longitudinal Buffer Space "B"	Stopping Sight Distance
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'	200'
35		205'	225'	245'	35'	70'	160'	120'	250'
40		265'	295'	320'	40'	80'	240'	155'	305'
45	L=WS	450'	495'	540'	45'	90'	320'	195'	360'
50		500'	550'	600'	50'	100'	400'	240'	425'
55		550'	605'	660'	55'	110'	500'	295'	495'
60		600'	660'	720'	60'	120'	600'	350'	570'
65		650'	715'	780'	65'	130'	700'	410'	645'
70		700'	770'	840'	70'	140'	800'	475'	730'
75		750'	825'	900'	75'	150'	900'	540'	820'

* Conventional Roads Only

** Taper lengths have been rounded off.

L = Length of Taper (FT) W = Width of Offset (FT) S = Posted Speed (MPH)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

GENERAL NOTES

1. Flags attached to signs where shown are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except: if project signing is present, END ROAD WORK (G20-2) sign is optional with approval by the Engineer.
3. Sign spacing may be increased or an additional ROAD WORK AHEAD (CW20-1D) sign may be used if advance warning ahead of the flagger sign is less than 1500 feet.
4. Flaggers should use two-way radios or other methods of communication at all times for traffic control coordination.
5. Flaggers should use 24" STOP (CW20-8) / SLOW (CW20-8aT) paddles to control traffic. Flags should be limited to emergency situations.
6. If the work space is located near a horizontal or vertical curve, the buffer distances should be increased in order to maintain adequate stopping sight distance to the flagger and a queue of stopped vehicles (see table above).
7. If the seal coat operation crosses intersections, traffic in these areas must be controlled. Care must be taken to prevent vehicles from crossing the asphalt before the aggregate is placed. This may require positioning additional traffic control personnel (flaggers) at the intersection.
8. Temporary rumble strips are not required on seal coat operations.
9. The pilot car is used to guide vehicles through traffic control zone. The pilot car shall have an identification name displayed and PILOT CAR, FOLLOW ME (G20-4) sign or message board mounted in a conspicuous position on rear.

TCP (SC-1a)

1. Channelizing devices on the centerline are not required when a pilot car is leading traffic, unless directed by the Engineer.

Texas Department of Transportation — Traffic Safety Division Standard

TRAFFIC CONTROL PLAN SEAL COAT OPERATIONS ONE-LANE TWO-WAY

TCP(SC-1)-22

FILE: tcpsc-1-22.dgn	DN:	CK:	DW:	CK:
© TxDOT October 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-21 10-22	0046	08	017	SL 14
	DIST	COUNTY		SHEET NO.
	ATL	BOWIE		44

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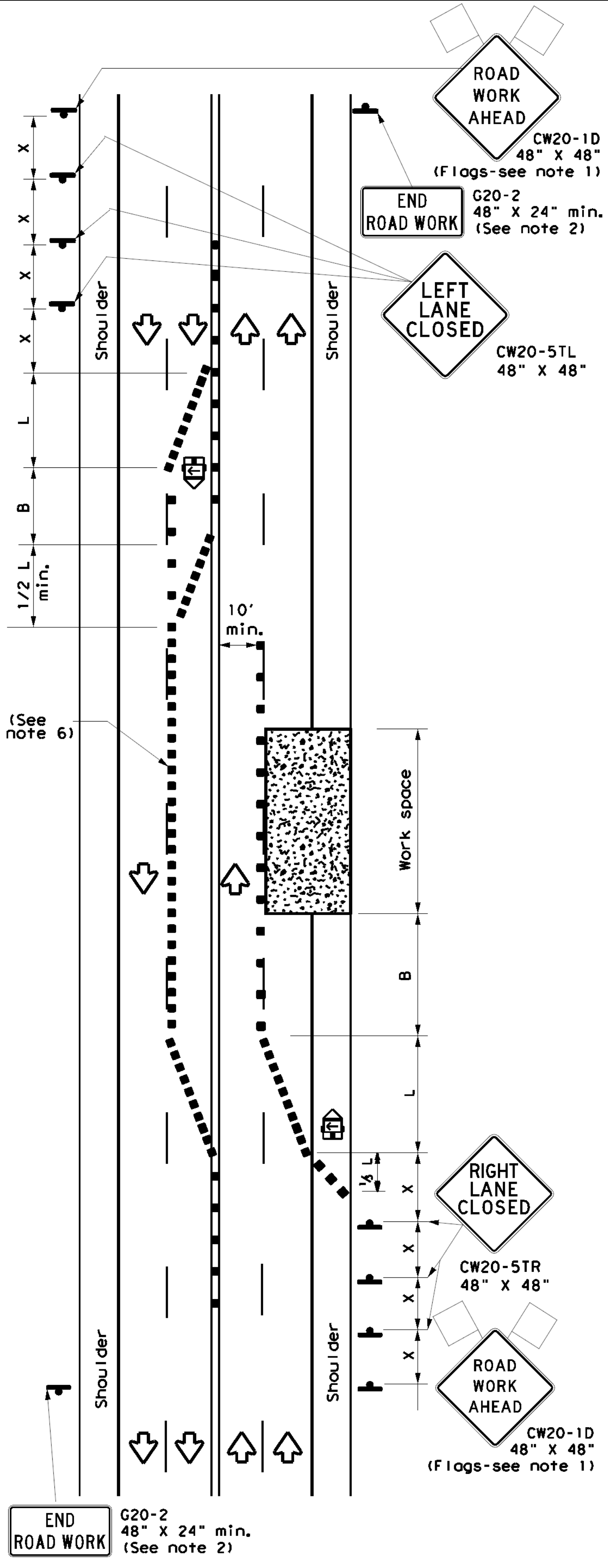
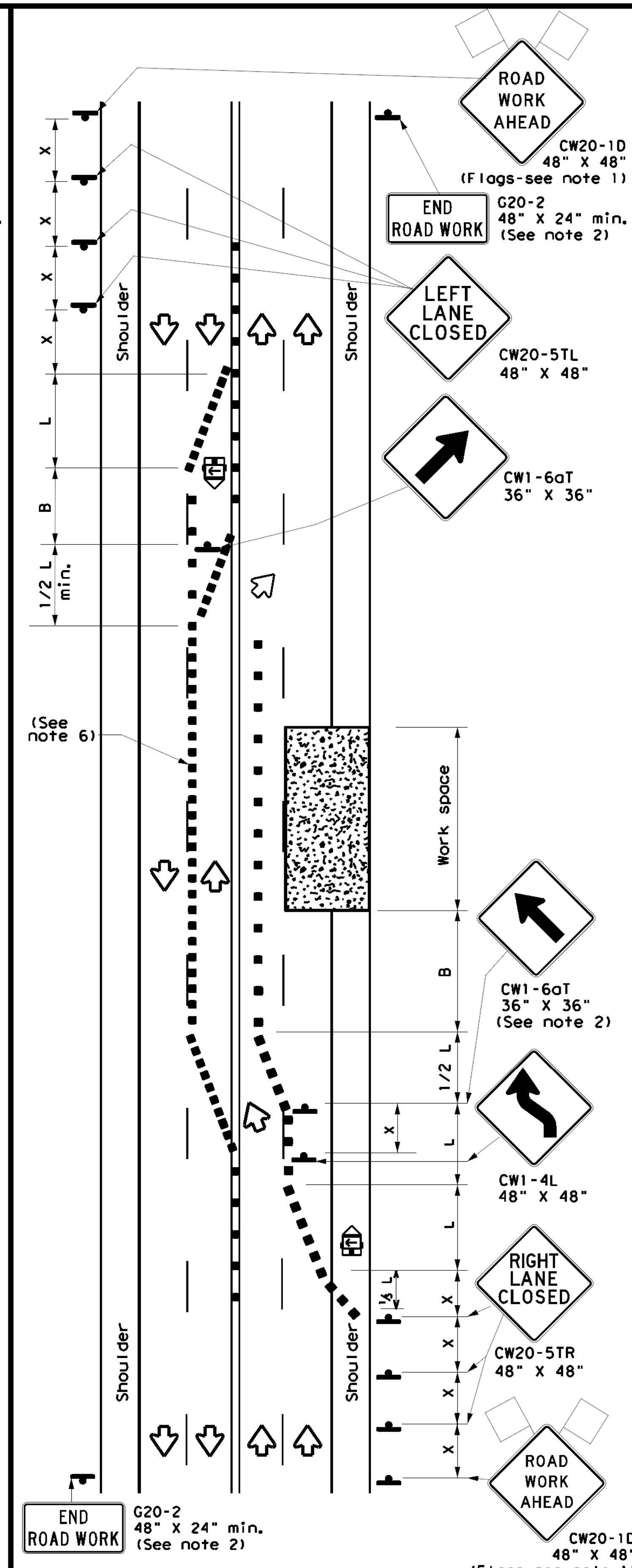


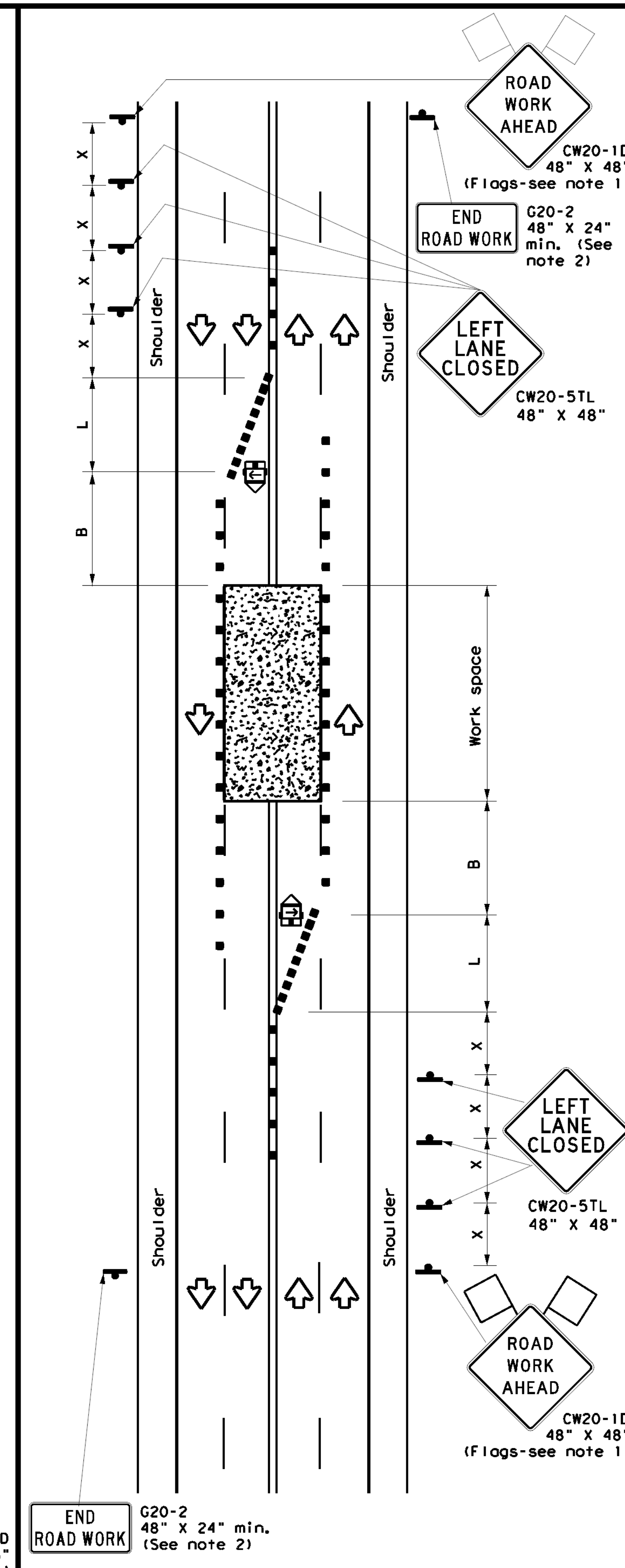
TCP (SC-2a)

ONE LANE CLOSED EACH DIRECTION
CONTROL W/ CHANNELIZING DEVICES



TCP (SC-2b)

ONE LANE CLOSED EACH DIRECTION
CONTROL W/ CHANNELIZING DEVICES



TCP (SC-2c)

CENTER LANES CLOSED
CONTROL W/ CHANNELIZING DEVICES

LEGEND

Symbol	Meaning	Symbol	Meaning
[symbol]	Type 3 Barricade	[symbol]	Channelizing Devices
[symbol]	Heavy Work Vehicle	[symbol]	Truck Mounted Attenuator (TMA)
[symbol]	Trailer Mounted Flashing Arrow Board	[symbol]	Portable Changeable Message Sign (PCMS)
[symbol]	Sign	[symbol]	Traffic Flow
[symbol]	Flag	[symbol]	Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent	Minimum Sign Spacing Distance "X"	Suggested Longitudinal Buffer Space "B"
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L = WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

* Conventional Roads Only
** Taper lengths have been rounded off.
L = Length of Taper (FT) W = Width of Offset (FT)
S = Posted Speed (MPH)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

GENERAL NOTES

1. Flags attached to signs where shown are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except: if project signing is present, END ROAD WORK (G20-2) sign is optional with approval by the Engineer.
3. The ROAD WORK AHEAD (CW20-1D) sign may be repeated if the visibility of the work zone is less than 1500 feet.
4. If the seal coat operation crosses intersections, traffic in these areas must be controlled. Care must be taken to prevent vehicles from crossing the asphalt before the aggregate is placed. This may require positioning additional traffic control personnel (flaggers) at the intersection.
5. Temporary rumble strips are not required on seal coat operations.

TCP (SC-2a) and (SC-2b)

6. Channelizing devices which separate two-way traffic shall be spaced on tapers at:
   a.) 20 feet;
   b.) 15 feet when posted speeds are 35 mph or slower; or
   c.) at 1/2(S) for tangent sections.
   This tighter device spacing is intended for the areas of conflicting markings, not the entire work zone.

SHEET 2 OF 8

Texas Department of Transportation — Traffic Safety Division Standard

TRAFFIC CONTROL PLAN SEALCOAT OPERATIONS MULTILANE ROADS (UNDIVIDED)

TCP(SC-2)-22

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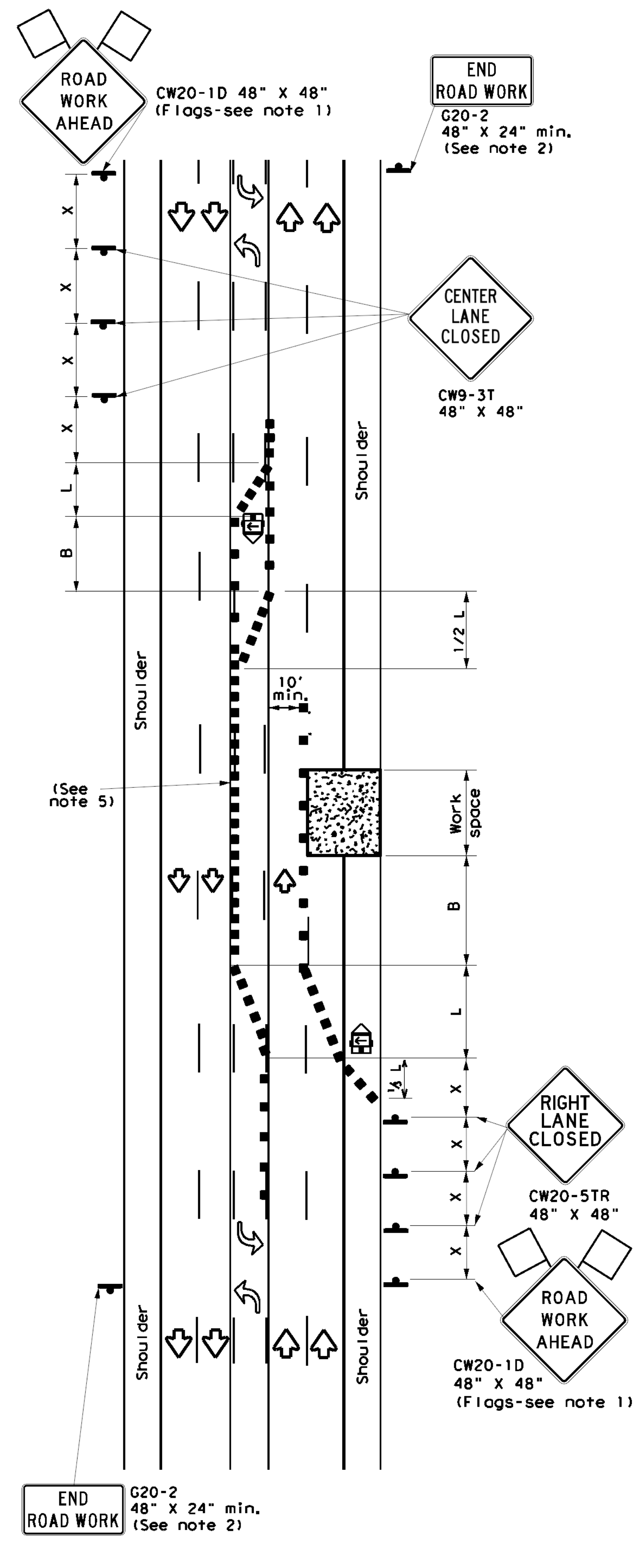
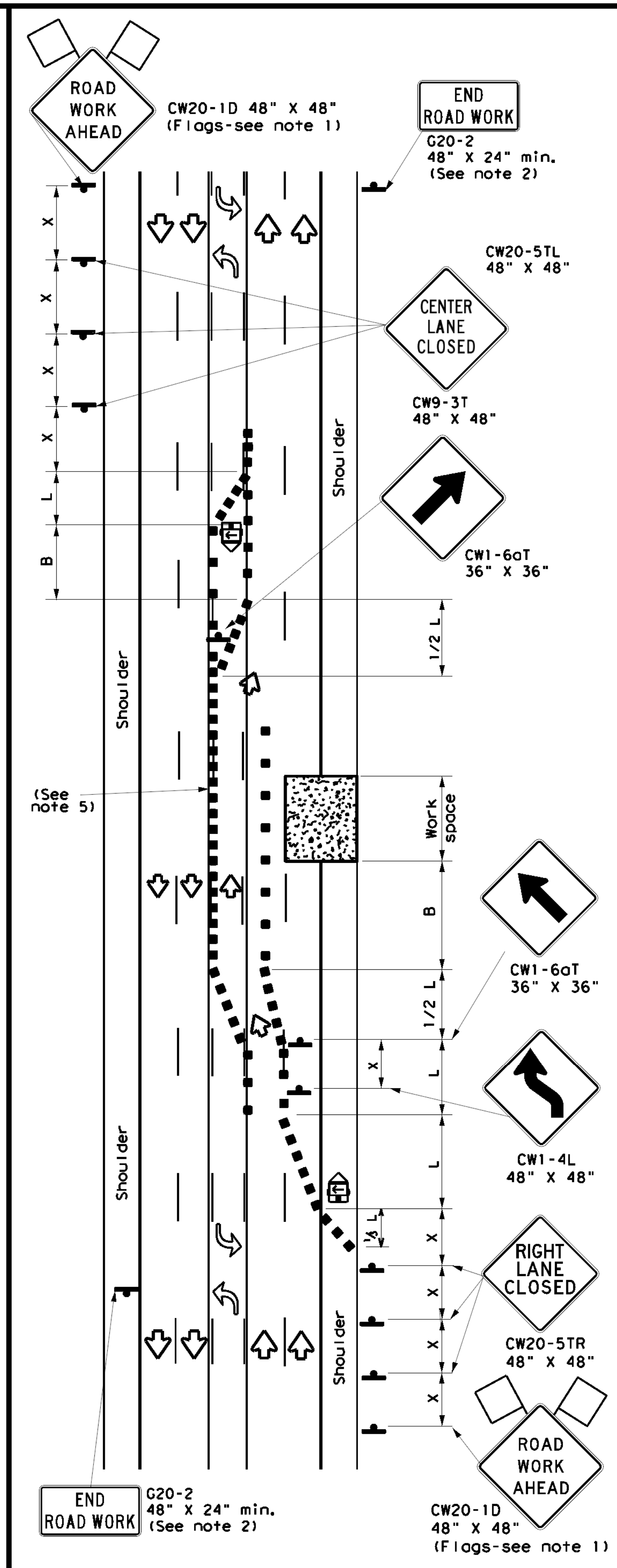
REVISIONS 4-21 10-22	DIST ATL		COUNTY BOWIE	SHEET NO. 45

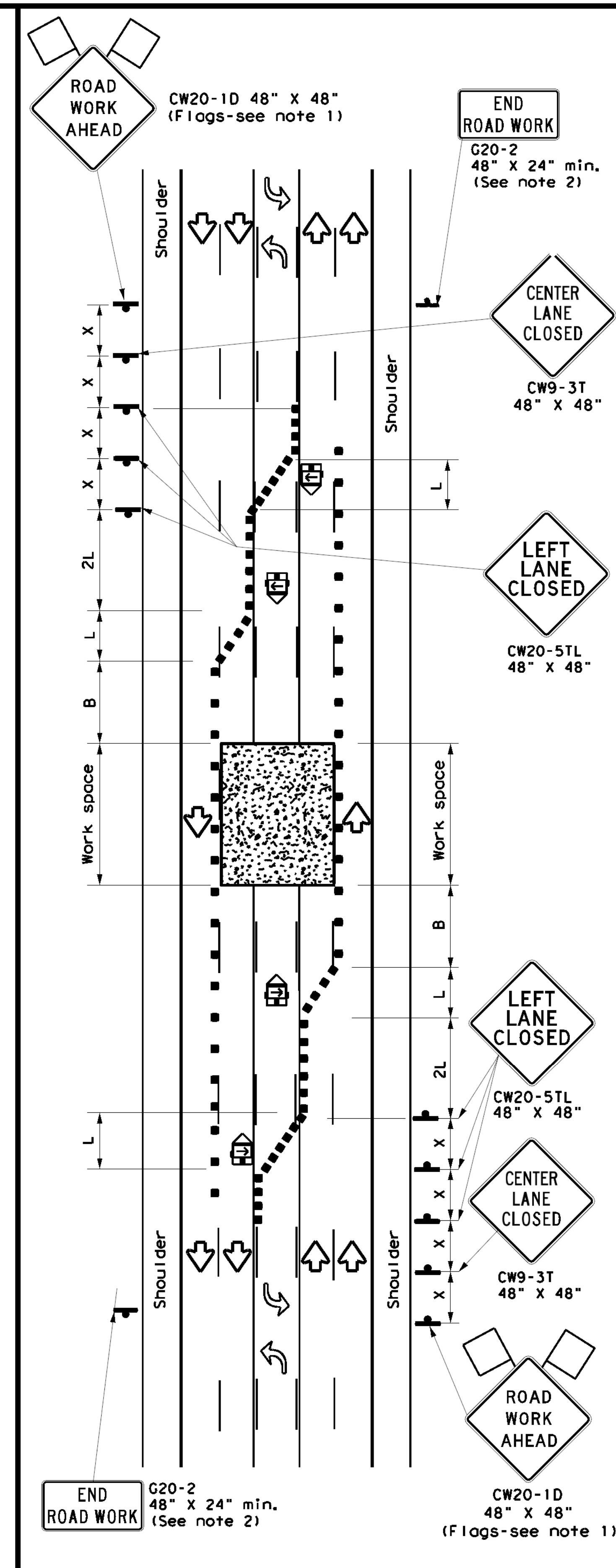
218



TCP(SC-3a)
ONE LANE CLOSED
CONTROL W/ CHANNELIZING DEVICES



TCP(SC-3b)
TWO LANES CLOSED
CONTROL W/ CHANNELIZING DEVICES



TCP(SC-3c)
CENTER LANES CLOSED
CONTROL W/ CHANNELIZING DEVICES

LEGEND

	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing Distance "X"	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L = WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

* Conventional Roads Only
** Taper lengths have been rounded off.
L = Length of Taper (FT) W = Width of Offset (FT)
S = Posted Speed (MPH)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

GENERAL NOTES

1. Flags attached to signs where shown are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except: if project signing is present, END ROAD WORK (G20-2) sign is optional with approval by the Engineer.
3. If the seal coat operation crosses intersections, traffic in these areas must be controlled. Care must be taken to prevent vehicles from crossing the asphalt before the aggregate is placed. This may require positioning additional traffic control personal (flaggers) at the intersection.
4. Temporary rumble strips are not required on seal coat operations.

TCP (SC-3a) and (SC-3b)

5. Channelizing devices which separate two-way traffic shall be spaced on tapers at:
   a.) 20 feet;
   b.) 15 feet when posted speeds are 35 mph or slower; or
   c.) at 1/2(S) for tangent sections.
   This tighter device spacing is intended for the areas of conflicting markings, not the entire work zone.

SHEET 3 OF 8

Texas Department of Transportation — Traffic Safety Division Standard

TRAFFIC CONTROL PLAN SEAL COAT OPERATIONS MULTILANE ROADS (W/ CENTER LEFT TURN LANE)

TCP(SC-3)-22

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© TxDOT October 2022	CONT	SECT	JOB	HIGHWAY
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219

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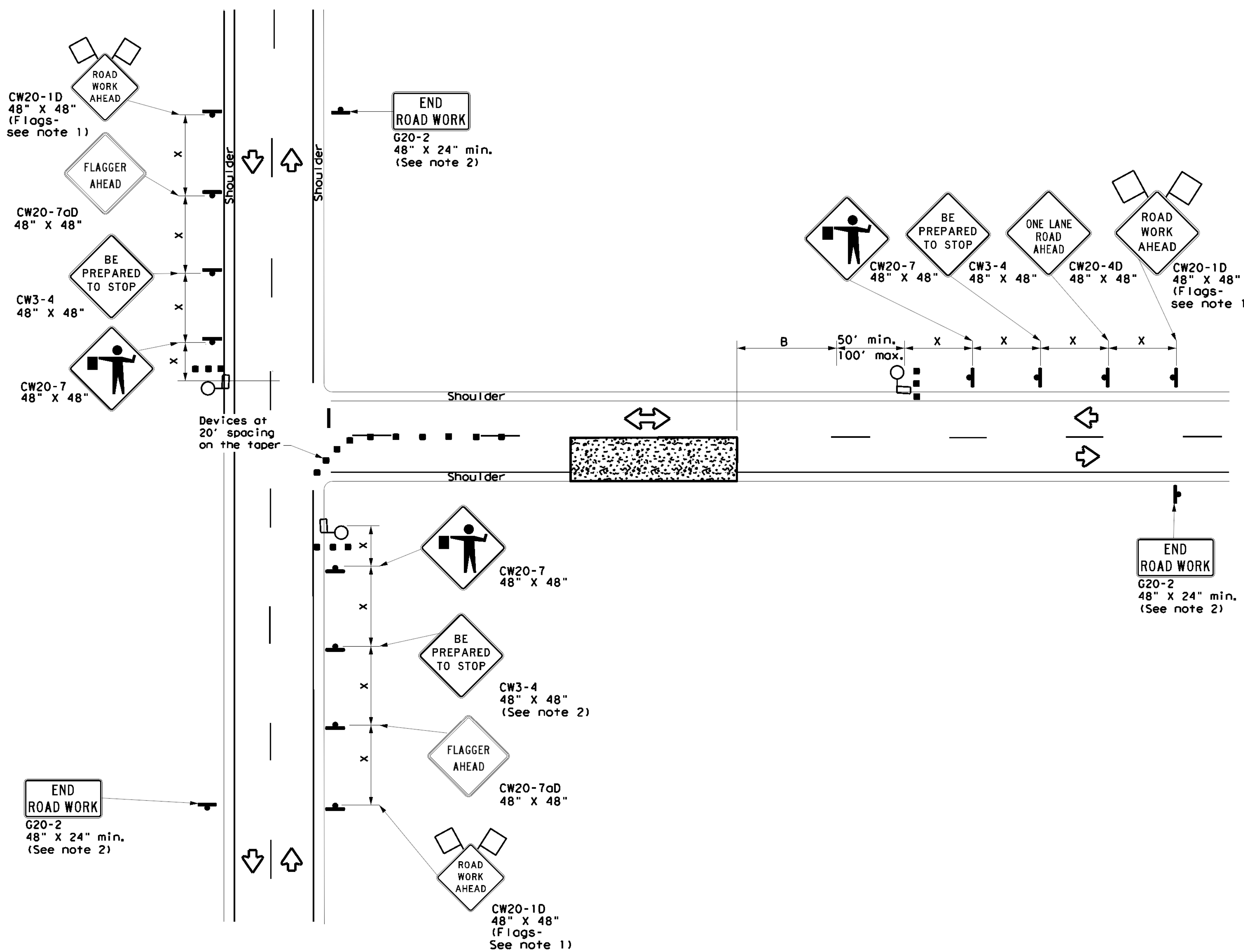

ONE LANE TWO-WAY (T-INTERSECTION)
CONTROL WITH PILOT VEHICLE

LEGEND

	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing Distance "X"	Suggested Longitudinal Buffer Space "B"	Stopping Sight Distance
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent			
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'	200'
35		205'	225'	245'	35'	70'	160'	120'	250'
40		265'	295'	320'	40'	80'	240'	155'	305'
45	L = WS	450'	495'	540'	45'	90'	320'	195'	360'
50		500'	550'	600'	50'	100'	400'	240'	425'
55		550'	605'	660'	55'	110'	500'	295'	495'
60		600'	660'	720'	60'	120'	600'	350'	570'
65		650'	715'	780'	65'	130'	700'	410'	645'
70		700'	770'	840'	70'	140'	800'	475'	730'
75		750'	825'	900'	75'	150'	900'	540'	820'

* Conventional Roads Only

** Taper lengths have been rounded off.

L = Length of Taper (FT) W = Width of Offset (FT) S = Posted Speed (MPH)

TYPICAL USAGE

MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

GENERAL NOTES

1. Flags attached to signs where shown are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except: if project signing is present, END ROAD WORK (G20-2) sign is optional with approval by the Engineer.
3. Flaggers should use two-way radios or other methods of communication at all times for traffic control coordination.
4. Flaggers should use 24" STOP (CW20-8) / SLOW (CW20-8aT) paddles to control traffic. Flags should be limited to emergency situations.
5. If the work space is located near a horizontal or vertical curve, the buffer distances should be increased in order to maintain adequate stopping sight distance to the flagger and a queue of stopped vehicles (see table above).
6. Temporary rumble strips are not required on seal coat operations.
7. The pilot car is used to guide vehicles through traffic control zone. The pilot car shall have an identification name displayed and PILOT CAR, FOLLOW ME (G20-4) sign or message board mounted in a conspicuous position on rear.

Texas Department of Transportation

Traffic Safety Division Standard

TRAFFIC CONTROL PLAN SEAL COAT OPERATIONS NEAR INTERSECTION

TCP(SC-4)-22

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© TxDOT October 2022	CONT	SECT	JOB	HIGHWAY
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	ATL		BOWIE	47

220

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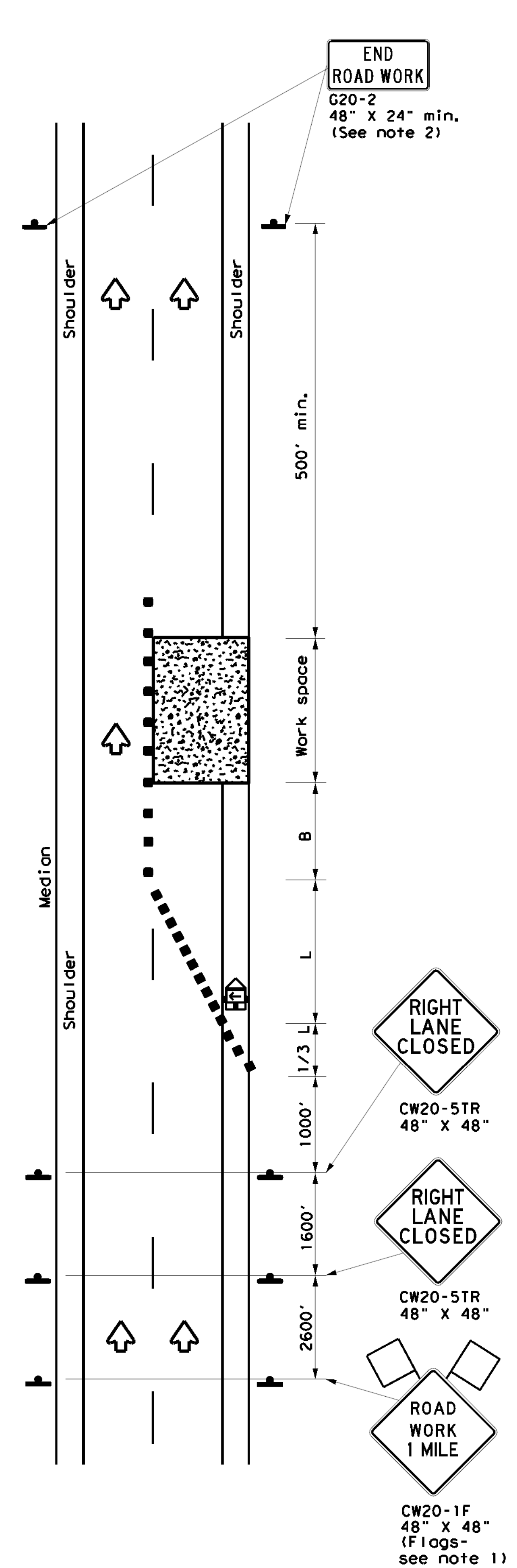
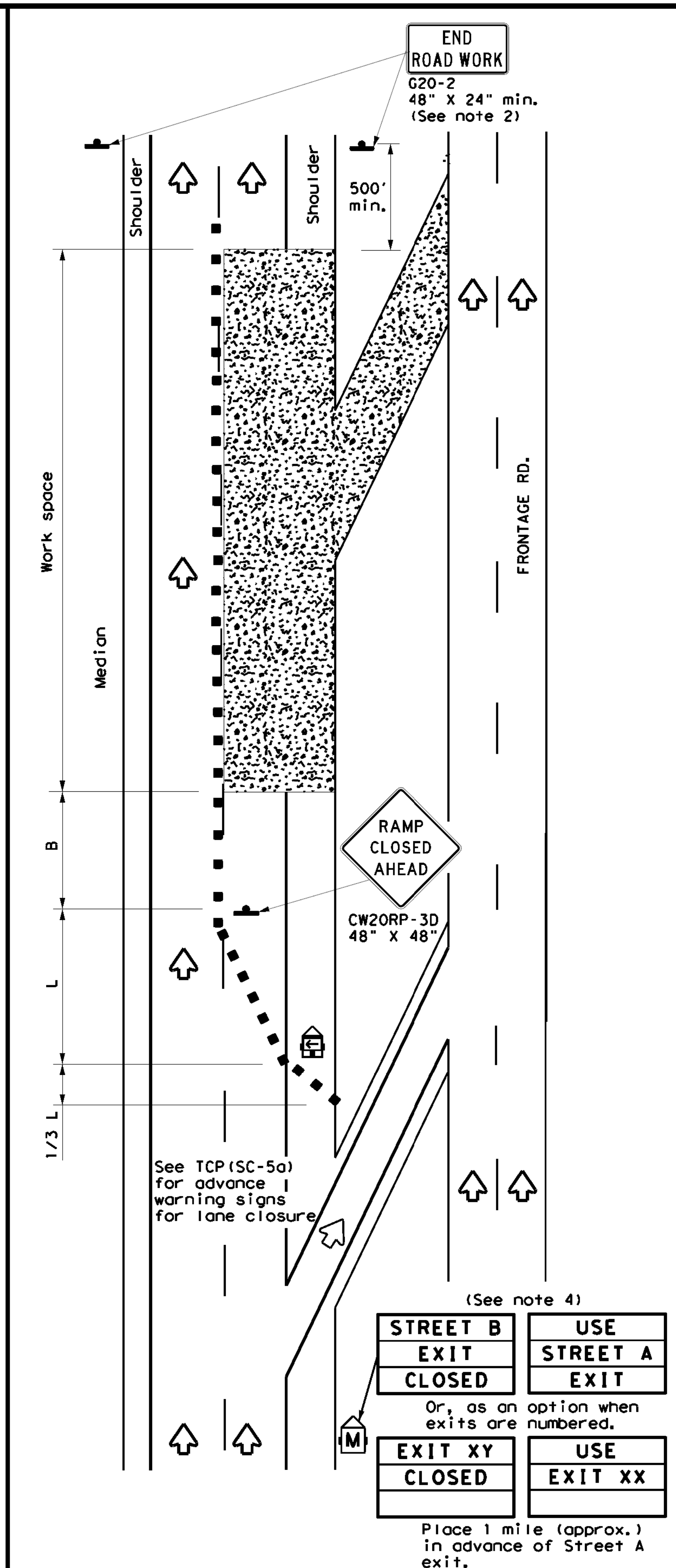


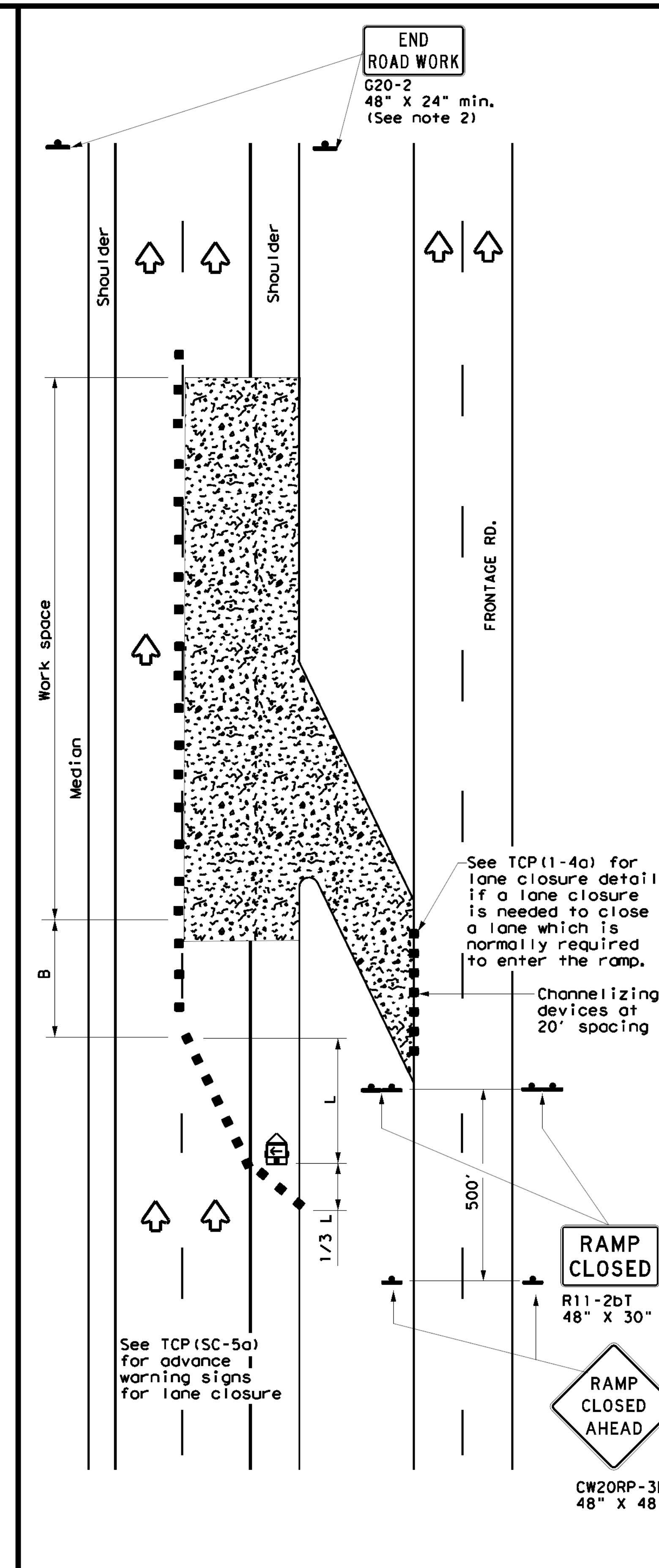
TCP (SC-5a)

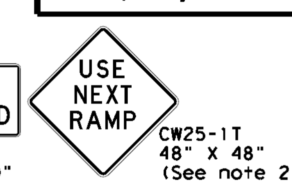
ONE LANE CLOSURE



TCP (SC-5b)

LANE AND RAMP CLOSURE AT EXIT RAMPS





TCP (SC-5c)

LANE AND RAMP CLOSURE AT ENTRANCE RAMPS

LEGEND

(symbol)	Type 3 Barricade	(symbol)	Channelizing Devices
(symbol)	Heavy Work Vehicle	(symbol)	Truck Mounted Attenuator (TMA)
(symbol)	Trailer Mounted Flashing Arrow Board	(symbol)	Portable Changeable Message Sign (PCMS)
(symbol)	Sign	(symbol)	Traffic Flow
(symbol)	Flag	(symbol)	Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing Distance "X"	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L = WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

* Conventional Roads Only
** Taper lengths have been rounded off.
L = Length of Taper (FT) W = Width of Offset (FT)
S = Posted Speed (MPH)

TYPICAL USAGE

MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
		✓		

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except:
   - If project signing is present, END ROAD WORK (G20-2) sign is optional with approval by the Engineer.
   - USE NEXT RAMP (CW25-1T) sign is optional with approval by the Engineer.
3. Channelizing devices used to close lanes may be supplemented with the Chevron Alignment Sign placed on every other channelizing device. Chevrons may be attached to plastic drums as per BC Standards.
4. The PCMS may be omitted if: it is replaced with a RAMP CLOSED AHEAD (CW20RP-3D) sign or when a permanent Dynamic Message Sign (DMS) is available in the appropriate location to display a similar message as called for on the PCMS.
5. Temporary rumble strips are not required on seal coat operations.

Texas Department of Transportation
Traffic Safety Division Standard

TRAFFIC CONTROL PLAN SEAL COAT OPERATIONS DIVIDED HIGHWAYS

TCP(SC-5)-22

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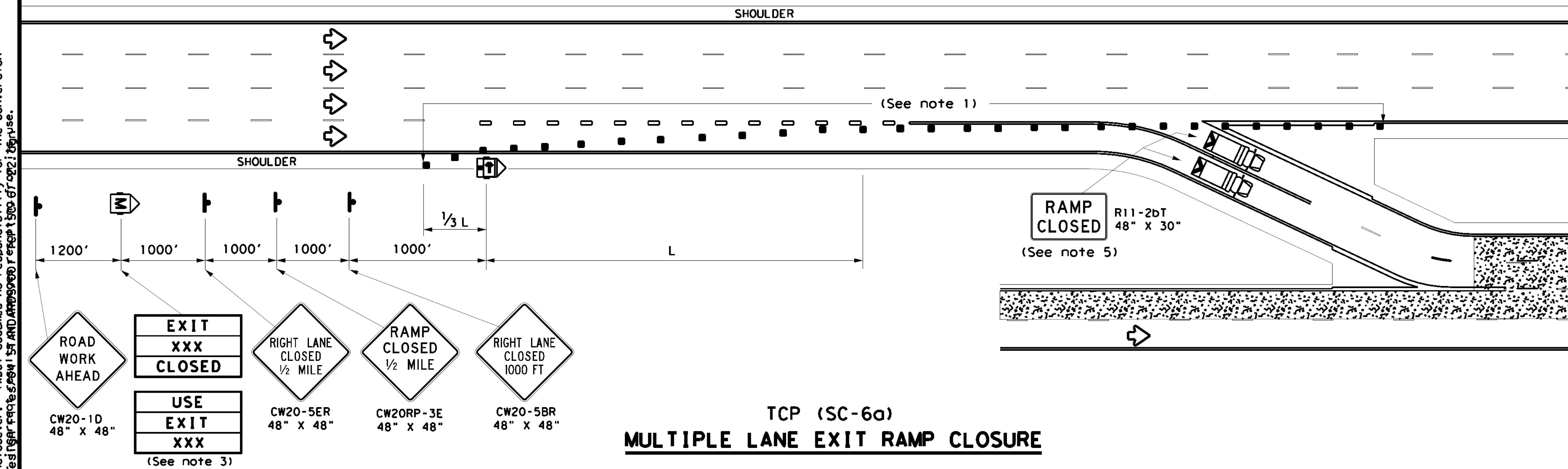
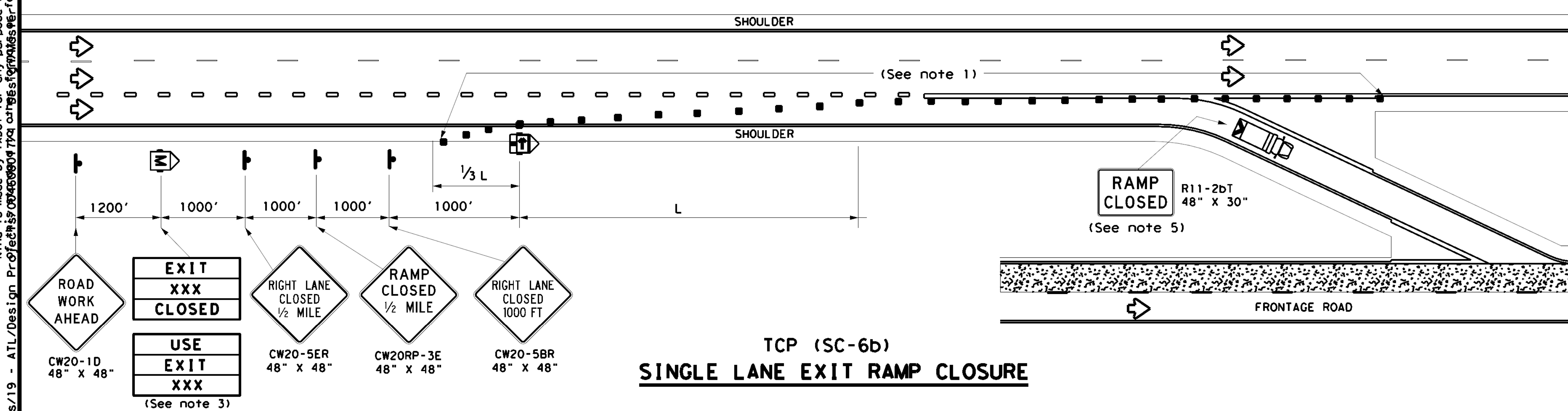


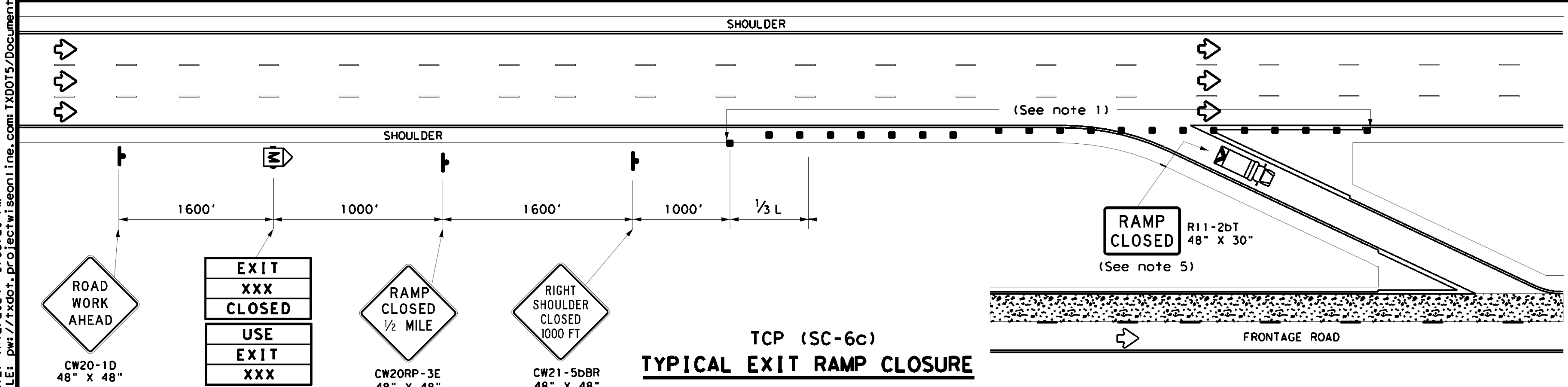
TCP (SC-6a)

MULTIPLE LANE EXIT RAMP CLOSURE



TCP (SC-6b)

SINGLE LANE EXIT RAMP CLOSURE



TCP (SC-6c)

TYPICAL EXIT RAMP CLOSURE

LEGEND

	Type 3 Barricade		Channelizing Devices (CDs)
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed	Formula	Minimum Desirable Taper Lengths "L" **			Suggested Maximum Spacing of Channelizing Devices		Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent	
45	L=WS	450'	495'	540'	45'	90'	195'
50		500'	550'	600'	50'	100'	240'
55		550'	605'	660'	55'	110'	295'
60		600'	660'	720'	60'	120'	350'
65		650'	715'	780'	65'	130'	410'
70		700'	770'	840'	70'	140'	475'
75		750'	825'	900'	75'	150'	540'
80		800'	880'	960'	80'	160'	615'
85		850'	935'	1020'	85'	170'	695'

** Taper lengths have been rounded off.
L = Length of Taper (FT) W = Width of Offset (FT)
S = Posted Speed (MPH)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

GENERAL NOTES

1. Place channelizing devices at 20' spacings. Tighter spacing allowed as necessary to address field conditions or observed driver behavior.
2. See the Standard Highway Sign Design for Texas (SHSD) for sign details.
3. The PCMS may be omitted if replaced with a RAMP CLOSED AHEAD (CW20RP-3D) sign or when a permanent Dynamic Message Sign (DMS) is available in an appropriate location to display a similar message as called for on the PCMS.
4. When it is determined that a through lane should be closed in addition to the exit ramp, refer to TCP(6-4) for traffic control details.
5. A Truck Mounted Attenuator (TMA), where shown, is REQUIRED and shall have a RAMP CLOSED (R11-2bT) sign mounted on the rear of the truck.

Texas Department of Transportation
Traffic Safety Division Standard

TRAFFIC CONTROL PLAN SEAL COAT OPERATIONS DIVIDED HIGHWAYS

TCP(SC-6)-22

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222
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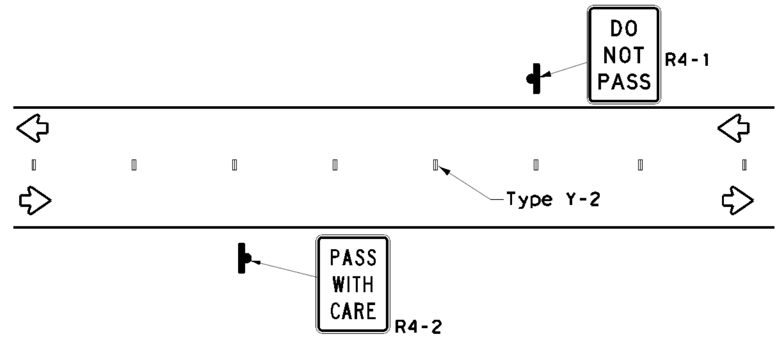
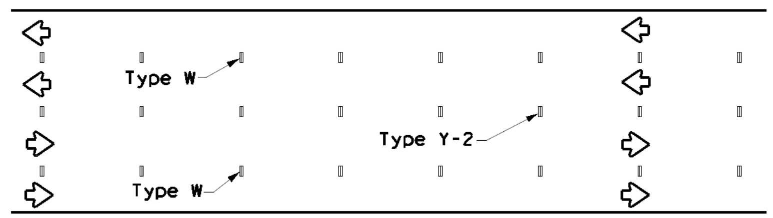
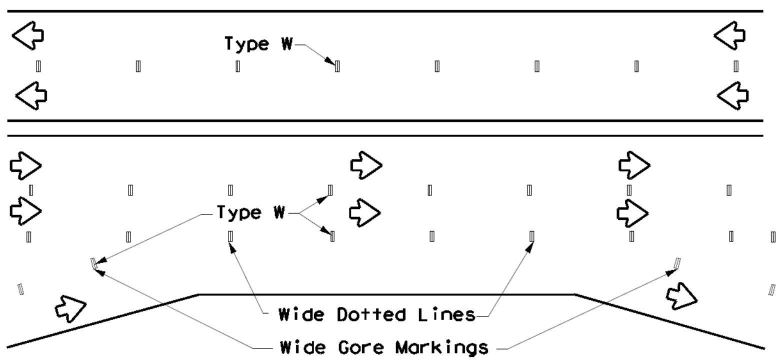
WORK ZONE SHORT TERM PAVEMENT MARKINGS PATTERNS (TABS)



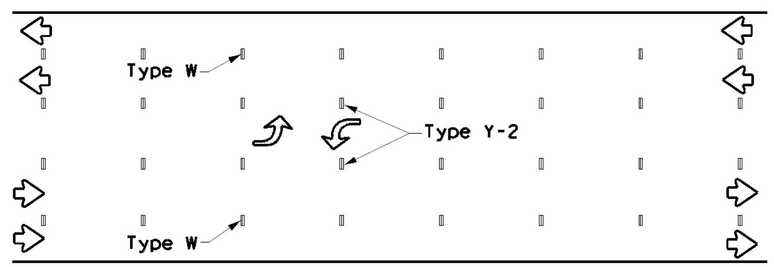
CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO LANE TWO-WAY HIGHWAYS



LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS

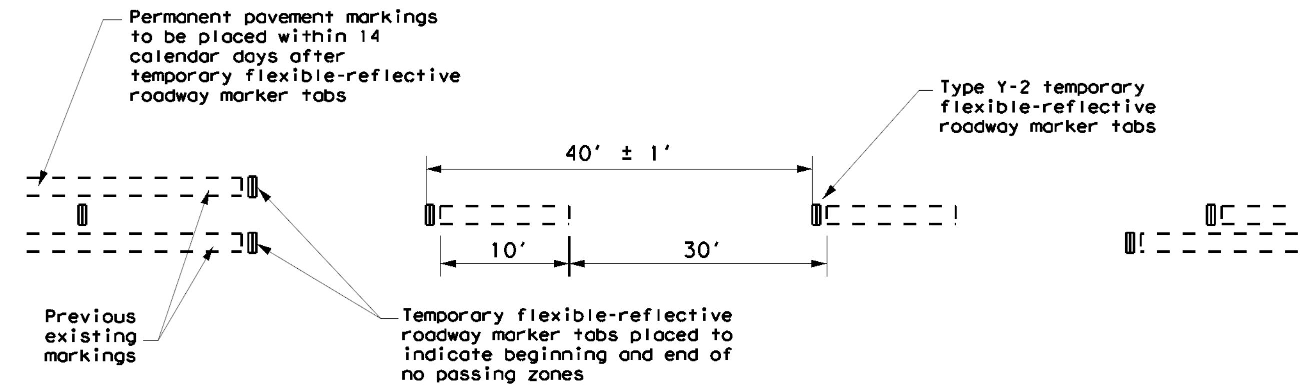


LANE LINES FOR DIVIDED HIGHWAY



TWO-WAY LEFT TURN LANE

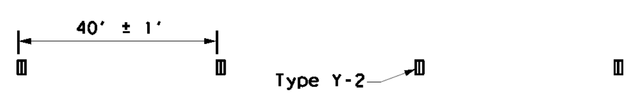
TABS ON CENTERLINES OF TWO-LANE TWO-WAY ROADS



WORK ZONE SHORT TERM PAVEMENT MARKINGS DETAILS (TABS)

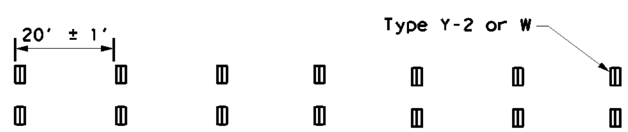
SOLID LINES

DOUBLE NO-PASSING LINE



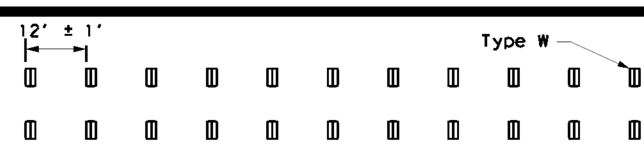
SINGLE NO-PASSING LINE or CHANNELIZATION LINE

8" WIDE SOLID LINE

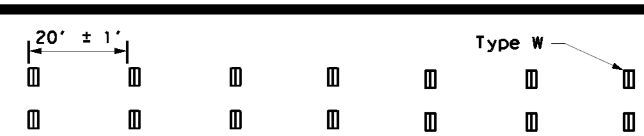


BROKEN LINES (FOR CENTER LINE OR LANE LINE)

WIDE DOTTED LINES (FOR LANE DROP LINES)



WIDE GORE MARKINGS



TEMPORARY FLEXIBLE-REFLECTIVE ROADWAY MARKER TABS

1. Temporary markings for surfacing projects shall be Temporary Flexible-Reflective Roadway Marker Tabs with protective cover unless otherwise approved by the Engineer. Tabs are to be installed to provide true alignment for striping crews or as directed by the Engineer. Tabs will be placed at the spacing indicated. Tabs should be applied to the pavement no more than two days before the surfacing is applied. After the surfacing is rolled and swept, the protective cover over the reflective strip shall be removed.
2. Temporary Flexible-Reflective Roadway Marker Tabs detailed on this sheet will be designated Type Y-2 (two amber reflective surfaces with a yellow body); Type Y (one amber reflective surface with yellow body); and Type W (one white or silver reflective surface with white body). Additional details may be found on BC(11).
3. Temporary Flexible-Reflective Roadway Marker Tabs will require normal maintenance replacement when used on roadways with an Average Daily Traffic (ADT) per lane of up to 7500 vehicles with no more than 10% truck mix. When roadway volumes exceed these values, additional maintenance replacement of these devices should be planned for.
4. When dry, tabs shall be visible for a minimum distance of 200 feet during normal daylight hours and when illuminated by automobile low- beam head light at night, unless sight distance is restricted by roadway geometrics.
5. No two consecutive tabs nor four tabs per 1000 feet of line shall be missing or fail to meet the visual performance requirements of Note 4.
6. Tabs shall meet requirements of Departmental Material Specification DMS-8242.
7. Tabs shall NOT be used to simulate edge lines.

NOTES:

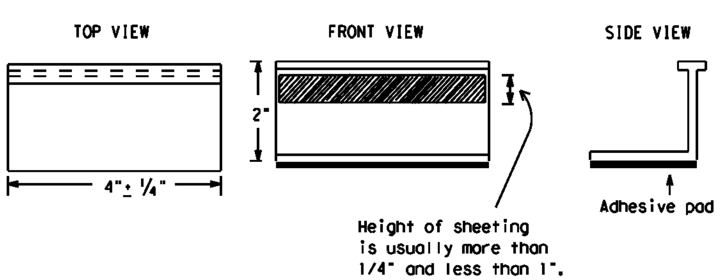
1. The Contractor will be responsible for maintaining short term pavement markings until permanent pavement markings are in place. When the Contractor is responsible for placement of permanent pavement markings, no segment of roadway shall remain without permanent pavement markings for a period greater than 14 calendar days unless weather conditions prohibit placement. Permanent pavement markings shall be placed as soon as weather permits.
2. For exit gores where a lane is being dropped, place wide gore markings or retroreflective channelizing devices to guide motorist through the exit. If channelizing devices are to be used it should be noted elsewhere in the plans. One piece cones are NOT acceptable.
3. Dimensions indicated on this sheet are typical and approximate. Variations in size and height may occur between markers or devices made by manufacturers, by as much as ¼ inch, unless otherwise noted.

DEPARTMENTAL MATERIAL SPECIFICATIONS (DMS) & MATERIAL PRODUCER LISTS (MPL)

1. DMSs referenced above may be found along with embedded links to their respective MPLs at the following website: http://www.txdot.gov

SHEET 7 OF 8

TEMPORARY FLEXIBLE-REFLECTIVE ROADWAY MARKER TABS



Texas Department of Transportation

Traffic Safety Division Standard

TEMPORARY PAVEMENT MARKINGS FOR SEAL COAT OPERATIONS

TCP(SC-7)-22

FILE:	tcpsc-7-22.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT	October 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-21 10-22		0046	08	017	SL 14
		DIST		COUNTY	SHEET NO.
		ATL		BOWIE	50

223

DATE: 7/12/2024
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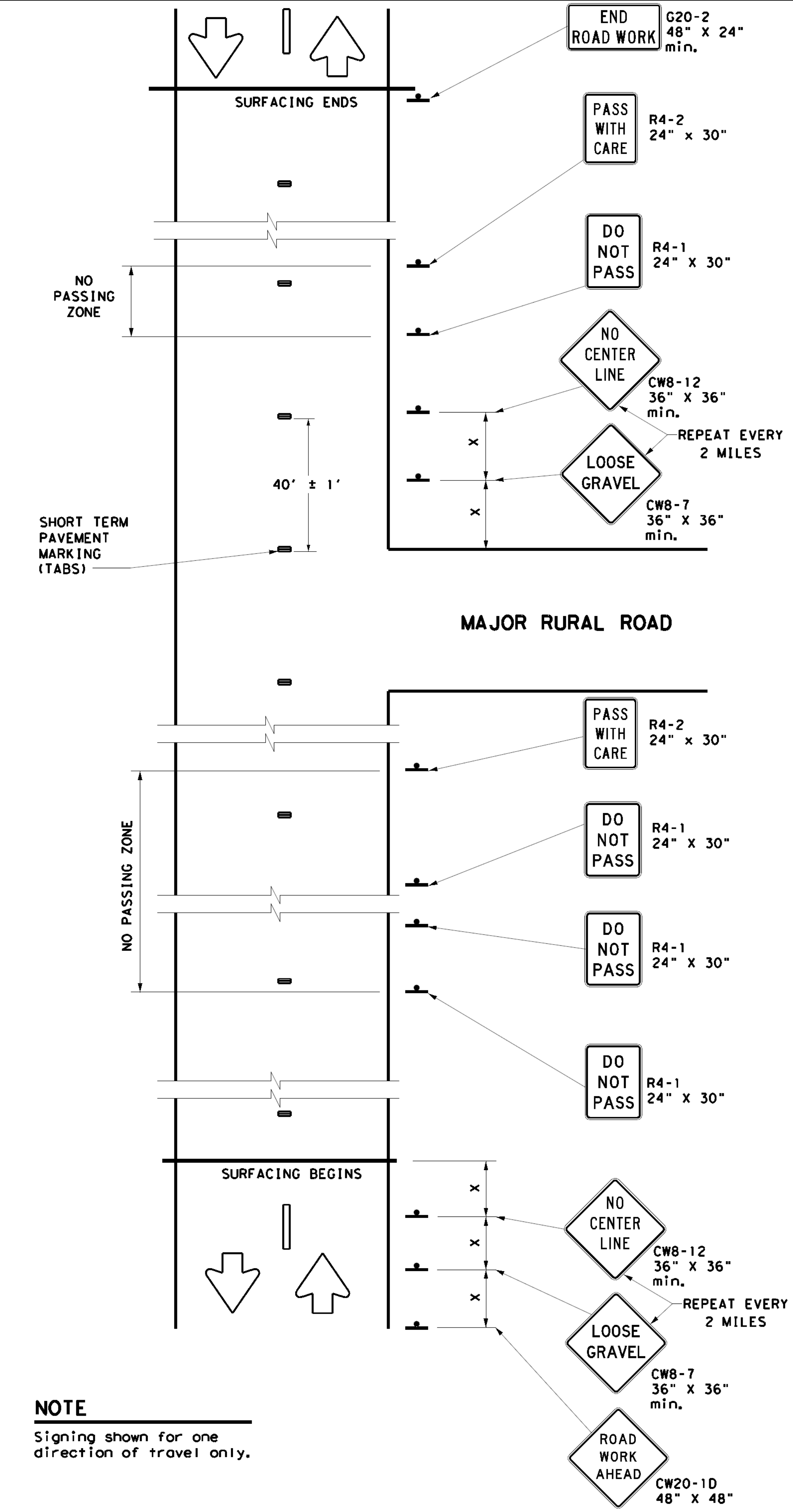

NOTE

Signing shown for one direction of travel only.

NO PASSING ZONES ON TWO-LANE TWO-WAY ROADS

DO NOT PASS (R4-1) SIGN and NO-PASSING ZONES

A. Prior to the beginning of construction, all currently striped no-passing zones shall be signed with the DO NOT PASS (R4-1) signs and PASS WITH CARE (R4-2) signs placed at the beginning and end of each zone for each direction of travel, except as otherwise provided herein. Signs marking these individual no-passing zones need not be covered prior to construction if the signs supplement the existing pavement markings.

B. At the discretion of the Engineer, in areas of numerous no-passing zones, several zones may be combined as a single zone. If passing is to be prohibitd over one or more lengthy sections, a DO NOT PASS sign and a NEXT XX MILES (R20-1TP) plaque may be used at the beginning of such zones. The DO NOT PASS sign and the NEXT XX MILES plaque should be repeated every mile to the end of the no-passing zone. In areas where there is a considerable distance between no-passing zones, the end of the no-passing zone may be signed with a PASS WITH CARE sign and a NEXT XX MILES plaque.

C. Depending on traffic volumes and length of sections, it may be desirable to prohibit passing throughout the project to prevent damage to windshields and lights. The DO NOT PASS sign and NEXT XX MILES plaque should be used and repeated as often as necessary for this purpose. Where several existing zones are to be combined into one individual no-passing zone, the sign at the beginning of the zone should be covered until the surfacing operation has passed this location so as not to have the DO NOT PASS sign conflict with the existing pavement markings. Also, unless one day of operation completes the entire length of such combined zones, appropriate DO NOT PASS and PASS WITH CARE signs should be placed at the beginning and end of the no-passing zones where the surfacing operation has stopped for the day.

D. DO NOT PASS and PASS WITH CARE signs are to remain in place until permanent pavement markings are installed.

NO CENTER LINE (CW8-12) SIGN

A. Center line markings are yellow pavement markings that delineate the separation between lanes that have opposite directions of travel on a roadway. Divided highways do not typically have center line markings.

B. At the time construction activity obliterates the existing center line markings (low volume roads may not have an existing center line), a NO CENTER LINE (CW8-12) sign should be erected at the beginning of the work area, at approximately two mile intervals within the work area, beyond major intersections, and other locations deemed necessary by the Engineer.

C. The NO CENTER LINE signs are to remain in place until permanent pavement markings are installed.

LOOSE GRAVEL (CW8-7) SIGN

A. When construction begins, a LOOSE GRAVEL (CW8-7) sign should be erected at each end of the work area and repeated at intervals of approximately two miles in rural areas and closer in urban areas.

B. The LOOSE GRAVEL signs are to remain in place until the condition no longer exists.

COORDINATION OF SIGN LOCATIONS

A. The location of warning signs at the beginning and end of a work area are to be coordinated with other signing typically shown on the Barricade and Construction Standards for project limits to ensure adequate sign spacing.

B. Where possible, the ROAD WORK AHEAD (CW20-1D), LOOSE GRAVEL (CW8-7), and NO CENTER LINE (CW8-12) signs should be placed:
   a.) In the sequence shown following the OBEY WARNING SIGNS STATE LAW (R20-3T) sign and the TRAFFIC FINES DOUBLE (R20-5T) sign; and
   b.) One "X" sign spacing prior to the CONTRACTOR (G20-6T) sign typically located at or near the limits of surfacing.
LOOSE GRAVEL and NO CENTER LINE sign placements will then be repeated as described above.

Posted Speed *	Minimum Sign Spacing Distance "X"
30	120'
35	160'
40	240'
45	320'
50	400'
55	500'
60	600'
65	700'
70	800'
75	900'

* Conventional Roads Only

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

GENERAL NOTES

1. Surfacing operations that cover or obliterate existing pavement markings must first have the passing zones clearly marked with tabs as well as having any of the traffic control devices detailed on this sheet furnished and erected as directed by the Engineer.

2. The devices shown on this sheet are to be used to supplement those required by the BC Standards or others required elsewhere in the plans.

3. Signs shall be erected as detailed on the BC Standards or the Compliant Work Zone Traffic Control Devices List (CWZTCD) on supports approved for Short Duration / Short Term Stationary Work Zone Sign Supports.

4. When surfacing operations take place on divided highways, freeways or expressways, the size of diamond shaped construction warning signs shall be 48" x 48".

5. Signs on divided highways, freeways and expressways should be placed on both right and left sides of the roadway based on roadway conditions as directed by the Engineer.

SHEET 8 OF 8

Texas Department of Transportation — Traffic Safety Division Standard

TRAFFIC CONTROL DETAILS FOR SEAL COAT OPERATIONS

TCP(SC-8)-22

FILE: tcpsc-8-22.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT October 2022	CONT	SECT	JOB	HIGHWAY
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4-21	DIST		COUNTY	SHEET NO.
10-22	ATL		BOWIE	51

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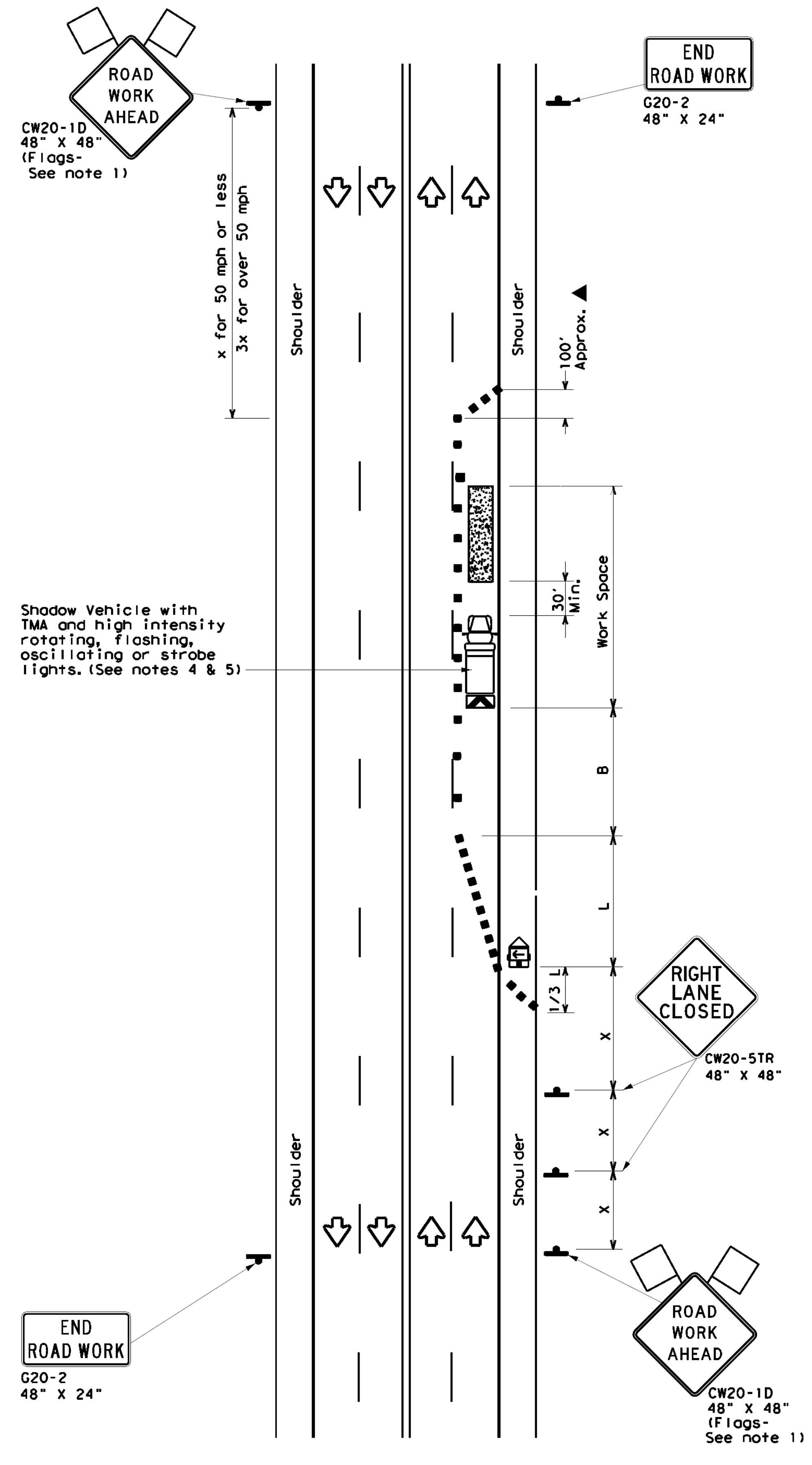
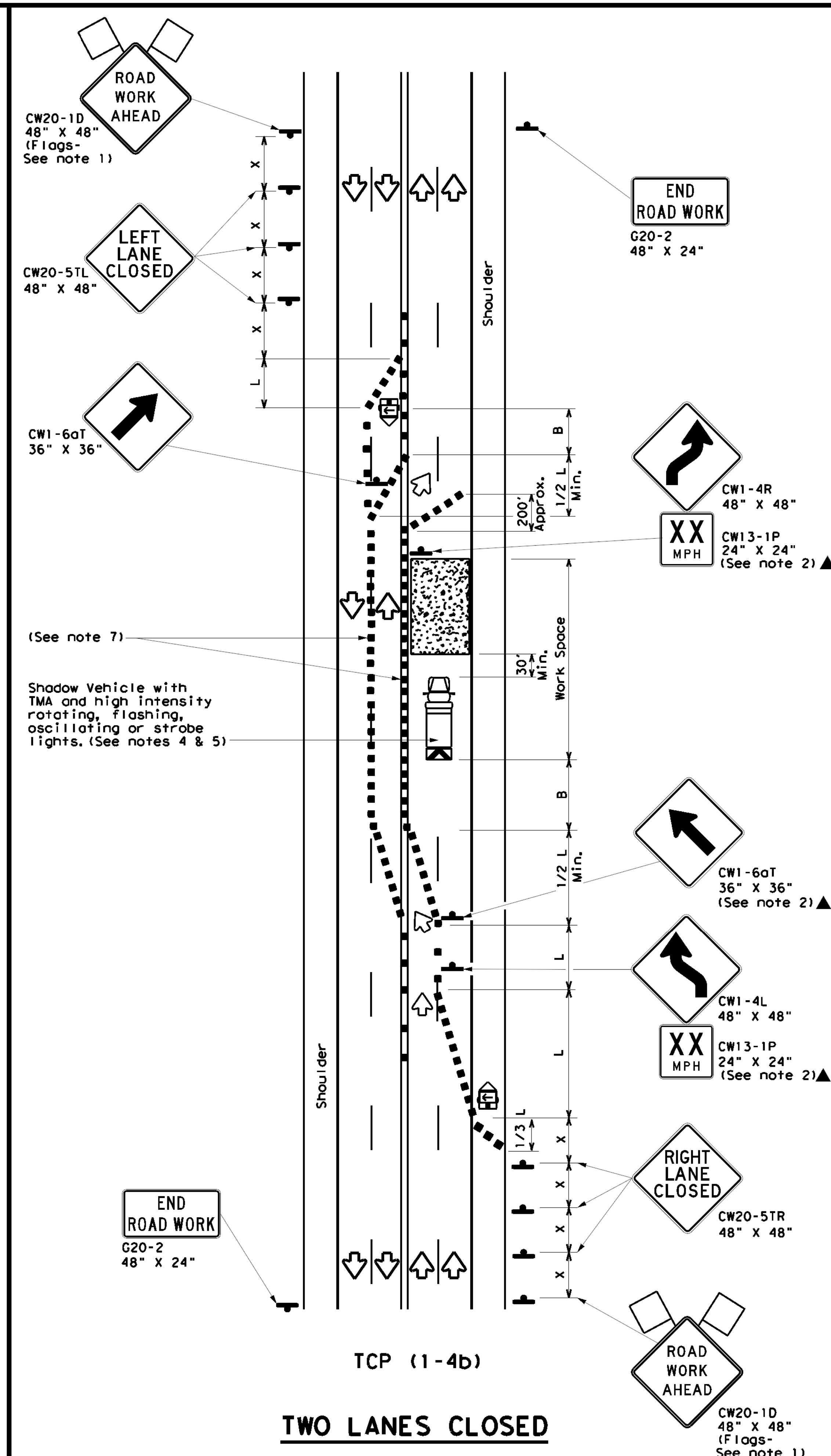


TCP (1-4a)

ONE LANE CLOSED



TCP (1-4b)

TWO LANES CLOSED

LEGEND

	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L=WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

* Conventional Roads Only
** Taper lengths have been rounded off.
L=Length of Taper(FT) W=Width of Offset(FT) S=Posted Speed(MPH)

TYPICAL USAGE

MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

GENERAL NOTES

1. Flags attached to signs where shown are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. The CW20-1D "ROAD WORK AHEAD" sign may be repeated if the visibility of the work zone is less than 1500 feet.
4. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
5. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.

TCP (1-4a)

6. If this TCP is used for a left lane closure , CW20-5TL "LEFT LANE CLOSED" signs shall be used and channelizing devices shall be placed on the centerline where needed to protect the work space from opposing traffic with the arrow panel placed in the closed lane near the end of the merging taper.

TCP (1-4b)

7. Where traffic is directed over a yellow centerline, channelizing devices which separate two-way traffic should be spaced on tapers at 20' or 15' if posted speeds are 35 mph or slower, and for tangent sections, at 1/2S where S is the speed in mph. This tighter device spacing is intended for the areas of conflicting markings, not the entire work zone.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN LANE CLOSURES ON MULTILANE CONVENTIONAL ROADS

TCP(1-4)-18

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© TxDOT December 1985	CONT 0046	SECT 08	JOB 017	HIGHWAY SL 14
REVISIONS 2-94 4-98 8-95 2-12 1-97 2-18	DIST ATL		COUNTY BOWIE	SHEET NO. 52

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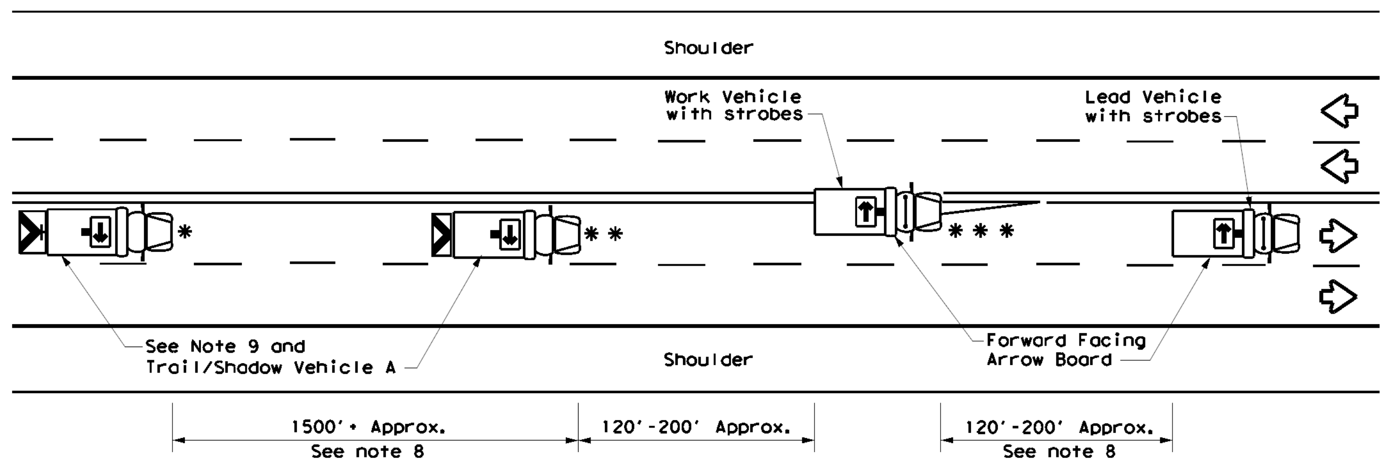
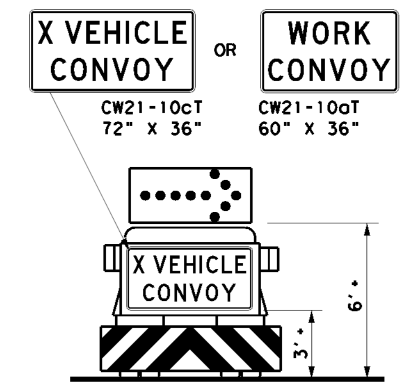


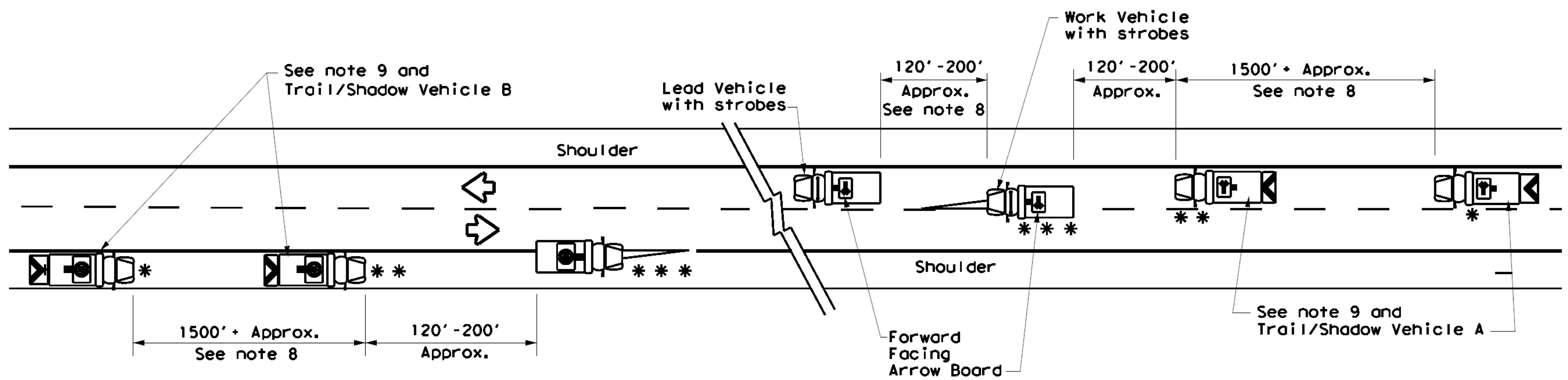
TCP (3-1a)

UNDIVIDED MULTILANE ROADWAY



TRAIL/SHADOW VEHICLE A

with RIGHT Directional display Flashing Arrow Board

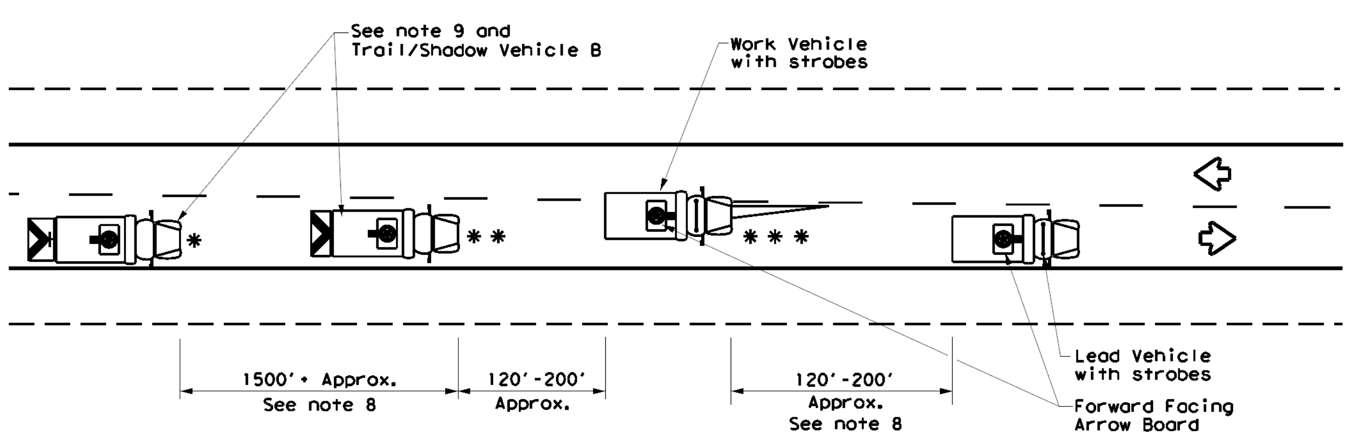


WORK ON SHOULDER

WORK ON TRAVEL LANE

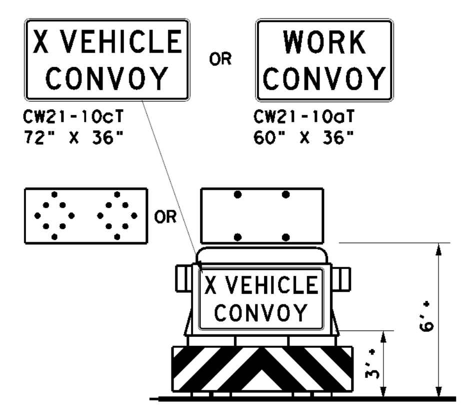
TCP (3-1b)

TWO-WAY ROADWAY WITH PAVED SHOULDERS



TCP (3-1c)

TWO-WAY ROADWAY WITHOUT PAVED SHOULDERS



TRAIL/SHADOW VEHICLE B

with Flashing Arrow Board in CAUTION display

LEGEND

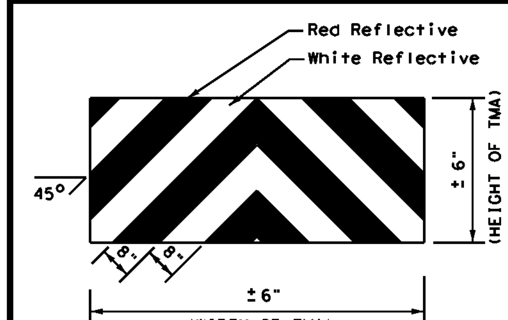
Symbol	Description	Symbol	ARROW BOARD DISPLAY
*	Trail Vehicle		
**	Shadow Vehicle		
***	Work Vehicle		RIGHT Directional
	Heavy Work Vehicle		LEFT Directional
	Truck Mounted Attenuator (TMA)		Double Arrow
	Traffic Flow		CAUTION (Alternating Diamond or 4 Corner Flash)

TYPICAL USAGE

MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
✓				

GENERAL NOTES

1. TRAIL, SHADOW, and LEAD vehicles shall be equipped with arrow boards as illustrated. When a LEAD vehicle is not used the WORK vehicle must be equipped with an arrow board. The Engineer will determine if the LEAD VEHICLE and/or TRAIL VEHICLE are required based on prevailing roadway conditions, traffic volume, and sight distance restrictions.
2. The use of amber high intensity rotating, flashing, oscillating, or strobe lights on vehicles are required. Blue high intensity rotating, flashing, oscillating or strobe lights when mounted on the driver's side of the vehicle may be operated simultaneously with the amber beacons or strobe lights.
3. The use of truck mounted attenuators (TMA) on the SHADOW VEHICLE and TRAIL VEHICLE are required.
4. Reflective sheeting on the rear of the TMA shall meet or exceed the reflectivity and color requirements of DEPARTMENTAL MATERIAL SPECIFICATION DMS 8300, Type A.
5. Flashing arrow boards shall be Type B or Type C as per the Barricade and Construction (BC) standards. The board shall be controlled from inside the vehicle.
6. Each vehicle shall have two-way radio communication capability.
7. When work convoys must change lanes, the TRAIL VEHICLE should change lanes first to shadow the other convoy vehicles.
8. Vehicle spacing between the TRAIL VEHICLE and the SHADOW VEHICLE will vary depending on sight distance restrictions. Motorists approaching the work convoy should be able to see the TRAIL VEHICLE in time to slow down and/or change lanes as they approach the TRAIL VEHICLE. Vehicle spacing between the WORK VEHICLE and SHADOW VEHICLE and vehicle spacing between WORK VEHICLE and LEAD VEHICLE may vary according to terrain, work activity and other factors.
9. "X VEHICLE CONVOY" (CW21-10cT) or "WORK CONVOY" (CW21-10aT) signs shall be used on TRAIL VEHICLES and SHADOW VEHICLES as shown. As an option 48" X 48" diamond shaped "WORK CONVOY"(CW21-10T) or "X VEHICLE CONVOY" (CW21-10bT) signs may be used where adequate mounting space exists. When used, the X VEHICLE CONVOY sign shall have the number of the convoy vehicles displayed on the sign in the number designation "X" location. The "X VEHICLE CONVOY" sign shall not be used on the SHADOW VEHICLE if a TRAIL VEHICLE is used.
10. On two-lane two-way roadways, the work and protection vehicles should pull over periodically to allow motor vehicle traffic to pass. If motorists are not allowed to pass the work convoy, a "DO NOT PASS" (R4-1) sign should be placed on the back of the rearmost protection vehicle.



STRIPING FOR TMA

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN MOBILE OPERATIONS UNDIVIDED HIGHWAYS

TCP(3-1)-13

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© TxDOT December 1985	CONT 0046	SECT 08	JOB 017	HIGHWAY SL 14
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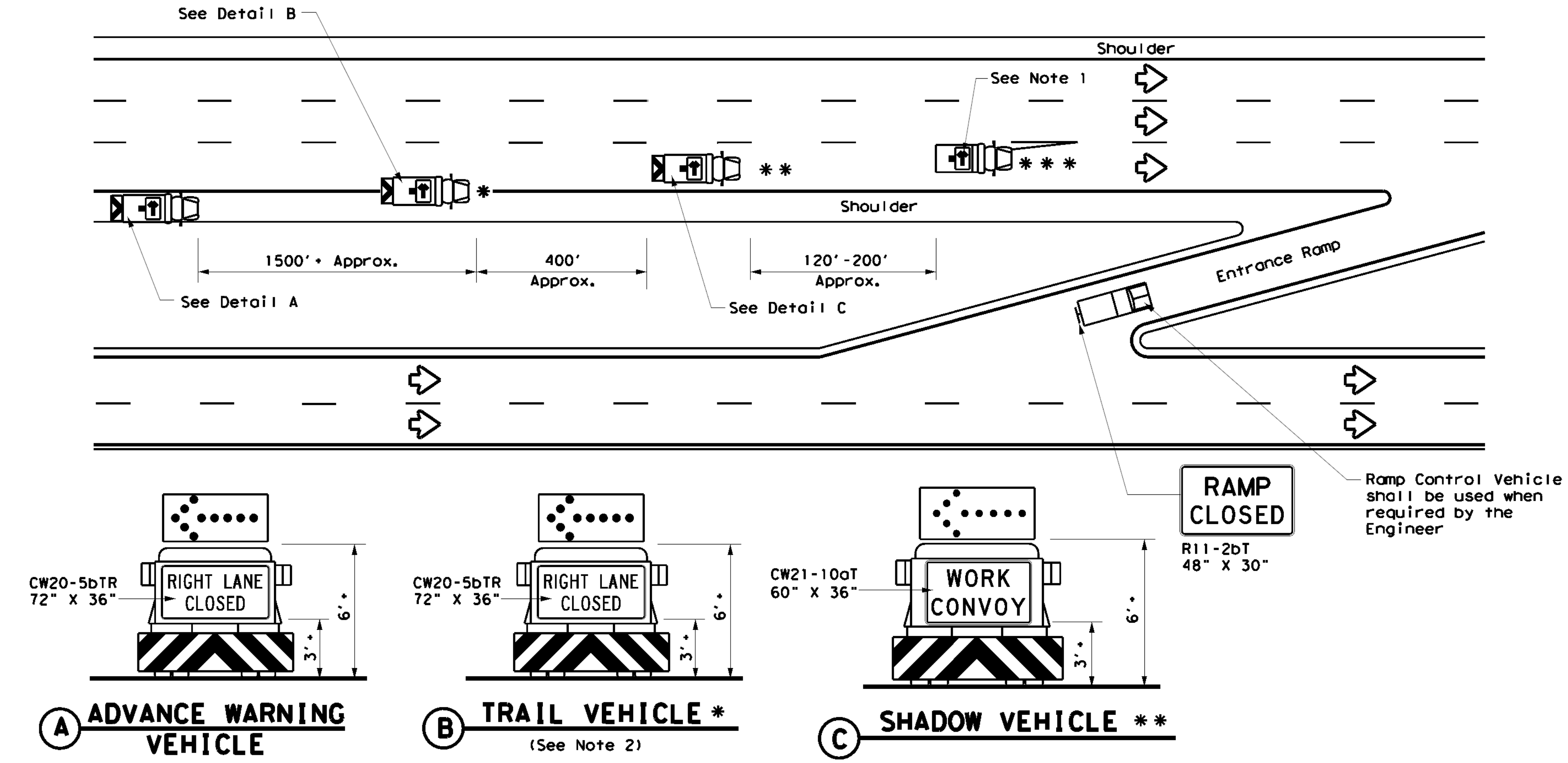
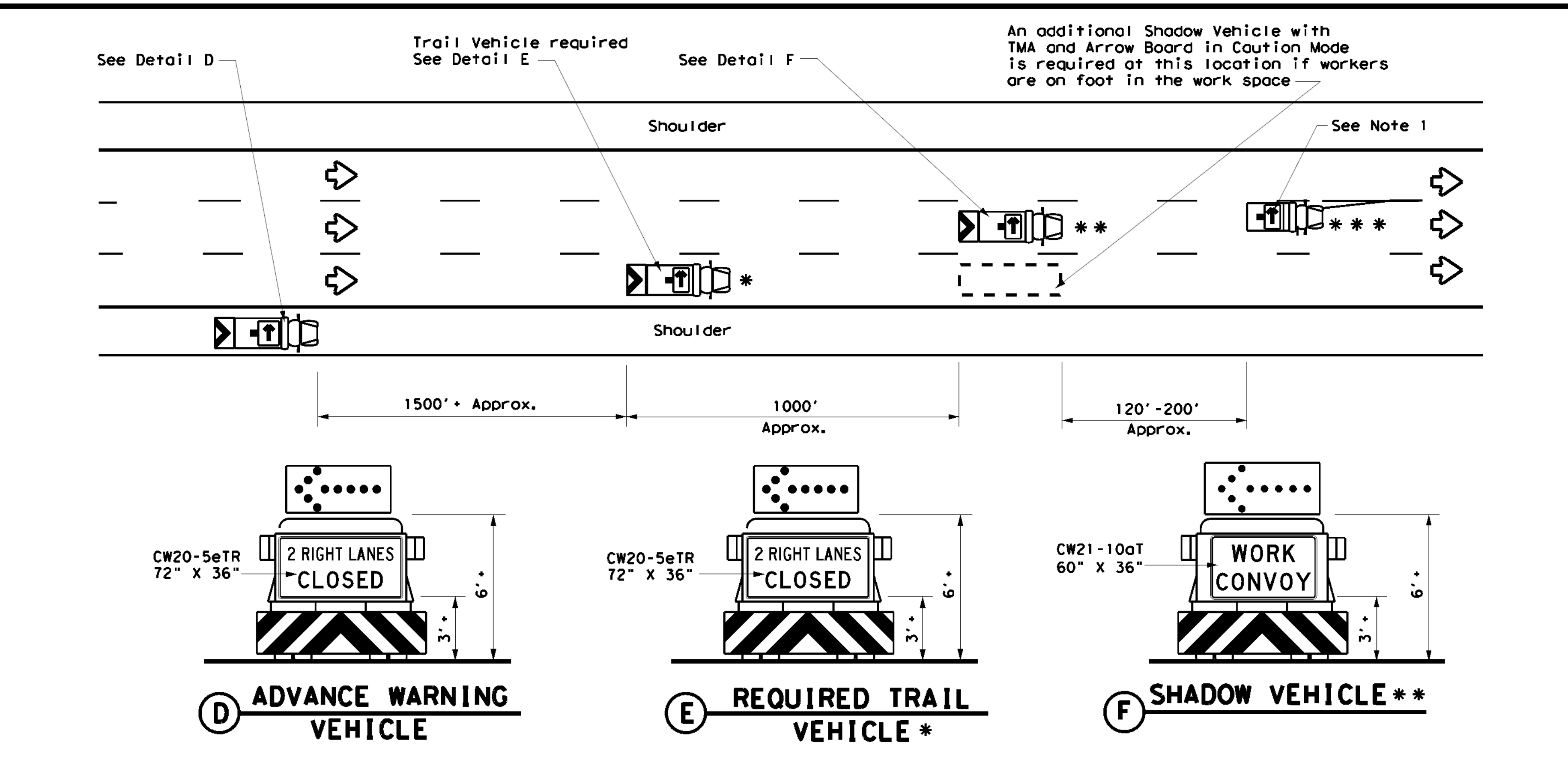


RIGHT LANE CLOSURE ON DIVIDED HIGHWAY - TCP(3-2a)



INTERIOR LANE CLOSURE ON MULTI-LANE DIVIDED HIGHWAY - TCP(3-2b)

LEGEND

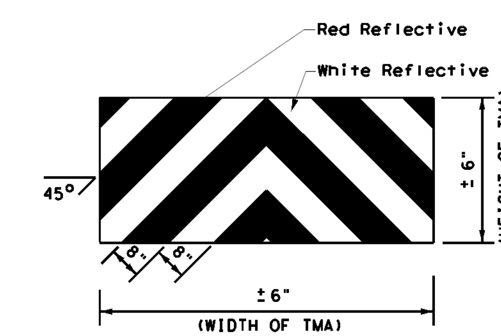
Symbol	Description	Symbol	ARROW BOARD DISPLAY
*	Trail Vehicle		
* *	Shadow Vehicle		
* * *	Work Vehicle		RIGHT Directional
	Heavy Work Vehicle		LEFT Directional
	Truck Mounted Attenuator (TMA)		Double Arrow
	Traffic Flow		CAUTION (Alternating Diamond or 4 Corner Flash)

TYPICAL USAGE

MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
✓				

GENERAL NOTES

1. ADVANCE WARNING, TRAIL and SHADOW vehicles shall be equipped with Type B or Type C flashing arrow boards as per the Barricade and Construction (BC) standards. Arrow boards on WORK vehicles will be optional based on the type of work being performed. The arrow boards shall be operated from inside the vehicle.
2. For TCP(3-2a) the Engineer will determine if the TRAIL VEHICLE is required based on prevailing roadway conditions, traffic volume, and sight distance restrictions. All other vehicles shown for both TCP(3-2a) and TCP(3-2b) are required.
3. The use of amber high intensity rotating, flashing, oscillating, or strobe lights on vehicles are required. Blue high intensity rotating, flashing, oscillating or strobe lights when mounted on the driver's side of the vehicle may be operated simultaneously with the amber beacons or strobe lights.
4. The use of truck mounted attenuators (TMA) on the ADVANCE WARNING, SHADOW, and TRAIL vehicles are required.
5. Reflective sheeting on the rear of the TMA shall meet or exceed the reflectivity and color requirements of DMS 8300, Type A.
6. Each vehicle shall have two-way radio communication capability.
7. When work convoys must change lanes, the TRAIL VEHICLE should change lanes first to shadow the other convoy vehicles.
8. Vehicle spacing between the TRAIL VEHICLE and the SHADOW VEHICLE will vary depending on sight distance restrictions. Motorists approaching the work convoy should be able to see the TRAIL VEHICLE in time to slow down and/or change lanes as they approach the TRAIL VEHICLE. Vehicle spacing between the WORK VEHICLE and SHADOW VEHICLE may vary according to terrain, work activity and other factors.
9. Standard 48" X 48" diamond shaped warning signs with the same message as those shown may be used where adequate mounting space exists.
10. The signs shown should be used on the Advance Warning Vehicle. As an option, a portable changeable message sign (PCMS) or a truck mounted changeable message sign (TMCMS) with a minimum character height of 12", and displaying the same legend may be substituted for these signs. An appropriate directional arrow display, simulating the size and legibility of the flashing arrow board, must be used in the second phase of the PCMS/TMCMS message. When this is done, the arrow board will not be required on the Advance Warning Vehicle.
11. Standard diamond shape versions of the CW20-5 series signs may be used as an option if the rectangular signs shown are not available.
12. The principles on this sheet may be used to close lanes from the left side of the roadway considering the number of lanes, shoulder width, sight distance, and ramp frequency.
13. Signs and flashing arrow board modes shall be appropriately altered when implementing left lane closures or interior closures which close the left lanes.
14. The Advance Warning Vehicle may straddle the edgeline when shoulder width makes it necessary.



STRIPING FOR TMA

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN MOBILE OPERATIONS DIVIDED HIGHWAYS

TCP(3-2)-13

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176

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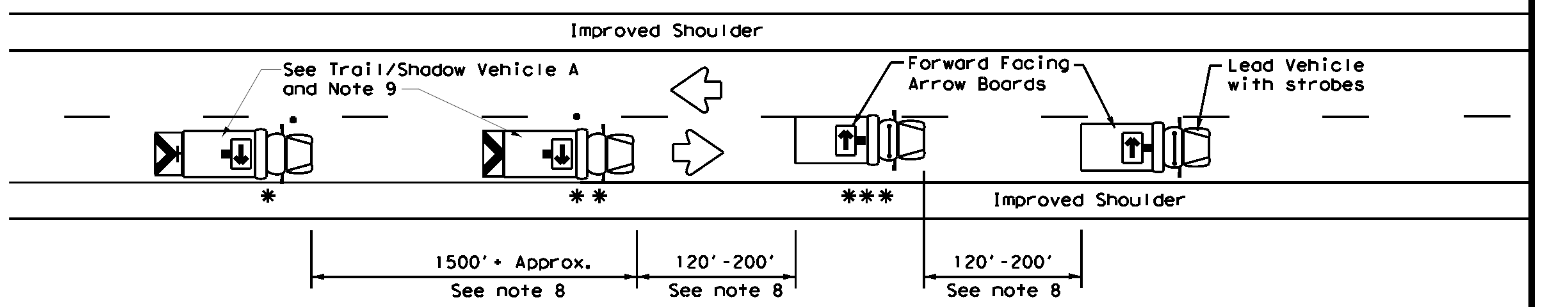
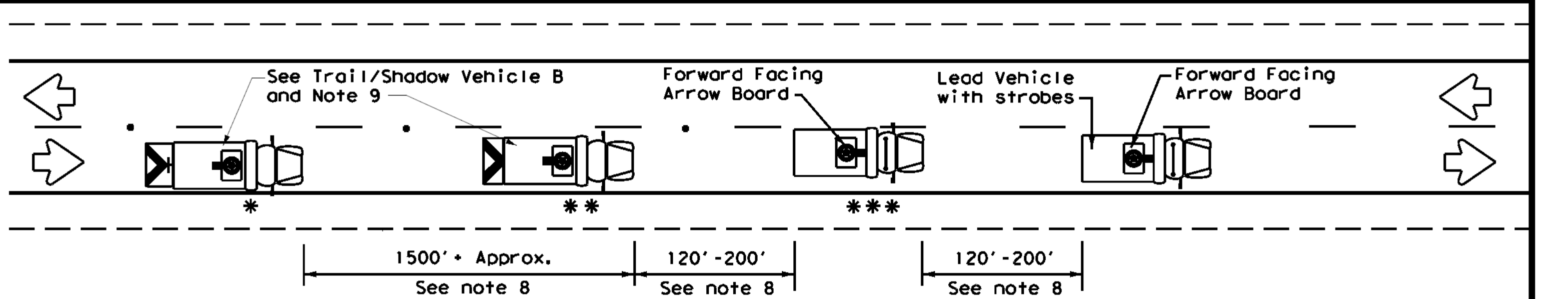


TCP (3-3a)

TWO LANE HIGHWAY WITH PAVED SHOULDERS

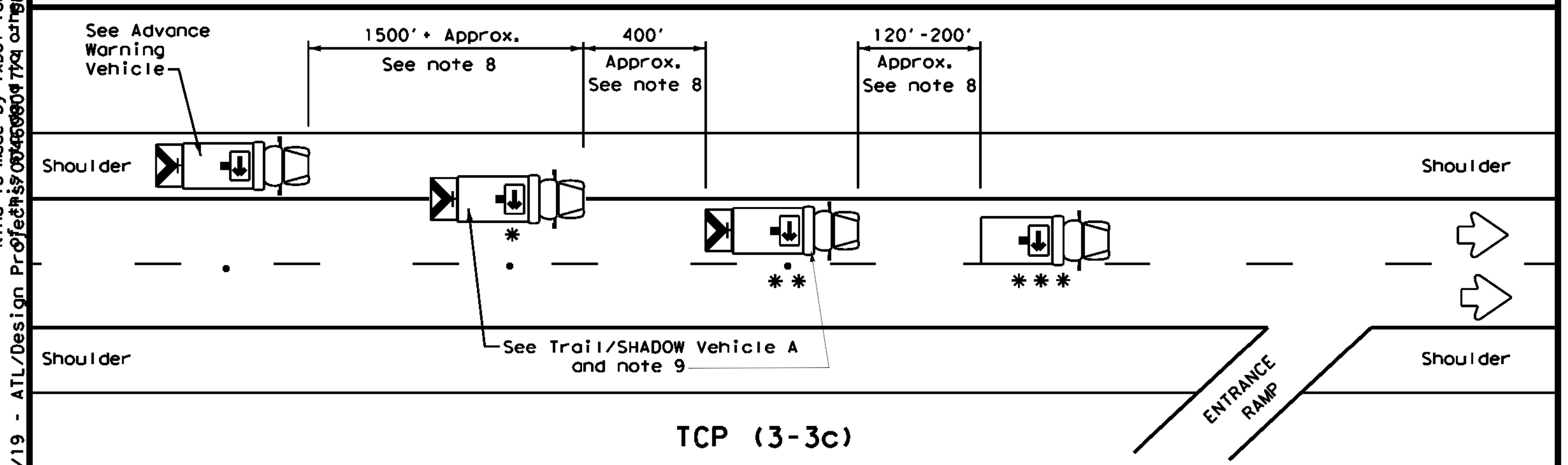
(WORK ON TRAVEL LANE)



TCP (3-3b)

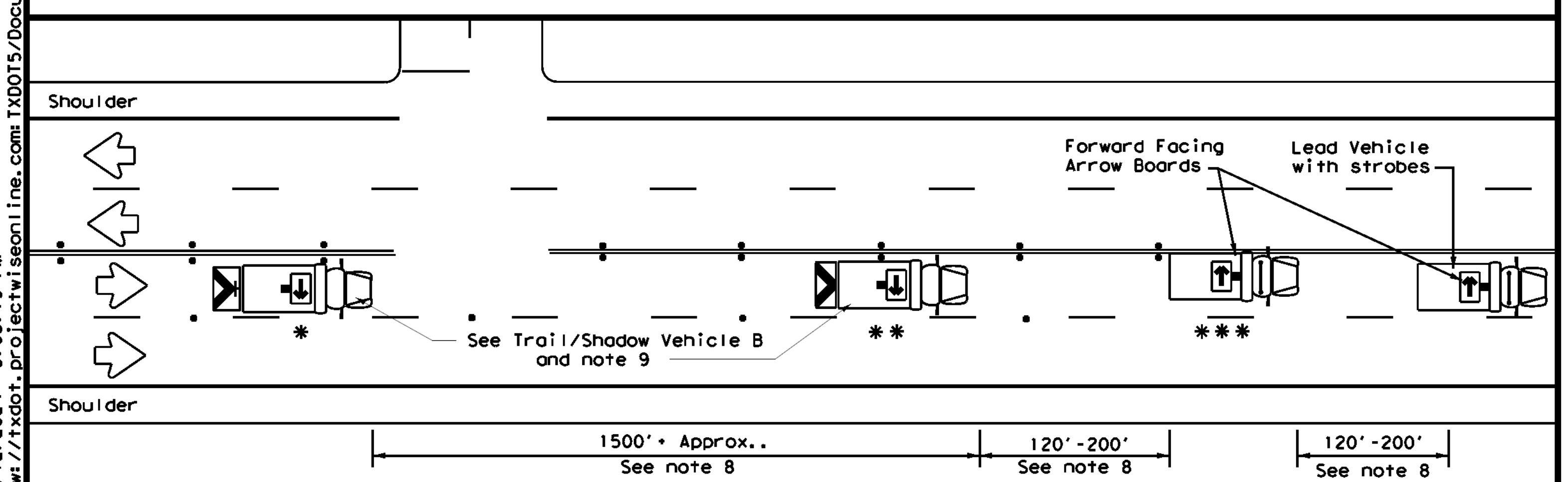
TWO LANE HIGHWAY WITHOUT PAVED SHOULDERS

(WORK ON TRAVEL LANE)



TCP (3-3c)

DIVIDED MULTILANE HIGHWAY



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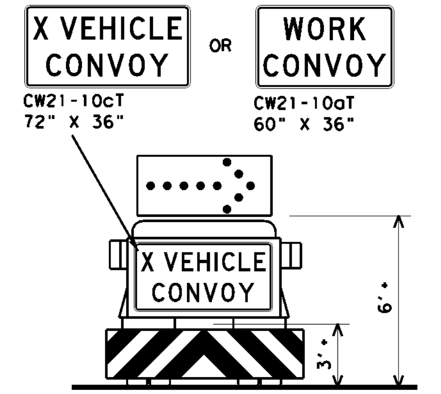
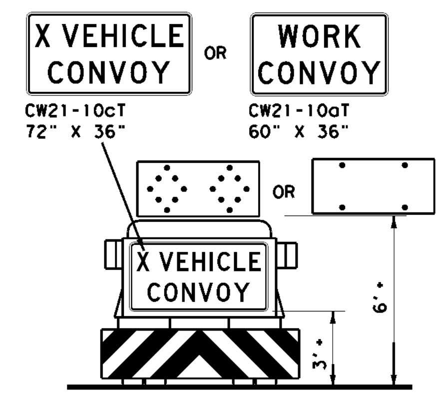
UNDIVIDED MULTILANE HIGHWAY



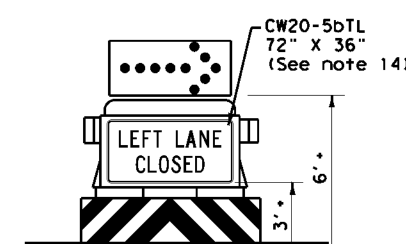
TRAIL/SHADOW VEHICLE A

with RIGHT Directional display
Flashing Arrow Board

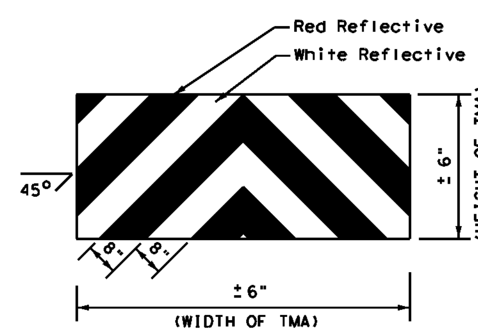


TRAIL/SHADOW VEHICLE B

with Flashing Arrow Board
in Caution Mode



ADVANCE WARNING VEHICLE



STRIPING FOR TMA

LEGEND

		ARROW BOARD DISPLAY	
*	Trail Vehicle		
**	Shadow Vehicle		
***	Work Vehicle	(symbol)	RIGHT Directional
(symbol)	Heavy Work Vehicle	(symbol)	LEFT Directional
(symbol)	Truck Mounted Attenuator (TMA)	(symbol)	Double Arrow
(symbol)	Traffic Flow	(symbol)	CAUTION (Alternating Diamond or 4 Corner Flash)

TYPICAL USAGE

MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
✓				

GENERAL NOTES

1. TRAIL, SHADOW, and LEAD vehicles shall be equipped with arrow boards as illustrated. When a LEAD vehicle is not used on two way roads the WORK vehicle must have an arrow board. For divided roadways, the arrow board on the WORK vehicle is optional based on the type of work being performed. The Engineer will determine if the LEAD vehicle and/or TRAIL vehicle are required based on prevailing roadway conditions, traffic volume, and sight distance restrictions.
2. The use of amber high intensity rotating, flashing, oscillating, or strobe lights on vehicles are required. Blue high intensity rotating, flashing, oscillating, or strobe lights when mounted on the driver's side of the vehicle may be operated simultaneously with the amber beacons or strobe lights.
3. The use of truck mounted attenuators (TMA) on the SHADOW VEHICLE, ADVANCE WARNING and TRAIL VEHICLE are required.
4. Reflective sheeting on the rear of the TMA shall meet or exceed the reflectivity and color requirements of DEPARTMENTAL MATERIAL SPECIFICATION DMS 8300, Type A.
5. Flashing arrow boards shall be Type B or Type C as per the Barricade and Construction (BC) standards. The board shall be controlled from inside the vehicle.
6. Each vehicle shall have two-way radio communication capability.
7. When work convoys must change lanes, the TRAIL VEHICLE should change lanes first to shadow the other convoy vehicles.
8. Vehicle spacing between the TRAIL VEHICLE and the SHADOW VEHICLE will vary depending on sight distance restrictions. Motorists approaching the convoy should be able to see the TRAIL VEHICLE in time to slow down and/or change lanes as they approach the TRAIL VEHICLE. Vehicle spacing between the WORK VEHICLE and SHADOW VEHICLE and vehicle spacing between WORK VEHICLE and LEAD VEHICLE may vary according to terrain, work activity and other factors.
9. X VEHICLE CONVOY (CW21-10cT) or WORK CONVOY (CW21-10aT) signs shall be used on TRAIL VEHICLES and SHADOW VEHICLES as shown. As an option 48" x 48" diamond shaped WORK CONVOY (CW21-10T) or X VEHICLE CONVOY (CW21-10bT) signs may be used where adequate mounting space exists. When used, the X VEHICLE CONVOY sign shall have the number of the convoy vehicles displayed on the sign in the number designation "X" location. The X VEHICLE CONVOY sign shall not be used on the SHADOW VEHICLE if a TRAIL VEHICLE is used.
10. For divided highways with two or three lanes in one direction, the appropriate LEFT LANE CLOSED (CW20-5bTL), RIGHT LANE CLOSED (CW20-5bTR), or CENTER LANE CLOSED (CW20-5dT) sign should be used on the Advance Warning Vehicle. As an option, a portable changeable message sign (PCMS) or truck mounted changeable message sign (TMCMS) with a minimum character height of 12", and displaying the same legend may be substituted for these signs. An appropriate directional arrow display, simulating the size and legibility of the flashing arrow board may be used in the second phase of the PCMS/TMCMS message. When this is done, the arrow board will not be required on the Advance Warning Vehicle.
11. A double arrow shall not be displayed on the arrow board on the Advance Warning Vehicle.
12. For divided highways with three or four lanes in each direction, use TCP(3-2).
13. Standard diamond shape versions of the CW20-5 series signs may be used as an option if the rectangular signs shown are not available.
14. The Advance Warning Vehicle may straddle the edgeline when Shoulder width makes it necessary.
15. On two-lane two-way roadways, the work and protection vehicles should pull over periodically to allow motor vehicle traffic to pass. If motorists are not allowed to pass the work convoy, a DO NOT PASS (R4-1) sign should be placed on the back of the rearmost protection vehicle.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
MOBILE OPERATIONS
RAISED PAVEMENT MARKER INSTALLATION/ REMOVAL

TCP(3-3)-14

FILE: tcp3-3.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT September 1987	CONT	SECT	JOB	HIGHWAY
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2-94 4-98 / 8-95 7-13 / 1-97 7-14	DIST		COUNTY	SHEET NO.
	ATL		BOWIE	55

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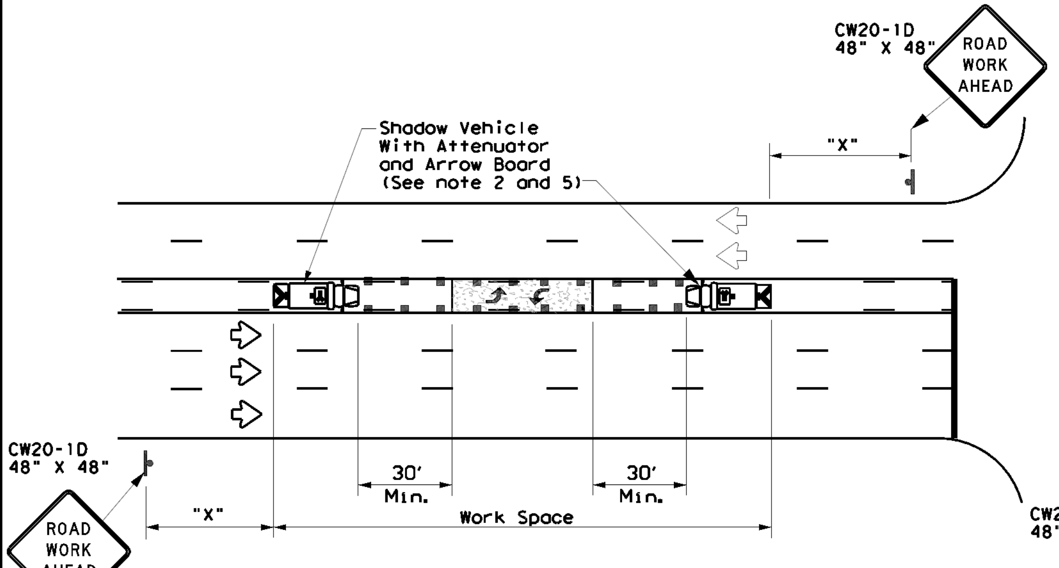
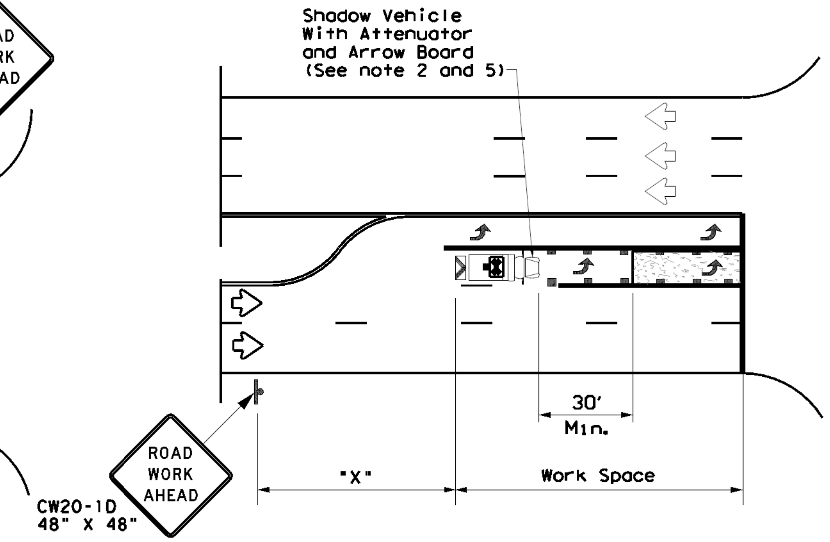
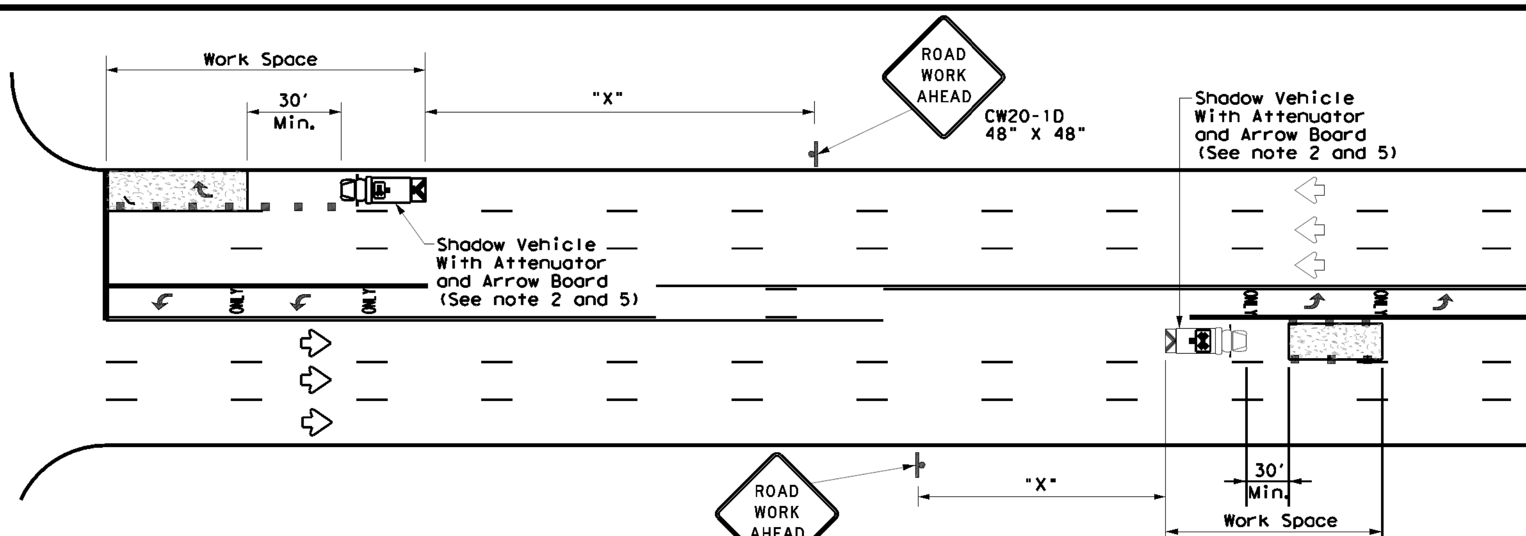


TYPICAL TRAFFIC CONTROL FOR
CONTINUOUS LEFT TURN LANE SYMBOL MARKINGS

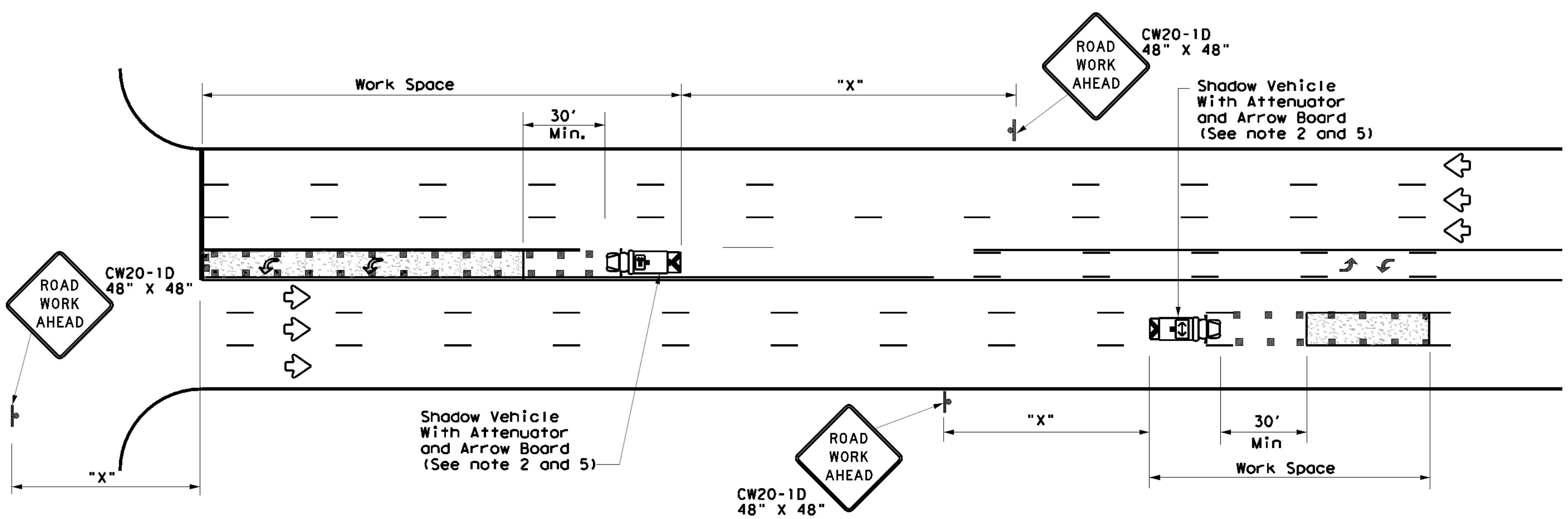


TYPICAL TRAFFIC CONTROL FOR
OUTSIDE DUAL LEFT TURN LANE SYMBOL MARKINGS



TYPICAL TRAFFIC CONTROL FOR
OUTSIDE LANE MARKINGS

TYPICAL TRAFFIC CONTROL FOR
INSIDE LANE MARKINGS



TYPICAL TRAFFIC CONTROL FOR
LEFT TURN LANE MARKINGS

TYPICAL TRAFFIC CONTROL FOR
CENTER LANE MARKINGS

LEGEND

Symbol	Description	Arrow Board Display	Description
*	Trail Vehicle		ARROW BOARD DISPLAY
**	Shadow Vehicle		
***	Work Vehicle		RIGHT Directional
	Heavy Work Vehicle		LEFT Directional
	Truck Mounted Attenuator (TMA)		Double Arrow
	Traffic Flow		Channelizing Devices

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L = WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

* Conventional Roads Only

** Taper lengths have been rounded off.
L=Length of Taper(FT) W=Width of Offset(FT) S=Posted Speed(MPH)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
✓				

GENERAL NOTES

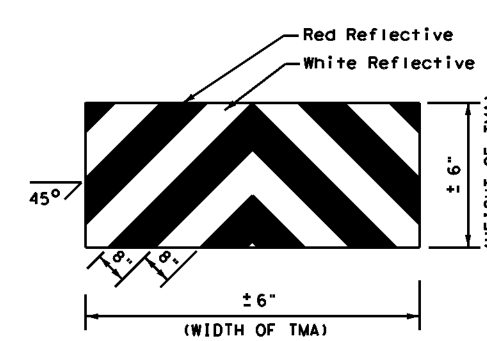
1. This traffic control plan is for use on conventional roads posted at 45 mph or less and is intended for mobile operations that move continuously or intermittently (stopping up to approximately 15 minutes) such as short-line striping and in-lane rumble strips. When activities are anticipated to take longer amounts of time or traffic conditions warrant, a short duration or short-term stationary traffic control plan should be used.

2. A Truck Mounted Attenuator shall be used on Shadow Vehicle. Striping on the back panel of all truck mounted attenuators shall be 8" red and white reflective sheeting placed in an inverted "V" design. Reflective sheeting shall meet or exceed the reflectivity and color requirements of departmental material specification DMS-8300, Type A.

3. All traffic control devices shall be in accordance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD), latest edition.

4. The use of yellow rotating beacons or strobe lights on vehicles are required. Blue high intensity rotating, flashing, oscillating or strobe lights when mounted on the drivers side of the vehicle may be operated simultaneously with the amber beacons or strobe lights.

5. Flashing arrow board shall be used on Shadow Vehicle. Flashing arrow board shall be Type B or Type C as per BC Standards. The arrow board operation shall be controlled from inside the truck.



STRIPING FOR TMA

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN MOBILE OPERATIONS FOR ISOLATED WORK AREAS UNDIVIDED HIGHWAYS

TCP(3-4)-13

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© TxDOT July, 2013	CONT	SECT	JOB	HIGHWAY
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178

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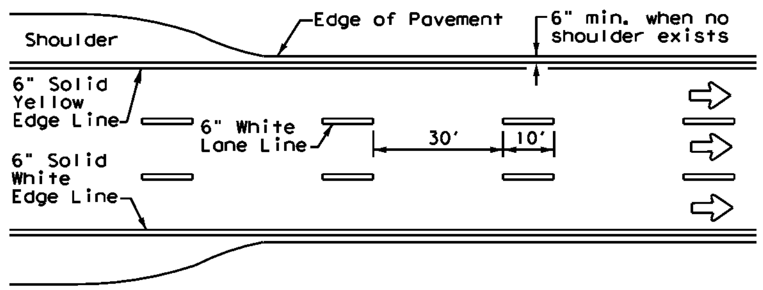
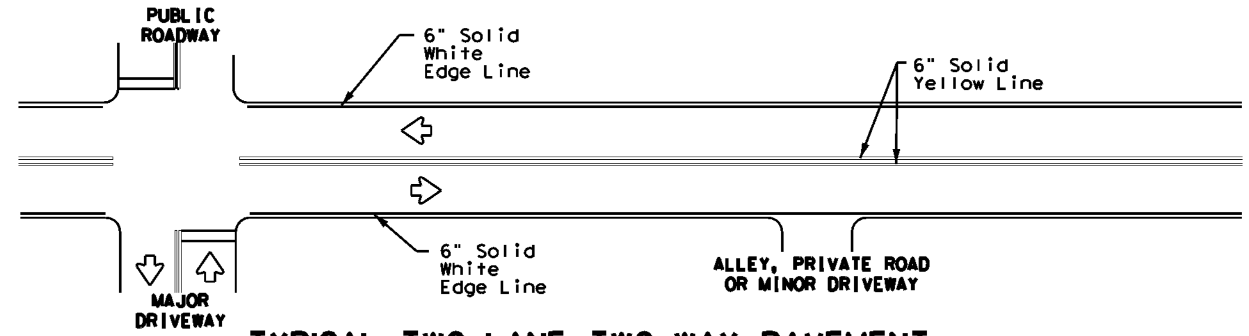


EDGE LINE AND LANE LINES ONE-WAY ROADWAY WITH OR WITHOUT SHOULDERS



TYPICAL TWO-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS

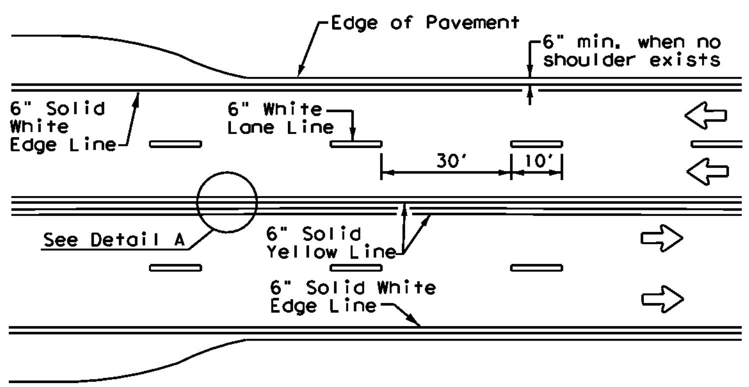
GENERAL NOTES

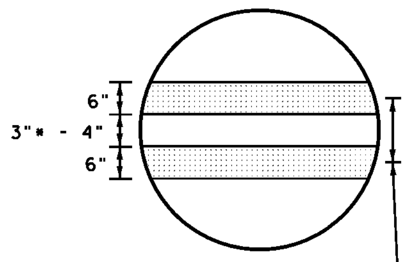
1. Edge line striping shall be as shown in the plans or as directed by the Engineer. The edge line should not be placed less than 6 inches from the edge of pavement. This distance may vary due to pavement raveling or other conditions. Edge lines are not required in curb and gutter sections of roadways.

2. The traveled way includes only that portion of the roadway used for vehicular travel. It does not include the parking lanes, sidewalks, berms and shoulders. The traveled ways shall be measured from the center of edge line to the center of edge line of a two lane roadway.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.





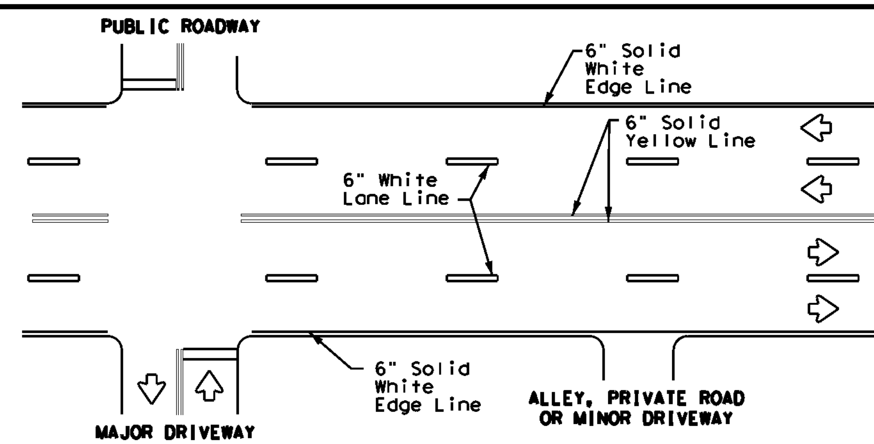
DETAIL "A"

9"** min. - 10" typ. (18" max. for traveled way greater than 48' only)

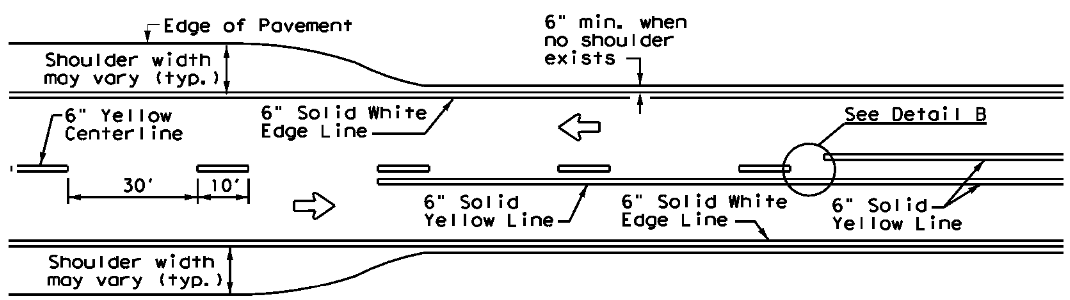
CENTERLINE AND LANE LINES FOUR LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS

* 2" minimum for restripe projects when approved by the Engineer.

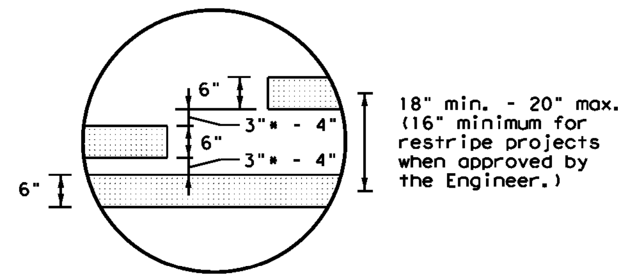
** 8" minimum for restripe projects when approved by the Engineer.



TYPICAL MULTI-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS

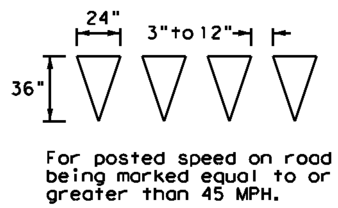


TWO LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS

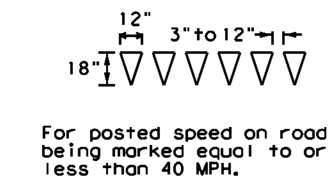


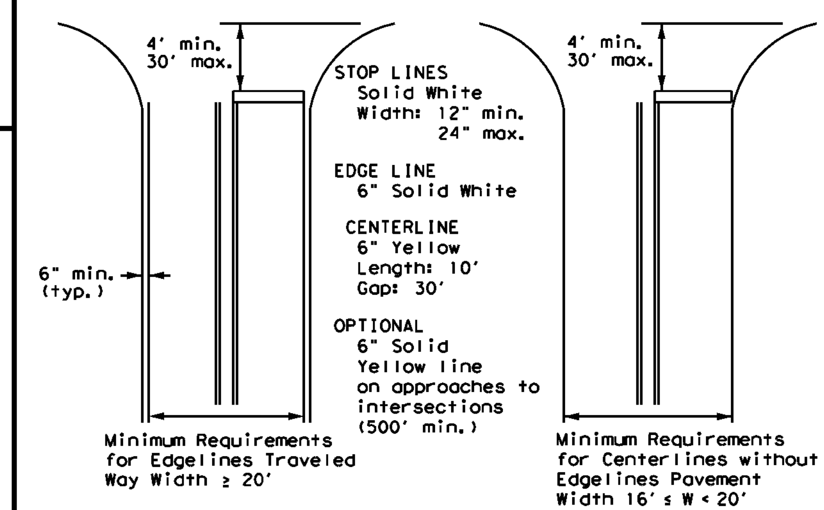
DETAIL "B"

* 2" minimum for restripe projects when approved by the Engineer.



YIELD LINES

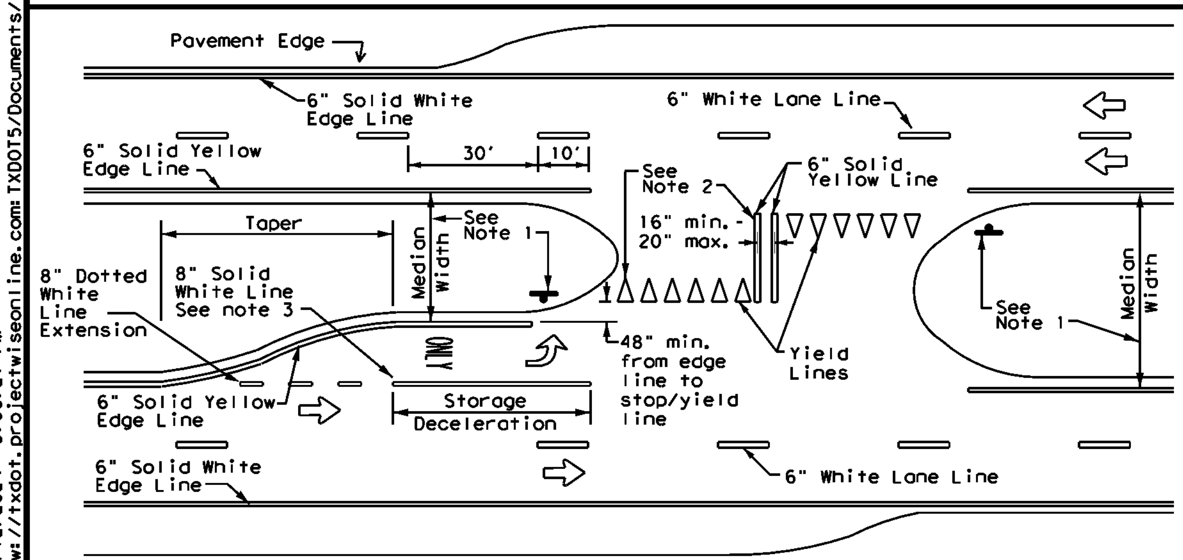




NOTE: Traveled way is exclusive of shoulder widths. Refer to General Note 2 for additional details.

GUIDE FOR PLACEMENT OF STOP LINES, EDGE LINE & CENTERLINE

Based on Traveled Way and Pavement Widths for Undivided Roadways



FOUR LANE DIVIDED ROADWAY CROSSOVERS

NOTES

1. Where divided highways are separated by median widths at the median opening itself of 30 feet or more, median openings shall be signed as two separate intersections.
   Each median opening has two width measurements, with one measurement for each approach. The narrow median width will be the controlling width to determine if signs are required. Yield signs are the typical intersection control. Stop signs and stop bars are optional as determined by the Engineer.

2. Install median striping (double yellow centerlines and stop lines/yield lines) when a 50' or greater median centerline can be placed. Stop lines shall only be used with stop signs. Yield lines shall only be used with yield signs.

3. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer.

Texas Department of Transportation — Traffic Safety Division Standard

TYPICAL STANDARD PAVEMENT MARKINGS

PM(1)-22

FILE: pm1-22.dgn	DN:	CK:	DW:	CK:
©TxDOT December 2022	CONT 0046	SECT 08	JOB 017	HIGHWAY SL 14
REVISIONS 11-78 8-00 6-20; 8-95 3-03 12-22; 5-00 2-12	DIST ATL		COUNTY BOWIE	SHEET NO. 57

22A

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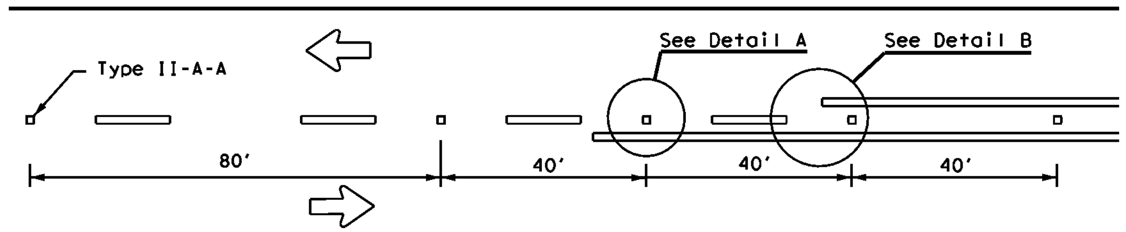
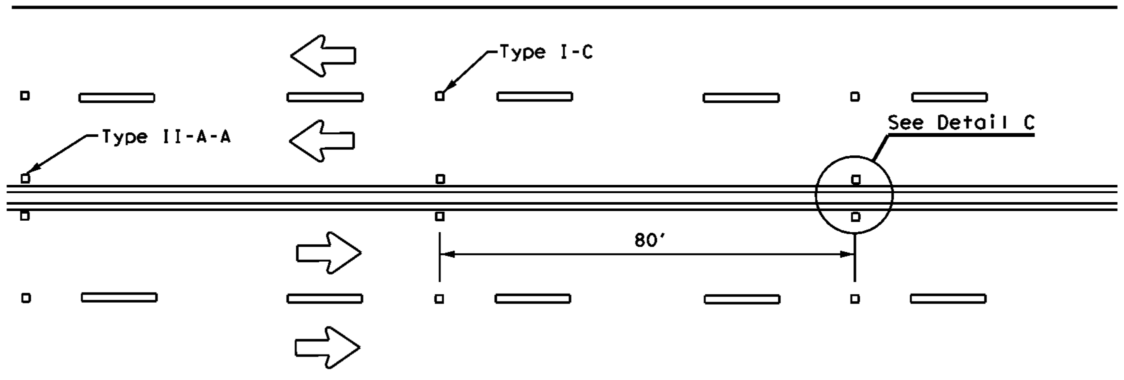
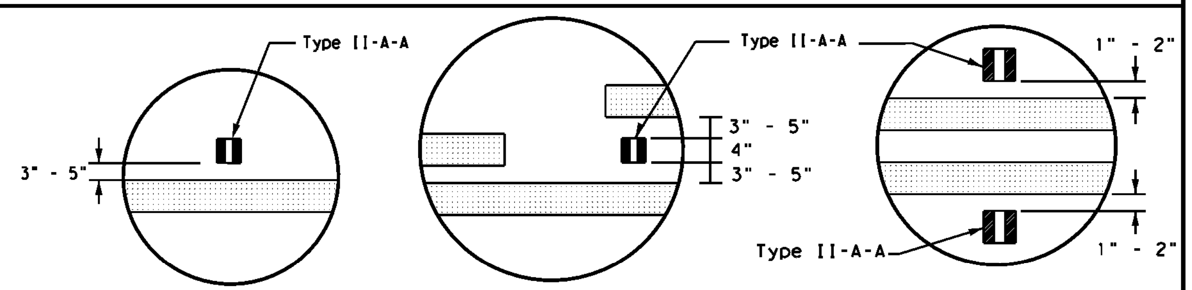
REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE

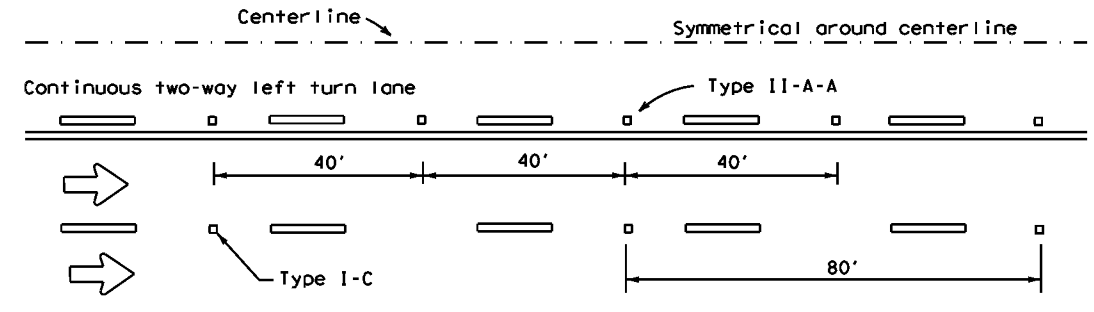


CENTERLINE FOR ALL TWO LANE TWO-WAY ROADWAYS

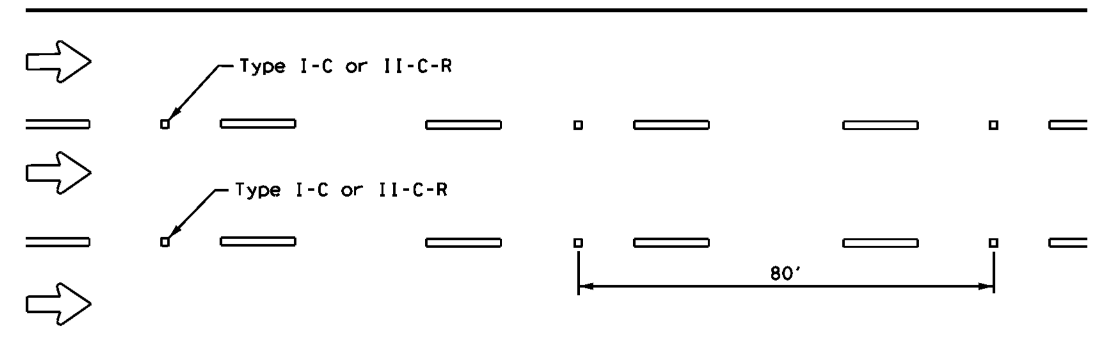


CENTERLINE & LANE LINES FOR FOUR LANE TWO-WAY ROADWAYS





CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE



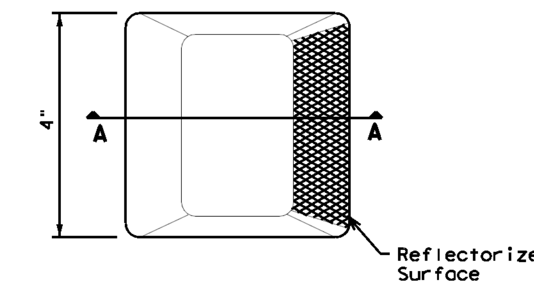
LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)

Raised pavement markers Type II-C-R shall have clear face toward normal traffic and red face toward wrong-way traffic.

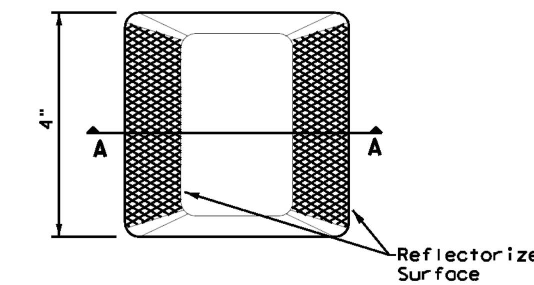
See Note 3.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

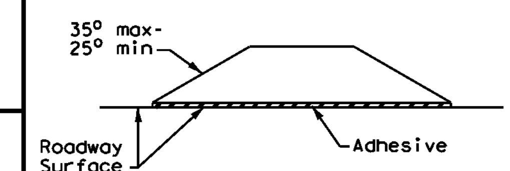
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)

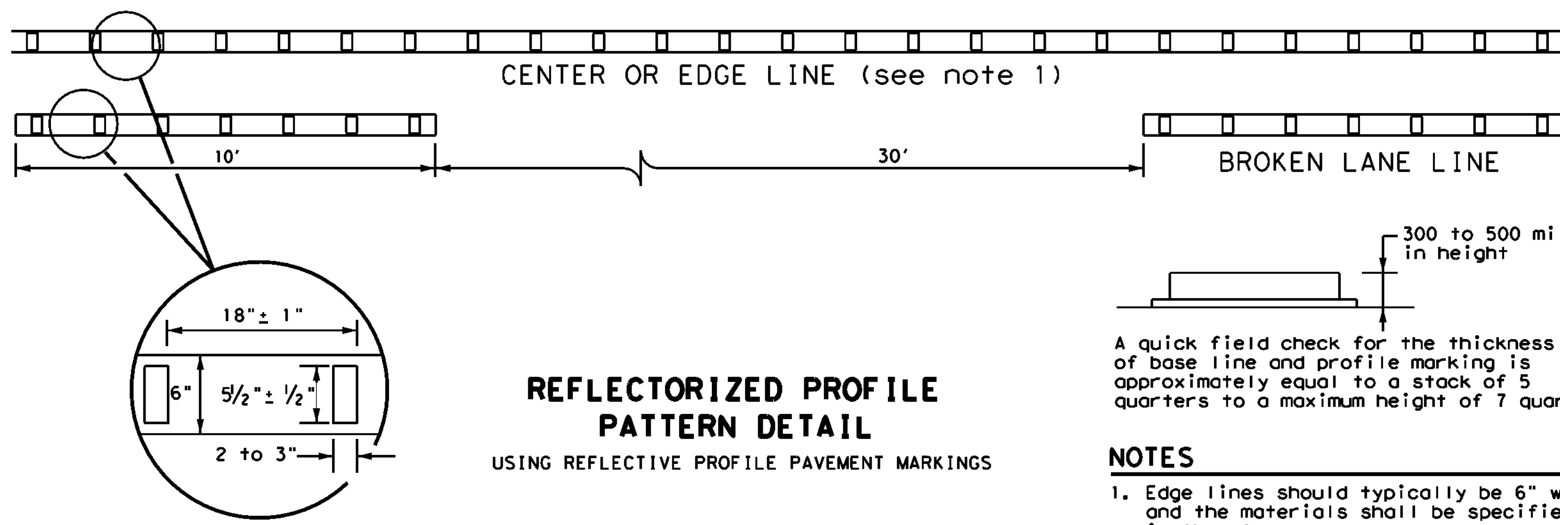


Type II (Top View)



SECTION A

RAISED PAVEMENT MARKERS



6" EDGE LINE, 6" CENTERLINE OR 6" LANE LINE

REFLECTORIZED PROFILE PATTERN DETAIL

USING REFLECTIVE PROFILE PAVEMENT MARKINGS

300 to 500 mil in height

A quick field check for the thickness of base line and profile marking is approximately equal to a stack of 5 quarters to a maximum height of 7 quarters.

NOTES

1. Edge lines should typically be 6" wide and the materials shall be specified in the plans.
2. Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.

GENERAL NOTES

1. All raised pavement markers placed along broken lines shall be placed in line with and midway between the stripes.
2. On concrete pavements the raised pavement markers should be placed to one side of the longitudinal joints.
3. Use raised pavement marker Type I-C with undivided roadways, flush medians and two way left turn lanes. Use raised pavement marker Type II-C-R with divided highways and raised medians.

Texas Department of Transportation

Traffic Safety Division Standard

POSITION GUIDANCE USING RAISED MARKERS RELECTORIZED PROFILE MARKINGS PM(2)-22

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© TxDOT December 2022	CONT 0046	SECT 08	JOB 017	HIGHWAY SL 14
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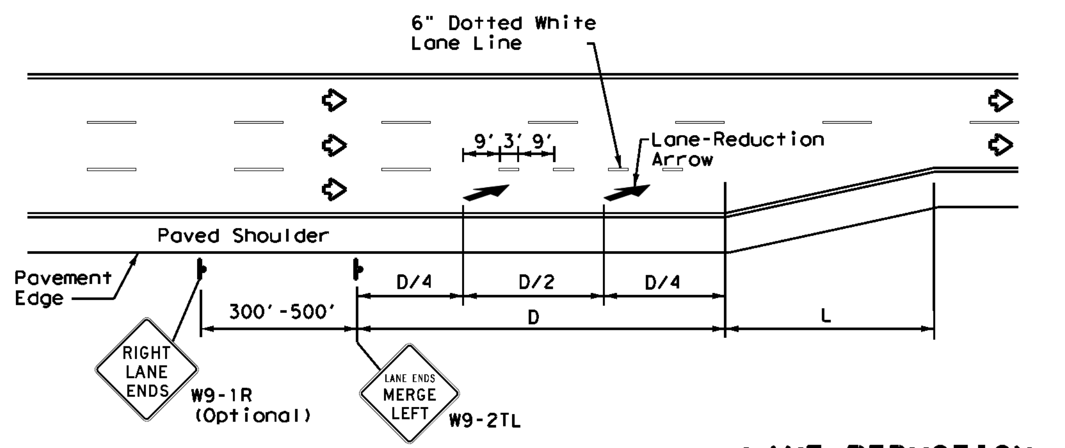


LANE REDUCTION

NOTES

1. Lane reduction pavement markings are used where the number of through lanes is reduced because of narrowing of the roadway or because of a section of on-street parking in what would otherwise be a through lane. For Texas Super 2 Passing Lanes, see TS2(PL) standard sheets.
2. On divided highways, an additional RIGHT LANE ENDS (W9-1R) sign may be installed in the median aligned with the W9-1R sign on the right side of the highway.
3. Lane reduction arrows are required for speeds of 45 mph or greater. An optional third lane reduction arrow may be added based on engineering judgement. If used, the optional third lane reduction arrow should be centered between the first and last lane reduction arrows.
4. For lane reductions on Freeways and Expressways, signing shall conform to the TxDOT Freeway Signing Handbook.

ADVANCED WARNING SIGN DISTANCE (D)

Posted Speed	D (ft)	L (ft)
30 MPH	460	$L = \frac{WS^2}{60}$
35 MPH	565	
40 MPH	670	
45 MPH	775	L=WS
50 MPH	885	
55 MPH	990	
60 MPH	1,100	
65 MPH	1,200	
70 MPH	1,250	
75 MPH	1,350	

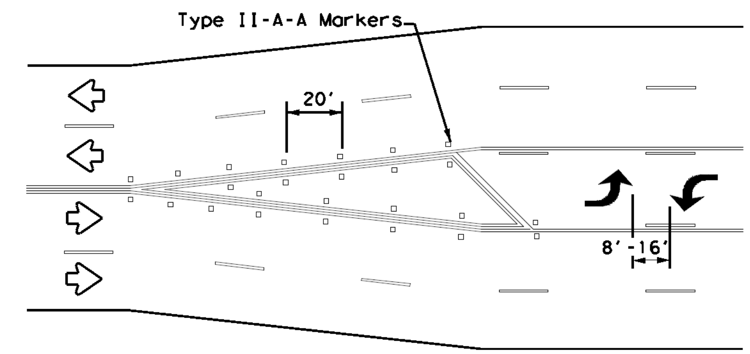
GENERAL NOTES

1. Lane use word and arrow markings shall be used where through lanes approaching an intersection become mandatory turn lanes. Lane use word and arrow markings should be used in auxiliary lanes of substantial length. Lane use arrow markings or word and arrow markings may be used in other lanes and turn bays for emphasis. Details for words and arrows are as shown in the Standard Highway Sign Designs for Texas.
2. When lane-use words and arrow markings are used, two sets of arrows should be used if the length of the bay is greater than 180 feet. When a single lane use arrow or word and arrow marking is used for a short turn lane, it should be located at or near the upstream end of the full-width turn lane.
3. Use raised pavement marker Type I-C with undivided highways, flush medians and two way left turn lanes. Use raised pavement marker Type II-C-R with divided highways and raised medians.
4. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer. See Chapter 3 of the Roadway Design Manual for additional information on turning lanes or storage lengths.

MATERIAL SPECIFICATIONS

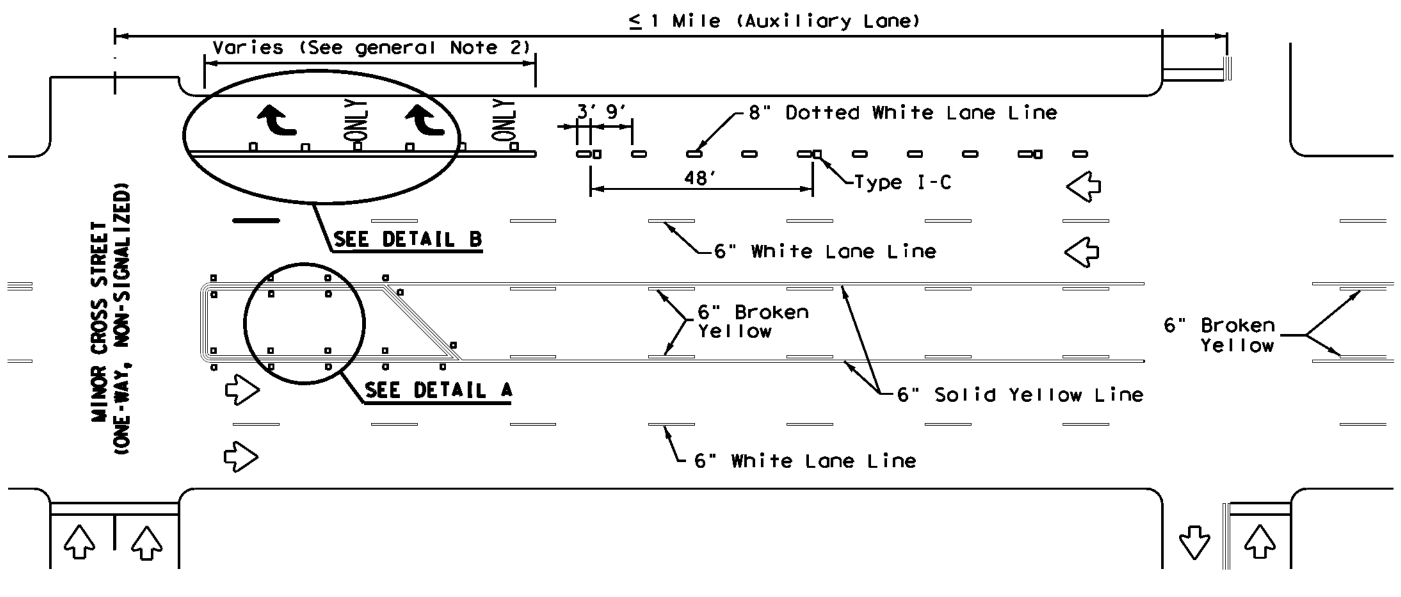
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.

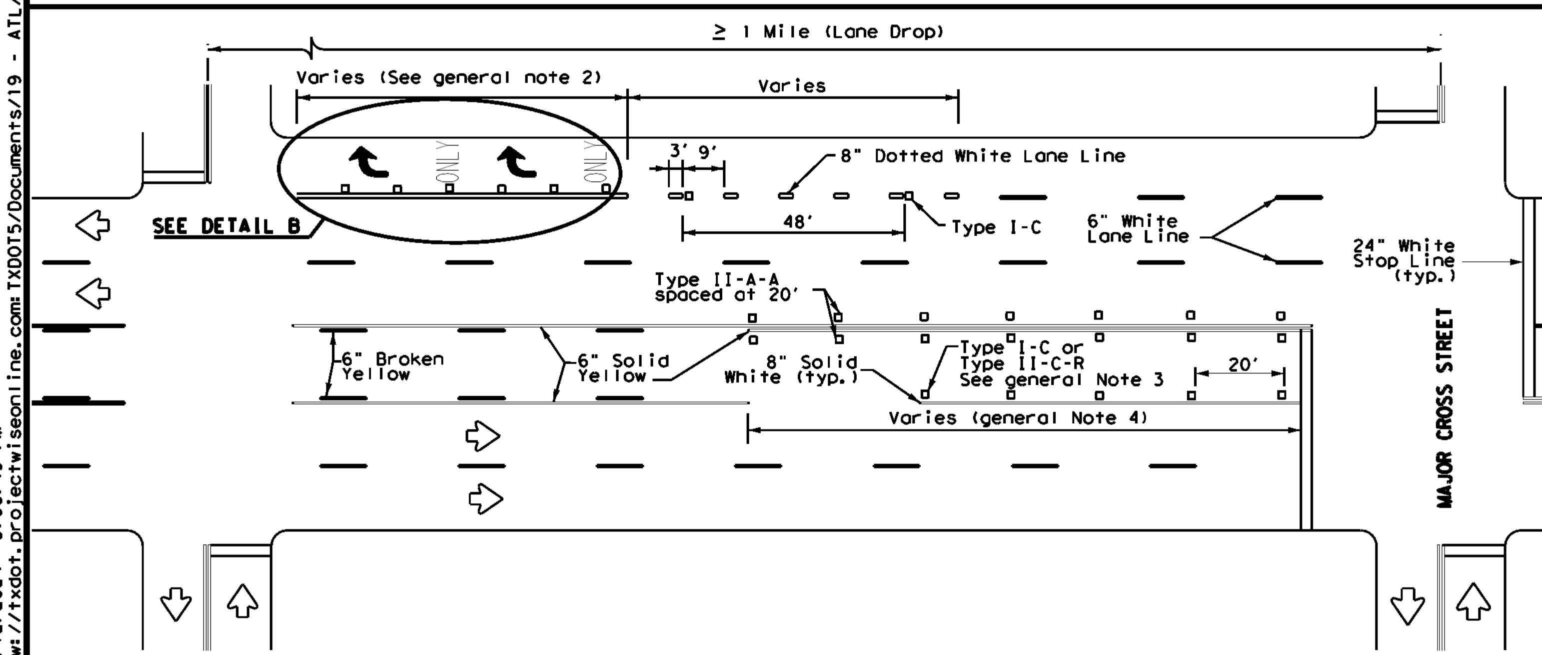


A two-way left-turn (TWLT) lane-use arrow pavement marking should be used at or just downstream from the beginning of a two-way left-turn lane within a corridor. Repeating the marking after each intersection or dedicated turn bay is not required unless stated elsewhere in the plans.

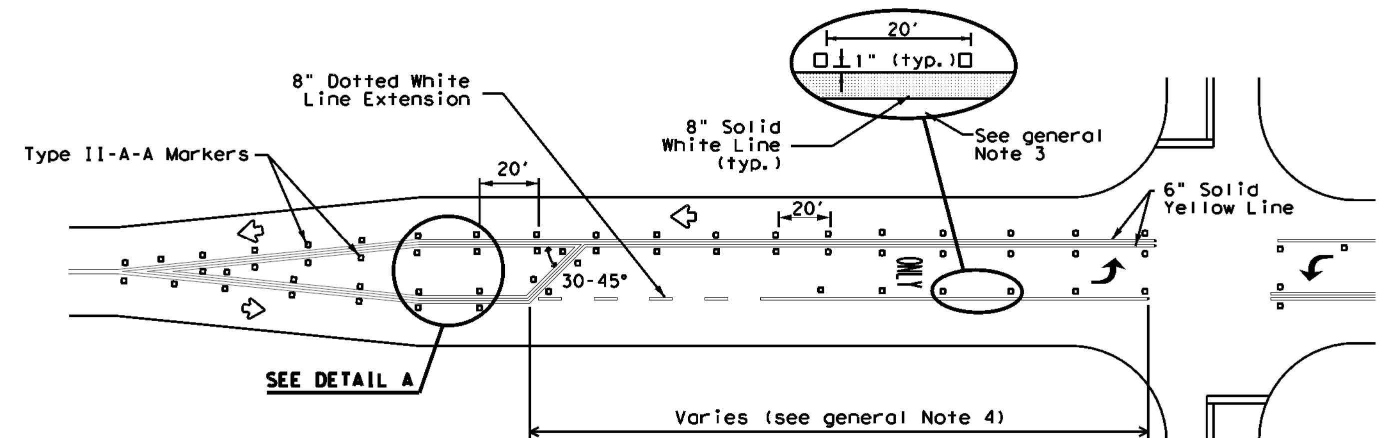
TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY



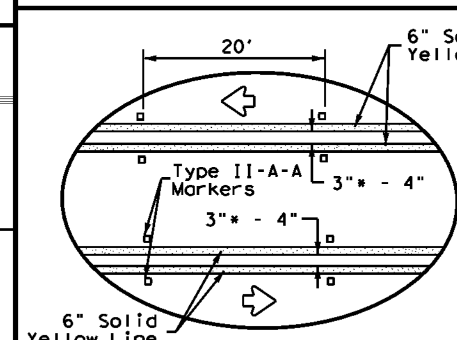
TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE



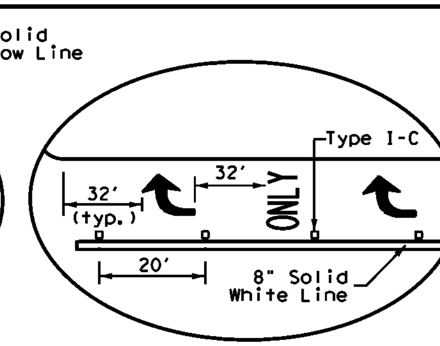
TYPICAL TWLTL AT TWO-WAY CROSS STREET AND RIGHT TURN LANE DROP



TYPICAL TWO-LANE ROADWAY INTERSECTION WITH LEFT TURN BAYS



DETAIL A



DETAIL B

* 2" minimum allowed for restripe projects when approved by the Engineer.

Texas Department of Transportation — Traffic Safety Division Standard

TWO-WAY LEFT TURN LANES, RURAL LEFT TURN BAYS, AND LANE REDUCTION PAVEMENT MARKINGS

PM(3)-22

FILE: pm3-22.dgn	DN:	CK:	DW:	CK:
© TxDOT December 2022	CONT 0046	SECT 08	JOB 017	HIGHWAY SL 14
REVISIONS 4-98 3-03 6-20 5-00 2-10 12-22 8-00 2-12	DIST ATL		COUNTY BOWIE	SHEET NO. 59

DATE: 7/12/2024 3:07:07 PM
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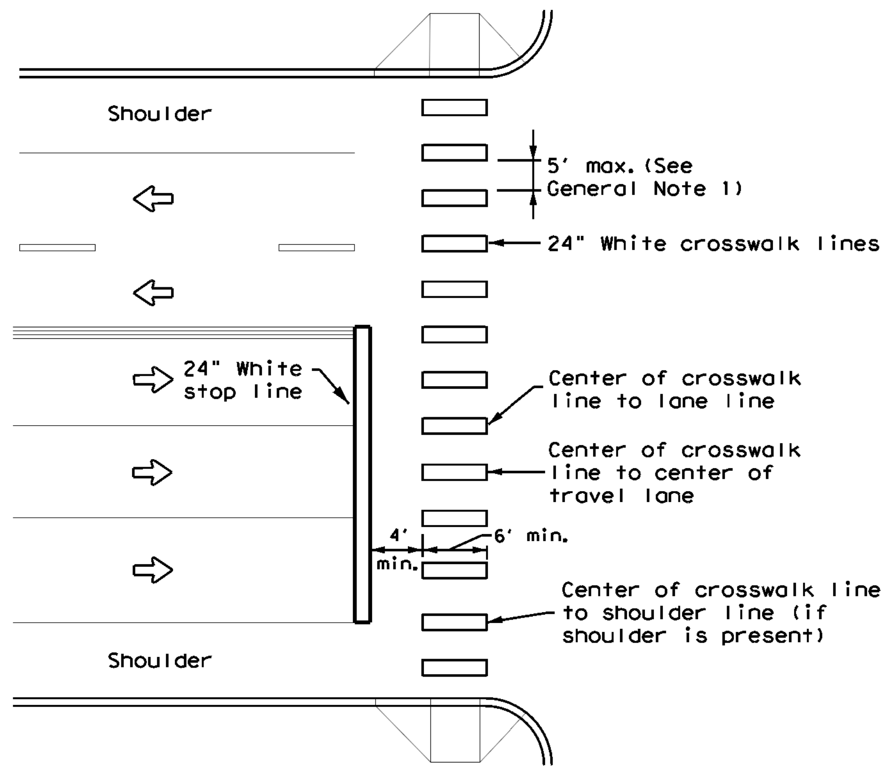


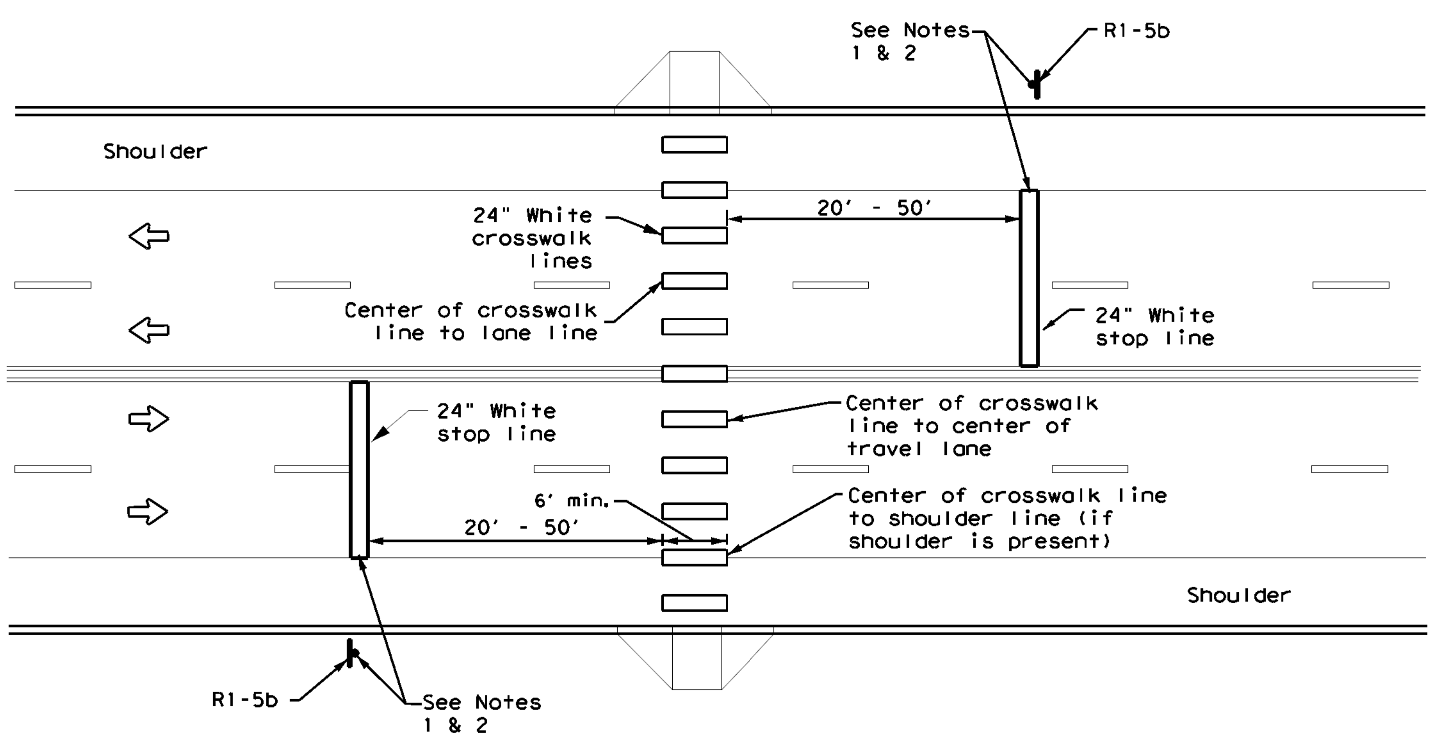
HIGH-VISIBILITY LONGITUDINAL CROSSWALK AT CONTROLLED APPROACH

GENERAL NOTES

1. Longitudinal crosswalk lines should not be placed in the wheel path of vehicles. Center the crosswalk lines on travel lanes, lane lines, and shoulder lines (if present).
2. A minimum 6" clear distance shall be provided to the curb face. If the last crosswalk line falls into this distance it must be omitted.
3. For divided roadways, adjustments in spacing of the crosswalk lines should be made in the median so that the crosswalk lines are maintained in their proper location across the travel portion of the roadway.
4. At skewed crosswalks, the crosswalk lines are to remain parallel to the lane lines.
5. Each crosswalk shall be a minimum of 6' wide.
6. The High-Visibility Longitudinal Crosswalk is the preferred crosswalk pattern on State Highways. Other crosswalk patterns as shown in the "Texas Manual on Uniform Traffic Control Devices" may be used. All crosswalk designs and dimension shall comply with the "Texas Manual on Uniform Traffic Control Devices."
7. Final placement of Stop Bar and Crosswalk shall be approved by the Engineer in the field.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



UNSIGNALIZED MIDBLOCK HIGH-VISIBILITY LONGITUDINAL CROSSWALK

NOTES:

1. Use stop bars with Stop Here For Pedestrians (R1-5b) signs at unsignalized midblock cross walks.
2. Use stop bars with STOP HERE ON RED (R10-6 or R10-6a) signs at mid block crosswalks controlled by traffic signals or pedestrian hybrid beacons.

Texas Department of Transportation

Traffic Safety Division Standard

CROSSWALK PAVEMENT MARKINGS

PM(4)-22A

FILE: pm4-22a.dgn	DN:	CK:	DW:	CK:
©TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS 6-20 6-22 12-22	0046	08	017	SL 14
	DIST		COUNTY	SHEET NO.
	ATL		BOWIE	60

22D

DATE: 7/12/2024 3:07:20 PM
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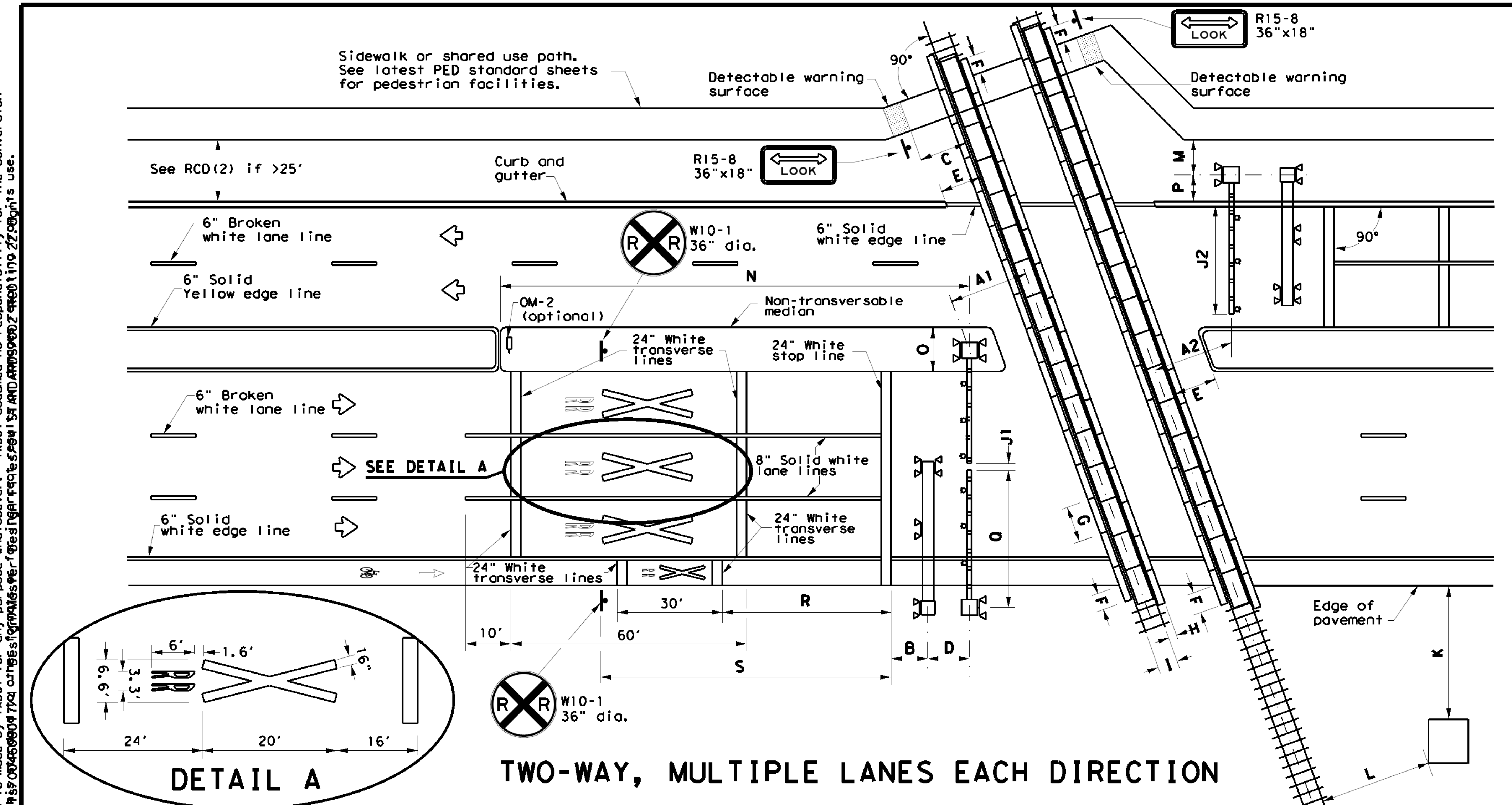


NOTES

A1: Center of RR mast to center of rail: 12' minimum, 15' typical.

A2: Tip of gate to center of rail: 12' minimum, 15' typical.

B: Center of mast (cantilever, gate, or mast flasher) of nearest active traffic control device to stop line: 8' (NOTE: Stop line may be moved as needed, but should be at least 8' back from gates, if present).

C: Near edge of detectable warning surface to nearest rail: 12' minimum.

D: Center of gate mast to center of cantilever mast: 6' typical. NOTE: Cantilever may be located in front or behind gates.

E: Edge of median or curb to nearest rail: 10' typical. NOTE: Design median edge to be parallel with rail.

F: Edge of planking panel from edge of pavement or sidewalk: 3' minimum. NOTE: Field panels need not be in line with gauge panels.

G: Length of panels along rail: 8' typical.

H: Width of field panel: 2' typical (check with railroad company).

I: Distance between rails: 4'- 8'1/2".

J1: Tip of gate to tip of gate: 2' maximum.

J2: 90% of traveled roadway to be covered by gate.

K: Nearest edge of RR cabinet from edge of pavement: 30' typical. NOTE: Cabinet not required to be parallel to edge of pavement.

L: Nearest edge of RR cabinet from nearest rail: 25' typical.

M: Center of RR mast to edge of sidewalk: 6' minimum.

N: Center of gate mast to leading edge of non-traversable median: 100' minimum to qualify as a Quiet Zone SSM. NOTE: 60' will suffice if there is a street intersection within the 100' and all street intersections within 60' are closed.

O: Width of median for RR gate assembly: 8'-6" minimum, 10' typical when using median gates. NOTE: Center of gate mast minimum 4'-3" from face of curb.

P: Center of RR mast to face of curb: 5'-3" minimum. Center of RR mast to edge of pavement (with shoulder): 7' minimum. Center of RR mast to edge of pavement (no shoulder): 9'-3" minimum. NOTE: Final location determined by the railroad company.

Q: Gate length: 28' or less typical, but railroad company may allow up to 32' under special circumstances.

R: Stop line to first RR Crossing transverse line (bike lane): 50' typical.

S: Stop line to GRADE CROSSING ADVANCE WARNING (W10-1) sign and adjacent RR Crossing pavement markings. See Table 1. See RCD(2) for other signs.

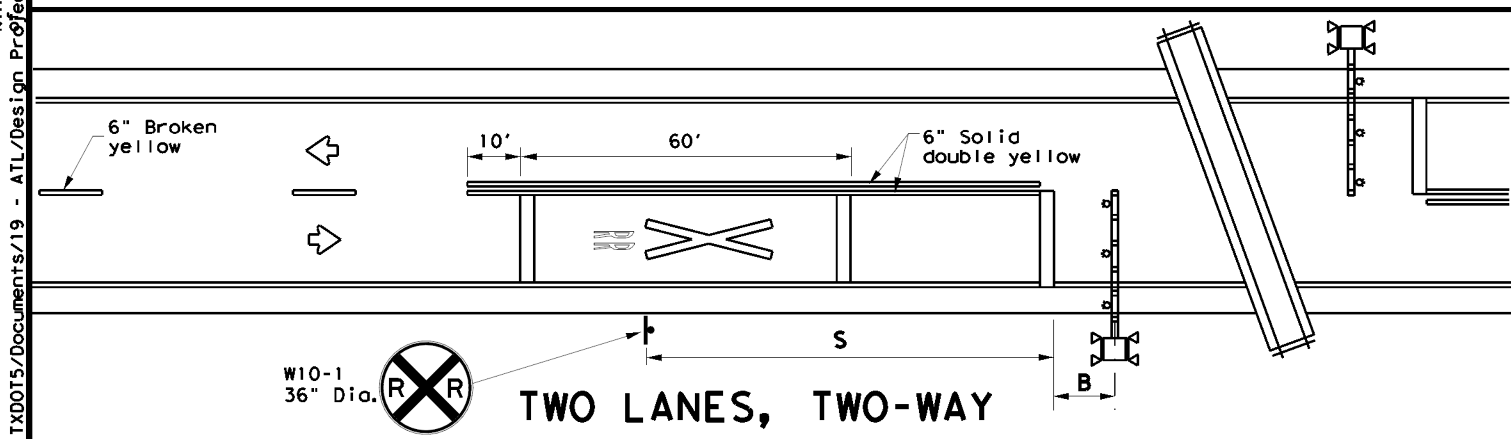


TABLE 1

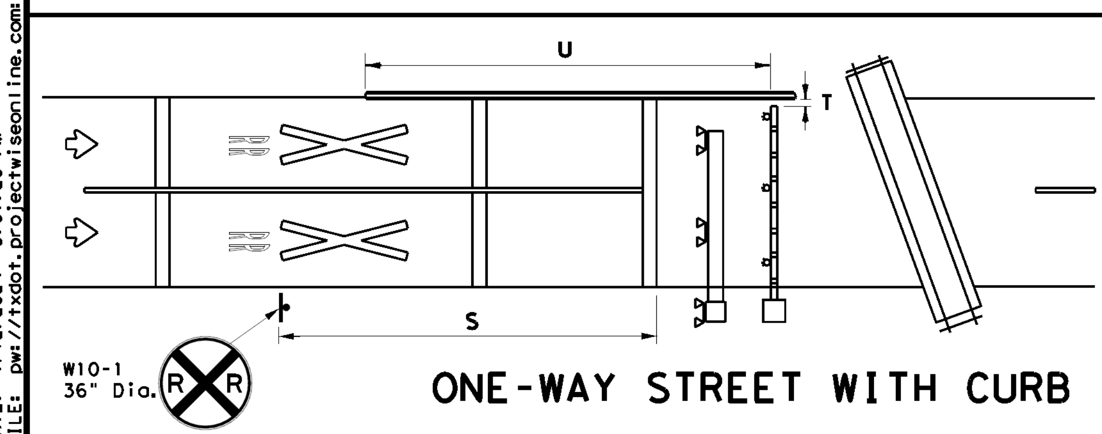
Approach Speed (mph)	Desirable Placement (feet)
20	100
25	100
30	100
35	100
40	125
45	175
50	250
55	325
60	400
65	475
70	550
75	650

LEGEND

Symbol	Meaning
	Sign
	Object Marker
	Traffic Flow
	Cantilever
	Gate Assembly
	Mast Flasher Pair

GENERAL NOTES

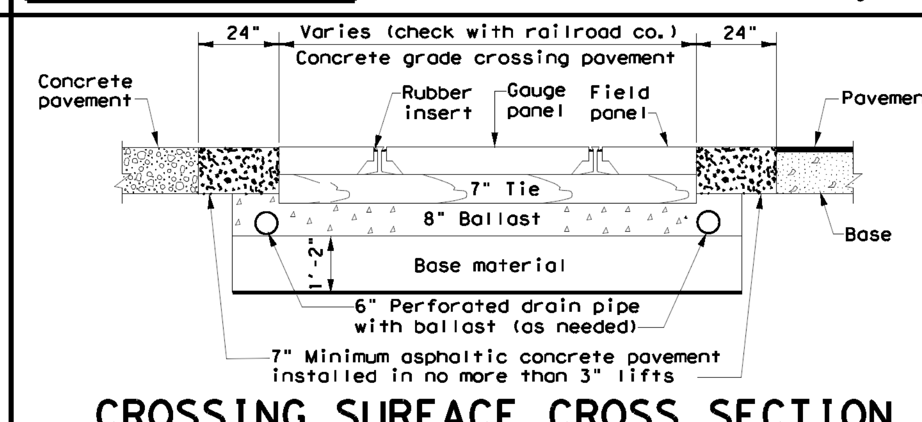
1. Medians and curbs must be non-traversable to qualify as a Quiet Zone Supplementary Safety Measure (SSM). Non-traversable curbs in Quiet Zones are 6" tall minimum and used on roadways where speed does not exceed 40 mph.
2. Raised pavement markers may be used to supplement striping. See PM(2) and PM(3) standard sheets.
3. Medians preferred whenever possible to prevent vehicles from driving around gates.
4. Longitudinal edge striping may be continued thru crossing as needed. Illumination may also be considered for nighttime visibility.
5. See SMD standard sheets for sign mounting details.
6. See the Standard Highway Sign Design for Texas (SHSD) manual for sign and pavement marking details.



NOTES

T: Tip of gate to edge of curb: 1' maximum for Quiet Zone SSM, 90% of traveled way covered by gates for all other locations.

U: Non-traversable curb length from gate: 100' minimum for a Quiet Zone SSM, 10' minimum for all other locations.



Texas Department of Transportation

Traffic Safety Division Standard

RAILROAD CROSSING DETAILS SIGNING, STRIPING, AND DEVICE PLACEMENT RCD(1)-22

FILE: rcd1-22.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2022	CONT 0046	SECT 08	JOB 017	HIGHWAY SL 14
REVISIONS 2-16 11-22	DIST ATL		COUNTY BOWIE	SHEET NO. 61

DATE: 7/12/2024 3:07:39 PM
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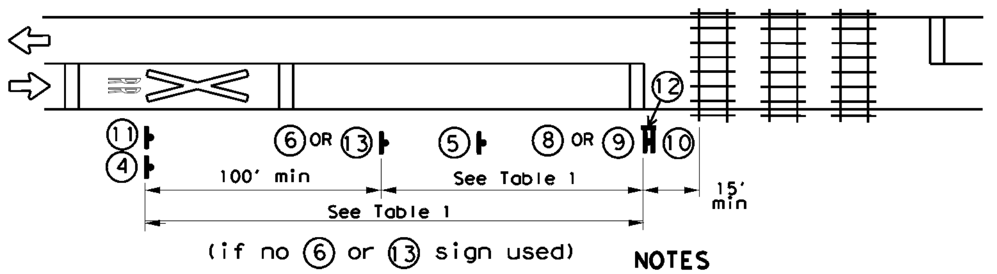
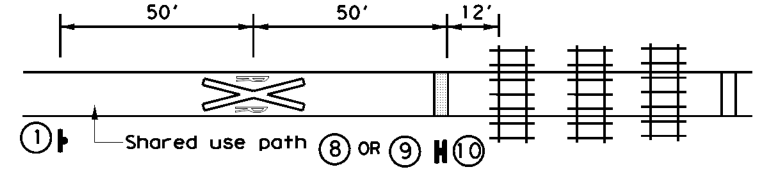
PASSIVE CROSSING



NOTES

1. STOP or YIELD sign may also be installed to the left of the crossbuck sign, rather than below it.
2. A 2" white retroreflective strip shall be installed on front and back of crossbuck sign post.
3. See the Crossbuck Assemblies with YIELD or STOP Signs at Passive Grade Crossings section of the TMUTCD for further details about sign mounting arrangements.

PATHWAY CROSSING



NOTES

1. A shared use path is considered a separate pathway crossing when more than 25' from traveled way of adjacent roadway.
2. Detectable warning used at stop bar.
3. Smaller signs preferred. See the Design of Bicycle Signs section within the TMUTCD for sizing details.

TABLE 1	
Approach Speed (mph)	Desirable Placement (feet)
20	100
25	100
30	100
35	100
40	125
45	175
50	250
55	325
60	400
65	475
70	550
75	650

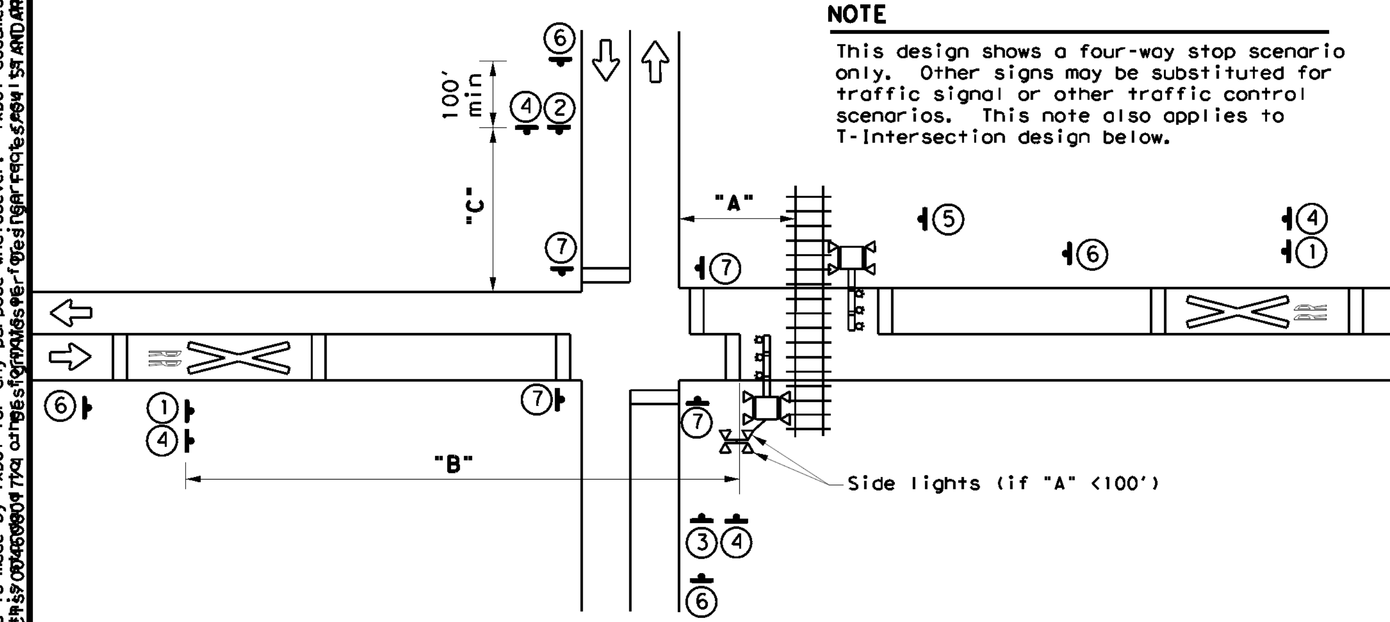
GENERAL NOTES

1. Railroad company to provide active traffic control devices, CROSSBUCK (R15-1), NUMBER OF TRACKS (R15-2P) plaque (if more than 1 track), and EMERGENCY NOTIFICATION (I-13) signs.
2. LOW GROUND CLEARANCE (W10-5) signs may be relocated further upstream of crossing to provide advance warning of alternate route.
3. GRADE CROSSING AND INTERSECTION ADVANCE WARNING (W10-2) signs may be modified as needed to fit roadway geometry.
4. Table 1 placement distances may vary per the Placement of Warning Signs section of the TMUTCD.
5. See Table 1 to determine placement of STOP AHEAD (W3-1) and YIELD AHEAD (W3-2) signs unless shown otherwise.
6. DO NOT STOP ON TRACKS (R8-8) signs installed when potential for vehicles stopping on tracks is significant as determined by sealing engineer. Install so sign does not block view of RR mast.
7. See the Standard Highway Sign Design for Texas (SHSD) manual for sign and pavement marking details.

GRADE CROSSING NEAR A PARALLEL STREET

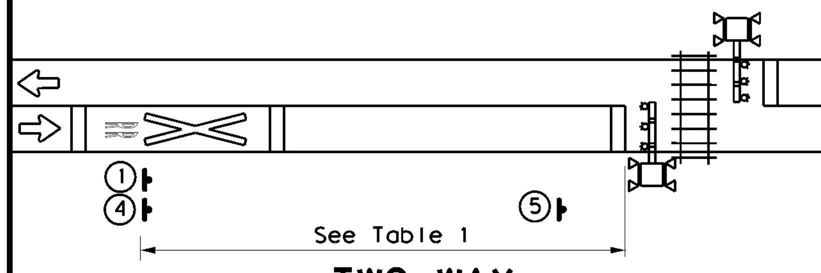
NOTE

This design shows a four-way stop scenario only. Other signs may be substituted for traffic signal or other traffic control scenarios. This note also applies to T-Intersection design below.

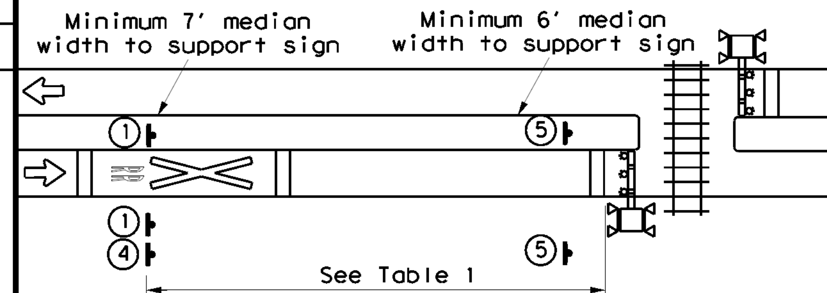


	"A" <100'	"A" ≥100'
"B"	See Table 1. Place pavement markings and signs on opposite side of intersection from rail if spacing from Table 1 would put markings within intersection.	See Table 1. Place pavement markings and signs between rail and intersection if spacing from Table 1 would put markings within intersection.
"C"	See Table 1.	GRADE CROSSING AND INTERSECTION ADVANCE WARNING (W10-2, W10-3, W10-4) signs should only be installed if W10-1 sign is not between intersection and railroad crossing. If needed, see Table 1.

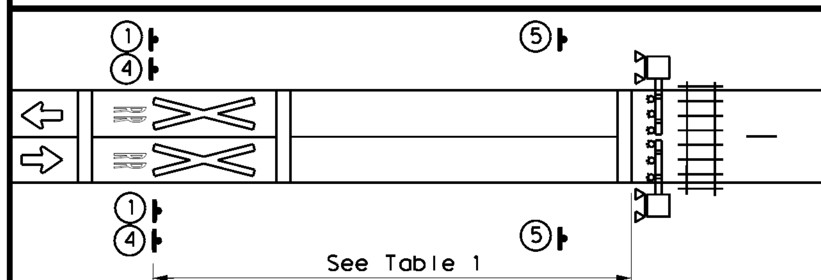
TWO-WAY



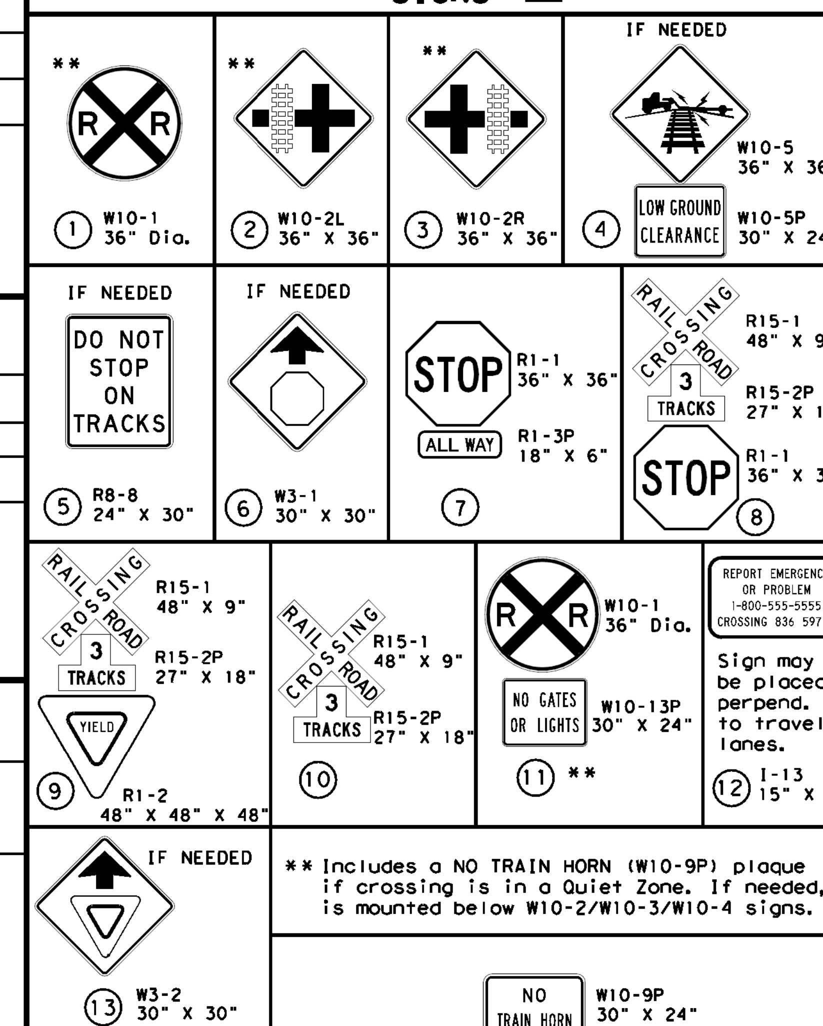
TWO-WAY WITH MEDIAN



ONE-WAY



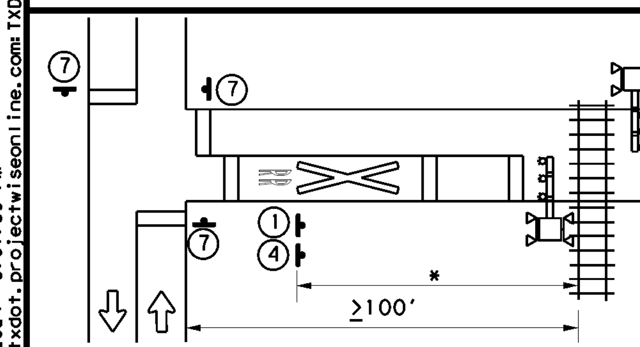
SIGNS



** Includes a NO TRAIN HORN (W10-9P) plaque if crossing is in a Quiet Zone. If needed, is mounted below W10-2/W10-3/W10-4 signs.

NO TRAIN HORN W10-9P 30" X 24"

T-INTERSECTION

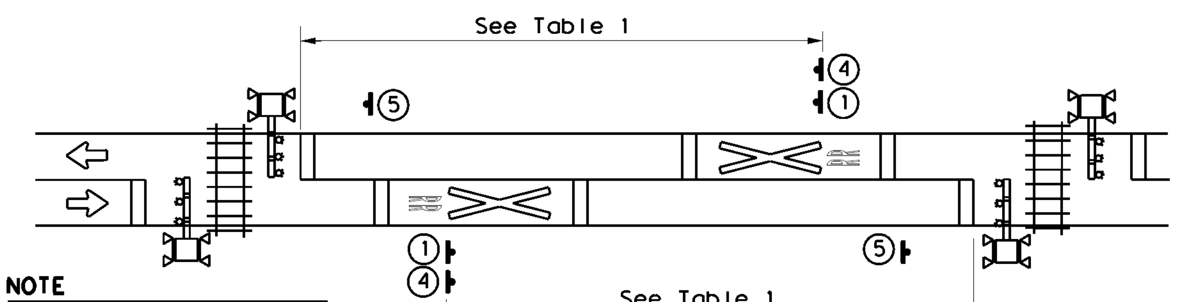


*Use Table 1 if sufficient space exists.

NOTE

Railroad crossing pavement markings and adjacent signs not included when distance between near edge of intersection and near rail is less than 100'. GRADE CROSSING AND INTERSECTION ADVANCE WARNING (W10-3) signs installed on roadway parallel with rail in this case.

TWO ADJACENT CROSSINGS



NOTE

Separate active traffic control devices, railroad crossing pavement markings, and adjacent signs required when tracks are more than 100' apart.

Texas Department of Transportation — Traffic Safety Division Standard

RAILROAD CROSSING DETAILS SIGNING & STRIPING

RCD(2)-22

FILE: rcd2-22.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2022	CONT 0046	SECT 08	JOB 017	HIGHWAY SL 14
REVISIONS 2-16 11-22	DIST ATL	COUNTY BOWIE		SHEET NO. 62