INDEX OF SHEETS

SEE SHEET 2 FOR INDEX OF SHEETS

STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMENT

FEDERAL AID PROJECT NO. F 2025(272), ETC.

BU 67V, ETC.
HOPKINS COUNTY, ETC.

CONT	SECT	JOB	HIGHWAY
0009	18	021,ETC.	BU 67V, ETC.
DIST	COUNTY		SHEET NO.
PAR	HOPKINS,ETC.		1

DESIGN SPEED = VARIES
A.D.T. (2024)= VARIES
A.D.T. (2044)= VARIES

NET LENGTH OF ROADWAY = 875,952 FT.= 165.9 MI.
NET LENGTH OF PROJECT = 875,952 FT.= 165.9 MI.

LIMITS: VARIOUS

FOR THE CONSTRUCTION OF SEAL COAT

CONSISTING OF SEALCOAT AND PAVEMENT MARKINGS

FINAL PLANS

LETTING DATE:

DATE CONTRACTOR BEGAN WORK:

DATE WORK WAS COMPLETED:

DATE WORK WAS ACCEPTED:

ORIGINAL CONTRACT WORKING DAYS:

USED: OF: WORKING DAYS:

NO. OF CHANGE ORDER:

FINAL CONTRACT COST: $

PERCENT OVER/UNDER RUN:

CONTRACTOR :

I CERTIFY THAT THIS PROJECT WAS BUILT IN ACCORDANCE WITH PLANS AND SPECIFICATIONS.

P.E. _____ DATE _____

REQUIRED SIGNS SHALL BE IN ACCORDANCE WITH BC (1)- 21 THRU BC (12)- 21 AND THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".

SEE DISTRICT MAP AND
LOCATION MAPS FOR PROJECT LOCATIONS AND PROJECT LIMITS

EXCEPTIONS: NONE
EQUATIONS: NONE
RAILROAD CROSSINGS: NONE

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 CONTRACT PROVISIONS FOR ALL FEDERAL-AID CONSTRUCTION CONTRACTS (FORM FHWA 1273, OCTOBER 23, 2023)

SUBMITTED FOR LETTING: 9/18/24
Cole W. Stringer P.E.
DESIGN ENGINEER

RECOMMENDED FOR LETTING: 9/23/2024
DocuSigned by: Jesse Herrera
9FA6E70E83E0467... AREA ENGINEER

RECOMMENDED FOR LETTING: 9/23/2024
DocuSigned by: Noel Paramanantham
AF7AF41AFE6049E... DISTRICT ENGINEER

DATE: 9/18/2024 5:04:36 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/01 - PAR/Design Projects/0009-18-021/4 - Design/Master Design Files/001 Title Sheet.dgn

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STATE OF TEXAS
COLE W. STRINGER
153094
LICENSED
PROFESSIONAL ENGINEER

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

Cole W. Stringer P.E. — NAME
9/18/24 — DATE

Texas Department of Transportation

BU 67, ETC.

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CONT	SECT	JOB	HIGHWAY
0009	18	021,ETC.	BU 67, ETC.
DIST	COUNTY		SHEET NO.
PAR	HOPKINS,ETC.		2

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CK | DW | CK | DW

PARIS DISTRICT

N

GRAYSON
COOKE COUNTY
COLLIN COUNTY
FANNIN
LAMAR
RED RIVER
BOWIE COUNTY
HUNT
HOPKINS
DELTA
FRANKLIN
TITUS COUNTY
CAMP COUNTY
WOOD COUNTY
RAINS
KAUFMAN COUNTY
VAN ZANDT COUNTY

NOTE:
SEE PROJECT SUMMARY AND LOCATION MAP SHEETS FOR SPECIFIC LOCATION INFORMATION.

SCALE (MILE): 0 1 3 5

Texas Department of Transportation

BU 67, ETC.

DISTRICT MAP

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0009	18	021,ETC.	BU 67, ETC.
DIST	COUNTY		SHEET NO.
PAR	HOPKINS,ETC.		3

DATE: 9/18/2024 5:05:09 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/01 - PAR/Design Projects/0009-18-021/4 - Design/Master Design Files/003 District Map.dgn

GENERAL NOTES

General:

Recordkeeping for this project will be performed by:

Sulphur Springs Area Office
1100 Hillcrest
Sulphur Springs, Texas 75483
Phone (903)885-9514

Contractor questions on this project are to be addressed to the following individual(s):

Jesse Herrera, P.E. – Jesse.Herrera@txdot.gov
Dustin Lyday, P.E. - Dustin.Lyday@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 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.

On Contractor request, earthwork cross sections and construction timelines will be posted to TxDOT's Public FTP at the following Address:
https://ftp.dot.state.tx.us/pub/txdot-info/Pre-Letting%20Responses/
The site is organized by District, Project Type (Construction or Maintenance), Letting Date, CCSJ/Project Name.

Dispose of waste materials at an approved site. Furnish written approval from the property owner before disposal of waste materials.

Locate equipment a minimum of 30 feet from roadway when possible. Place signs and barricades as approved.

County: HOPKINS, ETC. **Control:** 0009-18-021, ETC.

Upon completion of all work provided for in the contract for any individual roadway, an inspection will be conducted, if the work is found to be satisfactory, the Contractor will be released from any further maintenance of that portion of the work. Do not remove construction signs from an accepted highway until the stockpile(s) and staging areas for that roadway have been returned to their pre-existing condition. All staging areas and aggregate stockpile sites will be returned to their pre-existing condition following sealcoat operations prior to moving work to another county. Remove all signing from each job location within 5 days of receiving written acceptance for that job location. Such partial acceptance will be made in writing and will in no way void or alter any terms of the contract.

Perform work in such a way as to avoid damage to vehicles resulting from asphalt and loose aggregate. Conformance with the specifications, standards, and traffic control is considered a minimum effort and is not intended to absolve any liability for damage to vehicles as a result of construction operations.

Stockpile sites for construction materials shall be approved prior to placement of any material. Give at least 48 hours notification prior to stockpiling material.

Work shall be completed & roadway swept each day 30 minutes prior to sunset.

Private and commercial driveways are not to be sealed.

Item 5 Control of the Work:

Per Item 5.11 FINAL CLEANUP, prior to requesting final inspection the Contractor shall leave the work locations in a neat and presentable condition. This may include but is not limited to mowing, trimming, and removal litter, debris, objectionable material, temporary structures, excess material, and equipment from the work locations.

Railroad coordination will not be required in this project. Roadway work will stop 25 feet either side of the centerline of the railroad track (50-foot gap total).

Item 6 Control of Materials:

The Buy America Material Classification Sheet is located at the below link:
https://www.txdot.gov/business/resources/materials/buy-america-material-classification-sheet.html

Item 7 Legal Relations and Responsibilities:

Railroad coordination not required for this project.

No significant traffic generator events identified.

Item 8 Prosecution and Progress:

Time will begin May 15th, 2025, and Working days will be computed and charged in accordance with (Article 8.3.1.2) Six-Day Workweek.

Notify and obtain permission from the District Traffic Office a minimum of 24 hours before beginning striping operations each week during the operation. Provide proposed work locations and schedule for the week. Do not place any contract stripe unless the designated striping technician is present. Leaving a recorded message does not meet the aforementioned requirements. Failure to have required weekly permission and designated striping tech present will result in forfeiture of payment for each day these conditions are not met. District Traffic office hours are 8 am. To 5 pm., Monday through Friday. The time of day allowed to work will be as directed.

The latest roadway start work date for sealcoat is May 15, 2025. Once work has started, proceed in a continuous manner until all work is completed.

Provide a Bar Chart progress schedule for this project.

The Engineer may consider extending working days beyond the end of the sealcoat season.

All employees working within the TxDOT right of way shall wear a clean TY II or TY III retroreflective safety vest at all times.

Item 9 Measurement and Payment:

Items of work for the Monthly Estimate will be cut off on the 25th of each month. Items of work performed after the 25th will be processed and paid on the following month's estimate. Material On Hand (MOH) will cut off on the 20th of each month. Special circumstances will be considered on a case-by-case basis.

Item 300 Asphalts, Oils, and Emulsions:

Contractor shall provide 1L (1qt.) clean and dry screw top or friction-lid sampling cans as directed.

Furnish at least one sample of each type of asphalt used per individual reference for QA/QC purposes.

Item 302 Aggregates for Surface Treatments:

Use unmodified AC or PG for pre-coating aggregate. Emulsion pre-coating will not be allowed.

Provide pre-coated aggregate with a residual bitumen target value of 1% by weight.

County: HOPKINS, ETC. **Control:** 0009-18-021, ETC.

Use liquid antistrip or other approved antistrip agent complying with the requirements of Item 301 Asphalt Antistripping Agents. The aggregate will be evaluated for moisture susceptibility using test method TEX-530-C.

Item 316 Seal Coat:

Rates of application and quantities shown on the plans of surface treatment are for estimating purposes only. It is the contractor's responsibility to verify all quantities prior to ordering and delivering materials.

Unless otherwise permitted by the Engineer in writing, the open season for asphalt placement will be: May 15 - August 31 for AC.

AC shall not be placed when nighttime temperatures are to be 65 degrees or less as forecasted by the National Oceanic Atmospheric Administration (NOAA).

The Engineer will retrieve a minimum of one asphalt sample from the job site for each type of asphalt used for each particular reference for quality control purposes.

Protect any and all existing bridges, curbs and any other exposed surfaces from asphaltic materials by any acceptable method. Removal of asphaltic materials deposited on these surfaces will be at the contractor's expense.

The contractor shall be required to have an approved method to handle any bleeding that may occur while actively working on a reference. Once a reference is complete, any bleeding will be addressed by the local TxDOT maintenance Section.

Utilize an asphalt distributor capable of providing a transversely varied asphalt rate. When a transversely varied rate is required, the asphalt rate outside of the wheel paths will be between 22 and 32% higher than the asphalt rate applied in the wheel paths. The Engineer will select the pavements where the transversely varied asphalt rate is required, this application will be determined based on field conditions at the time of the asphalt placement. Provide calibration documents to the engineer that include a description of the spray bar(s) and nozzles used and the percentage difference in asphalt rate achieved by each tested spray bar and nozzle arrangement. The nozzles proposed for use shall be clearly stamped or marked from the factory identifying the nozzle size and manufacturer.

DESIGN RATES		
	ASPHALT RATE	**AGGREGATE RATE**
GR 3 PB	**.44 gal per cy**	**110 SY/CY**
GR 4 PB	**.36 gal per cy**	**130 SY/CY**

The information above is intended to provide general guidance and as a basis of estimate. Based on the season and weather conditions at the time, the engineer will determine the asphalt type and rates to be used at the time of application.

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 following items will be required for flagger on this project:

1. Flaggers are required to wear a white hard hat while performing flagging operations.
2. Flaggers will be required at the intersection of all State maintained roadways.
3. Flaggers may be required at other high traffic generating intersections as deemed necessary by the Area Engineer.

The traffic control plan for this contract consists of the installation and maintenance of warning signs and other traffic control devices shown in the plans, specification data which may be included in the general notes, applicable provisions of the Texas Manual on Uniform Traffic Control Devices (TMUTCD), traffic control plan sheets included in the plans, standard BC sheets and Item 502 of the Standard Specifications.

Do not begin Item 502, Barricades, Signs, and Traffic Handling, on the roadway until both of the following conditions are met:

1. The work schedule is approved.
2. No more than 5 workdays will pass between the beginning of Item 502 and the actual commencement of roadway work bid items.

Correct all deficiencies within the time frame noted on the Traffic Control Device Inspection Form 599. Failure to make corrections within time frame specified may result in no payment for this Item for the month of the noted deficiency.

The pavement will be entirely open to traffic each night.

Review traffic control details described on TCP (SC-7)-21. This sheet includes provisions for certain signs to be installed which are to remain in place until standard pavement markings are in place. These signs are in addition to the signs and barricades that may be required on the Barricade and Construction Standards. Erect R4-1, (Do Not Pass) and R4-2 (Pass with Care) signs to mark no passing zones as directed.

County: HOPKINS, ETC. **Control:** 0009-18-021, ETC.

Provide flaggers as directed. A minimum of two flaggers will be required, a well as an adequate number of flaggers to cover all side roads within the active work zone. All employees performing flagging duties will be required to wear a white hard hat / safety helmet.

Display "FLAGGER AHEAD "and "BE PREPARED TO STOP" signs only when flaggers are working. Furnish all flaggers with long handled stop-slow paddles and operational two-way radios.

Regulate all construction activities and equipment to cause a minimum of inconvenience to the traveling public.

Provide warning signs and flaggers at locations where it is necessary for trucks to stop, load or unload.

Provide and use a pilot car according to Item 510, whenever one lane traffic exists. Do not exceed cycle duration of 10 minutes. This work will not be paid for separately but will be considered subsidiary to Item 502.

Item 503 Portable Changeable Message Sign:

Two (2) portable changeable message boards are required for advance warning.

Item 505 Truck Mounted Attenuators (TMA) and Trailer Attenuator (TA):

Shadow vehicles with truck mounted attenuator (TMA) are required on the traffic control plan and TCP standards for this project. The contractor will be responsible for determining if one or more of these traffic control operations will be ongoing at the same time to determine the total number of TMAs needed for the project.

Item 506 Temporary Erosion, Sedimentation & Environmental Controls:

It is the intent of this contract that no disturbance of vegetation occurs as a result of the roadway operations. However, if vegetation is disturbed, treat the disturbed area as follows at no additional costs to the department.

Place temporary sediment control fence, or an alternative material as approved, to minimize and control the amount of sediment that might enter receiving waters from the disturbed area(s). Maintain the sediment controls in a satisfactory manner until the disturbed area(s) is stabilized. After the area(s) has been stabilized, remove the sediment controls. The location and length of the sediment controls will be determined.

The work performed, materials furnished, equipment, labor, tools, and incidentals will not be measured or paid for directly but will be considered subsidiary to the various bid items.

County: HOPKINS, ETC. **Control:** 0009-18-021, ETC.

Highway: BU 67V, ETC. **Sheet:** 4C

Item 662 Work Zone Pavement Markings:

Place flexible reflective roadway tabs in accordance with the current TCP (SC-6)-21 during the seal coat operations. Place tabs to indicate the beginning and ending of no passing zones.

Place work zone tabs with covers removed; 30 minutes before sundown on all surfaces sealed during a workday.

Cut, remove, and properly dispose of the upright portions of all work zone tabs prior to acceptance of any roadway. Remove entire tab when located on HMAC or concrete surfaces.

No section of highway included in this contract will be without standard pavement markings for a period longer than 14 calendar days.

Item 666 Retroreflectorized Pavement Markings:

No contract stripe will be placed unless the inspector is present and at least 24 hours advance notice has been given by the Contractor.

Lay out pilot lines for approval 24 hours prior to all final pavement marking applications.

Use equipment with footage counters capable of measuring the linear footage placed. Calibrate counters prior to the beginning of striping operations.

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0009-18-021

DISTRICT Paris

COUNTY Delta, Fannin, Franklin, Grayson, Hopkins, Hunt, Lamar, Rains

HIGHWAY BU 67V, FM 1417, FM 1499, FM 1500, FM 1903, FM 196, FM 273, FM 3357, FM 6, FM 64, FM 69, FM 79, FM 87, FS 1499, SH 11, SH 224, SH 34, SH 37, SH 50, SH 91, SS 503, US 69

ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL
	316-7084	ASPH (AC-20-5TR OR AC-20XP)	TON	6,304.000	
	316-7134	AGGR (TY-PB, GR-3)(SAC-A)	CY	24,271.000	
	316-7136	AGGR (TY-PB, GR-4)(SAC-A)	CY	6,437.000	
	500-7001	MOBILIZATION	LS	1.000	
	502-7001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO	5.000	
	503-7001	PORTABLE CHANGEABLE MESSAGE SIGN	DAY	35.000	
	505-7001	TMA (STATIONARY)	DAY	35.000	
	662-7112	WK ZN PAV MRK SHT TERM (TAB)TY W	EA	2,787.000	
	662-7114	WK ZN PAV MRK SHT TERM (TAB)TY Y-2	EA	22,506.000	
	666-7172	RE PM TY II (W) 6" (BRK)	LF	16,420.000	
	666-7175	RE PM TY II (W) 6" (SLD)	LF	1,599,460.000	
	666-7177	RE PM TY II (W) 8" (DOT)	LF	325.000	
	666-7179	RE PM TY II (W) 8" (SLD)	LF	24,967.000	
	666-7183	RE PM TY II (W) 18" (SLD)	LF	506.000	
	666-7184	RE PM TY II (W) 24" (SLD)	LF	1,554.000	
	666-7186	RE PM TY II (W) (ARROW)	EA	76.000	
	666-7194	RE PM TY II (W) (WORD)	EA	66.000	
	666-7198	RE PM TY II (W) (RR XING)	EA	4.000	
	666-7201	RE PM TY II (W) 36" (YLD TRI)	EA	164.000	
	666-7211	RE PM TY II (Y) 6" (BRK)	LF	143,141.000	
	666-7213	RE PM TY II (Y) 6" (SLD)	LF	1,005,112.000	
	672-7002	REFL PAV MRKR TY I-C	EA	1,271.000	
	672-7004	REFL PAV MRKR TY II-A-A	EA	19,464.000	
	672-7006	REFL PAV MRKR TY II-C-R	EA	251.000	
	677-7001	ELIM EXT PM & MRKS (4")	LF	970,571.000	
	18	EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS	1.000	
		SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS	1.000	

2025 Seal Coat Pavement Marking Summary																		
County	666-7172	666-7175	666-7177	666-7211	666-7213	672-7002	672-7004	672-7006	677-7001	662-7112	662-7114	666-7179	666-7183	666-7184	666-7186	666-7194	666-7198	666-7201
	RE PM TY II (W) 6" (BRK)	RE PM TY II (W) 6" (SLD)	RE PM TY II (W) 8" (DOT)	RE PM TY II (Y) 6" (BRK)	RE PM TY II (Y) 6" (SLD)	REFL PAV MRKR TY I-C	REFL PAV MRKR TY II-A-A	REFL PAV MRKR TY II-C-R	ELIM EXT PM & MRKS (4")	WK ZN PAV MRK SHT TERM (TAB) TY W	WK ZN PAV MRK SHT TERM (TAB)TY Y-2	RE PM TY II (W) 8" (SLD)	RE PM TY II (W) 18" (SLD)	RE PM TY II (W) 24" (SLD)	RE PM TY II (W) (ARROW)	RE PM TY II (W) (WORD)	RE PM TY II (W) (RR XING)	RE PM TY II (W) 36" (YLD TRI)
	LF	LF	LF	LF	LF	EA	EA	EA	LF	EA	EA	LF	LF	LF	EA	EA	EA	EA
GRAYSON	5,900	118,520		6,993	147,021	371	1,571	251		1,659	1,747	8,336		543	32	32	2	11
FANNIN	40	399,290		28,310	133,512	77	4,043		478,400	297	4,308	1,735	102	95	4	4	2	
HUNT	8,460	472,926		42,350	248,865	394	5,715			461	7,182	5,596	296	444	9	7		41
RAINS	1,520	65,468		6,589	15,200	63	210			52	850	625		68	5	5		
DELTA		2,800			10,374		260		13,174		130	600		70				
LAMAR		225,663		27,733	192,989	52	3,578		221,999	146	3,959	2,458	108	124	4	4		9
HOPKINS		119,083		16,973	78,289	125	1,632		158,827	109	1,881	2,702		154	3	3		103
FRANKLIN	500	195,710	325	14,193	178,862	189	2,455		98,171	63	2,449	2,915		56	19	11		
PROJECT TOTALS	16,420	1,599,460	325	143,141	1,005,112	1,271	19,464	251	970,571	2,787	22,506	24,967	506	1,554	76	66	4	164

2025 SEAL COAT SURFACE TREATMENT SUMMARY				
	316-7084	316-7134	316-7136	316
County	ASPH (AC 20-5TR or AC-20 XP)	AGGR TY-PB GR 3 (SAC-A)	AGGR TY-PB GR 4 (SAC-A)	TOTAL SEAL COAT PLACEMENT SQUARE YARDS
	TON	CY	CY	FOR INFORMATIONAL PURPOSES ONLY
GRAYSON	726	2,145	1,416	419,823
FANNIN	988	4,773		525,189
HUNT	2,076	9,281	792	1,123,661
RAINS	275		1,374	178,550
DELTA	30	143		15,714
LAMAR	895	4,333		476,699
HOPKINS	598	2,890		317,853
FRANKLIN	716	706	2,855	448,656
PROJECT TOTALS	6,304	24,271	6,437	3,506,145

ADDITIONAL TRAFFIC CONTROL ITEMS	
503-7001	505-7001
PORTABLE CHANGEABLE MESSAGE SIGN	TMA (STATIONARY)
DAY	DAY
35	35

Texas Department of Transportation

BU 67, ETC.

SEAL COAT PROJECT TOTALS

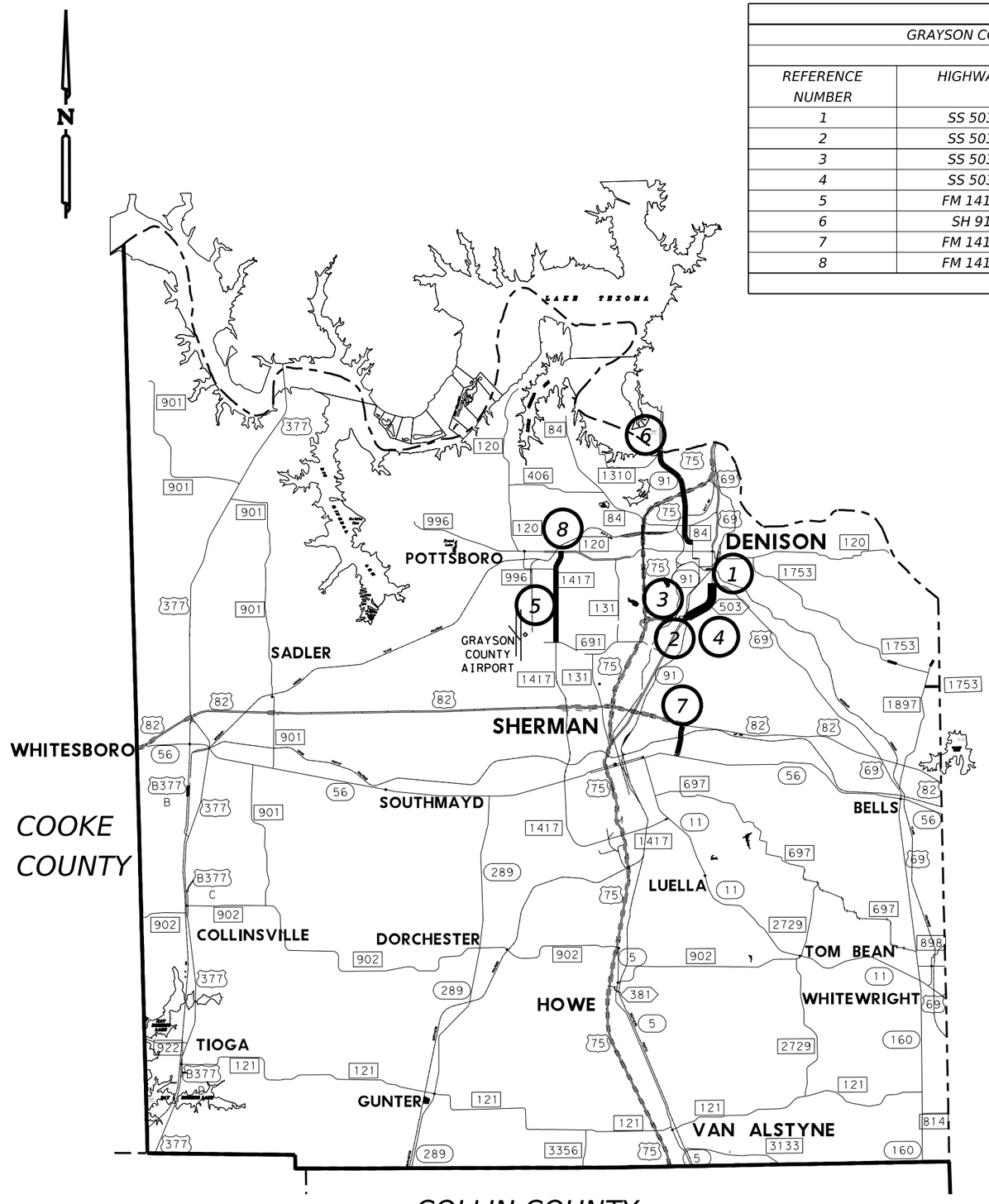
SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0009	18	021,ETC.	BU 67, ETC.
DIST	COUNTY		SHEET NO.
PAR	HOPKINS,ETC.		6

DATE: 9/23/2024 1:34:00 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/01 - PAR/Design Projects/0009-18-021/4 - Design/Master Design Files/006 SEAL COAT TOTALS.dgn

CK DW CK DW

2025 SEAL COAT LOCATIONS					
GRAYSON COUNTY			Seal Coat Limits		
			FROM	TO	
REFERENCE NUMBER	HIGHWAY	C-S-J	DESCRIPTION	DESCRIPTION	LENGTH (MI)
1	SS 503	0047-02-158	NFR SH 91	US 69	1.80
2	SS 503	0047-02-159	SFR SH 91	US 69	1.84
3	SS 503	0047-02-160	SH 91 (EB LANES)	US 69	1.93
4	SS 503	0047-02-160	SH 91 (WB LANES)	US 69	1.86
5	FM 1417	0202-08-074	FM 996	FM 691	3.07
6	SH 91	0705-01-031	STATE LINE	MLK	4.25
7	FM 1417	2453-02-028	SH 56	US 82	1.20
8	FM 1417	2456-01-010	FM 120	FM 996	3.88
					19.83



GRAYSON COUNTY

SCALE (MILE): 0 1 3 5

Texas Department of Transportation

BU 67,ETC.

GRAYSON COUNTY
PROJECT SUMMARY
AND LOCATION MAP

SHEET 1 OF 5

CONT	SECT	JOB	HIGHWAY
0009	18	021,ETC.	BU 67, ETC.
DIST	COUNTY		SHEET NO.
PAR	HOPKINS,ETC.		7

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CK DW CK DW

2025 GRAYSON COUNTY SEAL COAT QUANTITY SUMMARY												
										316-7084	316-7134	316-7136
REF. NO	HIGHWAY	C-S-J	ADT	BEGIN STATION	END STATION	LENGTH (LF)	ROAD WIDTH (LF)	TRAVEL LANE (SY)	* MISC. SEAL AREA (SY)	ASPH (AC 20-5TR or AC-20 XP) TON	AGGR TY-PB GR 3 (SAC-A) CY	AGGR TY-PB GR 4 (SAC-A) CY
1	SS 503	0047-02-158	493	0+00	95+04	9,504	21	22,176	1,135	36		179
SUBTOTALS								23,311		36	0	179
2	SS 503	0047-02-159	292	0+00	94+61	9,461	22	23,127	1,307	38		188
				94+61	97+20	259	21	604		1		5
SUBTOTALS								25,038		39	0	193
3	SS 503	0047-02-160	16,820	0+00	2+60	260	30	867	735	2		12
				2+60	10+12	752	43	3,593		6		28
				10+12	101+78	9,166	38	38,701		59		298
SUBTOTALS								43,896		67	0	338
4	SS 503	0047-02-160	16,820	0+00	90+99	9,099	39	39,429	6,106	70		350
				90+99	98+08	709	36	2,836		4		22
SUBTOTALS								48,371		74	0	372
0047-02-160 SUBTOTAL								92,267		141	0	710
5	FM 1417	0202-08-074	4,450	0+00	3+22	322	44	1,574	0	3	14	
				3+22	6+75	353	86	3,373		6	31	
				6+75	24+10	1,735	68	13,109		25	119	
				24+10	29+54	544	66	3,990		7	36	
				29+54	56+58	2,704	44	13,220		25	120	
				56+58	63+52	694	58	4,473		8	41	
				63+52	93+64	3,012	72	24,096		45	219	
				93+64	101+79	815	58	5,253		10	48	
				101+79	143+52	4,173	46	21,329		40	194	
				143+52	150+01	649	58	4,183		8	38	
				150+01	161+91	1,190	72	9,520		18	87	
SUBTOTALS								104,120		195	947	0

NOTE:

ASPHALT RATE SHOWN IS FOR BID PURPOSES ONLY.
ACTUAL RATE WILL BE DETERMINED IN FIELD AS DIRECTED BY THE ENGINEER
* SEE MISCELLANEOUS QUANTITY SUMMARY

APPLICATION RATES:

GRADE 3 AGGREGATE
AC ASPHALT 0.44 GAL * SY * 8.54LBS / 2000 = TONS, AGGREGATE GRADE 3 TY PB CY/110 SY

GRADE 4 AGGREGATE
AC ASPHALT 0.36 GAL * SY * 8.54LBS / 2000 = TONS, AGGREGATE GRADE 4 TY PB CY/130 SY

GRAYSON COUNTY

Texas Department of Transportation

BU 67,ETC.

GRAYSON COUNTY
QUANTITY SUMMARY

CONT	SECT	JOB	HIGHWAY
0009	18	021,ETC.	BU 67, ETC.
DIST	COUNTY		SHEET NO.
PAR	HOPKINS,ETC.		8

2025 GRAYSON COUNTY SEAL COAT QUANTITY SUMMARY

REF. NO	HIGHWAY	C-S-J	ADT	BEGIN STATION	END STATION	LENGTH (LF)	ROAD WIDTH (LF)	TRAVEL LANE (SY)	* MISC. SEAL AREA (SY)	316-7084 ASPH (AC 20-5TR or AC-20 XP) TON	316-7134 AGGR TY-PB GR 3 (SAC-A) CY	316-7136 AGGR TY-PB GR 4 (SAC-A) CY
6	SH 91	0705-01-031	5,296	0+00	5+60	560	38	2,364		4		18
		GR 4		5+60	35+70	3,010	45	15,050		23		116
				35+70	43+31	761	81	6,849		11		53
				43+31	48+82	551	118	7,224		11		56
				48+82	56+43	761	82	6,934		11		53
				56+43	66+21	978	46	4,999		8		38
			BRIDGE	66+21	68+91	270						
		GR 3		68+91	84+74	1,583	46	8,091	730	17	80	
				84+74	96+16	1,142	45	5,710		11	52	
				96+16	97+57	141	46	721		1	7	
				97+57	107+63	1,006	64	7,154		13	65	
				107+63	115+62	799	44	3,906		7	36	
		US 75	BRIDGE	115+62	119+16	354					0	
				119+16	144+16	2,500	44	12,222		23	111	
				144+16	167+97	2,381	36	9,524		18	87	
			BRIDGE	167+97	171+40	343					0	
				171+40	208+00	3,660	36	14,640		28	133	
				208+00	213+73	573	48	3,056		6	28	
				213+73	224+40	1,067	24	2,845		5	26	
SUBTOTALS								112,019		197	625	334
7	FM 1417	2453-02-028		0+00	1+70	170	25	472	1,837	4	21	
				1+70	41+80	4,010	45	20,050		38	182	
				41+90	63+53	2,163	56	13,459		25	122	
SUBTOTALS								35,818		67	325	0
8	FM 1417	2456-01-010	3,883	161+91	169+20	729	60	4,860	344	10	47	
				169+20	173+28	408	72	3,264		6	30	
				173+28	180+14	686	59	4,497		8	41	
				180+14	195+58	1,544	45	7,720		15	70	
				195+58	198+49	291	57	1,843		3	17	
				198+49	204+74	625	68	4,722		9	43	
SUBTOTALS								27,250		51	248	0
GRAYSON COUNTY TOTALS								419,823		726	2,145	1,416

NOTE:

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* SEE MISCELLANEOUS QUANTITY SUMMARY

APPLICATION RATES:

GRADE 3 AGGREGATE
AC ASPHALT 0.44 GAL * SY * 8.54LBS / 2000 = TONS, AGGREGATE GRADE 3 TY PB CY/110 SY

GRADE 4 AGGREGATE
AC ASPHALT 0.36 GAL * SY * 8.54LBS / 2000 = TONS, AGGREGATE GRADE 4 TY PB CY/130 SY

GRAYSON COUNTY

Texas Department of Transportation

BU 67,ETC.

GRAYSON COUNTY
QUANTITY SUMMARY

CONT	SECT	JOB	HIGHWAY
0009	18	021,ETC.	BU 67, ETC.
DIST	COUNTY		SHEET NO.
PAR	HOPKINS,ETC.		9

2025 GRAYSON COUNTY SEAL COAT PAVEMENT MARKING SUMMARY												
REF. NO	HIGHWAY	C-S-J	LENGTH	662-7112	662-7114	666-7179	666-7183	666-7184	666-7186	666-7194	666-7198	666-7201
				WK ZN PAV MRK SHT TERM (TAB) TY W	WK ZN PAV MRK SHT TERM (TAB)TY Y-2	RE PM TY II (W) 8" (SLD)	RE PM TY II (W) 18" (SLD)	RE PM TY II (W) 24" (SLD)	RE PM TY II (W) (ARROW)	RE PM TY II (W) (WORD)	RE PM TY II (W) (RR XING)	RE PM TY II (W) 36" (YLD TRI)
			LF	EA	EA	LF	LF	LF	EA	EA	EA	EA
1	SS 503	0047-02-158	9,504	32	238			104				
2	SS 503	0047-02-159	9,720	32	236			108				
3	SS 503	0047-02-160	10,178	388		1,120		80	3	3		
4	SS 503	0047-02-160	9,808	321		700		80	3	3		
0047-02-160 SUBTOTAL				709	0	1,820	0	160	6	6	0	0
5	FM 1417	0202-08-074	16,191	260	445	1,150		108	8	8		
6	SH 91	0705-01-031	22,440	446	561	2,400		36	14	14		
7	FM 1417	2453-02-028	6,353	20	159	926		13			2	11
8	FM 1417	2456-01-010	4,283	160	108	2,040		14	4	4		
TOTALS				1,659	1,747	8,336	0	543	32	32	2	11

2025 GRAYSON COUNTY SEAL COAT PAVEMENT MARKING SUMMARY											
REF. NO	HIGHWAY	C-S-J	LENGTH	666-7172	666-7175	666-7211	666-7213	672-7002	672-7004	672-7006	677-7001
				RE PM TY II (W) 6" (BRK)	RE PM TY II (W) 6" (SLD)	RE PM TY II (Y) 6" (BRK)	RE PM TY II (Y) 6" (SLD)	REFL PAV MRKR TY I-C	REFL PAV MRKR TY II-A-A	REFL PAV MRKR TY II-C-R	ELIM EXT PM & MRKS (4")
			LF	LF	LF	LF	LF	EA	EA	EA	LF
1	SS 503	0047-02-158	9,504				19,008		238		
2	SS 503	0047-02-159	9,720				18,904		237		
3	SS 503	0047-02-160	10,178	2,450	10,178		10,186	56		128	
4	SS 503	0047-02-160	9,808	2,450	9,808		9,781	35		123	
0047-02-160 SUBTOTAL				4,900	19,986	0	19,967	91	0	251	0
5	FM 1417	0202-08-074	16,191		32,382	4,490	32,713	58	567		
6	SH 91	0705-01-031	22,440	800	44,880	1,100	40,438	120	432		
7	FM 1417	2453-02-028	6,353		12,706	983	7,361		25		
8	FM 1417	2456-01-010	4,283	200	8,566	420	8,630	102	72		
TOTALS				5,900	118,520	6,993	147,021	371	1,571	251	0

GRAYSON COUNTY

Texas Department of Transportation

BU 67,ETC.

GRAYSON COUNTY
PAVEMENT MARKING
QUANTITY SUMMARY

CONT	SECT	JOB	HIGHWAY
0009	18	021,ETC.	BU 67, ETC.
DIST	COUNTY		SHEET NO.
PAR	HOPKINS,ETC.		10

REF # 1 MISCELLANEOUS QUANTITY SUMMARY							SS 503
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
X-OVER	X		32	50	32	32	227
X-OVER	X		32	50	32	32	227
X-OVER	X		32	50	32	32	227
X-OVER	X		32	50	32	32	227
X-OVER	X		32	50	32	32	227
Mailbox Turnout	0						
TOTALS							1,135

REF # 2 MISCELLANEOUS QUANTITY SUMMARY							SS 503
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
X-OVER		X	32	50	32	32	227
X-OVER		X	32	50	32	32	227
X-OVER		X	32	50	32	32	227
X-OVER		X	32	50	32	32	227
X-OVER		X	32	50	32	32	227
RADII AT US 69	X	X			60	60	172
Mailbox Turnout	0						
TOTALS							1,307

REF # 3 MISCELLANEOUS QUANTITY SUMMARY							SS 503
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
NB CONNECTOR TO US 69		X	225	27	30	40	735
Mailbox Turnout	0						
TOTALS							735

REF # 4 MISCELLANEOUS QUANTITY SUMMARY							SS 503
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
SB CONNECTOR US US 69		X	225	27	30	30	718
X-OVER		X	475	32	30	30	1732
X-OVER		X	475	32	30	30	1732
X-OVER		X	475	32	30	30	1732
X-OVER (NO T/L)		X	42	32	30	30	192
Mailbox Turnout	0						
TOTALS							6,106

REF # 5 MISCELLANEOUS QUANTITY SUMMARY							FM 1417
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
FM 691	N/S	N/S					
Mailbox Turnout	0						
TOTALS							0

REF # 6 MISCELLANEOUS QUANTITY SUMMARY							SH 91
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
RADII AT US 75 N					80	90	365
RADII AT US 75 S					80	90	365
FM 1310	N/S						
Mailbox Turnout	0						
TOTALS							730

REF # 7 MISCELLANEOUS QUANTITY SUMMARY							FM 1417
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
RADII AT SH 56					213	178	1837
Mailbox Turnout	0						
TOTALS							1,837

REF # 8 MISCELLANEOUS QUANTITY SUMMARY							FM 1417
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
RADII AT 120 W		X			60	60	172
RADII AT 120 E	X				60	60	172
Mailbox Turnout	0						
TOTALS							344

GRAYSON COUNTY

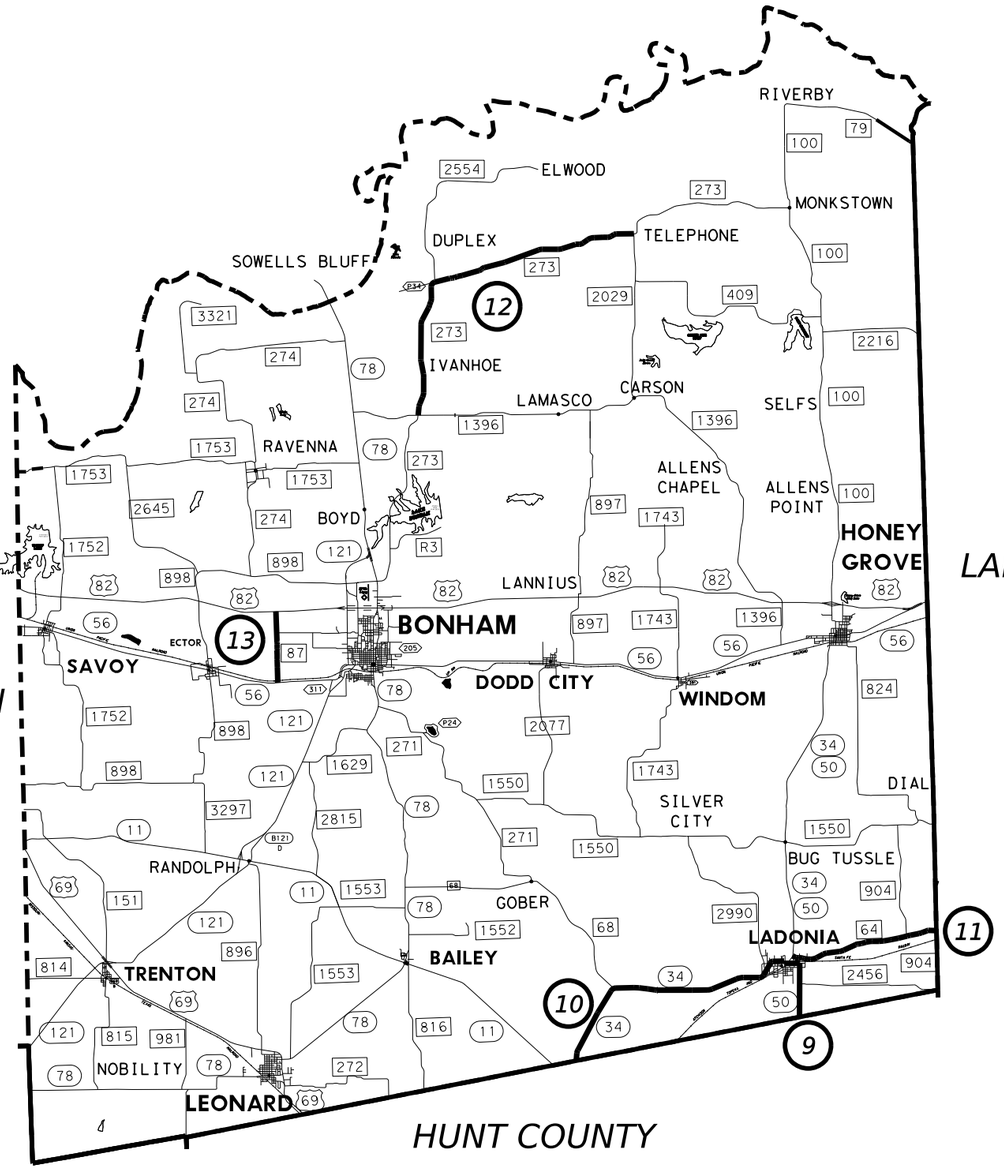
Texas Department of Transportation

BU 67,ETC.

GRAYSON COUNTY
MISCELLANEOUS
QUANTITY SUMMARY

CONT	SECT	JOB	HIGHWAY
0009	18	021,ETC.	BU 67, ETC.
DIST	COUNTY		SHEET NO.
PAR	HOPKINS,ETC.		11

2025 SEAL COAT LOCATIONS					
FANNIN COUNTY			SEAL COAT LIMITS		
			FROM	TO	
REFERENCE NUMBER	HIGHWAY	C-S-J	DESCRIPTION	Description	LENGTH (MI)
9	SH 50	0082-01-018	SH 34 (LADONIA)	HUNT C/L	2.28
10	SH 34	0174-02-017	SH 50	HUNT C/L	8.850
11	FM 64	0399-01-012	SH 34	DELTA C/L	4.960
12	FM 273	0765-03-028	FM 1396	FM 2029	11.57
13	FM 87	3600-01-008	US 82	SH 56	2.37
					30.03



FANNIN COUNTY

SCALE (MILE): 0 1 3 5

Texas Department of Transportation

BU 67, ETC.

FANNIN COUNTY
PROJECT SUMMARY
AND LOCATION MAP

CONT	SECT	JOB	HIGHWAY
0009	18	021,ETC.	BU 67, ETC.
DIST	COUNTY		SHEET NO.
PAR	HOPKINS,ETC.		12

DATE: 9/18/2024 5:06:12 PM
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2025 FANNIN COUNTY SEAL COAT QUANTITY SUMMARY										316-7084	316-7134	316-7136
REF. NO	HIGHWAY	C-S-J	ADT	BEGIN STATION	END STATION	LENGTH (LF)	ROAD WIDTH (LF)	TRAVEL LANE (SY)	* MISC. SEAL AREA (SY)	ASPH (AC 20-5TR or AC-20 XP) TON	AGGR TY-PB GR 3 (SAC-A) CY	AGGR TY-PB GR 4 (SAC-A) CY
9	SH 50	0082-01-018	1,399	0+00	25+57	2,557	22	6,250	0	12	57	
				25+57	120+35	9,478	33	34,753		65	316	
SUBTOTALS								41,003		77	373	0
10	SH 34	0174-02-017	925	0+00	429+97	42,997	30	143,323	384	270	1,306	
				429+97	467+10	3,713	24	9,901		19	90	
SUBTOTALS								153,608		289	1,396	0
11	FM 64	0399-01-012	476	0+00	52+42	5,242	23	13,396	364	26	125	
				52+42	106+81	5,439	27	16,317		31	148	
				106+81	184+43	7,762	23	19,836		37	180	
				184+43	261+89	7,746	27	23,238		44	211	
SUBTOTALS								73,151		138	664	0
12	FM 273	0765-03-028	2,255	0+00	330+14	33,014	28	102,710	1,032	195	943	
				330+14	343+65	1,351	53	7,956		15	72	
				343+65	610+78	26,713	28	83,107		156	756	
SUBTOTALS								194,805		366	1,771	0
13	FM 87	3600-01-008	1,149	0+00	124+90	12,490	45	62,450	172	118	569	
SUBTOTALS								62,622		118	569	0
FANNIN COUNTY TOTALS								525,189		988	4,773	0

NOTE:

ASPHALT RATE SHOWN IS FOR BID PURPOSES ONLY.
ACTUAL RATE WILL BE DETERMINED IN FIELD AS DIRECTED BY THE ENGINEER
* SEE MISCELLANEOUS QUANTITY SUMMARY

APPLICATION RATES:

GRADE 3 AGGREGATE
AC ASPHALT 0.44 GAL * SY * 8.54LBS / 2000 = TONS, AGGREGATE GRADE 3 TY PB CY/110 SY

GRADE 4 AGGREGATE
AC ASPHALT 0.36 GAL * SY * 8.54LBS / 2000 = TONS, AGGREGATE GRADE 4 TY PB CY/130 SY

FANNIN COUNTY

Texas Department of Transportation

BU 67, ETC.

FANNIN COUNTY
QUANTITY SUMMARY

CONT	SECT	JOB	HIGHWAY
0009	18	021,ETC.	BU 67, ETC.
DIST	COUNTY		SHEET NO.
PAR	HOPKINS,ETC.		13

2025 FANNIN COUNTY SEAL COAT PAVEMENT MARKING SUMMARY												
REF. NO	HIGHWAY	C-S-J	LENGTH	662-7112	662-7114	666-7179	666-7183	666-7184	666-7186	666-7194	666-7198	666-7201
				WK ZN PAV MRK SHT TERM (TAB) TY W	WK ZN PAV MRK SHT TERM (TAB)TY Y-2	RE PM TY II (W) 8" (SLD)	RE PM TY II (W) 18" (SLD)	RE PM TY II (W) 24" (SLD)	RE PM TY II (W) (ARROW)	RE PM TY II (W) (WORD)	RE PM TY II (W) (RR XING)	RE PM TY II (W) 36" (YLD TRI)
			LF	EA	EA	LF	LF	LF	EA	EA	EA	EA
9	SH 50	0082-01-018	12,035	4	299			12				
10	SH 34	0174-02-017	46,710	48	1,550	200	48	20				
11	FM 64	0399-01-012	26,189	8	620			18				
12	FM 273	0765-03-028	61,078	125	1,527	855	54		4	4		
13	FM 87	3600-01-008	12,490	112	312	680		45			2	
TOTALS				297	4,308	1,735	102	95	4	4	2	0

2025 FANNIN COUNTY SEAL COAT PAVEMENT MARKING SUMMARY											
REF. NO	HIGHWAY	C-S-J	LENGTH	666-7172	666-7175	666-7211	666-7213	672-7002	672-7004	672-7006	677-7001
				RE PM TY II (W) 6" (BRK)	RE PM TY II (W) 6" (SLD)	RE PM TY II (Y) 6" (BRK)	RE PM TY II (Y) 6" (SLD)	REFL PAV MRKR TY I-C	REFL PAV MRKR TY II-A-A	REFL PAV MRKR TY II-C-R	ELIM EXT PM & MRKS (4")
			LF	LF	LF	LF	LF	EA	EA	EA	LF
9	SH 50	0082-01-018	12,035		29,600	2,310			188		
10	SH 34	0174-02-017	46,710		92,410	9,920	84,056		1,450		186,386
11	FM 64	0399-01-012	26,189		52,370	3,100	36,902		620		92,372
12	FM 273	0765-03-028	61,078	40	176,428	10,660	12,554	43	1,357		199,642
13	FM 87	3600-01-008	12,490		48,482	2,320		34	428		
TOTALS				40	399,290	28,310	133,512	77	4,043	0	478,400

FANNIN COUNTY

Texas Department of Transportation

BU 67, ETC.

FANNIN COUNTY
PAVEMENT MARKING
QUANTITY SUMMARY

CONT	SECT	JOB	HIGHWAY
0009	18	021,ETC.	BU 67, ETC.
DIST	COUNTY		SHEET NO.
PAR	HOPKINS,ETC.		14

REF # 9 MISCELLANEOUS QUANTITY SUMMARY							SH 50
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
COUNTY ROAD INT.	N/S	N/S					
CITY STREETS	N/S	N/S					
FM 2990	N/S						
Mailbox Turnout	0						
TOTALS							0

REF # 10 MISCELLANEOUS QUANTITY SUMMARY							SH 34
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
COUNTY ROAD INT.	N/S	N/S					
CITY STREETS	N/S	N/S					
FM 68	N/S						
FM 2990	N/S						
Mailbox Turnout	16						384
TOTALS							384

REF # 11 MISCELLANEOUS QUANTITY SUMMARY							FM 64
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
RADII SH 34					40	60	124
CITY STREETS	N/S	N/S					
COUNTY ROAD INT.	N/S	N/S					
FM 904	N/S						
Mailbox Turnout	10						240
TOTALS							364

REF # 12 MISCELLANEOUS QUANTITY SUMMARY							FM 273
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
COUNTY ROAD INT.	N/S	N/S					
PRIVATE ROADS	N/S	N/S					
FM 2554	N/S						
Mailbox Turnout	86						1032
TOTALS							1,032

REF # 13 MISCELLANEOUS QUANTITY SUMMARY							FM 87
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
RADII AT US 82					60	60	172
COUNTY ROAD INT.	N/S	N/S					
Mailbox Turnout	0						
TOTALS							172

FANNIN COUNTY

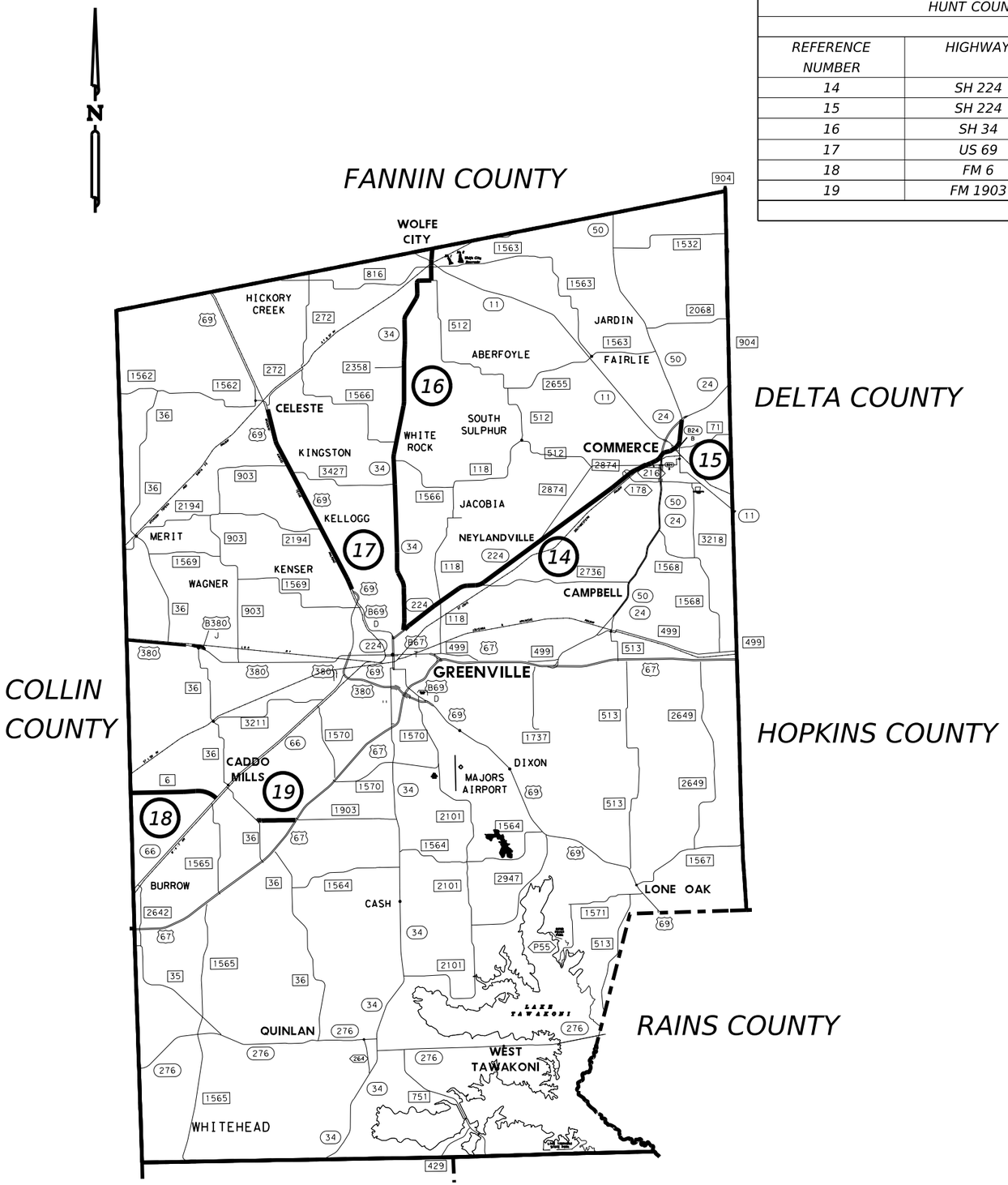
Texas Department of Transportation

BU 67, ETC.

FANNIN COUNTY
MISCELLANEOUS
QUANTITY SUMMARY

CONT	SECT	JOB	HIGHWAY
0009	18	021,ETC.	BU 67, ETC.
DIST	COUNTY		SHEET NO.
PAR	HOPKINS,ETC.		15

2025 SEAL COAT LOCATIONS					
HUNT COUNTY			SEAL COAT LIMITS		
			FROM	TO	
REFERENCE NUMBER	HIGHWAY	C-S-J	DESCRIPTION	DESCRIPTION	LENGTH (MI)
14	SH 224	0136-01-067	SH 34	FM 2874	12.85
15	SH 224	0136-02-040	FM 2874	SH 24	2.62
16	SH 34	0174-01-048	FANNIN C/L	SH 224	16.41
17	US 69	0202-05-053	0.5 Mi. S OF FM 272	BU 69D	8.30
18	FM 6	0619-02-015	COLLIN C/L	SH 66	3.40
19	FM 1903	1496-02-021	FM 36	IH 30	1.58
					45.16



SCALE (MILE): 0 1 3 5

Texas Department of Transportation

BU 67, ETC.

HUNT COUNTY
PROJECT SUMMARY
AND LOCATION MAP

SHEET 1 OF 5

CONT	SECT	JOB	HIGHWAY
0009	18	021,ETC.	BU 67, ETC.
DIST	COUNTY		SHEET NO.
PAR	HOPKINS,ETC.		16

DATE: 9/18/2024 5:06:38 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/01 - PAR/Design Projects/0009-18-021/4 - Design/Master Design Files/016-020 HUNT COUNTY.dgn

2025 HUNT COUNTY SEAL COAT QUANTITY SUMMARY

REF. NO	HIGHWAY	C-S-J	ADT	BEGIN STATION	END STATION	LENGTH (LF)	ROAD WIDTH (LF)	TRAVEL LANE (SY)	* MISC. SEAL AREA (SY)	316-7084 ASPH (AC 20-5TR or AC-20 XP) TON	316-7134 AGGR TY-PB GR 3 (SAC-A) CY	316-7136 AGGR TY-PB GR 4 (SAC-A) CY
14	SH 224	0136-01-067	4869									
		HOTMIX	WB	0+00	19+47	1,947						
				19+47	23+78	431	26	1,245		2		10
				23+78	27+98	420	38	1,773		3		14
				27+98	32+60	462	16	821		1		6
	GR4			32+60	35+57	297	34	1,122		2		9
		HOTMIX	EB	0+00								
			BRIDGE	19+74	23+17	343						
				23+17	27+97	480	42	2,240		3		17
				27+97	29+68	171	26	494		1		4
				29+68	35+57	589	34	2,225		3		17
				35+57	67+02	3,145	65	22,714		35		175
				67+02	75+05	803	67	5,978		9		46
			BRIDGE	75+05	78+41	336						
				78+41	80+67	226	67	1,682	7,878	18	87	
				80+67	86+46	579	55	3,538		7	32	
				86+46	117+02	3,056	44	14,940		28	136	
				117+02	124+82	780	59	5,113		10	46	
				124+82	136+76	1,194	76	10,083		19	92	
				136+76	146+16	940	59	6,162		12	56	
	GR 3 & 4			146+16	366+64	22,048	44	107,790		203	980	
				366+64	371+86	522	52	3,016		6	27	
				371+86	392+53	2,067	59	13,550		25	123	
				392+53	400+59	806	51	4,567		9	42	
				400+59	440+48	3,989	44	19,502		37	177	
			BRIDGE	440+48	443+39	291						
				443+39	455+34	1,195	44	5,842		11	53	
			BRIDGE	455+34	457+55	221						
				457+55	584+80	12,725	44	62,211		117	566	
				584+80	598+17	1,337	53	7,873		15	72	
		SPLIT	EB	598+17	678+48	8,031	42	37,478		70	341	
			WB	598+17	678+18	8,001	42	37,338		70	339	
SUBTOTALS								387,175		716	3,169	298
15	SH 224	0136-02-040	4,452	678+18	687+33	915	44	4,473	8,920	25	122	
				678+18	687+33	915	44	4,473		8	41	
				687+33	698+13	1,080	56	6,720		13	61	
				698+13	713+20	1,507	44	7,368		14	67	
			CONC	713+20	718+70							
				718+70	756+97	3,827	44	18,710		35	170	
				756+97	759+30	233	51	1,320		2	12	
				759+30	763+34	404	58	2,604		5	24	
				763+34	767+04	370	51	2,097		4	19	
				767+04	816+85	4,981	44	24,352		46	221	
SUBTOTALS								81,037		152	737	0

HUNT COUNTY

Texas Department of Transportation

BU 67, ETC.

HUNT COUNTY
QUANTITY SUMMARY

CONT	SECT	JOB	HIGHWAY
0009	18	021,ETC.	BU 67, ETC.
DIST	COUNTY		SHEET NO.
PAR	HOPKINS,ETC.		17

2025 HUNT COUNTY SEAL COAT QUANTITY SUMMARY

REF. NO	HIGHWAY	C-S-J	ADT	BEGIN STATION	END STATION	LENGTH (LF)	ROAD WIDTH (LF)	TRAVEL LANE (SY)	* MISC. SEAL AREA (SY)	316-7084 ASPH (AC 20-5TR or AC-20 XP) TON	316-7134 AGGR TY-PB GR 3 (SAC-A) CY	316-7136 AGGR TY-PB GR 4 (SAC-A) CY
16	SH 34	0174-01-048	3,113	0+00	59+52	5,952	50	33,067	238	51		256
				59+52	65+75	623	43	2,977		5		23
				65+75	79+00	1,325	35	5,153		10	47	
				79+00	568+75	48,975	36	195,900		368	1,781	
				568+75	573+75	500	39	2,167		4	20	
				573+75	595+16	2,141	42	9,991		19	91	
				595+16	601+27	611	39	2,648		5	24	
				601+27	742+09	14,082	36	56,328		106	512	
				742+09	760+67	1,858	58	11,974		22	109	
				760+67	767+30	663	36	2,652		5	24	
				767+30	794+18	2,688	24	7,168		13	65	
				794+18	823+25	2,907	41	13,243		20		102
		FM 816	SKIP	823+25	823+96	71						
				823+96	830+55	659	42	3,075		5		24
				830+55	833+73	318	25	883		1		7
		SH 11	SKIP	833+73	834+33	60						
				834+33	866+38	3,205	30	10,683		16		82
SUBTOTALS								358,147		650	2,673	494
17	US 69	0202-05-053	7,512	150+46	314+12	16,366	45	81,830	0	154	744	
				314+12	438+81	12,469	39	54,032		102	491	
				438+81	444+85	604	41	2,752		5	25	
				444+85	588+45	14,360	45	71,800		135	653	
SUBTOTALS								210,414		396	1,913	0
18	FM 6	0619-02-015	4,356	0+00	3+53	353	28	1,098	908	4	18	
				3+53	18+40	1,487	40	6,609		12	60	
				18+40	32+90	1,450	28	4,511		8	41	
				32+90	40+14	724	40	3,218		6	29	
			BRIDGE	40+14	42+54							
				42+54	54+51	1,197	40	5,320		10	48	
				54+51	179+55	12,504	28	38,901		73	354	
SUBTOTALS								60,565		113	550	0
19	FM 1903	1496-02-021	3369	0+00	83+33	8,333	27	24,999	1,324	49	239	
SUBTOTALS								26,323		49	239	0
HUNT COUNTY TOTALS								1,123,661		2,076	9,281	792

NOTE:

ASPHALT RATE SHOWN IS FOR BID PURPOSES ONLY.
ACTUAL RATE WILL BE DETERMINED IN FIELD AS DIRECTED BY THE ENGINEER
* SEE MISCELLANEOUS QUANTITY SUMMARY

APPLICATION RATES:

GRADE 3 AGGREGATE
AC ASPHALT 0.44 GAL * SY * 8.54LBS / 2000 = TONS, AGGREGATE GRADE 3 TY PB CY/110 SY

GRADE 4 AGGREGATE
AC ASPHALT 0.36 GAL * SY * 8.54LBS / 2000 = TONS, AGGREGATE GRADE 4 TY PB CY/130 SY

HUNT COUNTY

Texas Department of Transportation

BU 67, ETC.

HUNT COUNTY
QUANTITY SUMMARY

CONT	SECT	JOB	HIGHWAY
0009	18	021,ETC.	BU 67, ETC.
DIST	COUNTY		SHEET NO.
PAR	HOPKINS,ETC.		18

2025 HUNT COUNTY SEAL COAT PAVEMENT MARKING SUMMARY												
REF. NO	HIGHWAY	C-S-J	LENGTH	662-7112	662-7114	666-7179	666-7183	666-7184	666-7186	666-7194	666-7198	666-7201
				WK ZN PAV MRK SHT TERM (TAB) TY W	WK ZN PAV MRK SHT TERM (TAB)TY Y-2	RE PM TY II (W) 8" (SLD)	RE PM TY II (W) 18" (SLD)	RE PM TY II (W) 24" (SLD)	RE PM TY II (W) (ARROW)	RE PM TY II (W) (WORD)	RE PM TY II (W) (RR XING)	RE PM TY II (W) 36" (YLD TRI)
			LF	EA	EA	LF	LF	LF	EA	EA	EA	EA
14	SH 224	0136-01-067	65,871	256	1,672	4,064		110	7	5		34
15	SH 224	0136-02-040	13,867	64	348	832		28	2	2		7
16	SH 34	0174-01-048	86,638	53	2,177	300	296	278				
17	US 69	0202-05-053	43,799		1,095							
18	FM 6	0619-02-015	17,955	88	663	400						
19	FM 1903	1496-02-021	49,041		1,227			28				
TOTALS				461	7,182	5,596	296	444	9	7	0	41

2025 HUNT COUNTY SEAL COAT PAVEMENT MARKING SUMMARY											
REF. NO	HIGHWAY	C-S-J	LENGTH	666-7172	666-7175	666-7211	666-7213	672-7002	672-7004	672-7006	677-7001
				RE PM TY II (W) 6" (BRK)	RE PM TY II (W) 6" (SLD)	RE PM TY II (Y) 6" (BRK)	RE PM TY II (Y) 6" (SLD)	REFL PAV MRKR TY I-C	REFL PAV MRKR TY II-A-A	REFL PAV MRKR TY II-C-R	ELIM EXT PM & MRKS (4")
			LF	LF	LF	LF	LF	EA	EA	EA	LF
14	SH 224	0136-01-067	65,871	6,580	131,742	9,910	86,248	276	1,528		
15	SH 224	0136-02-040	13,867	1,350	27,734	2,480	21,562	68	382		
16	SH 34	0174-01-048	86,638	530	173,276	16,110	95,275	26	2,204		
17	US 69	0202-05-053	43,799		87,598	8,200	24,606		1,050		
18	FM 6	0619-02-015	17,955		35,910	3,850	13,845	24	365		
19	FM 1903	1496-02-021	49,041		16,666	1,800	7,329		186		
TOTALS				8,460	472,926	42,350	248,865	394	5,715	0	0

HUNT COUNTY

Texas Department of Transportation

BU 67, ETC.

HUNT COUNTY
PAVEMENT MARKING
QUANTITY SUMMARY

CONT	SECT	JOB	HIGHWAY
0009	18	021,ETC.	BU 67, ETC.
DIST	COUNTY		SHEET NO.
PAR	HOPKINS,ETC.		19

REF # 14 MISCELLANEOUS QUANTITY SUMMARY							SH 224
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
COUNTY ROAD INT.	N/S	N/S					
FM 118	N/S	N/S					
FM 2736		N/S					
FM 2874	N/S						
X OVER			502	25	20	20	1414
LOOP 178 ENT TIE IN		X	200	25			556
LOOP 178 EXT TIE IN	X		200	25			556
LOOP 178 EXT TIE IN		X	200	25			556
LOOP 178 ENT TIE IN	X		200	25			556
X OVER			502	25	20	20	1414
X OVER			502	25	20	20	1414
X OVER			502	25	20	20	1414
SH 224 B		N/S					
FM 2874 N	N/S						
Mailbox Turnout	0						
TOTALS							7,878

REF # 15 MISCELLANEOUS QUANTITY SUMMARY							SH 224
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
CITY STREETS	N/S	N/S					
SH 11 EXT		X	675	24	52	52	1929
SH 11 ENT	X		720	24	55	55	2064
SH 11 EXT	X		675	24	60	60	1972
SH 11 ENT		X	750	24	75	75	2268
SH 224 B		N/S					
RADII AT SH 24	X	X			120	120	687
Mailbox Turnout	0						
TOTALS							8,920

REF # 16 MISCELLANEOUS QUANTITY SUMMARY							SH 34
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
COUNTY ROAD INT.	N/S	N/S					
CITY STREETS	N/S	N/S					
FM 3427	N/S						
FM 1566	N/S						
FM 2358	N/S						
FM 512		N/S					
FM 816	N/S	N/S					
RADII SH 11					60	80	238
Mailbox Turnout	0						
TOTALS							238

REF # 17 MISCELLANEOUS QUANTITY SUMMARY							US 69
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
COUNTY ROAD INT.	N/S	N/S					
CITY STREETS	N/S	N/S					
FM 2194		N/S					
FM 3427		N/S					
FM 903	N/S						
Mailbox Turnout	0						
TOTALS							0

REF # 18 MISCELLANEOUS QUANTITY SUMMARY							FM 6
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
COUNTY ROAD INTS	N/S	N/S					
CITY STREETS	N/S	N/S					
RADII AT SH 66					75	75	268
Mailbox Turnout	32						640
TOTALS							908

REF # 19 MISCELLANEOUS QUANTITY SUMMARY							FM 1903
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
COUNTY ROADS INT	N/S	N/S					
CITY STREETS	N/S	N/S					
RADII AT SH 36					50	50	119
RADII AT I 30					80	80	305
Mailbox Turnout	45						900
TOTALS							1,324

HUNT COUNTY

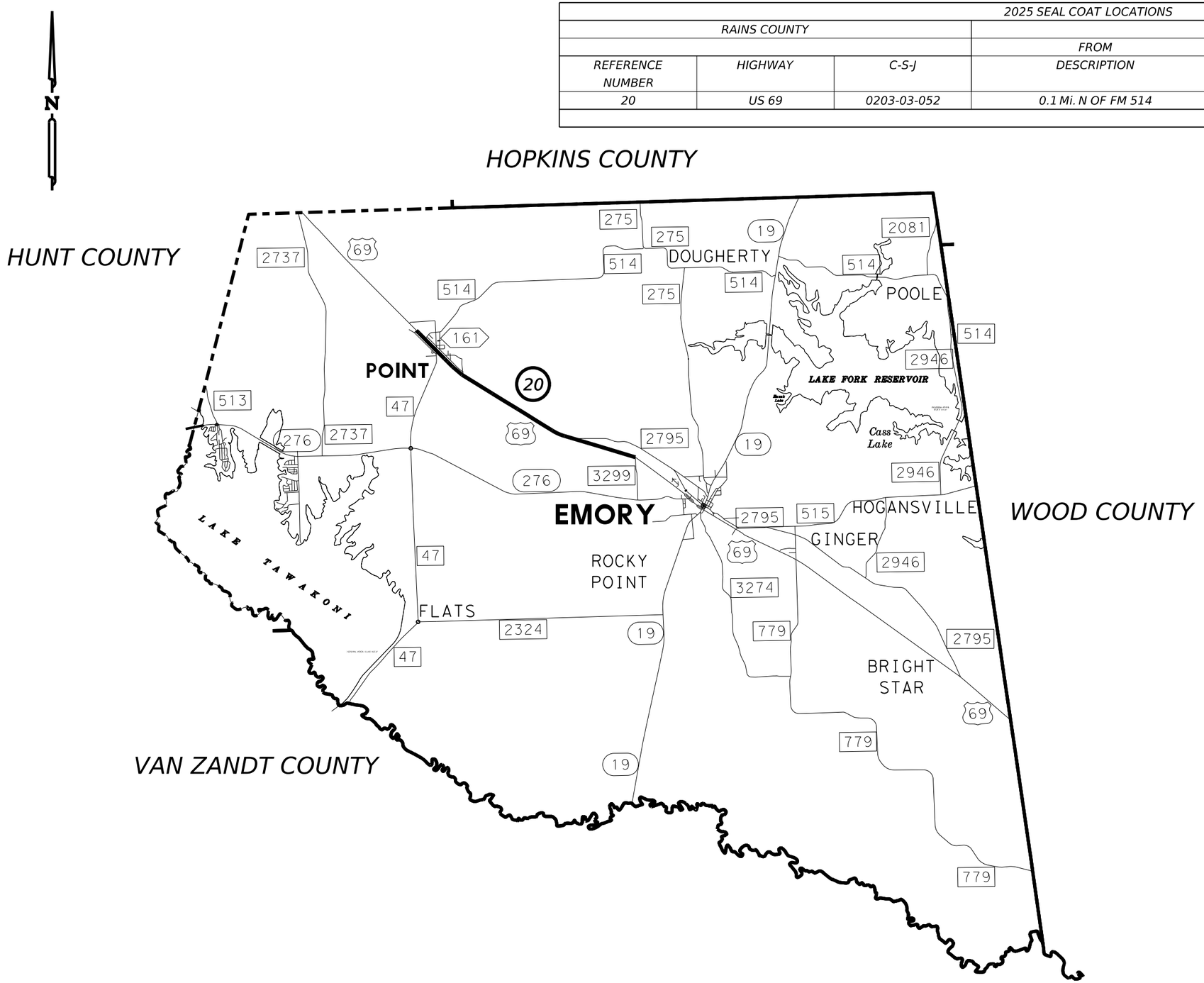
Texas Department of Transportation

BU 67, ETC.

HUNT COUNTY
MISCELLANEOUS
QUANTITY SUMMARY

CONT	SECT	JOB	HIGHWAY
0009	18	021,ETC.	BU 67, ETC.
DIST	COUNTY		SHEET NO.
PAR	HOPKINS,ETC.		20

2025 SEAL COAT LOCATIONS					
RAINS COUNTY			SEAL COAT LIMITS		
			FROM	TO	
REFERENCE NUMBER	HIGHWAY	C-S-J	DESCRIPTION	DESCRIPTION	LENGTH (MI)
20	US 69	0203-03-052	0.1 Mi. N OF FM 514	FM 3299	6.20
					6.20



SCALE (MILE): 0 2.5

Texas Department of Transportation

BU 67, ETC.

RAINS COUNTY
PROJECT SUMMARY
AND LOCATION MAP

SHEET 1 OF 4

CONT	SECT	JOB	HIGHWAY
0009	18	021,ETC.	BU 67, ETC.
DIST	COUNTY		SHEET NO.
PAR	HOPKINS,ETC.		21

DATE: 9/18/2024 5:07:05 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/01 - PAR/Design Projects/0009-18-021/4 - Design/Master Design Files/021-024 RAINS COUNTY.dgn

2025 RAINS COUNTY SEAL COAT QUANTITY SUMMARY										316-7084	316-7134	316-7136
REF. NO	HIGHWAY	C-S-J	ADT	BEGIN STATION	END STATION	LENGTH (LF)	ROAD WIDTH (LF)	TRAVEL LANE (SY)	* MISC. SEAL AREA (SY)	ASPH (AC 20-5TR or AC-20 XP) TON	AGGR TY-PB GR 3 (SAC-A) CY	AGGR TY-PB GR 4 (SAC-A) CY
20	US 69	0203-03-052	6,785	0+00	28+80	2,880	48	15,360	1,820	26		132
				28+80	51+35	2,255	53	13,279		20		102
				51+35	52+68	133	68	1,005		2		8
				52+68	56+30	362	52	2,092		3		16
				56+30	75+30	1,900	48	10,133		16		78
				75+30	82+70	740	52	4,276		7		33
				82+70	84+36	166	54	996		2		8
				84+36	327+34	24,298	48	129,589		199		997
SUBTOTALS								178,550		275	0	1,374
RAINS COUNTY TOTALS								178,550		275	0	1,374

NOTE:

ASPHALT RATE SHOWN IS FOR BID PURPOSES ONLY.
ACTUAL RATE WILL BE DETERMINED IN FIELD AS DIRECTED BY THE ENGINEER
* SEE MISCELLANEOUS QUANTITY SUMMARY

APPLICATION RATES:

GRADE 3 AGGREGATE
AC ASPHALT 0.44 GAL * SY * 8.54LBS / 2000 = TONS, AGGREGATE GRADE 3 TY PB CY/110 SY

GRADE 4 AGGREGATE
AC ASPHALT 0.36 GAL * SY * 8.54LBS / 2000 = TONS, AGGREGATE GRADE 4 TY PB CY/130 SY

RAINS COUNTY

Texas Department of Transportation

BU 67, ETC.

RAINS COUNTY
QUANTITY SUMMARY

CONT	SECT	JOB	HIGHWAY
0009	18	021,ETC.	BU 67, ETC.
DIST	COUNTY		SHEET NO.
PAR	HOPKINS,ETC.		22

2025 RAINS COUNTY SEAL COAT PAVEMENT MARKING SUMMARY												
REF. NO	HIGHWAY	C-S-J	LENGTH	662-7112 WK ZN PAV MRK SHT TERM (TAB) TY W	662-7114 WK ZN PAV MRK SHT TERM (TAB)TY Y-2	666-7179 RE PM TY II (W) 8" (SLD)	666-7183 RE PM TY II (W) 18" (SLD)	666-7184 RE PM TY II (W) 24" (SLD)	666-7186 RE PM TY II (W) (ARROW)	666-7194 RE PM TY II (W) (WORD)	666-7198 RE PM TY II (W) (RR XING)	666-7201 RE PM TY II (W) 36" (YLD TRI)
			LF	EA	EA	LF	LF	LF	EA	EA	EA	EA
20	US 69	0203-03-052	32,734	52	850	625		68	5	5		
TOTALS				52	850	625	0	68	5	5	0	0

2025 RAINS COUNTY SEAL COAT PAVEMENT MARKING SUMMARY											
REF. NO	HIGHWAY	C-S-J	LENGTH	666-7172 RE PM TY II (W) 6" (BRK)	666-7175 RE PM TY II (W) 6" (SLD)	666-7211 RE PM TY II (Y) 6" (BRK)	666-7213 RE PM TY II (Y) 6" (SLD)	672-7002 REFL PAV MRKR TY I-C	672-7004 REFL PAV MRKR TY II-A-A	672-7006 REFL PAV MRKR TY II-C-R	677-7001 ELIM EXT PM & MRKS (4")
			LF	LF	LF	LF	LF	EA	EA	EA	LF
20	US 69	0203-03-052	32,734	1,520	65,468	6,589	15,200	63	210		
TOTALS				1,520	65,468	6,589	15,200	63	210	0	0

RAINS COUNTY

Texas Department of Transportation

BU 67, ETC.

RAINS COUNTY
PAVEMENT MARKING
QUANTITY SUMMARY

CONT	SECT	JOB	HIGHWAY
0009	18	021,ETC.	BU 67, ETC.
DIST	COUNTY		SHEET NO.
PAR	HOPKINS,ETC.		23

REF # 20 MISCELLANEOUS QUANTITY SUMMARY							US 69
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
COUNTY ROADS INT.	N/S	N/S					
CITY STREETS	N/S	N/S					
LT TURN LANE	X		225	12			300
X-OVER	X		90	16			160
FM 514	N/S						
LT TURN LANE	X		225	12			300
LT TURN LANE	X		225	12			300
FM 47		N/S					
SPUR 161	N/S						
LT TURN LANE	X		225	12			300
LT TURN LANE	X		225	12			300
X OVER	X		90	16			160
Mailbox Turnout	0						
TOTALS							1,820

RAINS COUNTY

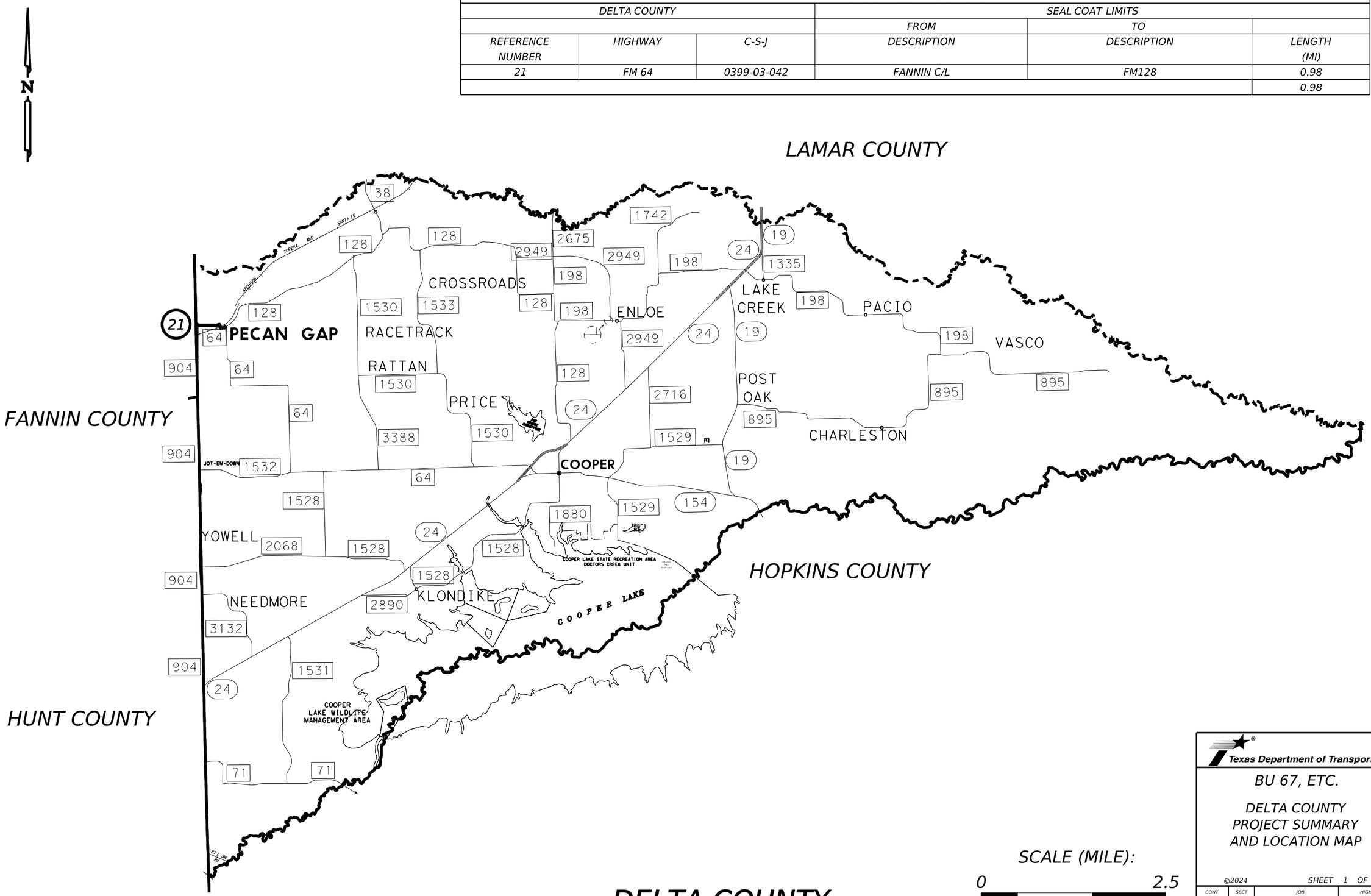
Texas Department of Transportation

BU 67, ETC.

RAINS COUNTY
MISCELLANEOUS
QUANTITY SUMMARY

CONT	SECT	JOB	HIGHWAY
0009	18	021,ETC.	BU 67, ETC.
DIST	COUNTY		SHEET NO.
PAR	HOPKINS,ETC.		24

2025 SEAL COAT LOCATIONS					
DELTA COUNTY			SEAL COAT LIMITS		
			FROM	TO	
REFERENCE NUMBER	HIGHWAY	C-S-J	DESCRIPTION	DESCRIPTION	LENGTH (MI)
21	FM 64	0399-03-042	FANNIN C/L	FM128	0.98
					0.98



SCALE (MILE): 0 — 2.5

Texas Department of Transportation

BU 67, ETC.

DELTA COUNTY
PROJECT SUMMARY
AND LOCATION MAP

SHEET 1 OF 4

CONT	SECT	JOB	HIGHWAY
0009	18	021,ETC.	BU 67, ETC.
DIST	COUNTY		SHEET NO.
PAR	HOPKINS,ETC.		25

DATE: 9/18/2024 5:07:30 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/01 - PAR/Design Projects/0009-18-021/4 - Design/Master Design Files/025-028 DELTA COUNTY.dgn

2025 DELTA COUNTY SEAL COAT QUANTITY SUMMARY												
										316-7084	316-7134	316-7136
REF. NO	HIGHWAY	C-S-J	ADT	BEGIN STATION	END STATION	LENGTH (LF)	ROAD WIDTH (LF)	TRAVEL LANE (SY)	* MISC. SEAL AREA (SY)	ASPH (AC 20-5TR or AC-20 XP) TON	AGGR TY-PB GR 3 (SAC-A) CY	AGGR TY-PB GR 4 (SAC-A) CY
21	FM 64	0399-03-042	511	0+00	5+00	500	24	1,333	0	3	12	
				5+00	35+80	3,080	22	7,529		14	68	
				35+80	42+33	653	57	4,136		8	38	
				42+33	45+78	345	32	1,227		2	11	
				45+78	51+87	609	22	1,489		3	14	
SUBTOTALS								15,714		30	143	0
DELTA COUNTY TOTALS								15,714		30	143	0

NOTE:

ASPHALT RATE SHOWN IS FOR BID PURPOSES ONLY.
ACTUAL RATE WILL BE DETERMINED IN FIELD AS DIRECTED BY THE ENGINEER
* SEE MISCELLANEOUS QUANTITY SUMMARY

APPLICATION RATES:

GRADE 3 AGGREGATE
AC ASPHALT 0.44 GAL * SY * 8.54LBS / 2000 = TONS, AGGREGATE GRADE 3 TY PB CY/110 SY

GRADE 4 AGGREGATE
AC ASPHALT 0.36 GAL * SY * 8.54LBS / 2000 = TONS, AGGREGATE GRADE 4 TY PB CY/130 SY

DELTA COUNTY

Texas Department of Transportation

BU 67, ETC.

DELTA COUNTY
QUANTITY SUMMARY

CONT	SECT	JOB	HIGHWAY
0009	18	021,ETC.	BU 67, ETC.
DIST	COUNTY		SHEET NO.
PAR	HOPKINS,ETC.		26

2025 DELTA COUNTY SEAL COAT PAVEMENT MARKING SUMMARY												
REF. NO	HIGHWAY	C-S-J	LENGTH	662-7112	662-7114	666-7179	666-7183	666-7184	666-7186	666-7194	666-7198	666-7201
				WK ZN PAV MRK SHT TERM (TAB) TY W	WK ZN PAV MRK SHT TERM (TAB)TY Y-2	RE PM TY II (W) 8" (SLD)	RE PM TY II (W) 18" (SLD)	RE PM TY II (W) 24" (SLD)	RE PM TY II (W) (ARROW)	RE PM TY II (W) (WORD)	RE PM TY II (W) (RR XING)	RE PM TY II (W) 36" (YLD TRI)
			LF	EA	EA	LF	LF	LF	EA	EA	EA	EA
21	FM 64	0399-03-042	5,187		130	600		70				
TOTALS				0	130	600	0	70	0	0	0	0

2025 DELTA COUNTY SEAL COAT PAVEMENT MARKING SUMMARY											
REF. NO	HIGHWAY	C-S-J	LENGTH	666-7172	666-7175	666-7211	666-7213	672-7002	672-7004	672-7006	677-7001
				RE PM TY II (W) 6" (BRK)	RE PM TY II (W) 6" (SLD)	RE PM TY II (Y) 6" (BRK)	RE PM TY II (Y) 6" (SLD)	REFL PAV MRKR TY I-C	REFL PAV MRKR TY II-A-A	REFL PAV MRKR TY II-C-R	ELIM EXT PM & MRKS (4")
			LF	LF	LF	LF	LF	EA	EA	EA	LF
21	FM 64	0399-03-042	5,187		2,800		10,374		260		13,174
TOTALS				0	2,800	0	10,374	0	260	0	13,174

DELTA COUNTY

Texas Department of Transportation

BU 67, ETC.

DELTA COUNTY
PAVEMENT MARKING
QUANTITY SUMMARY

CONT	SECT	JOB	HIGHWAY
0009	18	021,ETC.	BU 67, ETC.
DIST	COUNTY		SHEET NO.
PAR	HOPKINS,ETC.		27

REF # 21 MISCELLANEOUS QUANTITY SUMMARY							FM 64
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
COUNTY ROAD INT.	N/S	N/S					
CITY STREETS	N/S	N/S					
Mailbox Turnout	0						
TOTALS							0

DELTA COUNTY

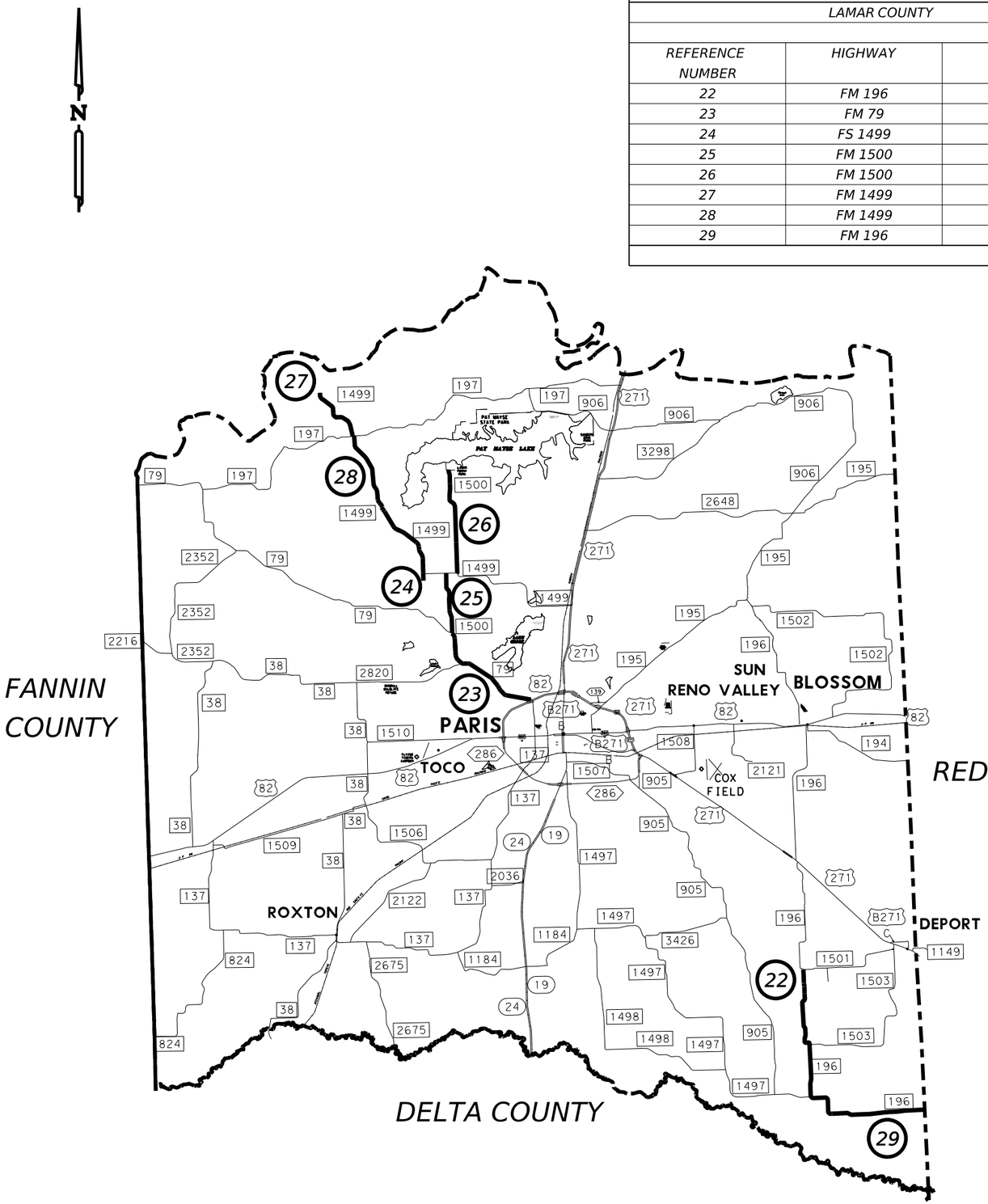
Texas Department of Transportation

BU 67, ETC.

DELTA COUNTY
MISCELLANEOUS
QUANTITY SUMMARY

CONT	SECT	JOB	HIGHWAY
0009	18	021,ETC.	BU 67, ETC.
DIST	COUNTY		SHEET NO.
PAR	HOPKINS,ETC.		28

2025 SEAL COAT LOCATIONS					
LAMAR COUNTY			SEAL COAT LIMITS		
			FROM	TO	
REFERENCE NUMBER	HIGHWAY	C-S-J	DESCRIPTION	DESCRIPTION	LENGTH (MI)
22	FM 196	0680-01-019	FM 1501	CR 17300	5.89
23	FM 79	0688-02-064	FM 1500	US 82 / LP 286	4.96
24	FS 1499	1454-01-022	END OF STATE MNT	FM 1499	0.16
25	FM 1500	1455-01-012	FM 1499	FM 79	2.53
26	FM 1500	1455-02-012	END OF STATE MNT	FM 1499	4.40
27	FM 1499	1881-01-021	END OF FM ROAD	FM 197	2.49
28	FM 1499	1881-01-022	FM 197	SP 1499 (EMBERSON)	6.75
29	FM 196	2490-01-011	CR 17300	RED RIVER C/L	2.83
					30.01



SCALE (MILE): 0 1 3 5

Texas Department of Transportation

BU 67, ETC.

LAMAR COUNTY
PROJECT SUMMARY
AND LOCATION MAP

SHEET 1 OF 4

CONT	SECT	JOB	HIGHWAY
0009	18	021,ETC.	BU 67, ETC.
DIST	COUNTY		SHEET NO.
PAR	HOPKINS,ETC.		29

DATE: 9/18/2024 5:07:57 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/01 - PAR/Design Projects/0009-18-021/4 - Design/Master Design Files/029-032 LAMAR COUNTY.dgn

CK DW CK DW

2025 LAMAR COUNTY SEAL COAT QUANTITY SUMMARY												
										316-7084	316-7134	316-7136
REF. NO	HIGHWAY	C-S-J	ADT	BEGIN STATION	END STATION	LENGTH (LF)	ROAD WIDTH (LF)	TRAVEL LANE (SY)	* MISC. SEAL AREA (SY)	ASPH (AC 20-5TR or AC-20 XP) TON	AGGR TY-PB GR 3 (SAC-A) CY	AGGR TY-PB GR 4 (SAC-A) CY
22	FM 196	0680-01-019	498	0+00	177+50	17,750	24	47,333	567	90	435	
				177+50	311+17	13,367	23	34,160		64	311	
SUBTOTALS								82,060		154	746	0
23	FM 79	0688-02-064	6,730	0+00	261+74	26,174	42	122,145	594	231	1,116	
SUBTOTALS								122,739		231	1,116	0
24	FS 1499	1454-01-022	166	0+00	8+53	853	20	1,896		4	17	
SUBTOTALS								1,896		4	17	0
25	FM 1500	1455-01-012	992	0+00	133+71	13,371	24	35,656	1,317	69	336	
SUBTOTALS								36,973		69	336	0
26	FM 1500	1455-02-012	786	0+00	232+55	23,255	27	69,765	179	131	636	
SUBTOTALS								69,944		131	636	0
27	FM 1499	1881-01-021	254	0+00	131+21	13,121	20	29,158	284	55	268	
SUBTOTALS								29,442		55	268	0
28	FM 1499	1881-01-022	254	0+00	131+28	13,128	21	30,632	771	59	285	
				131+28	150+74	1,946	38	8,216		15	75	
				150+74	154+67	393	24	1,048		2	10	
				154+67	174+30	1,963	38	8,288		16	75	
				174+30	226+74	5,244	25	14,567		27	132	
				226+74	235+00	826	22	2,019		4	18	
				235+00	356+16	12,116	21	28,271		53	257	
SUBTOTALS								93,812		176	852	0
29	FM 196	2490-01-011	277	0+00	149+17	14,917	24	39,779	54	75	362	
SUBTOTALS								39,833		75	362	0
LAMAR COUNTY TOTALS								476,699		895	4,333	0

NOTE:

ASPHALT RATE SHOWN IS FOR BID PURPOSES ONLY.
ACTUAL RATE WILL BE DETERMINED IN FIELD AS DIRECTED BY THE ENGINEER
* SEE MISCELLANEOUS QUANTITY SUMMARY

APPLICATION RATES:

GRADE 3 AGGREGATE
AC ASPHALT 0.44 GAL * SY * 8.54LBS / 2000 = TONS, AGGREGATE GRADE 3 TY PB CY/110 SY

GRADE 4 AGGREGATE
AC ASPHALT 0.36 GAL * SY * 8.54LBS / 2000 = TONS, AGGREGATE GRADE 4 TY PB CY/130 SY

LAMAR COUNTY

Texas Department of Transportation

BU 67, ETC.

LAMAR COUNTY
QUANTITY SUMMARY

CONT	SECT	JOB	HIGHWAY
0009	18	021,ETC.	BU 67, ETC.
DIST	COUNTY		SHEET NO.
PAR	HOPKINS,ETC.		30

2025 LAMAR COUNTY SEAL COAT PAVEMENT MARKING SUMMARY												
REF. NO	HIGHWAY	C-S-J	LENGTH	662-7112	662-7114	666-7179	666-7183	666-7184	666-7186	666-7194	666-7198	666-7201
				WK ZN PAV MRK SHT TERM (TAB) TY W	WK ZN PAV MRK SHT TERM (TAB)TY Y-2	RE PM TY II (W) 8" (SLD)	RE PM TY II (W) 18" (SLD)	RE PM TY II (W) 24" (SLD)	RE PM TY II (W) (ARROW)	RE PM TY II (W) (WORD)	RE PM TY II (W) (RR XING)	RE PM TY II (W) 36" (YLD TRI)
			LF	EA	EA	LF	LF	LF	EA	EA	EA	EA
22	FM 196	0680-01-019	31,117		776							
23	FM 79	0688-02-064	26,174		654	1,440	108		4	4		
24	FS 1499	1454-01-022	853		22	140						5
25	FM 1500	1455-01-012	13,371	114	334	800		28				
26	FM 1500	1455-02-012	23,255		582	78		14				4
27	FM 1499	1881-01-021	13,121	16	328			46				
28	FM 1499	1881-01-022	35,616	16	890			36				
29	FM 196	2490-01-011	14,917		373							
TOTALS				146	3,959	2,458	108	124	4	4	0	9

2025 LAMAR COUNTY SEAL COAT PAVEMENT MARKING SUMMARY											
REF. NO	HIGHWAY	C-S-J	LENGTH	666-7172	666-7175	666-7211	666-7213	672-7002	672-7004	672-7006	677-7001
				RE PM TY II (W) 6" (BRK)	RE PM TY II (W) 6" (SLD)	RE PM TY II (Y) 6" (BRK)	RE PM TY II (Y) 6" (SLD)	REFL PAV MRKR TY I-C	REFL PAV MRKR TY II-A-A	REFL PAV MRKR TY II-C-R	ELIM EXT PM & MRKS (4")
			LF	LF	LF	LF	LF	EA	EA	EA	LF
22	FM 196	0680-01-019	31,117		62,234	6,940	35,950		796		105,124
23	FM 79	0688-02-064	26,174		52,190	4,370	49,467	36	822		
24	FS 1499	1454-01-022	853		155		1,706	10	22		
25	FM 1500	1455-01-012	13,371		26,742	2,450	15,220		313		
26	FM 1500	1455-02-012	23,255		46,510	3,573	29,194	6	517		79,277
27	FM 1499	1881-01-021	13,121			1,600	18,504		131		
28	FM 1499	1881-01-022	35,616		8,000	5,090	38,892		741		
29	FM 196	2490-01-011	14,917		29,832	3,710	4,056		236		37,598
TOTALS				0	225,663	27,733	192,989	52	3,578	0	221,999

LAMAR COUNTY

Texas Department of Transportation

BU 67, ETC.

LAMAR COUNTY
PAVEMENT MARKING
QUANTITY SUMMARY

CONT	SECT	JOB	HIGHWAY
0009	18	021,ETC.	BU 67, ETC.
DIST	COUNTY		SHEET NO.
PAR	HOPKINS,ETC.		31

REF # 22 MISCELLANEOUS QUANTITY SUMMARY							FM 196
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
COUNTY ROAD INT.	N/S	N/S					
Mailbox Turnout	21						567
TOTALS							567

REF # 23 MISCELLANEOUS QUANTITY SUMMARY							FM 79
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
COUNTY ROAD INT.	N/S	N/S					
CITY STREETS	N/S	N/S					
Ramp	N/S	N/S					
Mailbox Turnout	22						594
TOTALS							594

REF # 24 MISCELLANEOUS QUANTITY SUMMARY							FS 1499
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
COUNTY ROADS INT.	N/S	N/S					
Mailbox Turnout	0						
TOTALS							0

REF # 25 MISCELLANEOUS QUANTITY SUMMARY							FM 1500
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
COUNTY ROAD INT.	N/S	N/S					
RADII AT FM 1499	X	X			111	65	395
RADII AT FM 197	X	X			100	108	517
Mailbox Turnout	15						405
TOTALS							1,317

REF # 26 MISCELLANEOUS QUANTITY SUMMARY							FM 1500
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
COUNTY ROAD INT.	N/S	N/S					
RADII AT 14+99					66	56	179
Mailbox Turnout	0						
TOTALS							179

REF # 27 MISCELLANEOUS QUANTITY SUMMARY							FM 1499
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
COUNTY ROADS INT.	N/S	N/S					
RADII AT FM 197	X	X			54	54	53
RADII AT CR 37600	X	X			30	29	42
Mailbox Turnout	7						189
TOTALS							284

REF # 28 MISCELLANEOUS QUANTITY SUMMARY							FM 1499
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
COUNTY ROADS INT.	N/S	N/S					
RADII AT FM 197					55	57	150
Mailbox Turnout	23						621
TOTALS							771

REF # 29 MISCELLANEOUS QUANTITY SUMMARY							FM 196
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
COUNTY ROADS INT.	N/S	N/S					
Mailbox Turnout	2						54
TOTALS							54

LAMAR COUNTY

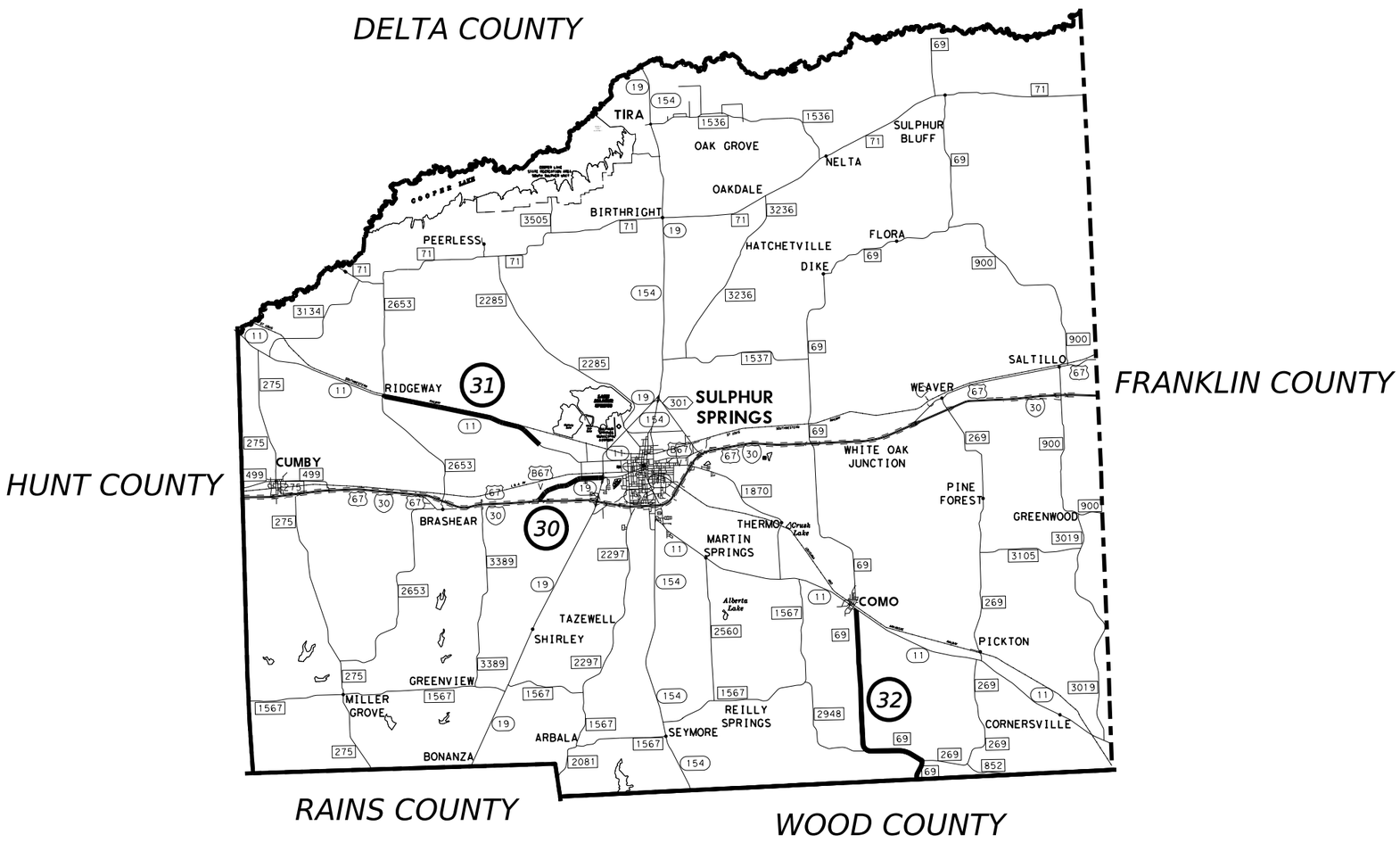
Texas Department of Transportation

BU 67, ETC.

LAMAR COUNTY
MISCELLANEOUS
QUANTITY SUMMARY

CONT	SECT	JOB	HIGHWAY
0009	18	021,ETC.	BU 67, ETC.
DIST	COUNTY		SHEET NO.
PAR	HOPKINS,ETC.		32

2025 SEAL COAT LOCATIONS					
HOPKINS COUNTY			SEAL COAT LIMITS		
			FROM	TO	
REFERENCE NUMBER	HIGHWAY	C-S-J	DESCRIPTION	DESCRIPTION	LENGTH (MI)
30	BU 67V	0009-18-021	IH 30	SH 19	2.88
31	SH 11	0083-02-059	0.83 Mi. E OF FM 2653N	6.19 Mi. E OF FM 2653S (CR 4700)	5.40
32	FM 69	0766-04-020	SH 11	Wood C/L	8.25
					16.53



HOPKINS COUNTY

SCALE (MILE): 0 1 3 5

Texas Department of Transportation

BU 67, ETC.

HOPKINS COUNTY
PROJECT SUMMARY
AND LOCATION MAP

CONT	SECT	JOB	HIGHWAY
0009	18	021,ETC.	BU 67, ETC.
DIST	COUNTY		SHEET NO.
PAR	HOPKINS,ETC.		33

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2025 HOPKINS COUNTY SEAL COAT QUANTITY SUMMARY												
										316-7084	316-7134	316-7136
REF. NO	HIGHWAY	C-S-J	ADT	BEGIN STATION	END STATION	LENGTH (LF)	ROAD WIDTH (LF)	TRAVEL LANE (SY)	* MISC. SEAL AREA (SY)	ASPH (AC 20-5TR or AC-20 XP) TON	AGGR TY-PB GR 3 (SAC-A) CY	AGGR TY-PB GR 4 (SAC-A) CY
30	BU 67V	0009-18-021	2,789	0+00	21+55	2,155	28	6,704	5,906	24	115	
				21+55	148+13	12,658	26	36,568		69	332	
				148+13	151+84	371	54	2,226		4	20	
SUBTOTALS								51,404		97	467	0
31	SH 11	0083-02-059	2,331	0+00	21+32	2,132	46	10,897	0	20	99	
				21+32	28+99	767	58	4,943		9	45	
				28+99	43+55	1,456	69	11,163		21	101	
				43+55	54+80	1,125	58	7,250		14	66	
				54+80	284+98	23,018	46	117,648		221	1,070	
SUBTOTALS								151,901		285	1,381	0
32	FM 69	0766-04-020	1,105	0+00	291+96	29,196	23	74,612	826	142	686	
				291+96	395+27	10,331	24	27,549		52	250	
				395+27	435+49	4,022	26	11,619		22	106	
SUBTOTALS								114,606		216	1,042	0
HOPKINS COUNTY TOTALS								317,911		598	2,890	0

NOTE:

ASPHALT RATE SHOWN IS FOR BID PURPOSES ONLY.
ACTUAL RATE WILL BE DETERMINED IN FIELD AS DIRECTED BY THE ENGINEER
* SEE MISCELLANEOUS QUANTITY SUMMARY

APPLICATION RATES:

GRADE 3 AGGREGATE
AC ASPHALT 0.44 GAL * SY * 8.54LBS / 2000 = TONS, AGGREGATE GRADE 3 TY PB CY/110 SY

GRADE 4 AGGREGATE
AC ASPHALT 0.36 GAL * SY * 8.54LBS / 2000 = TONS, AGGREGATE GRADE 4 TY PB CY/130 SY

HOPKINS COUNTY

Texas Department of Transportation

BU 67, ETC.

HOPKINS COUNTY
QUANTITY SUMMARY

CONT	SECT	JOB	HIGHWAY
0009	18	021,ETC.	BU 67, ETC.
DIST	COUNTY		SHEET NO.
PAR	HOPKINS,ETC.		34

2025 HOPKINS COUNTY SEAL COAT PAVEMENT MARKING SUMMARY												
REF. NO	HIGHWAY	C-S-J	LENGTH	662-7112	662-7114	666-7179	666-7183	666-7184	666-7186	666-7194	666-7198	666-7201
				WK ZN PAV MRK SHT TERM (TAB) TY W	WK ZN PAV MRK SHT TERM (TAB)TY Y-2	RE PM TY II (W) 8" (SLD)	RE PM TY II (W) 18" (SLD)	RE PM TY II (W) 24" (SLD)	RE PM TY II (W) (ARROW)	RE PM TY II (W) (WORD)	RE PM TY II (W) (RR XING)	RE PM TY II (W) 36" (YLD TRI)
			LF	EA	EA	LF	LF	LF	EA	EA	EA	EA
30	BU 67V	0009-18-021	15,184	75	80	85		90				95
31	SH 11	0083-02-059	28,498		712	2,417		40	3	3		
32	FM 69	0766-04-020	43,549	34	1,089	200		24				8
TOTALS				109	1,881	2,702	0	154	3	3	0	103

2025 HOPKINS COUNTY SEAL COAT PAVEMENT MARKING SUMMARY											
REF. NO	HIGHWAY	C-S-J	LENGTH	666-7172	666-7175	666-7211	666-7213	672-7002	672-7004	672-7006	677-7001
				RE PM TY II (W) 6" (BRK)	RE PM TY II (W) 6" (SLD)	RE PM TY II (Y) 6" (BRK)	RE PM TY II (Y) 6" (SLD)	REFL PAV MRKR TY I-C	REFL PAV MRKR TY II-A-A	REFL PAV MRKR TY II-C-R	ELIM EXT PM & MRKS (4")
			LF	LF	LF	LF	LF	EA	EA	EA	LF
30	BU 67V	0009-18-021	15,184		31,168	1,990	21,360	115	346		
31	SH 11	0083-02-059	28,498		59,013	6,760	14,910		353		80,683
32	FM 69	0766-04-020	43,549		28,902	8,223	42,019	10	933		78,144
TOTALS				0	119,083	16,973	78,289	125	1,632	0	158,827

HOPKINS COUNTY

Texas Department of Transportation

BU 67, ETC.

HOPKINS COUNTY
PAVEMENT MARKING
QUANTITY SUMMARY

CONT	SECT	JOB	HIGHWAY
0009	18	021,ETC.	BU 67, ETC.
DIST	COUNTY		SHEET NO.
PAR	HOPKINS,ETC.		35

REF # 30 MISCELLANEOUS QUANTITY SUMMARY							BU 67V
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
COUNTY ROAD INT.	N/S	N/S					
CITY STREETS	N/S	N/S					
RADII AT SFR					40	80	191
SFR CONNECTOR		X	240	23	18	40	659
CONNECTOR TO NFR	X		100	27	40	25	353
X-OVER	X		80	43	18	25	405
NFR CONNECTOR	X		1075	26	100	200	4298
Mailbox Turnout	0						
TOTALS							5,906

REF # 31 MISCELLANEOUS QUANTITY SUMMARY							SH 11
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
COUNTY ROAD INT.	N/S	N/S					
Mailbox Turnout							
TOTALS							0

REF # 32 MISCELLANEOUS QUANTITY SUMMARY							FM 69
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	
COUNTY ROAD INT.	N/S	N/S					
RADII AT SH 11	X	X			60	60	172
RADII AT FM 69					70	70	234
Mailbox Turnout	21						420
TOTALS							826

HOPKINS COUNTY

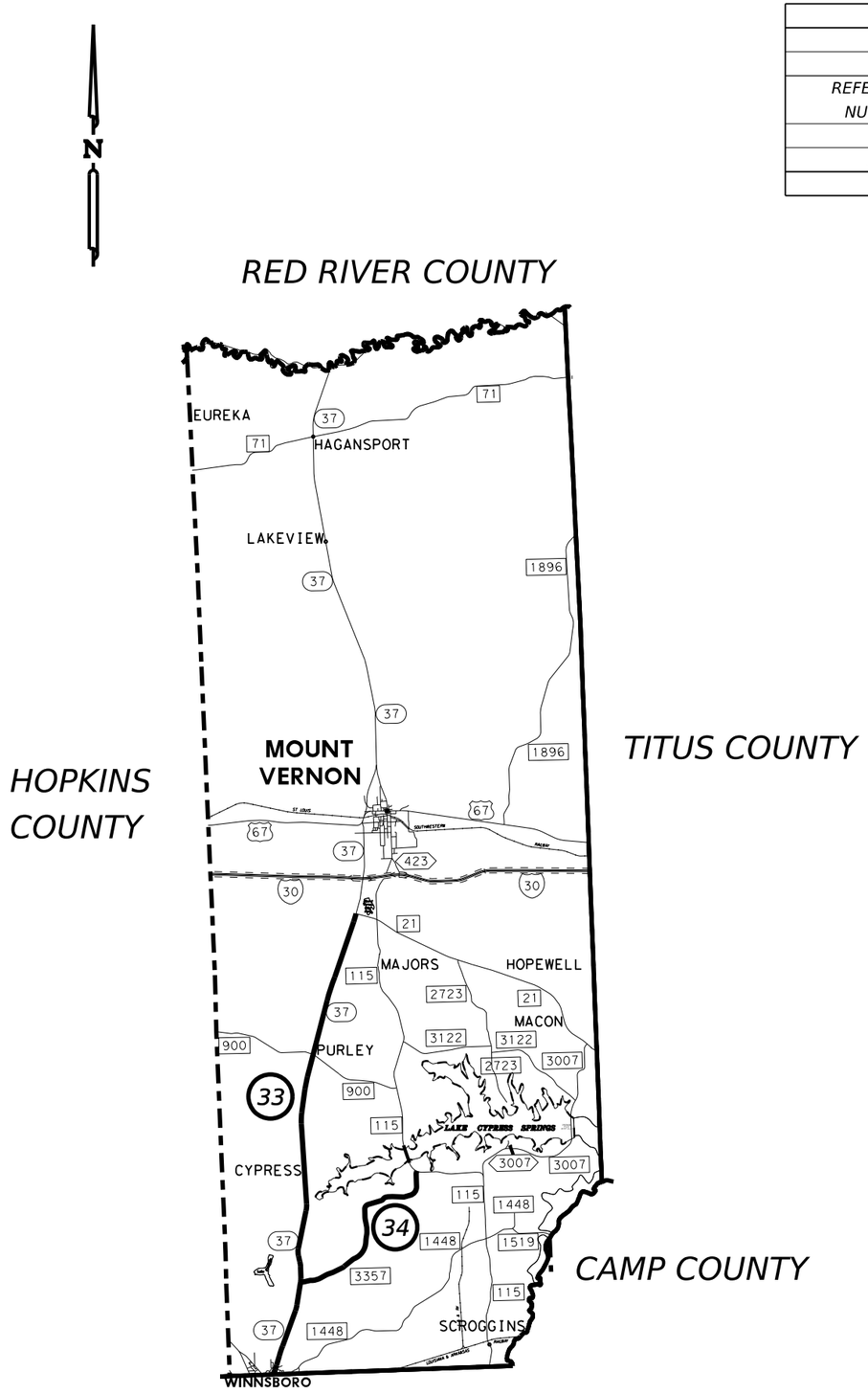
Texas Department of Transportation

BU 67, ETC.

HOPKINS COUNTY
MISCELLANEOUS
QUANTITY SUMMARY

CONT	SECT	JOB	HIGHWAY
0009	18	021,ETC.	BU 67, ETC.
DIST	COUNTY		SHEET NO.
PAR	HOPKINS,ETC.		36

2025 SEAL COAT LOCATIONS					
FRANKLIN COUNTY			SEAL COAT LIMITS		
			FROM	TO	
REFERENCE NUMBER	HIGHWAY	C-S-J	DESCRIPTION	DESCRIPTION	LENGTH (MI)
33	SH 37	0190-01-037	FM 21	WOOD C/L	13.04
34	FM 3357	3354-01-016	SH 37	FM 115	5.320
					18.36



FRANKLIN COUNTY

SCALE (MILE): 0 1 3 5

Texas Department of Transportation

BU 67, ETC.

FRANKLIN COUNTY
PROJECT SUMMARY
AND LOCATION MAP

SHEET 1 OF 4

CONT	SECT	JOB	HIGHWAY
0009	18	021,ETC.	BU 67, ETC.
DIST	COUNTY		SHEET NO.
PAR	HOPKINS,ETC.		37

DATE: 9/18/2024 5:08:49 PM
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2025 FRANKLIN COUNTY SEAL COAT QUANTITY SUMMARY										316-7084	316-7134	316-7136
REF. NO	HIGHWAY	C-S-J	ADT	BEGIN STATION	END STATION	LENGTH (LF)	ROAD WIDTH (LF)	TRAVEL LANE (SY)	* MISC. SEAL AREA (SY)	ASPH (AC 20-5TR or AC-20 XP) TON	AGGR TY-PB GR 3 (SAC-A) CY	AGGR TY-PB GR 4 (SAC-A) CY
33	SH 37	0190-01-037	4,127	0+00	6+00	600	66	4,400	0	7		34
				6+00	203+70	19,770	45	98,850		152		760
				203+70	228+70	2,500	72	20,000		31		154
				228+70	543+95	31,525	45	157,625		242		1,213
				543+95	563+70	1,975	66	14,483		22		111
				536+70	688+25	15,155	45	75,775		116		583
SUBTOTALS								371,133		570	0	2,855
34	FM 3357	3354-01-016	784	0+00	162+36	16,236	24	43,296	161	82	395	
				162+36	280+74	11,838	26	34,199		64	311	
SUBTOTALS								77,656		146	706	0
FRANKLIN COUNTY TOTALS								448,789		716	706	2,855

NOTE:

ASPHALT RATE SHOWN IS FOR BID PURPOSES ONLY.
ACTUAL RATE WILL BE DETERMINED IN FIELD AS DIRECTED BY THE ENGINEER
* SEE MISCELLANEOUS QUANTITY SUMMARY

APPLICATION RATES:

GRADE 3 AGGREGATE
AC ASPHALT 0.44 GAL * SY * 8.54LBS / 2000 = TONS, AGGREGATE GRADE 3 TY PB CY/110 SY

GRADE 4 AGGREGATE
AC ASPHALT 0.36 GAL * SY * 8.54LBS / 2000 = TONS, AGGREGATE GRADE 4 TY PB CY/130 SY

FRANKLIN COUNTY

Texas Department of Transportation

BU 67, ETC.

FRANKLIN COUNTY
QUANTITY SUMMARY

CONT	SECT	JOB	HIGHWAY
0009	18	021,ETC.	BU 67, ETC.
DIST	COUNTY		SHEET NO.
PAR	HOPKINS,ETC.		38

2025 FRANKLIN COUNTY SEAL COAT PAVEMENT MARKING SUMMARY													
REF. NO	HIGHWAY	C-S-J	LENGTH	662-7112	662-7114	666-7177	666-7179	666-7183	666-7184	666-7186	666-7194	666-7198	666-7201
				WK ZN PAV MRK SHT TERM (TAB) TY W	WK ZN PAV MRK SHT TERM (TAB)TY Y-2	RE PM TY II (W) 8" (DOT)	RE PM TY II (W) 8" (SLD)	RE PM TY II (W) 18" (SLD)	RE PM TY II (W) 24" (SLD)	RE PM TY II (W) (ARROW)	RE PM TY II (W) (WORD)	RE PM TY II (W) (RR XING)	RE PM TY II (W) 36" (YLD TRI)
			LF	EA	EA	LF	LF	LF	LF	EA	EA	EA	EA
33	SH 37	0190-01-037	68,825	63	1,747	325	2,875		42	19	11		
34	FM 3357	3354-01-016	28,074		702		40		14				
TOTALS				63	2,449	325	2,915	0	56	19	11	0	0

2025 FRANKLIN COUNTY SEAL COAT PAVEMENT MARKING SUMMARY											
REF. NO	HIGHWAY	C-S-J	LENGTH	666-7172	666-7175	666-7211	666-7213	672-7002	672-7004	672-7006	677-7001
				RE PM TY II (W) 6" (BRK)	RE PM TY II (W) 6" (SLD)	RE PM TY II (Y) 6" (BRK)	RE PM TY II (Y) 6" (SLD)	REFL PAV MRKR TY I-C	REFL PAV MRKR TY II-A-A	REFL PAV MRKR TY II-C-R	ELIM EXT PM & MRKS (4")
			LF	LF	LF	LF	LF	EA	EA	EA	LF
33	SH 37	0190-01-037	68,825	500	139,710	10,535	140,349	185	1,755		
34	FM 3357	3354-01-016	28,074		56,000	3,658	38,513	4	700		98,171
TOTALS				500	195,710	14,193	178,862	189	2,455	0	98,171

FRANKLIN COUNTY

Texas Department of Transportation

BU 67, ETC.

FRANKLIN COUNTY
PAVEMENT MARKING
QUANTITY SUMMARY

CONT	SECT	JOB	HIGHWAY
0009	18	021,ETC.	BU 67, ETC.
DIST	COUNTY		SHEET NO.
PAR	HOPKINS,ETC.		39

REF # 33 MISCELLANEOUS QUANTITY SUMMARY							SH 37
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
COUNTY ROAD INT.	N/S	N/S					
CITY STREETS	N/S	N/S					
FM 900	N/S	N/S					
FM 3357	N/S						
Mailbox Turnout	0						
						TOTALS	0

REF # 34 MISCELLANEOUS QUANTITY SUMMARY							FM 3357
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
RADII AT FM 115	X	X			44	44	92
RADII AT FM 37	X	X			38	38	69
Mailbox Turnout	0						
						TOTALS	161

FRANKLIN COUNTY

Texas Department of Transportation

BU 67, ETC.

FRANKLIN COUNTY
MISCELLANEOUS
QUANTITY SUMMARY

CONT	SECT	JOB	HIGHWAY
0009	18	021,ETC.	BU 67, ETC.
DIST	COUNTY		SHEET NO.
PAR	HOPKINS,ETC.		40

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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

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 4-03 7-13	0009	18	021,ETC.	BU 67, ETC.
9-07 8-14	DIST	COUNTY		SHEET NO.
5-10 5-21	PAR	HOPKINS,ETC.		41

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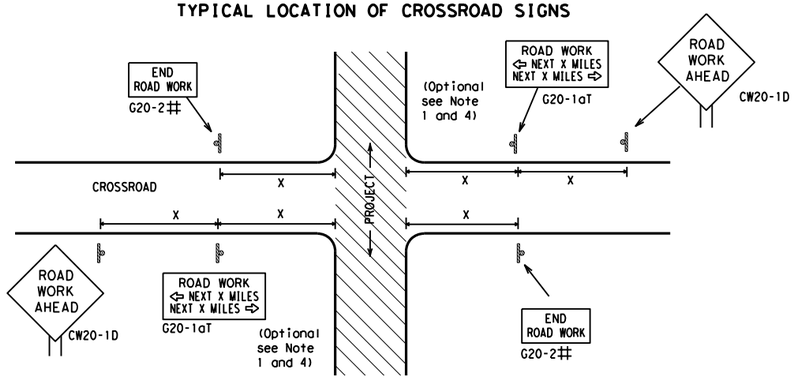
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/01 - PAR/Design Projects/0009-18-021/4- Design/Master Design Files/041-052 bc-21.dgn

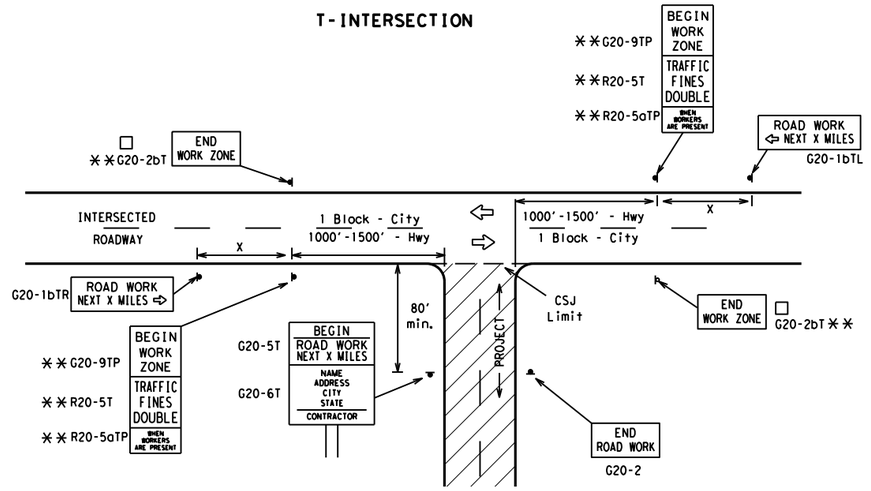
TYPICAL LOCATION OF CROSSROAD SIGNS



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]

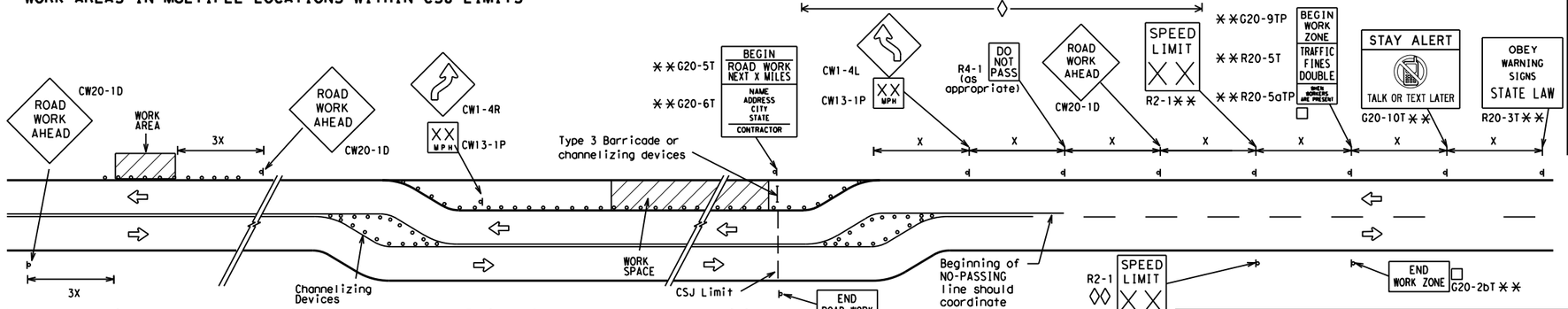
* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

△ 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.

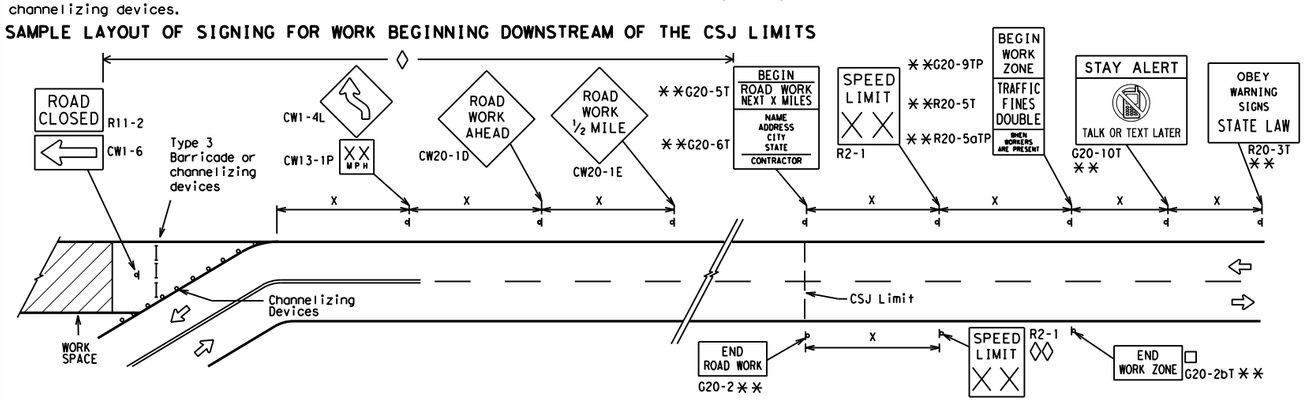
WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS



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 AT THE CSJ LIMITS

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
○ ○ ○	Channelizing Devices
▬	Sign
X	See Typical Construction Warning Sign Size and Spacing chart or the TMUTCD for sign spacing requirements.

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PROJECT LIMIT

BC(2)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS	0009	18	021,ETC.	BU 67, ETC.
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TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

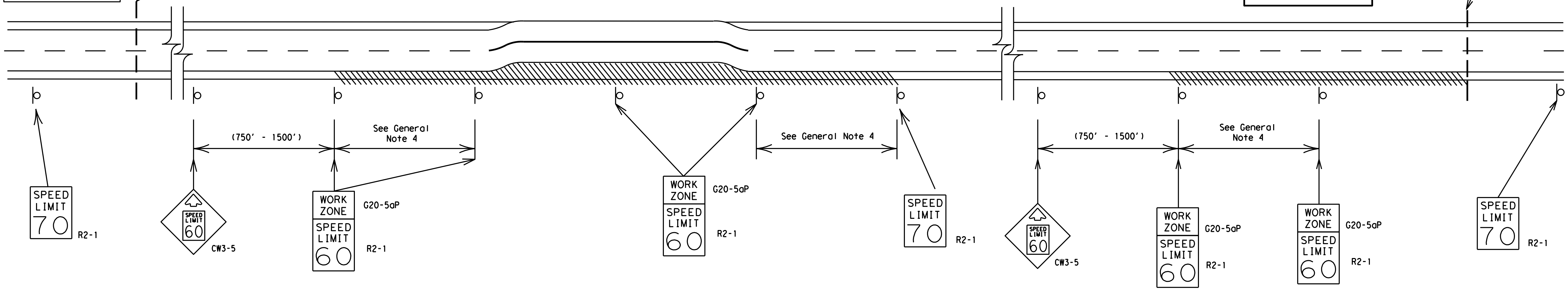
Work zone speed limits shall be regulatory, established in accordance with the "Procedures for Establishing Speed Zones," and approved by the Texas Transportation Commission, or by City Ordinance when within Incorporated City Limits.

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.

Signing shown for one direction only. See BC(2) for additional advance signing.

Signing shown for one direction only. See BC(2) for additional advance signing.



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	0009	18	021,ETC.	BU 67, ETC.		
9-07 8-14	DIST	COUNTY		SHEET NO.		
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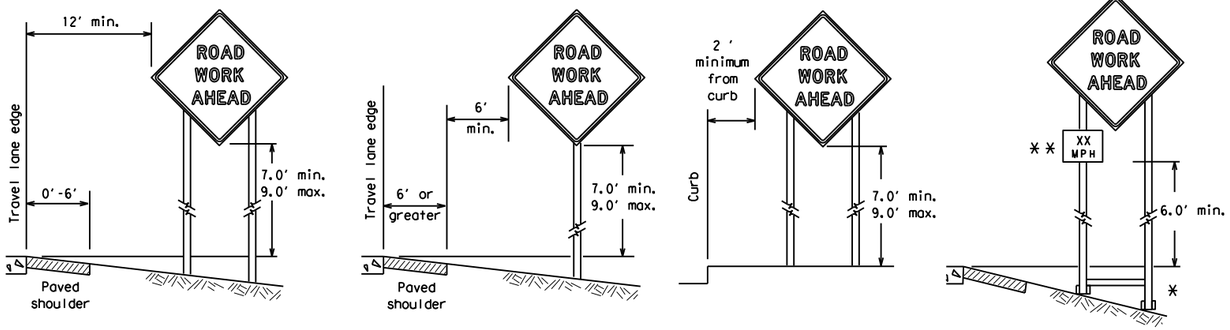
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/01 - PAR/Design Projects/0009-18-021/4 - Design/Master Design Files/041-052 bc-21.dgn

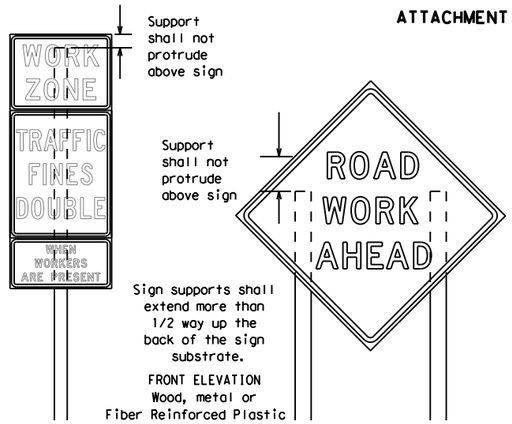
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS

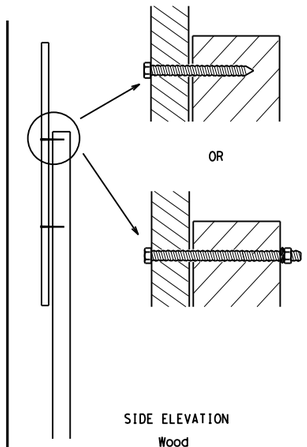


* When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

** 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





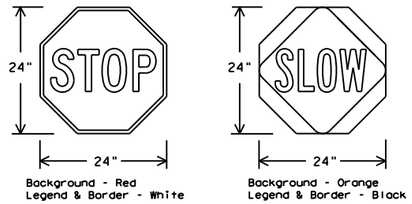
Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

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
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0009	18	021,ETC.	BU 67, ETC.
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	PAR	HOPKINS,ETC.		44

DATE: 9/18/2024 5:09:26 PM
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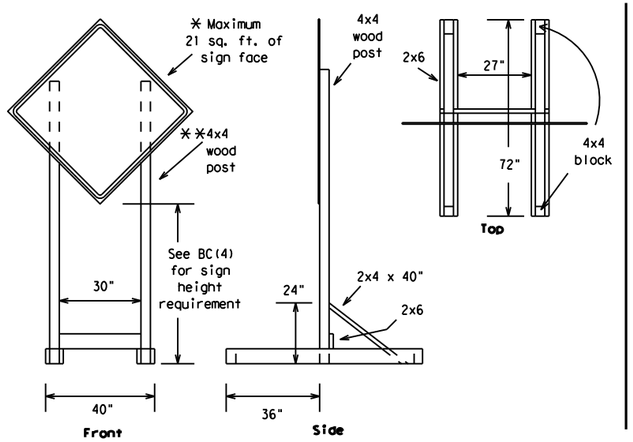
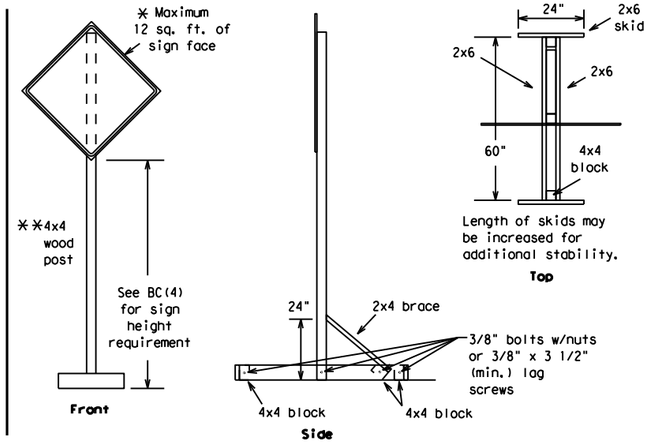
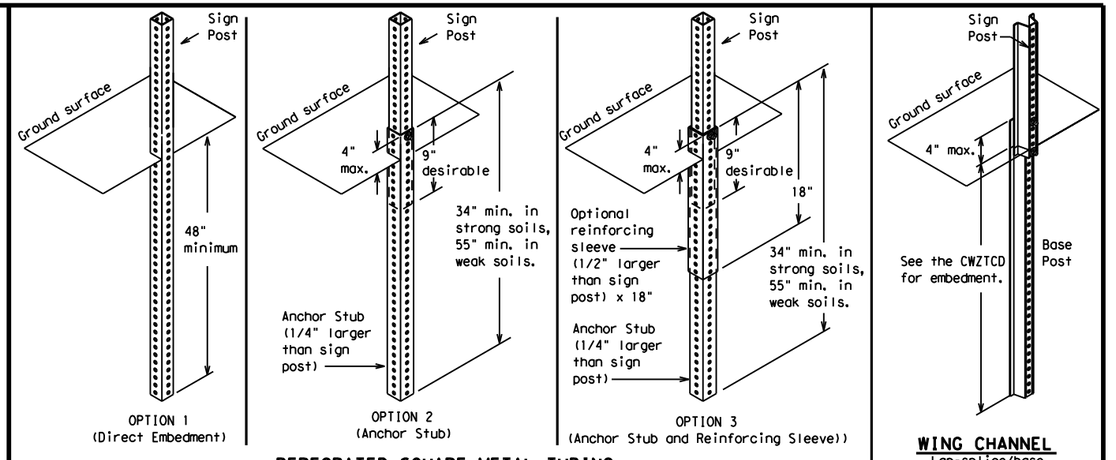




SKID MOUNTED WOOD SIGN SUPPORTS

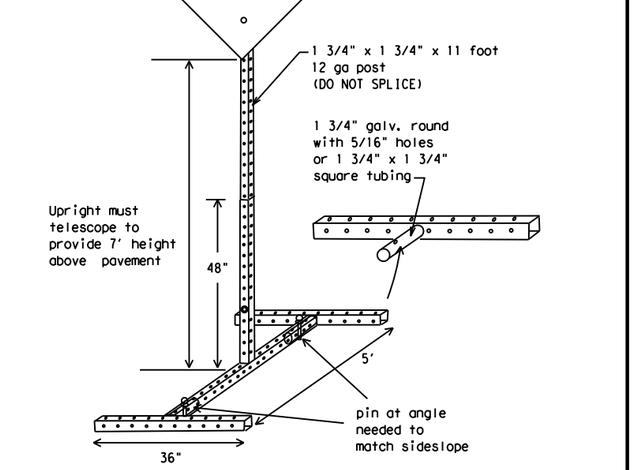
* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS

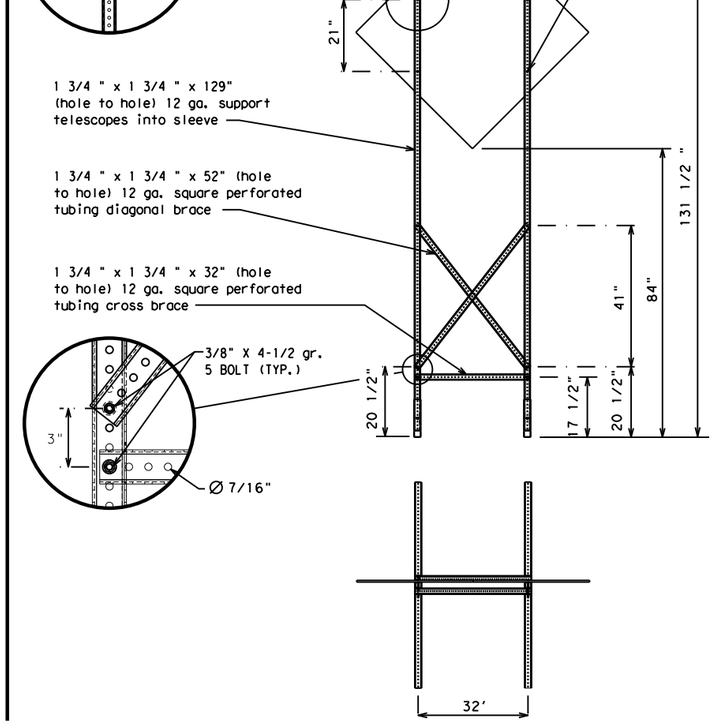


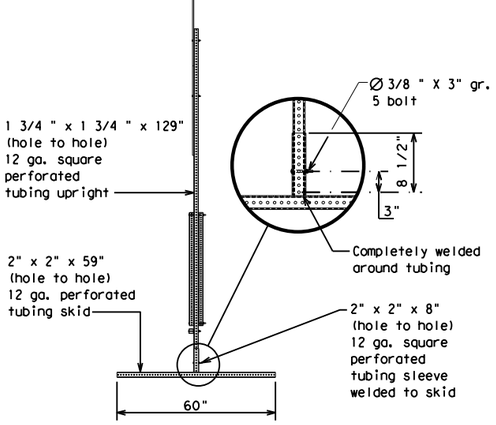
PERFORATED SQUARE METAL TUBING

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

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0009	18	021,ETC.	BU 67, ETC.
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	PAR	HOPKINS,ETC.		45

DATE: 9/18/2024 5:09:29 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/01 - PAR/Design Projects/0009-18-021/4- Design/Master Design Files/041-052 bc-21.dgn

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
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

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
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9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	PAR	HOPKINS,ETC.		46

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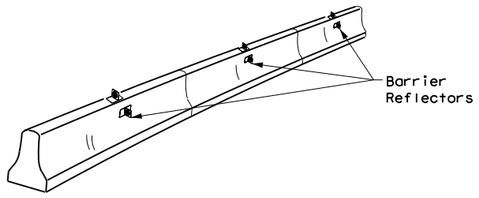
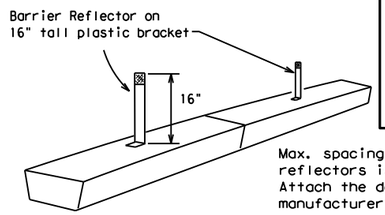
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/01 - PAR/Design Projects/0009-18-021/4 - Design/Master Design Files/041-052 bc-21.dgn

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.

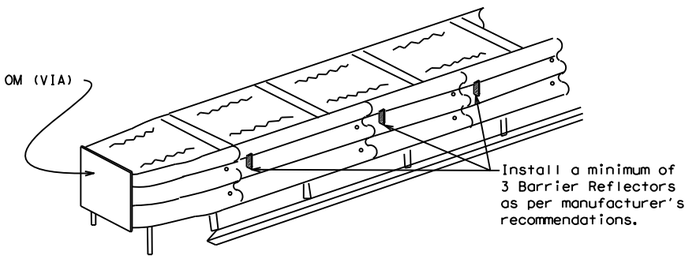


Max. spacing of barrier reflectors is 20 feet. Attach the delineators as per manufacturer's recommendations.

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)

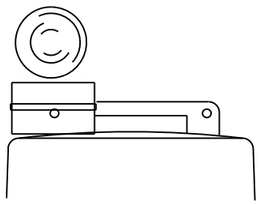


DELINEATION OF END TREATMENTS

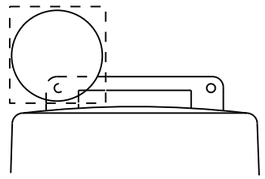
END TREATMENTS FOR CTB'S USED IN WORK ZONES

End treatments used on CTB's in work zones shall meet the apppropriate 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

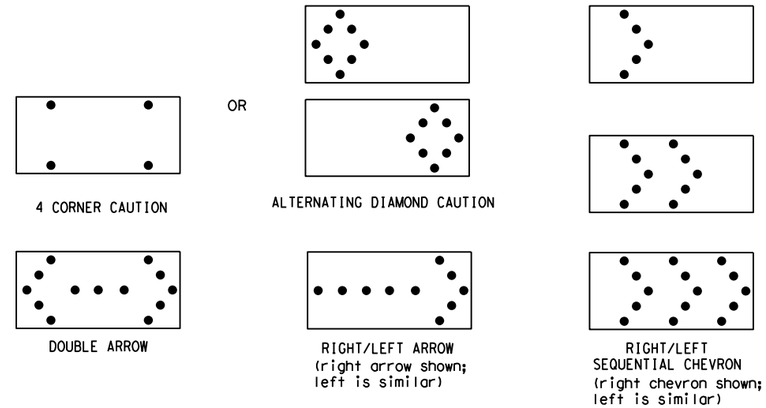
1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
3. A series of sequential flashing warning lights placed on channelizing 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

SHEET 7 OF 12

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	0009	18	021,ETC.	BU 67, ETC.
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	PAR	HOPKINS,ETC.		47

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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:

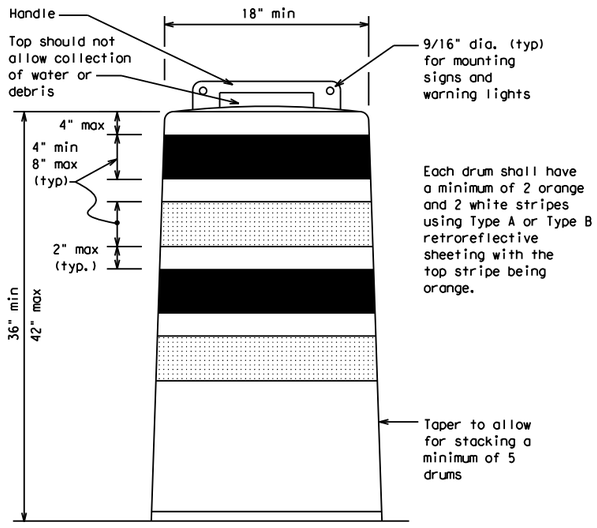
1. Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents 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.

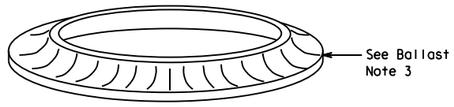
RETROREFLECTIVE SHEETING

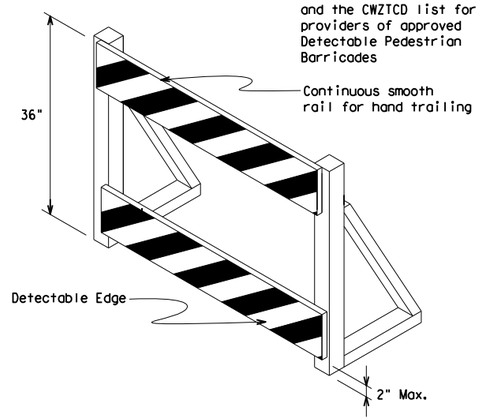
1. The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Sign Face Materials," Type A or Type B reflective sheeting shall be supplied unless otherwise specified in the plans.
2. The sheeting shall 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.

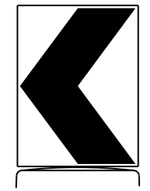




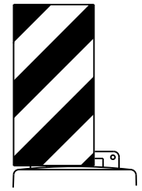


DETECTABLE PEDESTRIAN BARRICADES

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
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REVISIONS	0009	18	021,ETC.	BU 67, ETC.
4-03 8-14	DIST	COUNTY		SHEET NO.
9-07 5-21	PAR	HOPKINS,ETC.		48
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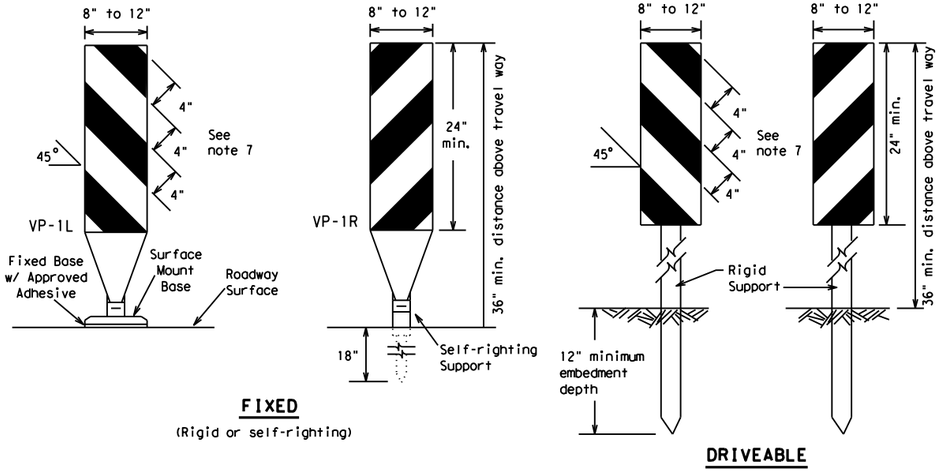
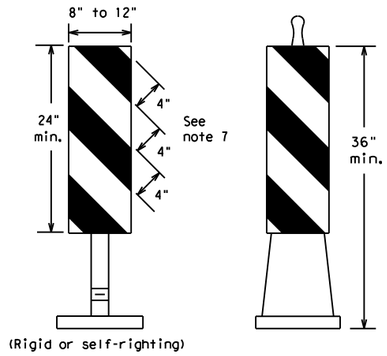


FIXED
(Rigid or self-righting)

DRIVEABLE

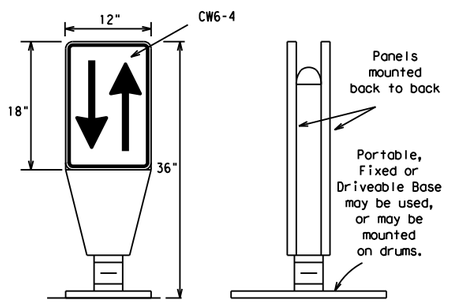


(Rigid or self-righting)

PORTABLE

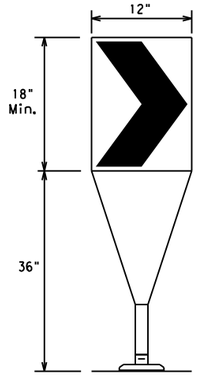
1. Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
2. VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is 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)



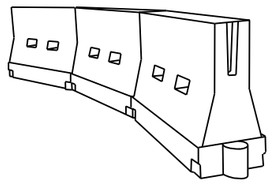
Fixed Base w/ Approved Adhesive (Driveable Base, or Flexible Support can be used)

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
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0009	18	021,ETC.	BU 67, ETC.
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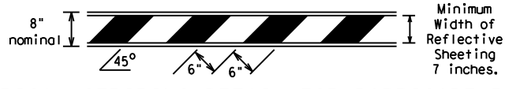
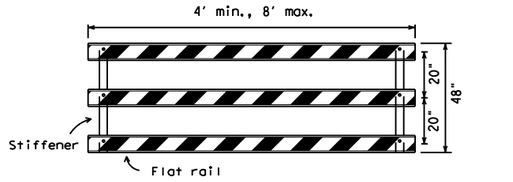
TYPE 3 BARRICADES

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 stacked 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.



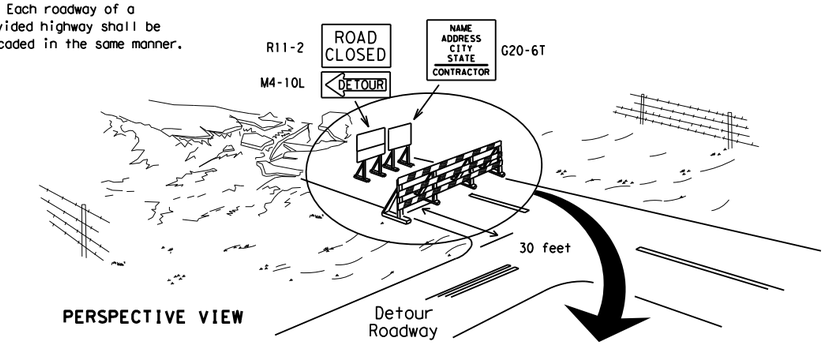
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



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

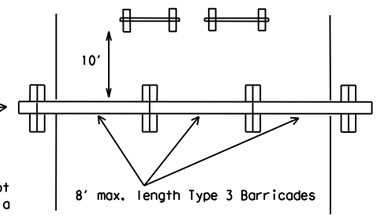
TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES

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



PERSPECTIVE VIEW

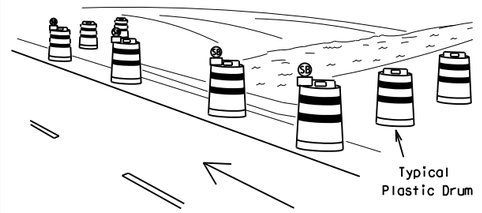
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic.
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

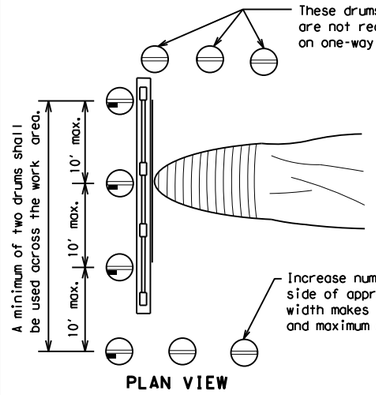
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

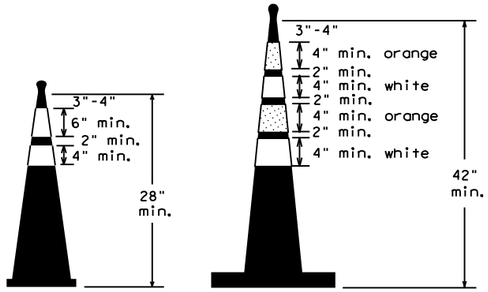
1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder 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

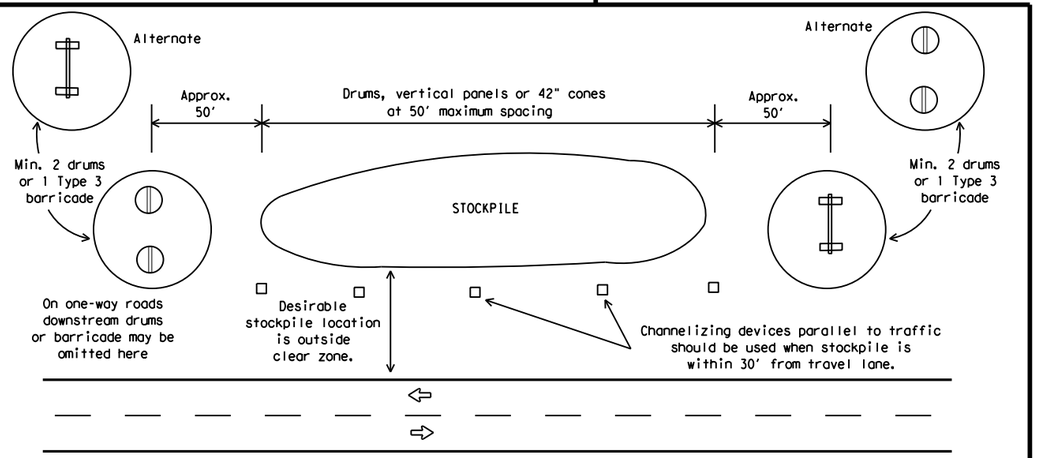
PLAN VIEW

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
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0009	18	021,ETC.	BU 67, ETC.
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	PAR	HOPKINS,ETC.		50

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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.

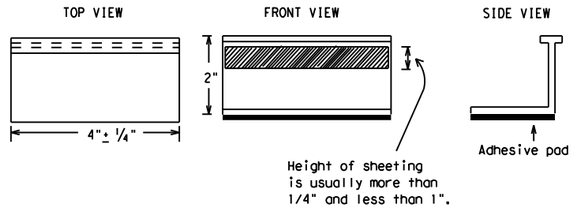
MAINTAINING WORK ZONE PAVEMENT MARKINGS

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

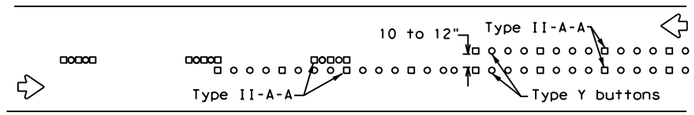
FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS	0009	18	021,ETC.	BU 67, ETC.
2-98 9-07 5-21	DIST	COUNTY		SHEET NO.
1-02 7-13	PAR	HOPKINS,ETC.		51
11-02 8-14				

TDS

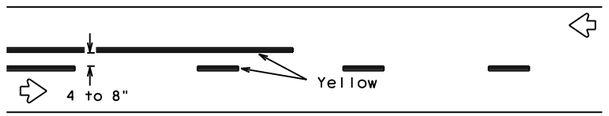
DATE: 9/18/2024 5:09:46 PM
FILE: pw:/txdot.projectwiseonline.com:TxDOT2/Documents/01 - PAR/Design Projects/0009-18-021/4 - Design/Master Design Files/041-052 bc-21.dgn

PAVEMENT MARKING PATTERNS

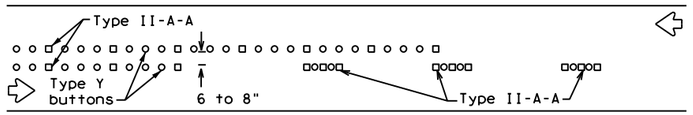
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



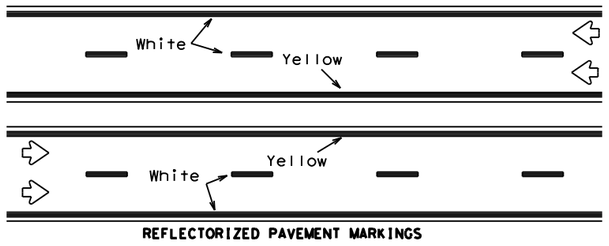
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



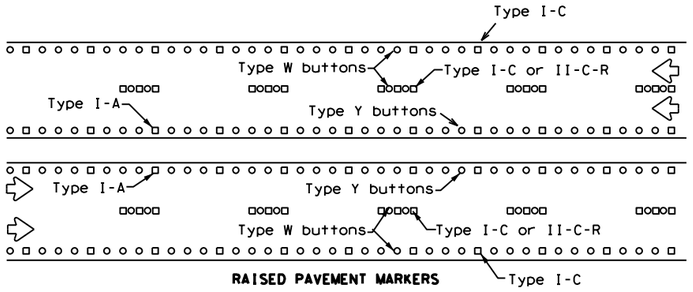
RAISED PAVEMENT MARKERS - PATTERN B

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



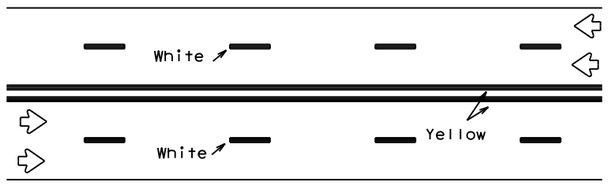
REFLECTORIZED PAVEMENT MARKINGS



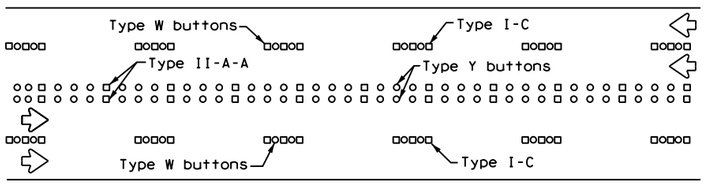
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



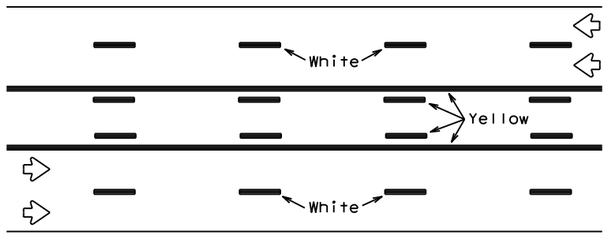
REFLECTORIZED PAVEMENT MARKINGS



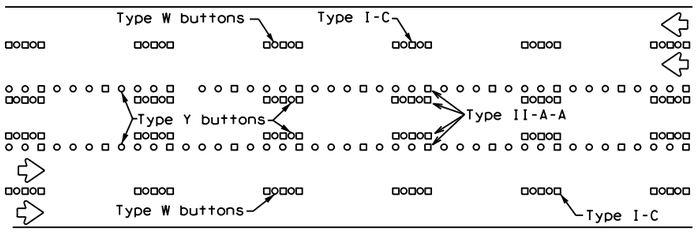
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS



RAISED PAVEMENT MARKERS

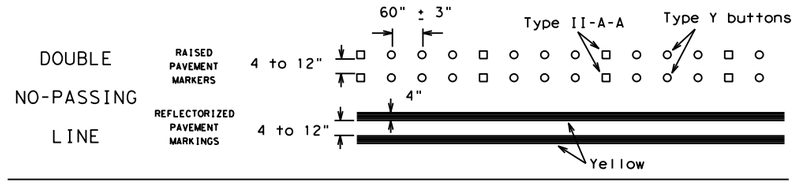
Prefabricated markings may be substituted for reflectorized pavement markings.

TWO-WAY LEFT TURN LANE

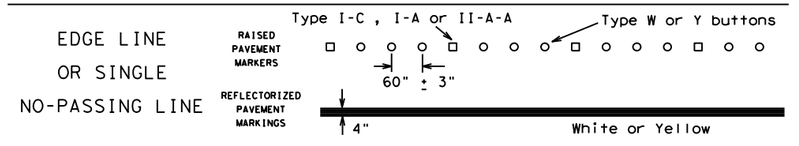
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

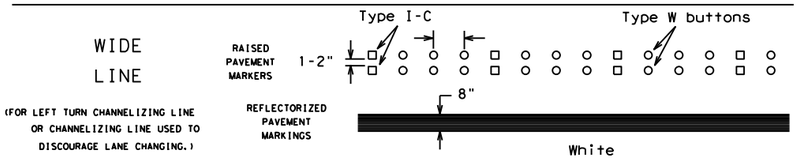


EDGE LINE OR SINGLE NO-PASSING LINE



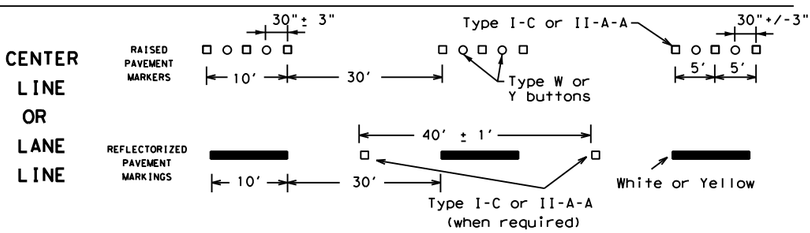
WIDE LINE

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

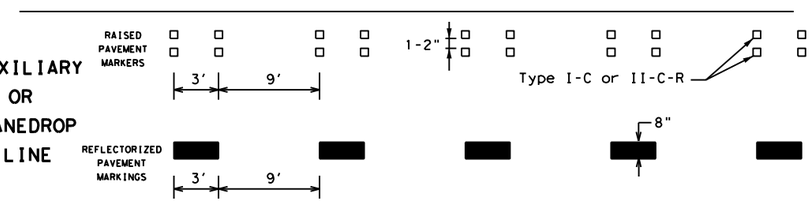


BROKEN LINES

CENTER LINE OR LANE LINE

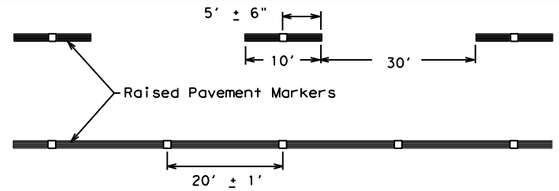


AUXILIARY OR LANEDROP LINE



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."

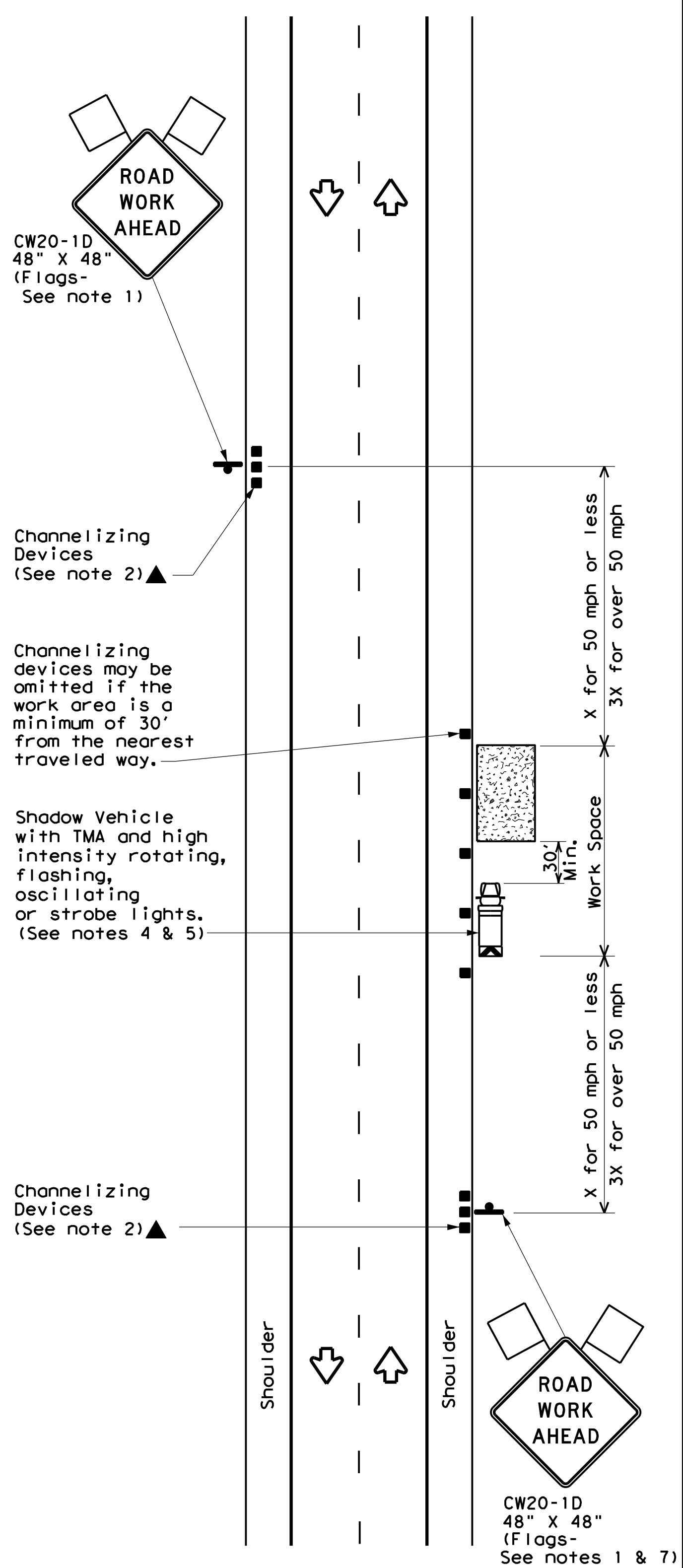
Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

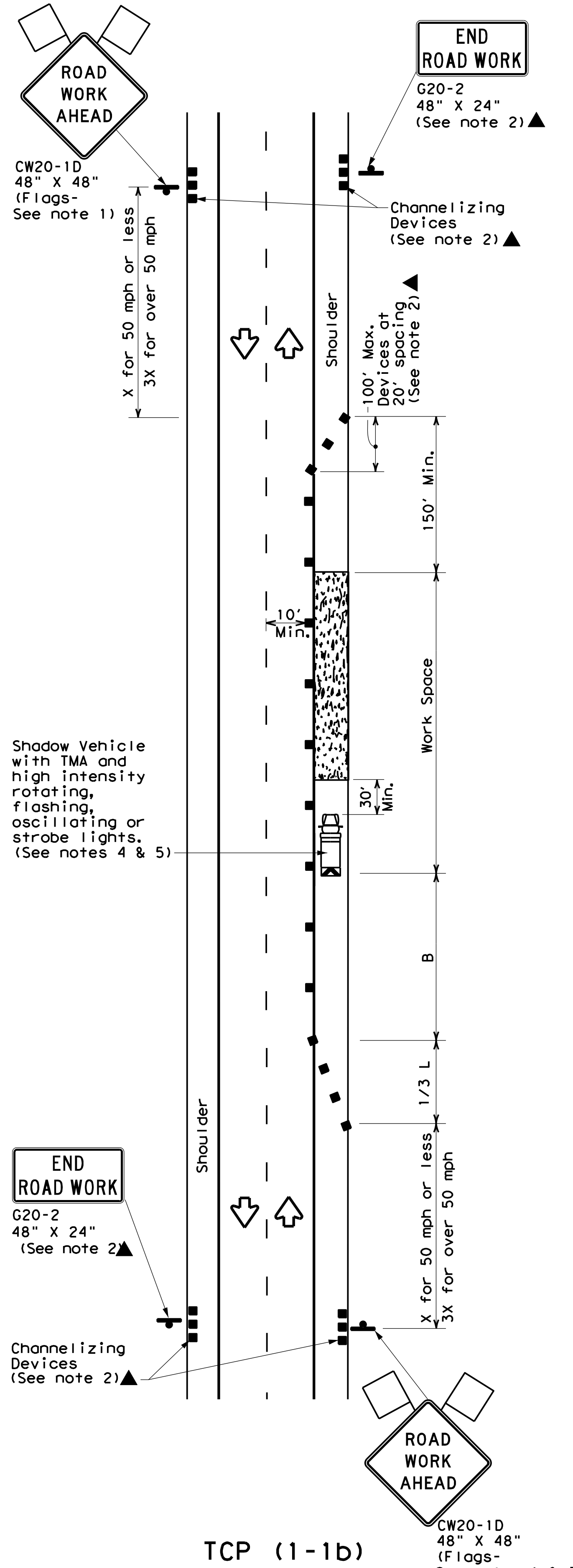
BC(12)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS 1-97 9-07 5-21 2-98 7-13 11-02 8-14	0009	18	021,ETC.	BU 67, ETC.
	DIST	COUNTY		SHEET NO.
	PAR	HOPKINS,ETC.		52



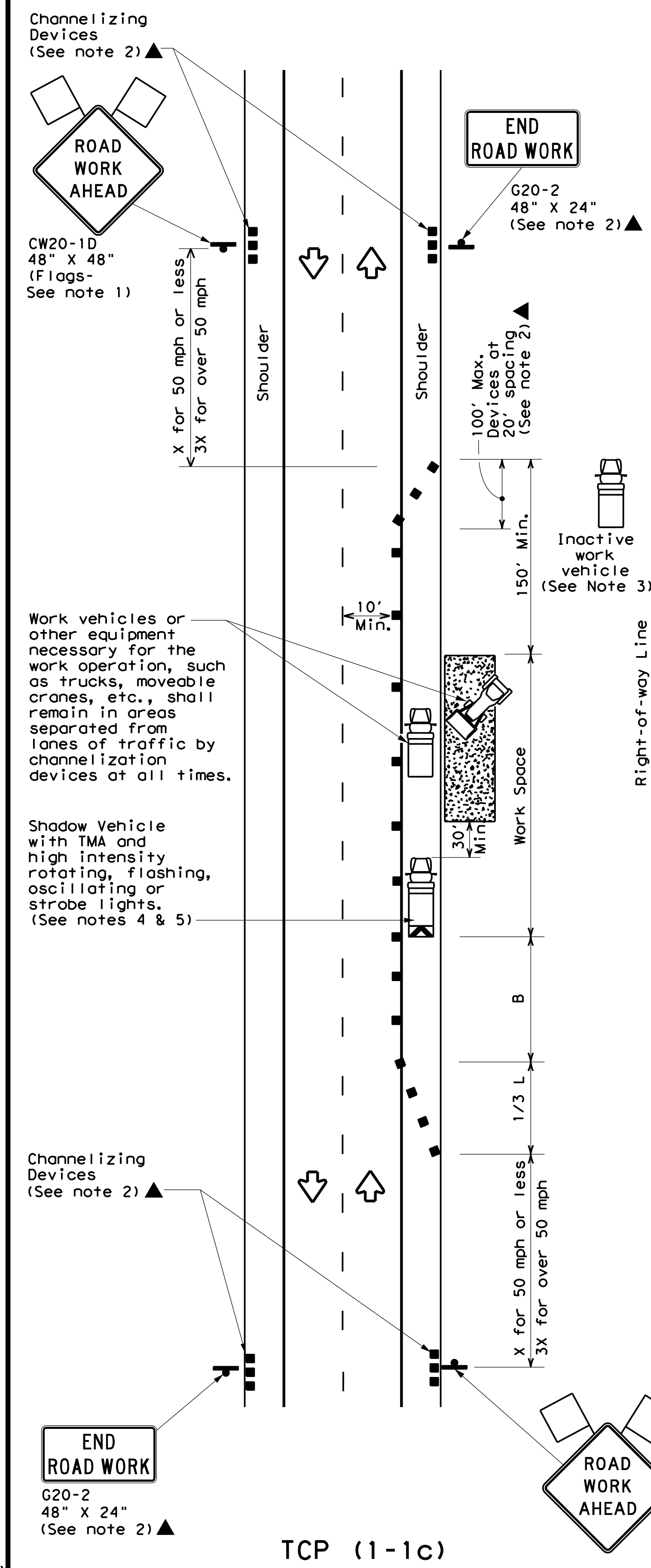
TCP (1-1a)

WORK SPACE NEAR SHOULDER
Conventional Roads



TCP (1-1b)

WORK SPACE ON SHOULDER
Conventional Roads



TCP (1-1c)

WORK VEHICLES ON SHOULDER
Conventional Roads

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 "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. 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. Inactive work vehicles or other equipment should be parked near the right-of-way line and not parked on the paved shoulder.
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.
6. See TCP(5-1)for shoulder work on divided highways, expressways and freeways.
7. CW21-5 "SHOULDER WORK" signs may be used in place of CW20-1D "ROAD WORK AHEAD" signs for shoulder work on conventional roadways.

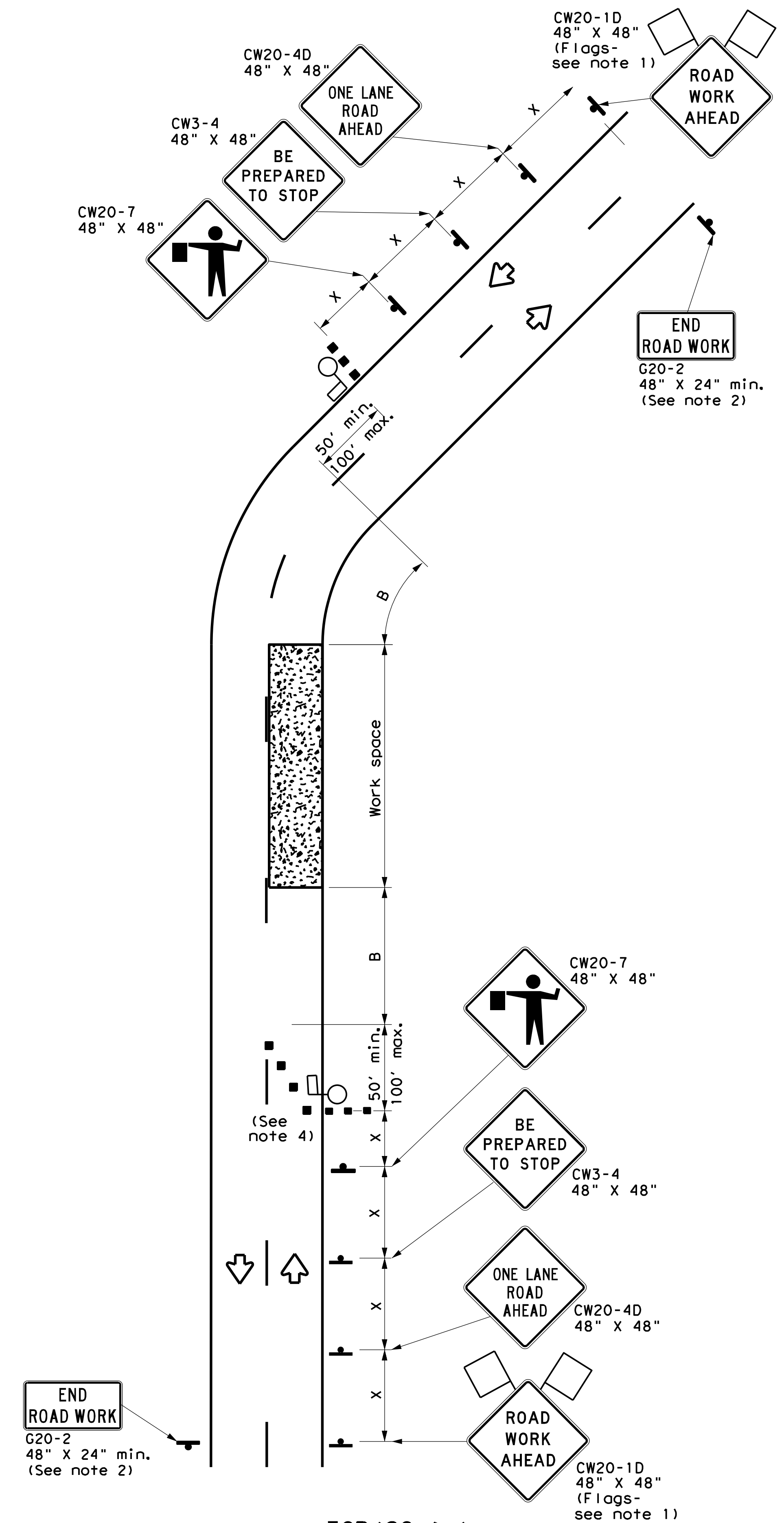
Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN CONVENTIONAL ROAD SHOULDER WORK

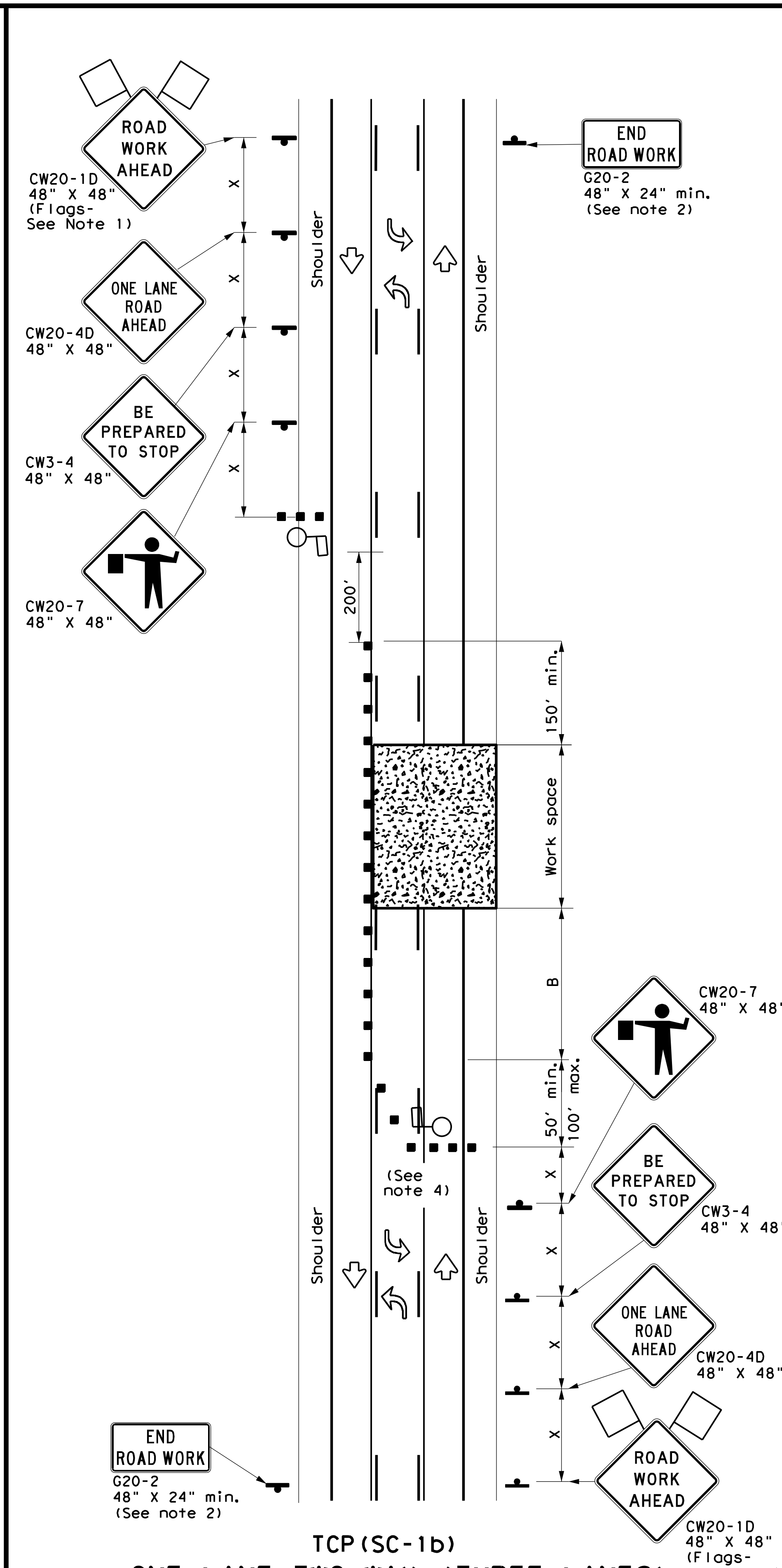
TCP(1-1)-18

FILE: tcp1-1-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-94 4-98	0009	18	021, ETC.	BU 67, ETC.
8-95 2-12	DIST	COUNTY		SHEET NO.
1-97 2-18	PAR	HOPKINS, ETC.		53



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

Symbol	Meaning	Symbol	Meaning
	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 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.

SHEET 1 OF 8

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 0009	SECT 18	JOB 021,ETC.	HIGHWAY BU 67, ETC.
REVISIONS 4-21, 10-22	DIST PAR		COUNTY HOPKINS,ETC.	SHEET NO. 54

217

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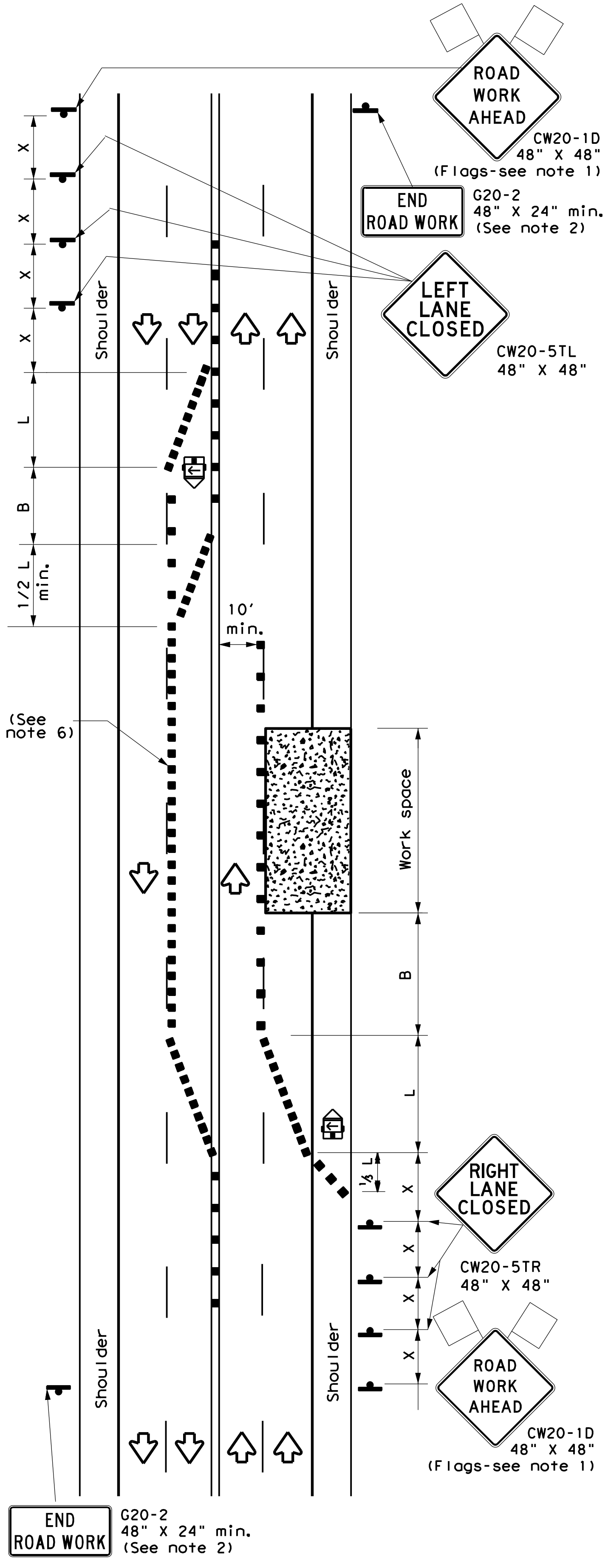
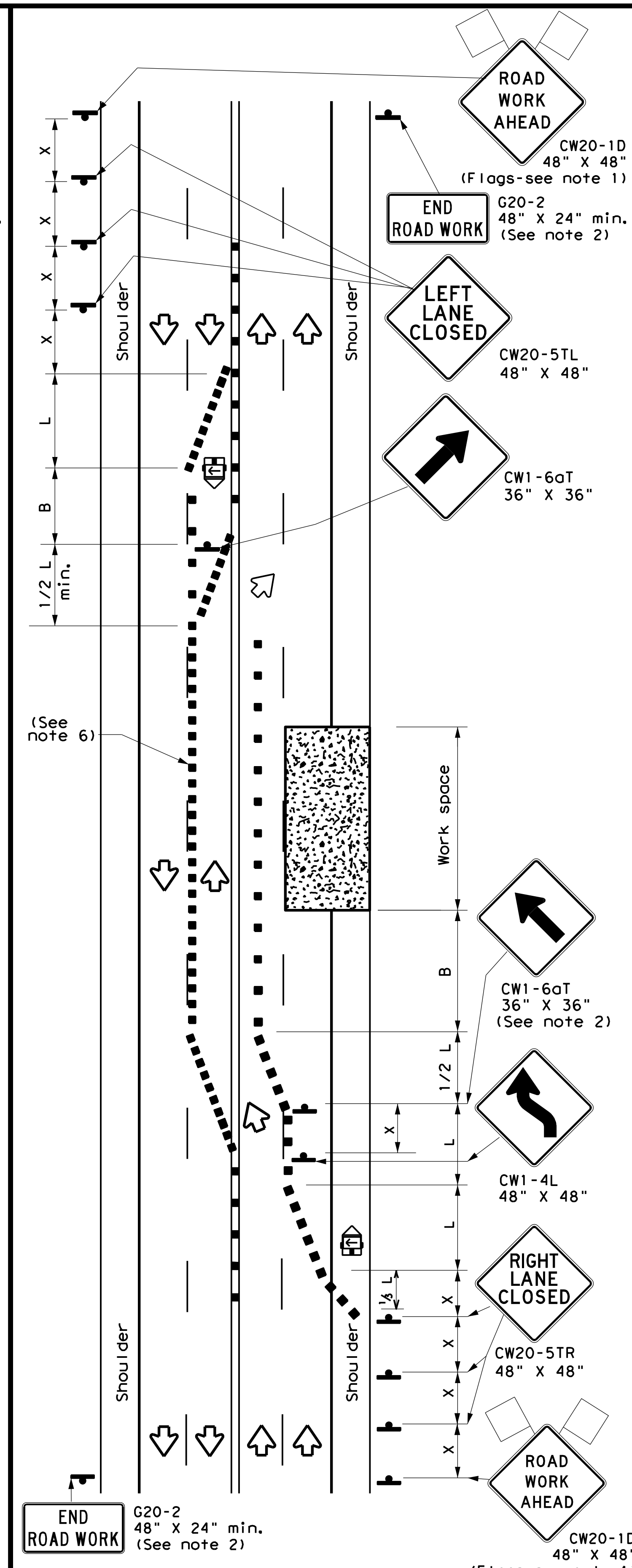


TCP (SC-2a)

ONE LANE CLOSED EACH DIRECTION

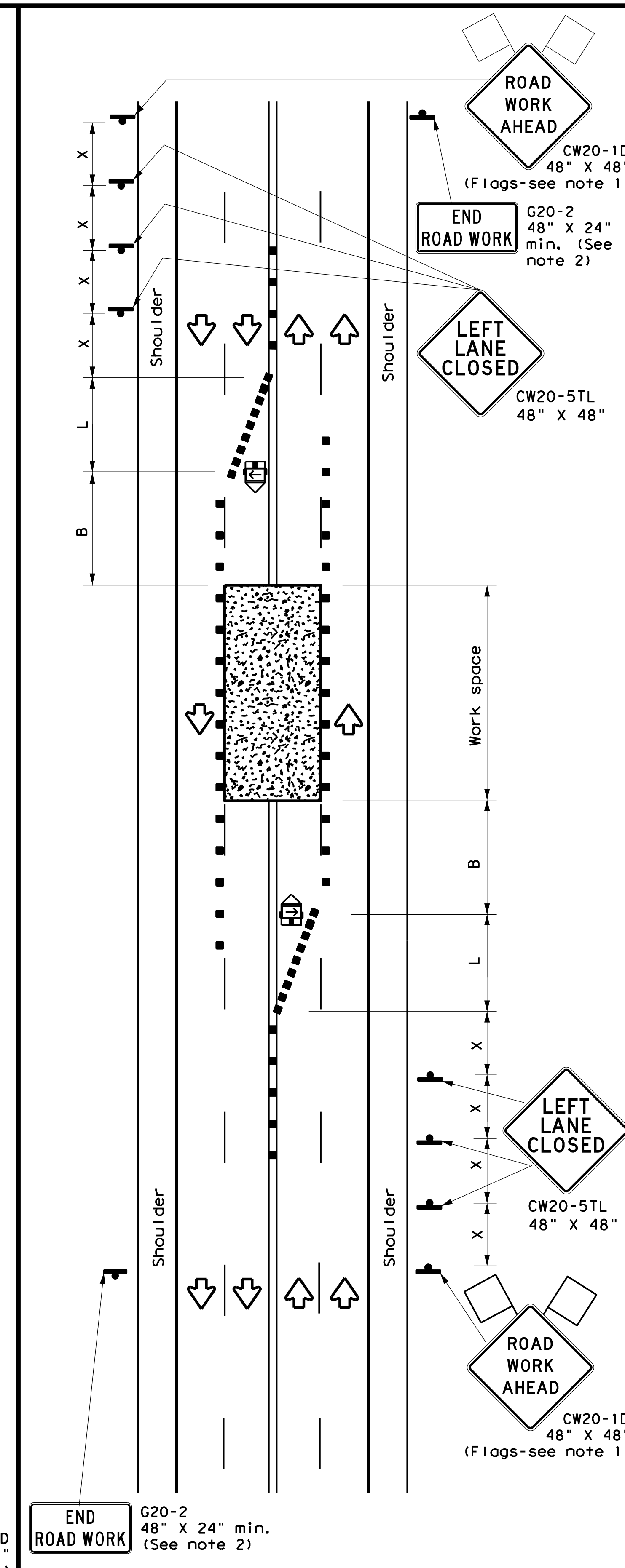
CONTROL W/ CHANNELIZING DEVICES



TCP (SC-2b)

ONE LANE CLOSED EACH DIRECTION

CONTROL W/ CHANNELIZING DEVICES



TCP (SC-2c)

CENTER LANES CLOSED

CONTROL W/ CHANNELIZING DEVICES

LEGEND

	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. 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

FILE: tcpsc-2-22.dgn	DN:	CK:	DW:	CK:
© TxDOT October 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-21 10-22	0009	18	021, ETC.	BU 67, ETC.
	DIST		COUNTY	SHEET NO.
	PAR		HOPKINS, ETC.	55

DATE: 9/18/2024 5:10:58 PM
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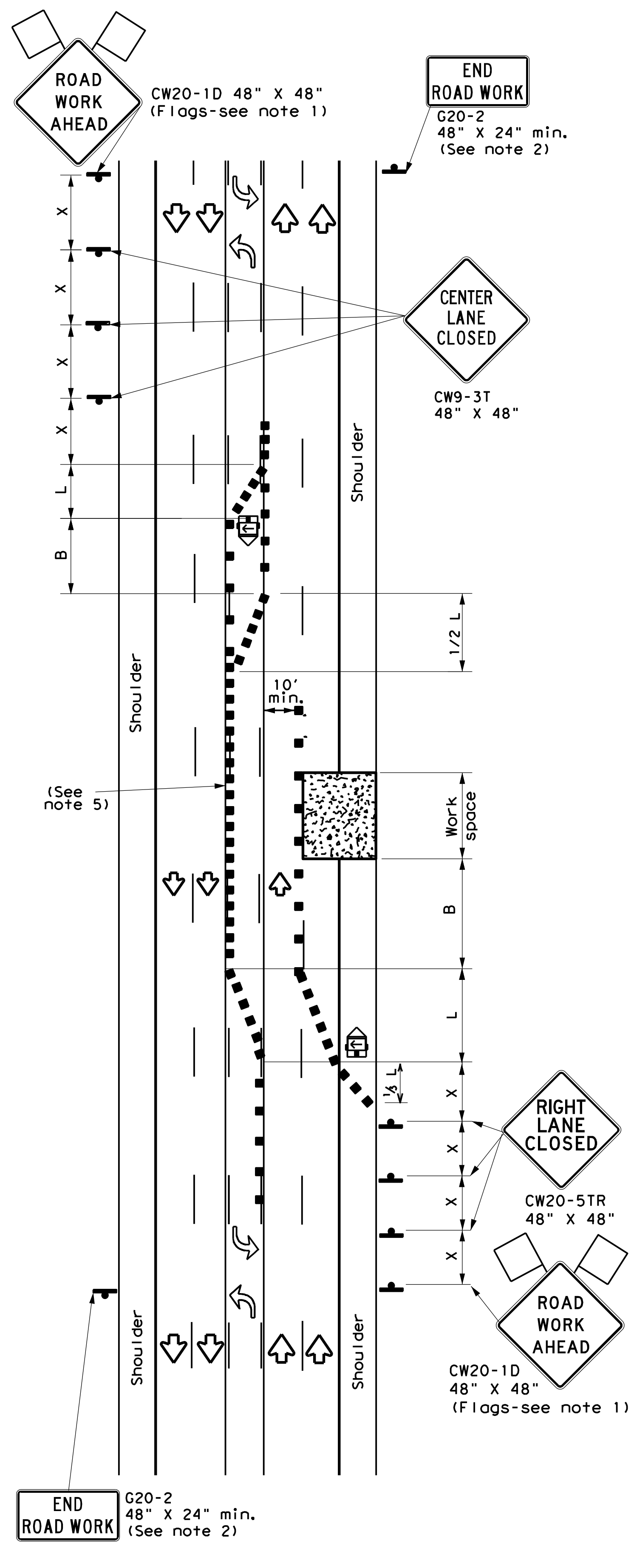
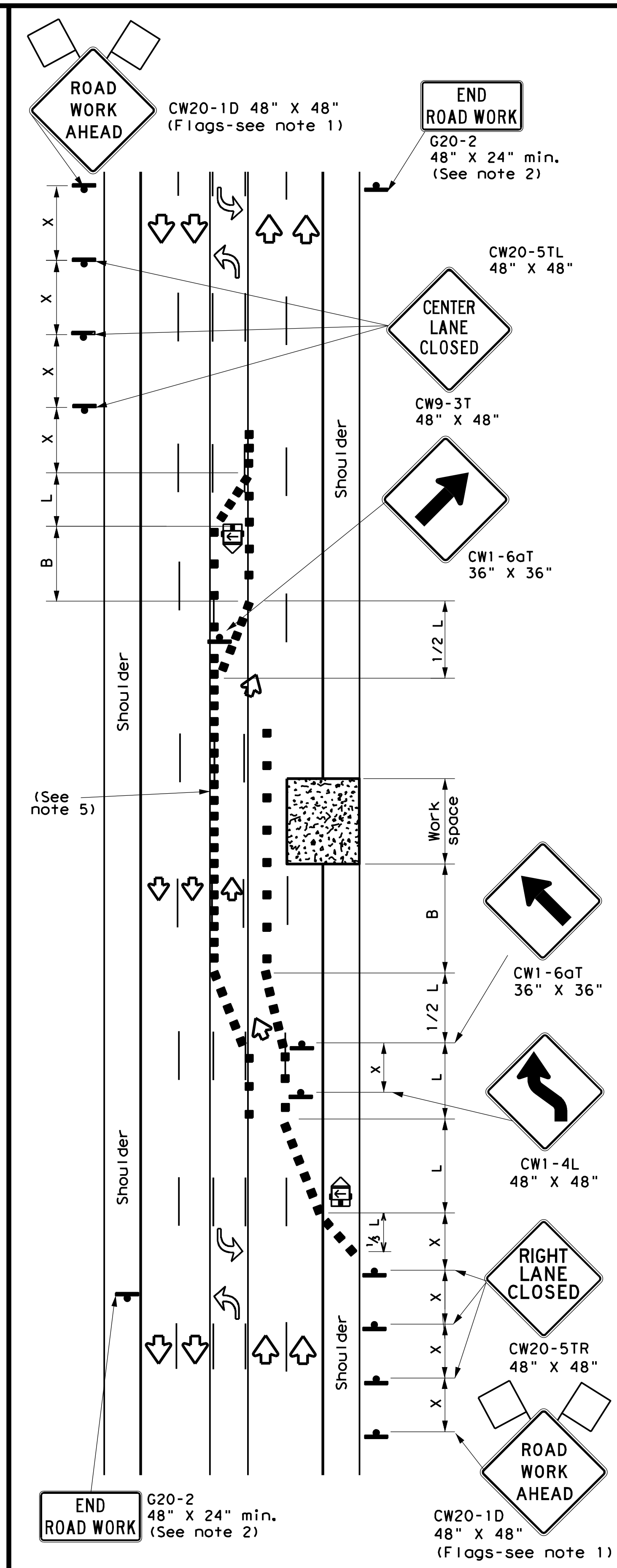


TCP (SC-3a)

ONE LANE CLOSED

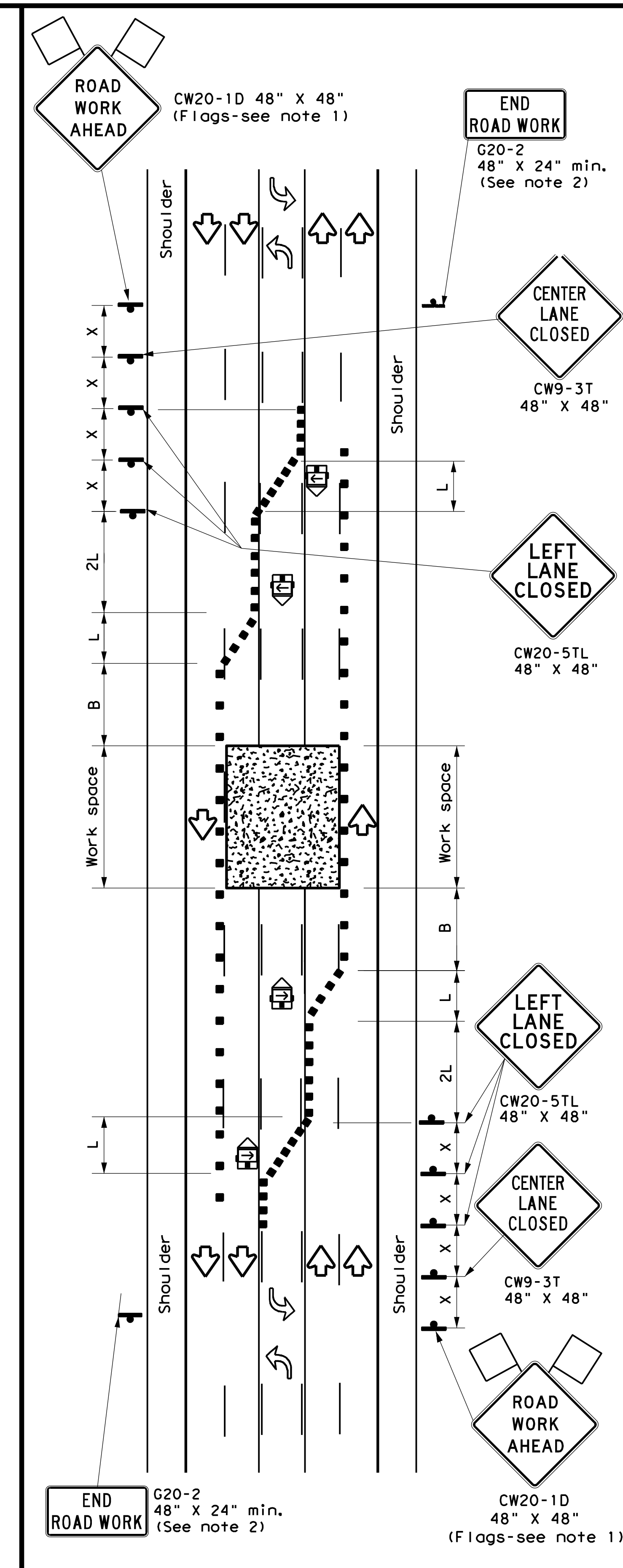
CONTROL W/ CHANNELIZING DEVICES



TCP (SC-3b)

TWO LANES CLOSED

CONTROL W/ CHANNELIZING DEVICES



TCP (SC-3c)

CENTER LANES CLOSED

CONTROL W/ CHANNELIZING DEVICES

LEGEND

Symbol	Description	Symbol	Description
	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 **			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.

Texas Department of Transportation

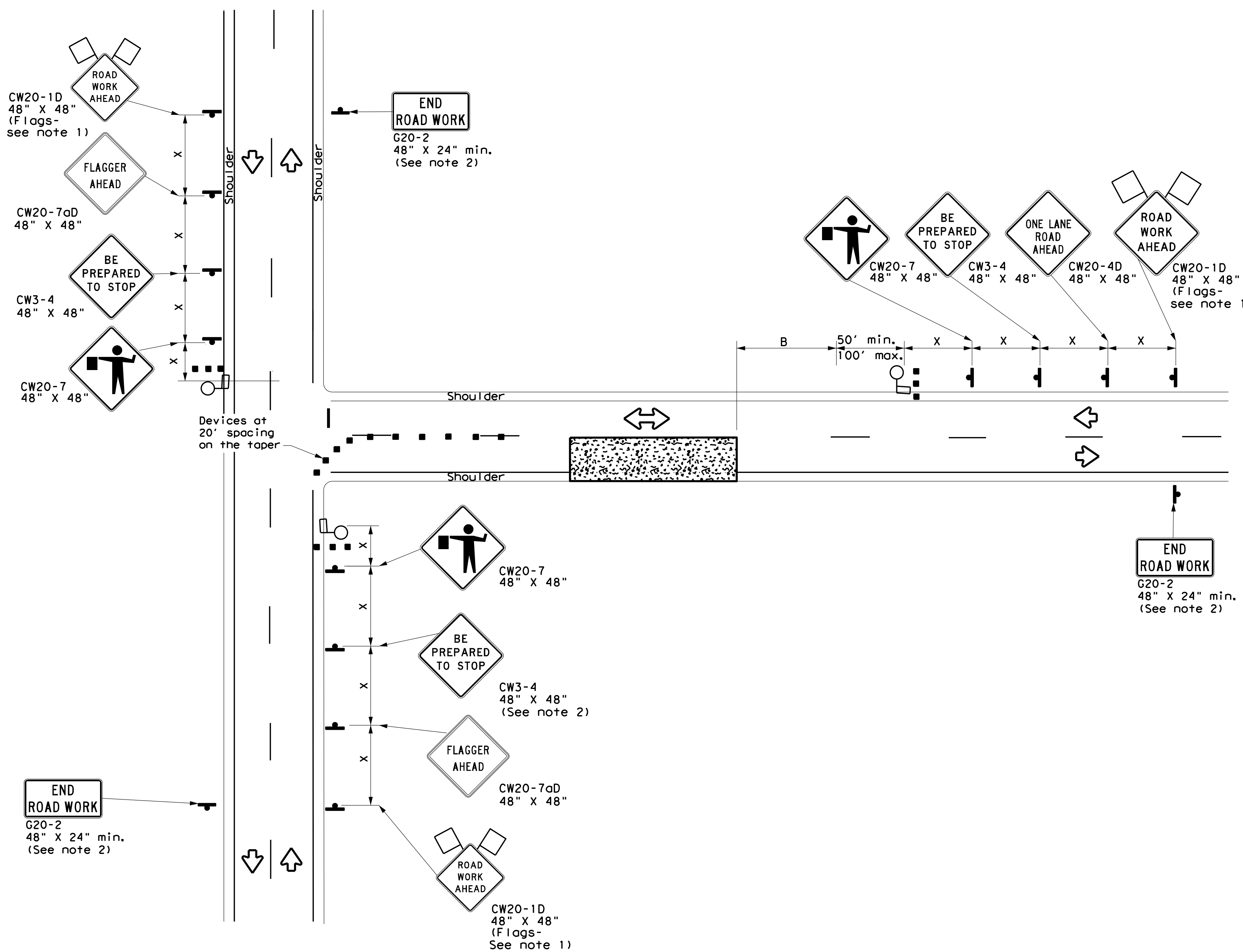
Traffic Safety Division Standard

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

TCP (SC-3)-22

FILE: tcpsc-3-22.dgn	DN:	CK:	DW:	CK:
© TxDOT October 2022	CONT 0009	SECT 18	JOB 021, ETC.	HIGHWAY BU 67, ETC.
REVISIONS 4-21 10-22	DIST PAR		COUNTY HOPKINS, ETC.	SHEET NO. 56

219



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

FILE: tcpsc-4-22.dgn	DN:	CK:	DW:	CK:
©TxDOT October 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	0009	18	021,ETC.	BU 67, ETC.
4-21	DIST	COUNTY		SHEET NO.
10-22	PAR	HOPKINS,ETC.		57

220

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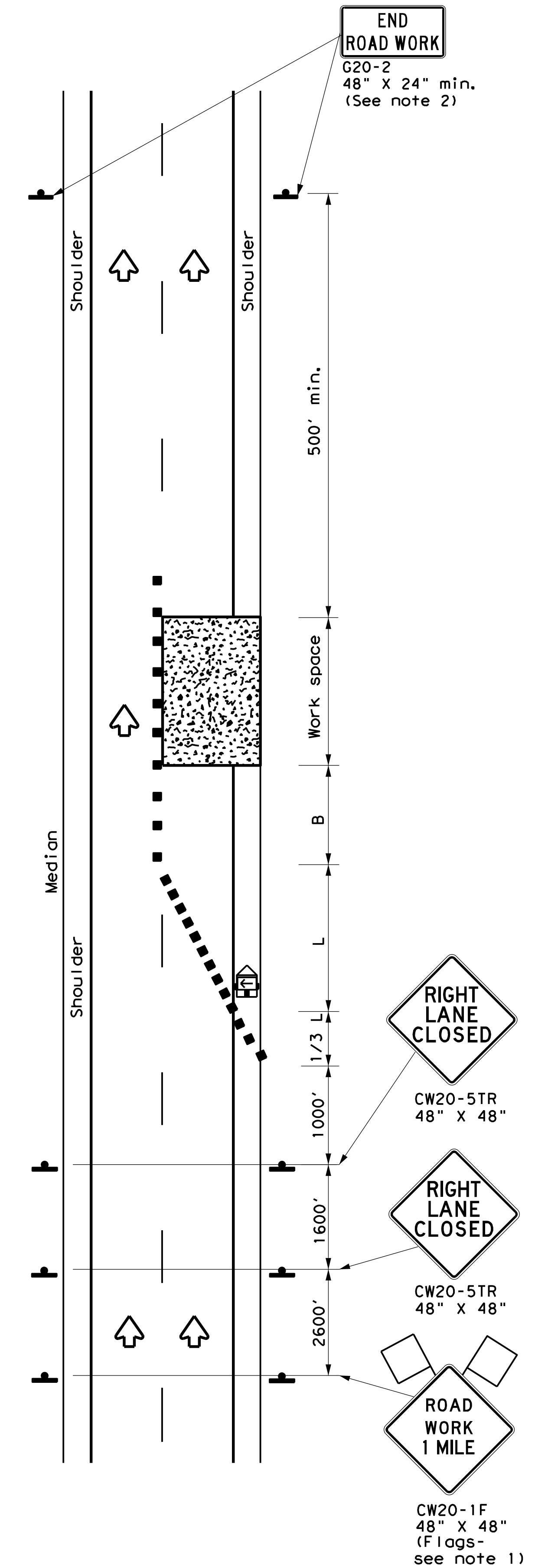
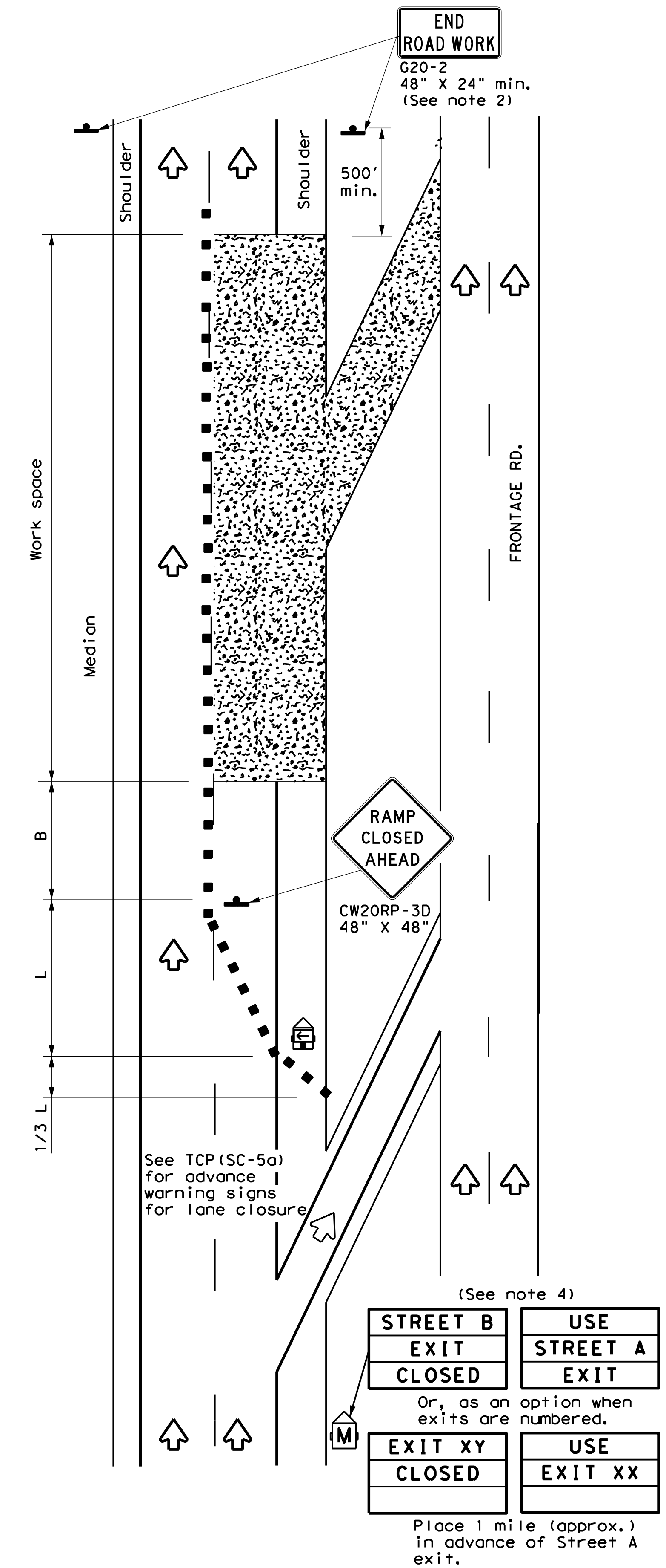


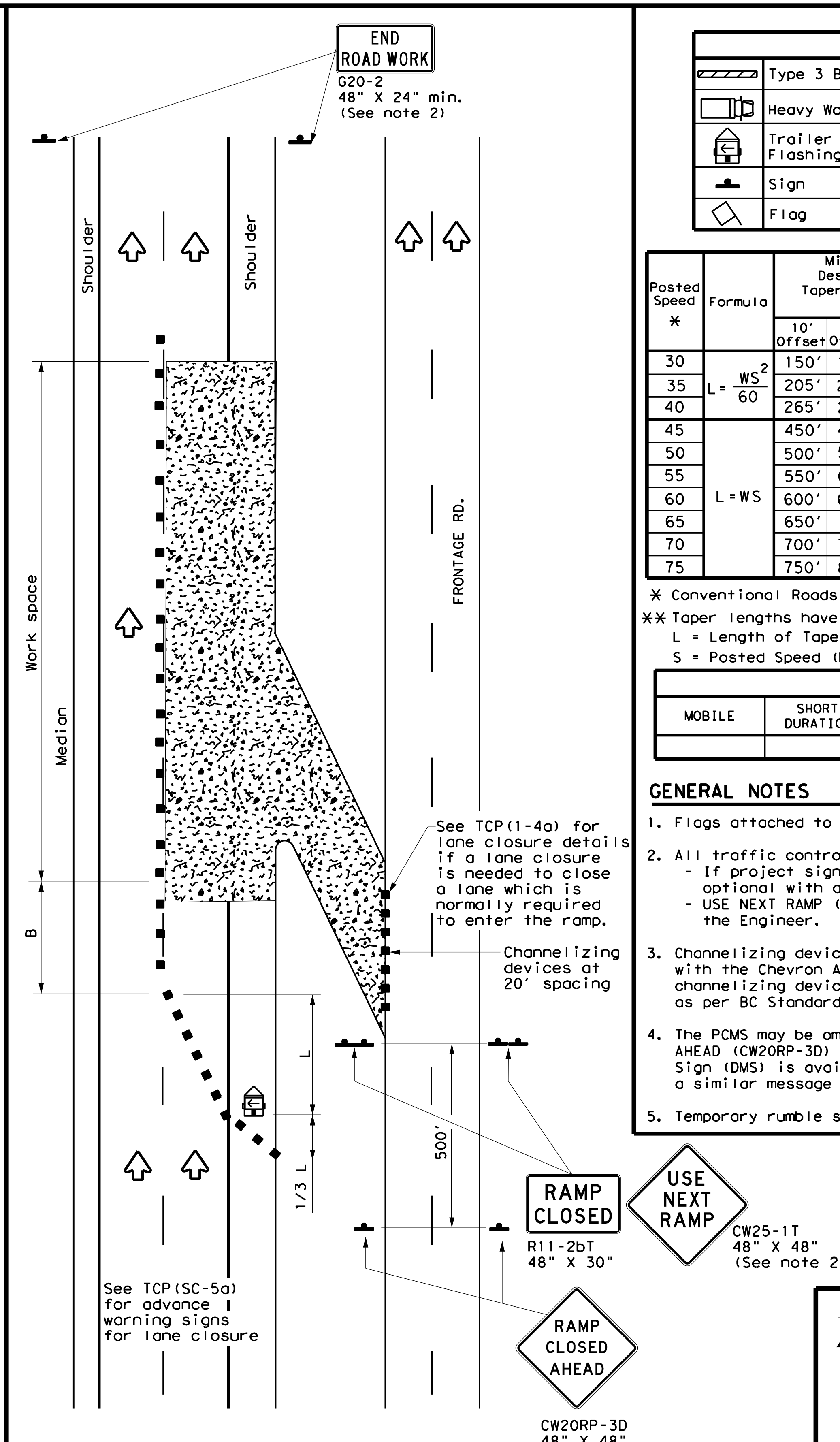
TCP (SC-5a)

ONE LANE CLOSURE



TCP (SC-5b)

LANE AND RAMP CLOSURE AT EXIT RAMPS



TCP (SC-5c)

LANE AND RAMP CLOSURE AT ENTRANCE RAMPS

LEGEND

	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.
   - 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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© TxDOT October 2022	CONT	SECT	JOB	HIGHWAY
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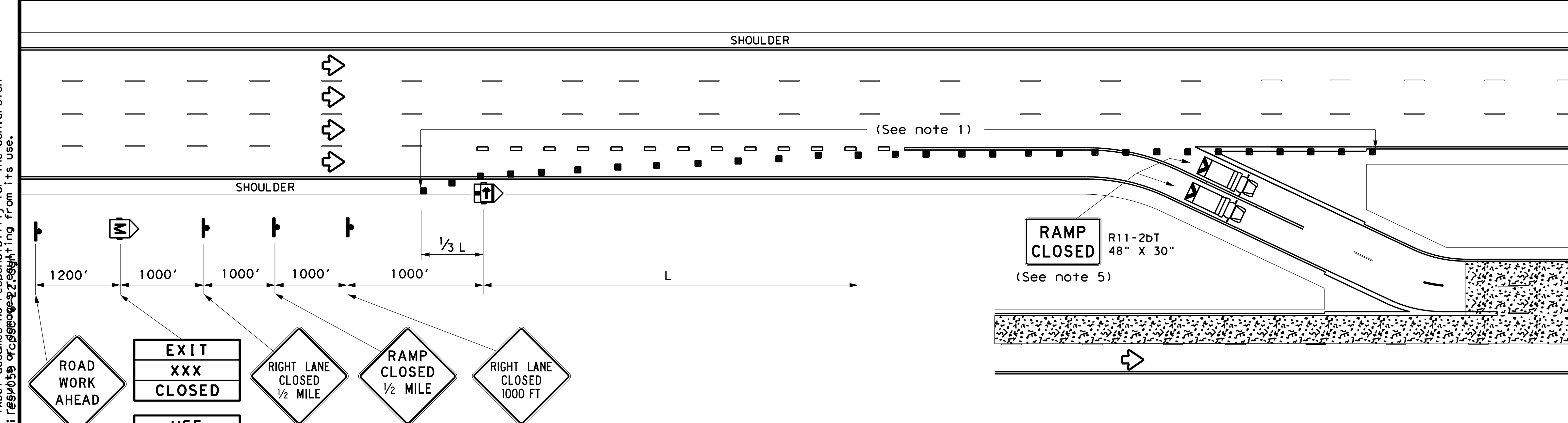
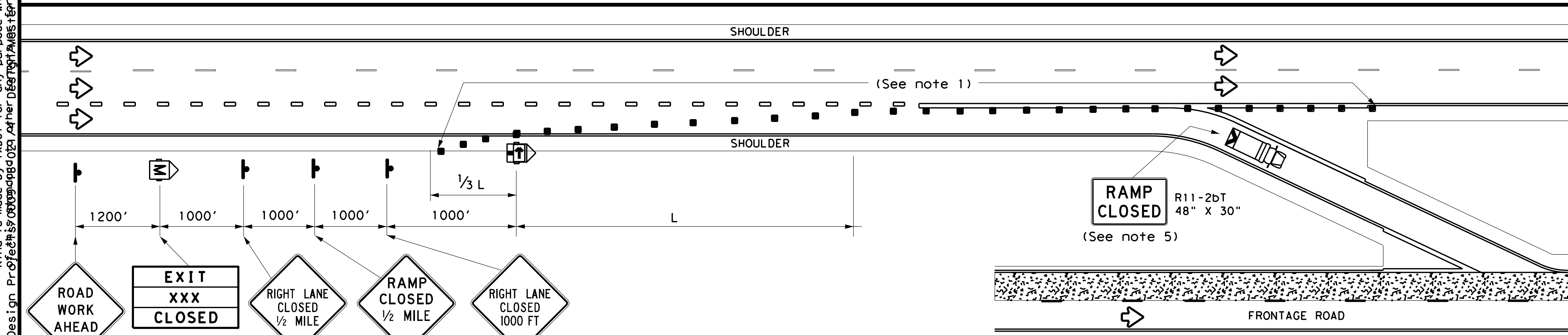
4-21 10-22	DIST		COUNTY	SHEET NO.
	PAR		HOPKINS,ETC.	58

221



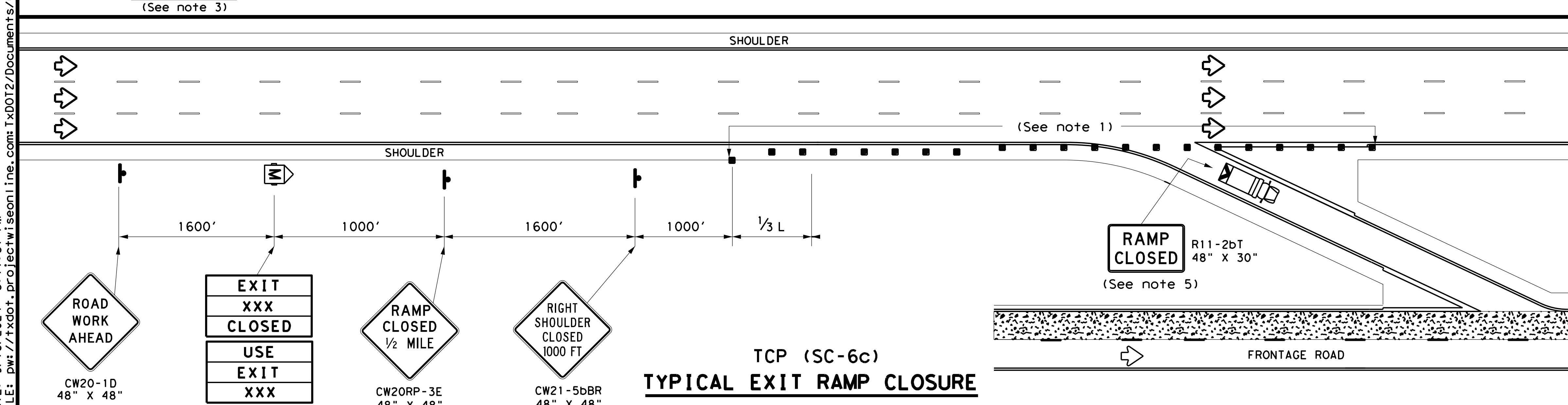
TCP (SC-6a)

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

FILE: tcpsc-6-22.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT October 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS 10-22	0009	18	021, ETC.	BU 67, ETC.
	DIST		COUNTY	SHEET NO.
	PAR		HOPKINS, ETC.	59

222

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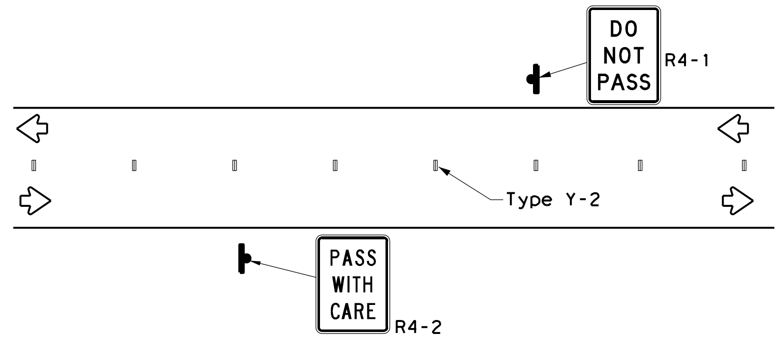
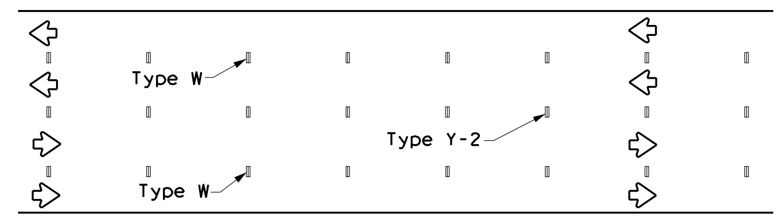
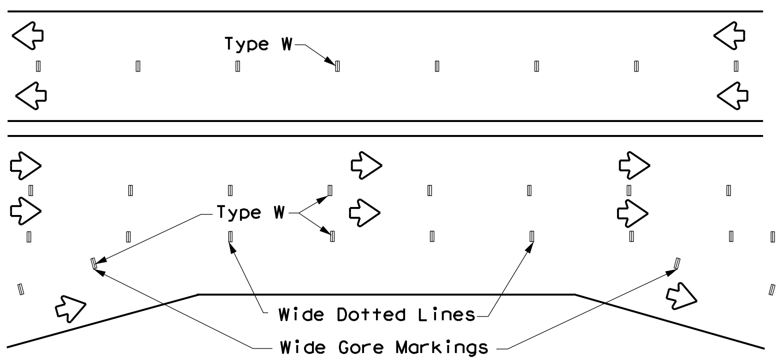
WORK ZONE SHORT TERM PAVEMENT MARKINGS PATTERNS (TABS)



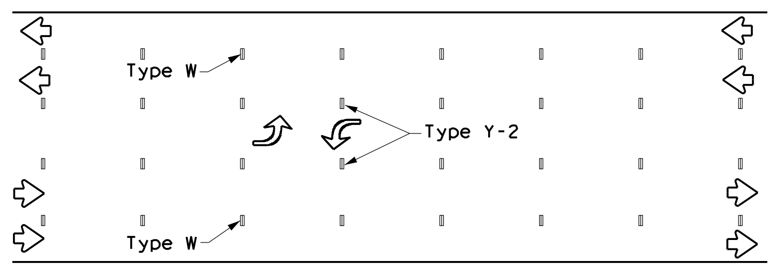
CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO LANE TWO-WAY HIGHWAYS



LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS

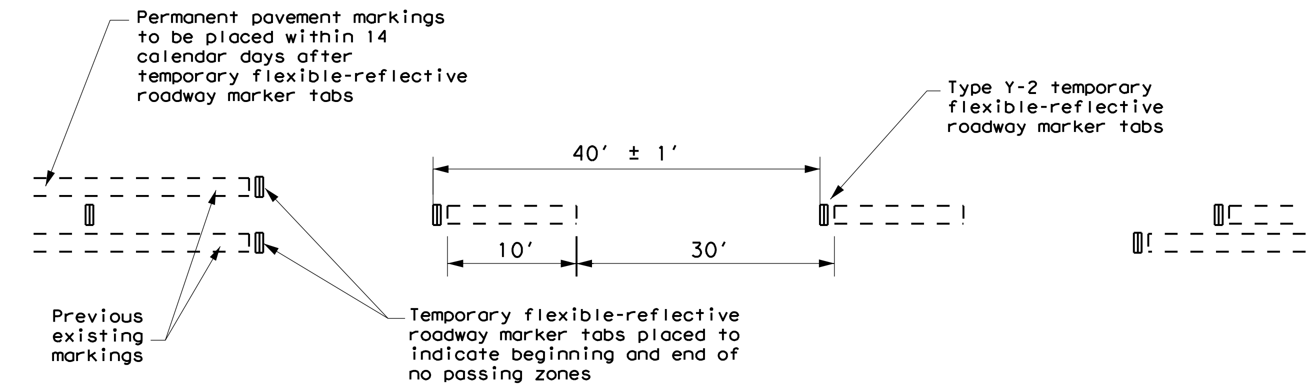


LANE LINES FOR DIVIDED HIGHWAY

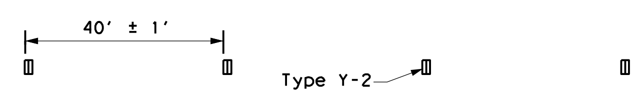


TWO-WAY LEFT TURN LANE

TABS ON CENTERLINES OF TWO-LANE TWO-WAY ROADS



WORK ZONE SHORT TERM PAVEMENT MARKINGS DETAILS (TABS)

SOLID LINES	DOUBLE NO-PASSING LINE	
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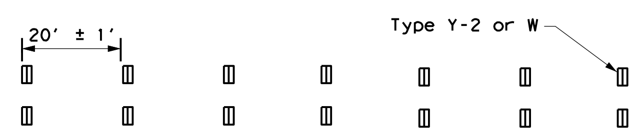
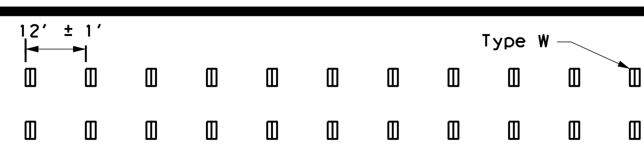
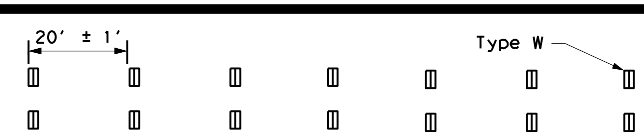
	8" WIDE SOLID LINE	
BROKEN LINES (FOR CENTER LINE OR LANE LINE)		
WIDE DOTTED LINES (FOR LANE DROP LINES)		
WIDE GORE MARKINGS		

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.

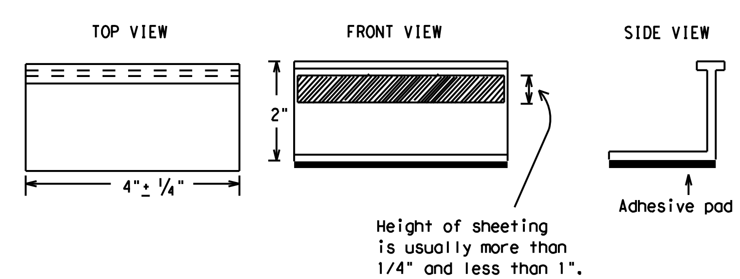
NOTES:

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 1/4 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

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	
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4-21	DIST		COUNTY			SHEET NO.	
10-22	PAR		HOPKINS, ETC.			60	

223

DATE: 9/18/2024
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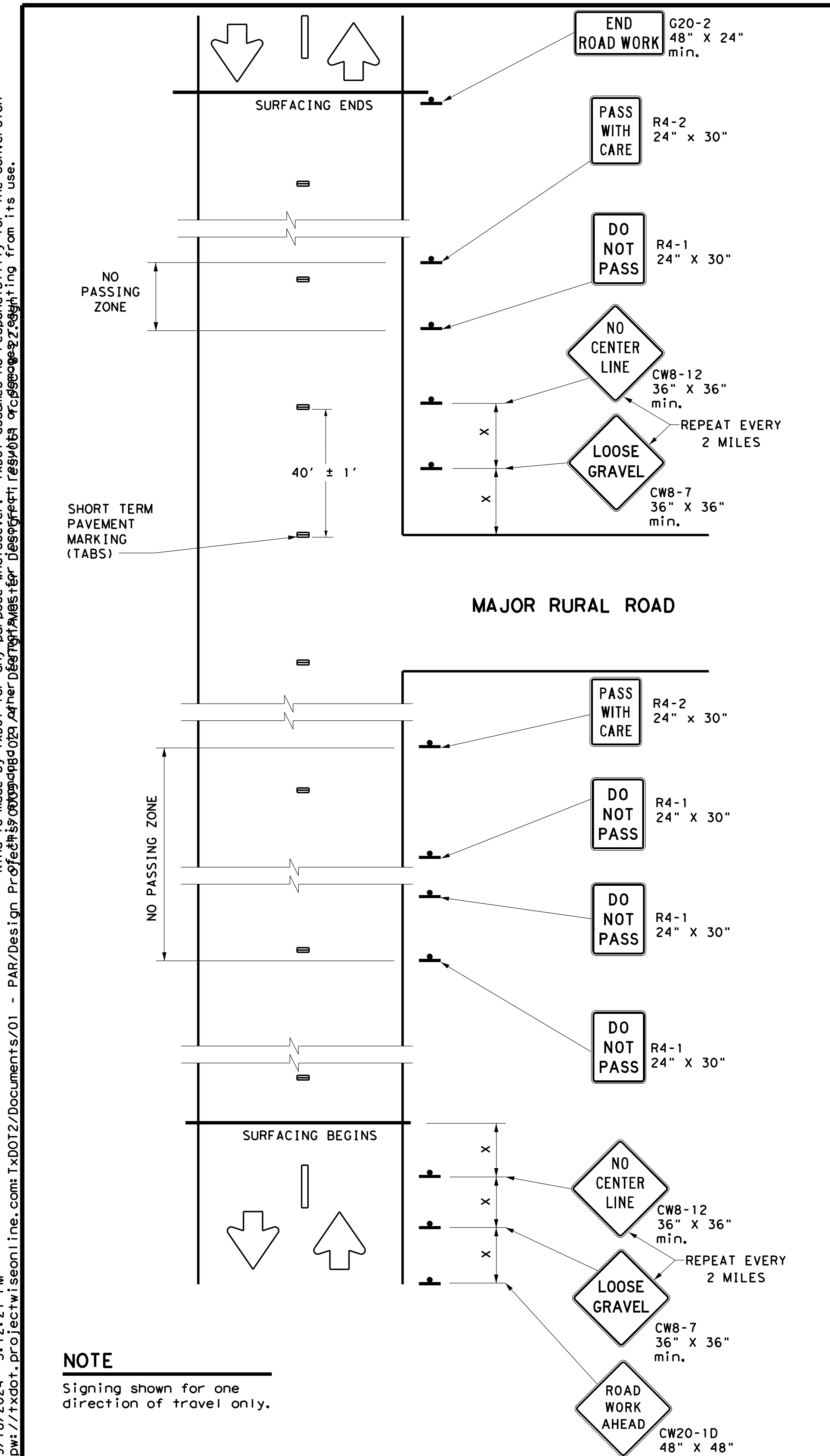

NOTE

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.

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
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4-21 10-22	DIST	COUNTY		SHEET NO.
	PAR	HOPKINS,ETC.		61

224

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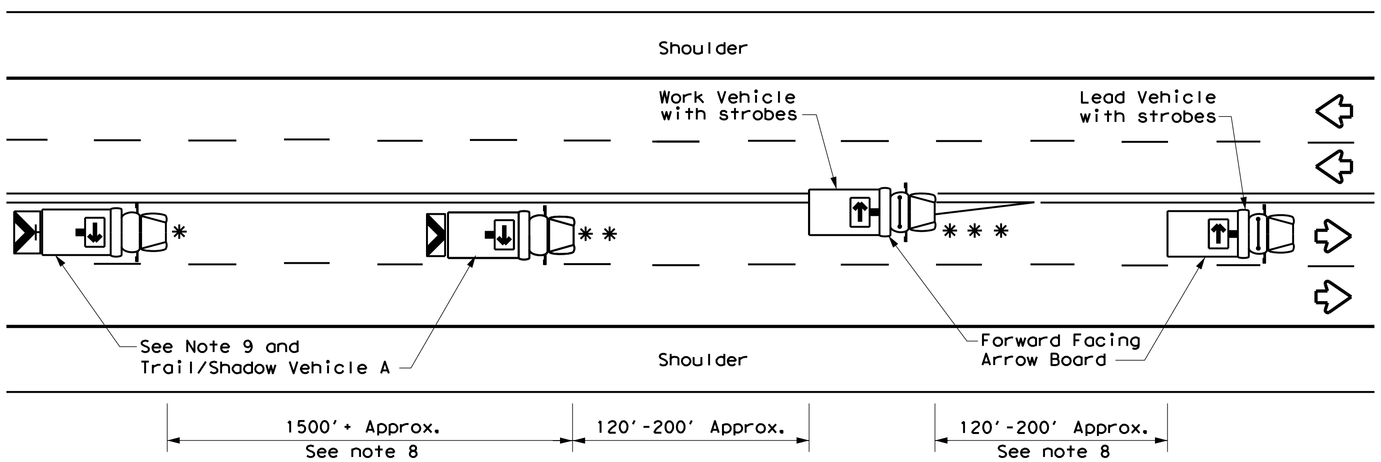
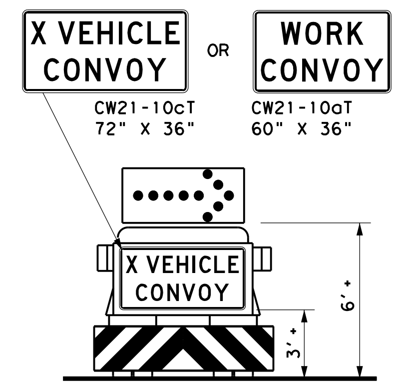


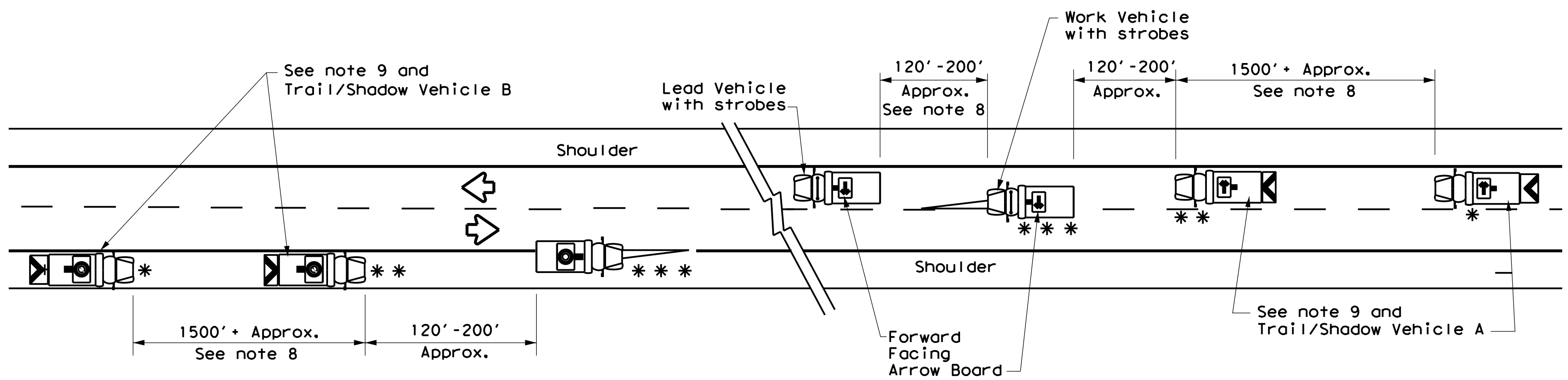
TCP (3-1a)

UNDIVIDED MULTILANE ROADWAY



TRAIL/SHADOW VEHICLE A

with RIGHT Directional display Flashing Arrow Board

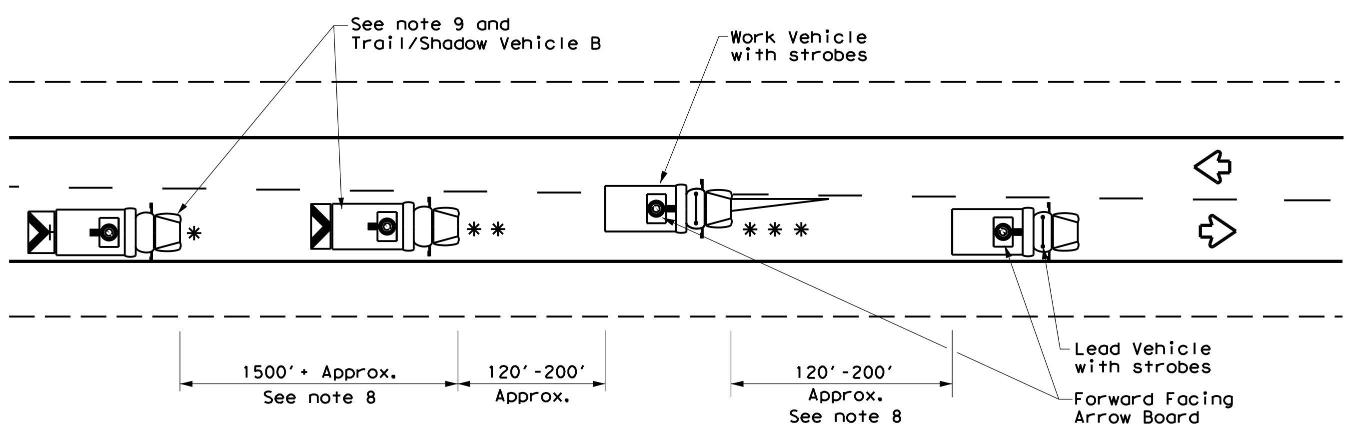


WORK ON SHOULDER

WORK ON TRAVEL LANE

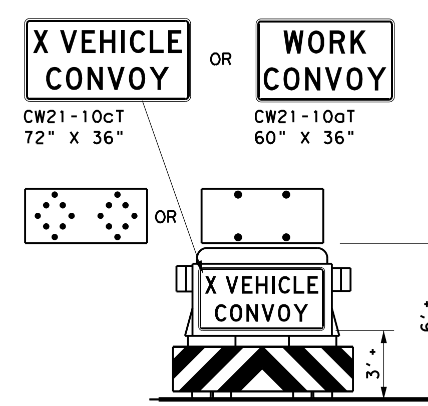
TCP (3-1b)

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

*	Trail Vehicle	ARROW BOARD DISPLAY	
* *	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.

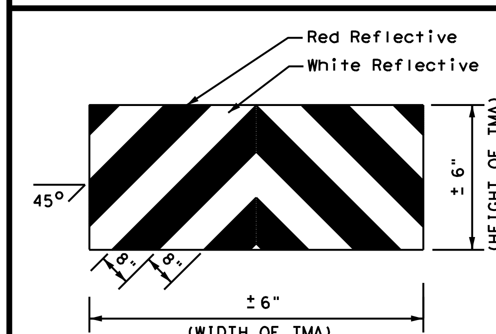
6. Each vehicle shall have two-way radio communication capability.

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	SECT	JOB	HIGHWAY
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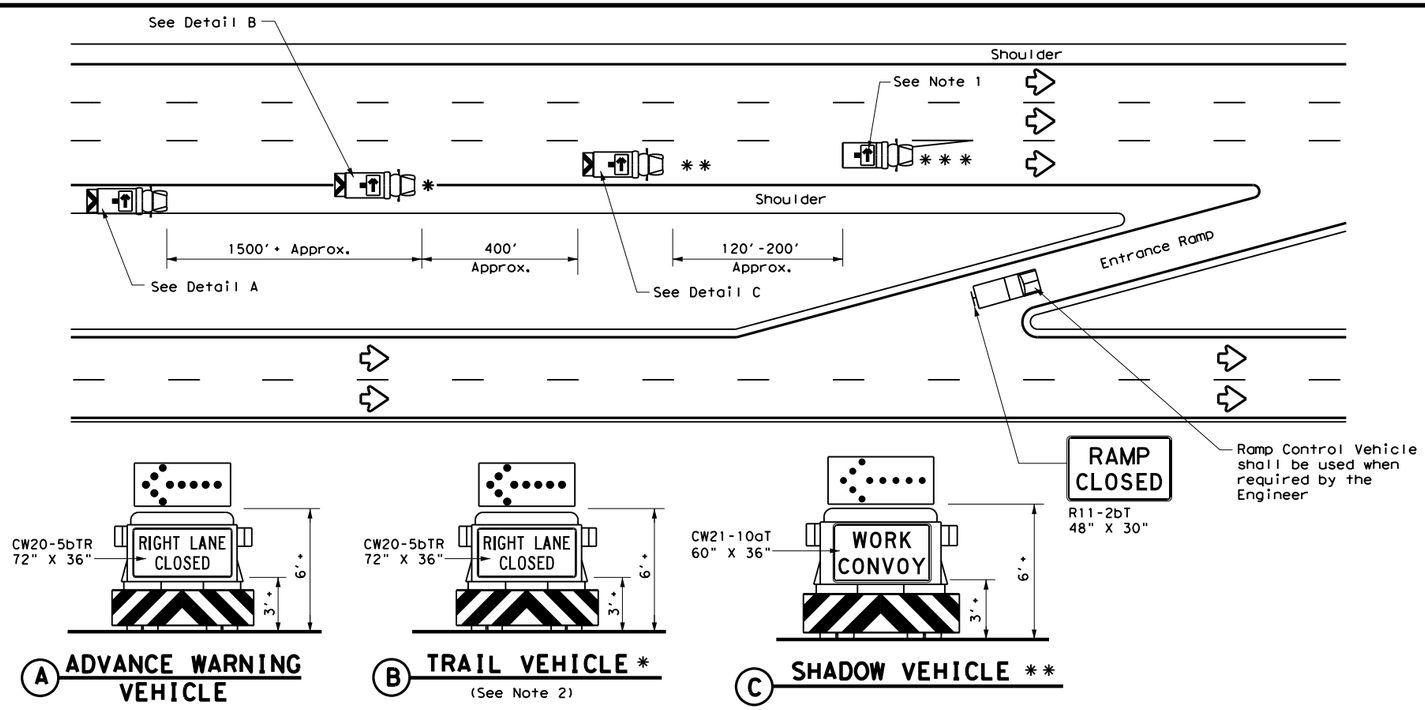
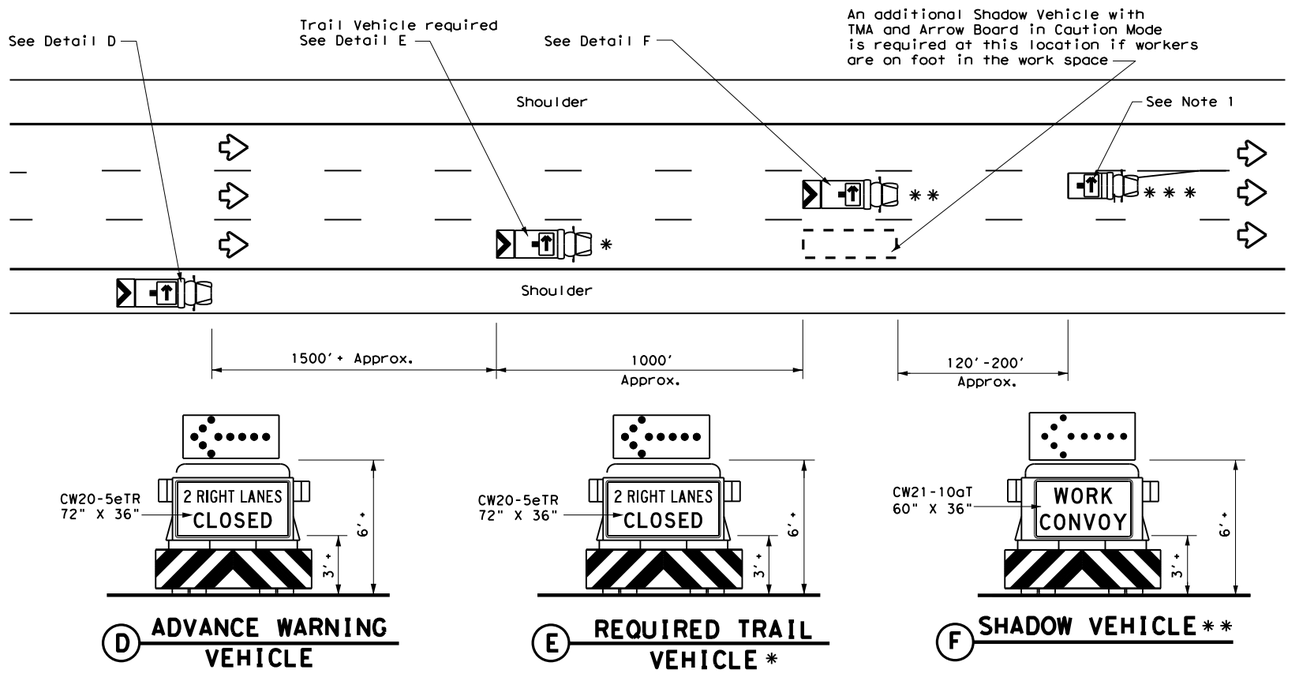


RIGHT LANE CLOSURE ON DIVIDED HIGHWAY - TCP(3-2a)



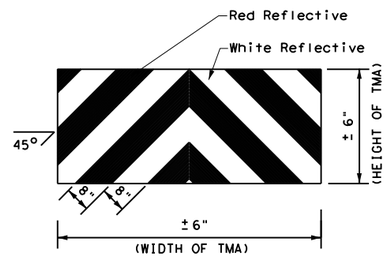
INTERIOR LANE CLOSURE ON MULTI-LANE DIVIDED HIGHWAY - TCP(3-2b)

LEGEND			
*	Trail Vehicle	ARROW BOARD DISPLAY	
**	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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©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
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176

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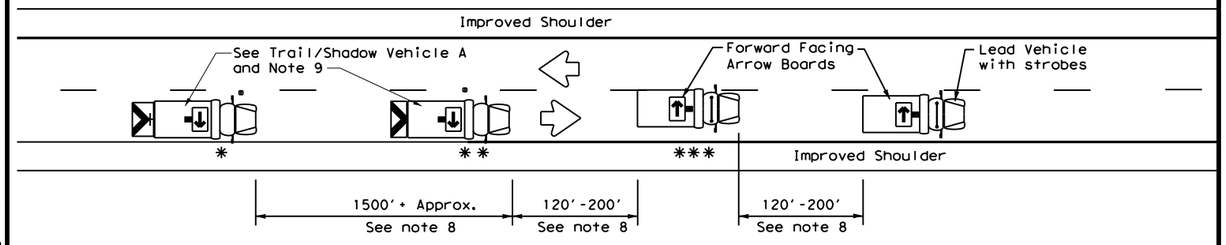
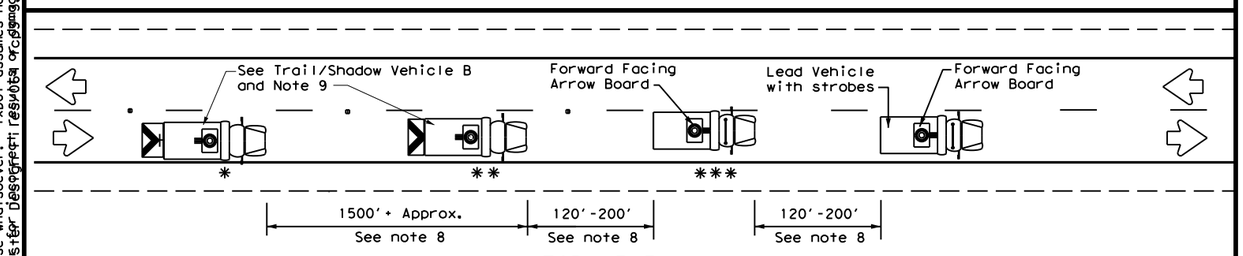


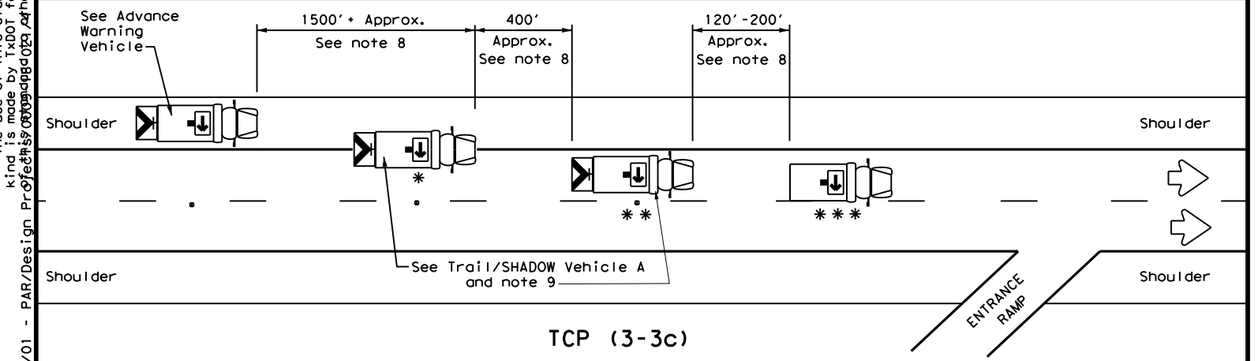
TCP (3-3a)

TWO LANE HIGHWAY WITH PAVED SHOULDERS (WORK ON TRAVEL LANE)



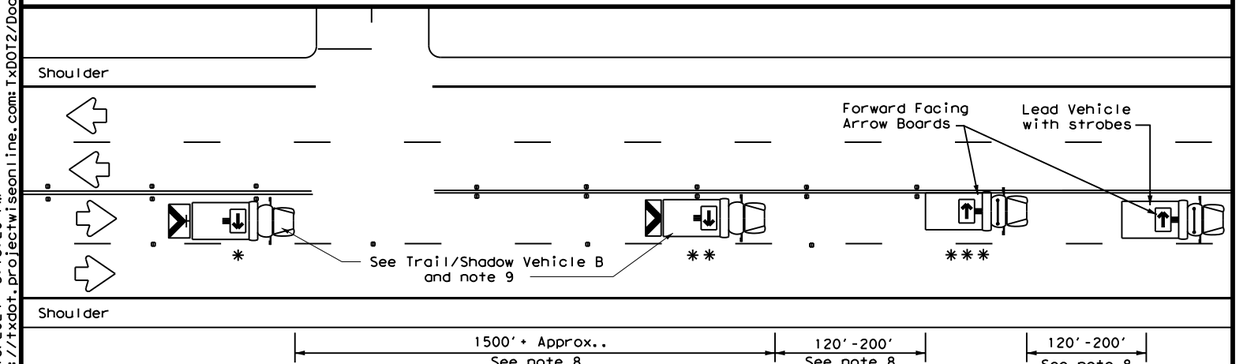
TCP (3-3b)

TWO LANE HIGHWAY WITHOUT PAVED SHOULDERS (WORK ON TRAVEL LANE)



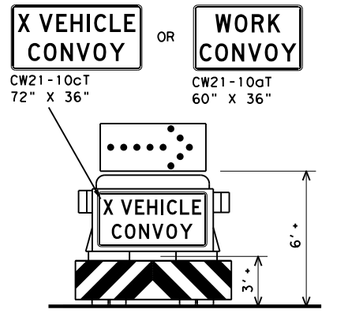
TCP (3-3c)

DIVIDED MULTILANE HIGHWAY



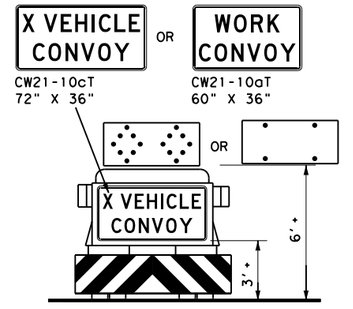
TCP (3-3d)

UNDIVIDED MULTILANE HIGHWAY



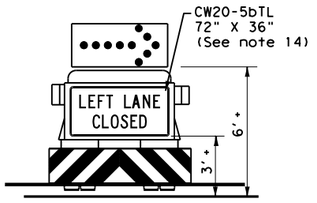
TRAIL/SHADOW VEHICLE A

with RIGHT Directional display
Flashing Arrow Board

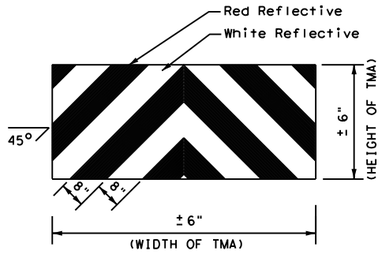


TRAIL/SHADOW VEHICLE B

with Flashing Arrow Board
in Caution Mode



ADVANCE WARNING VEHICLE



STRIPING FOR TMA

LEGEND			
*	Trail Vehicle	ARROW BOARD DISPLAY	
**	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 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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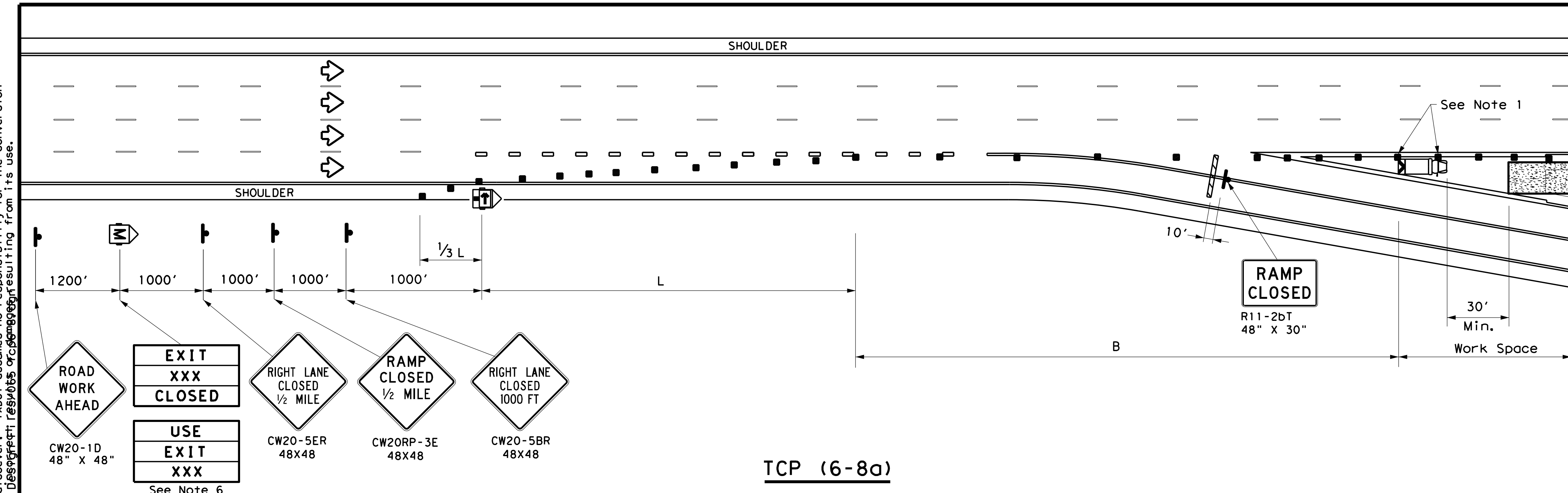
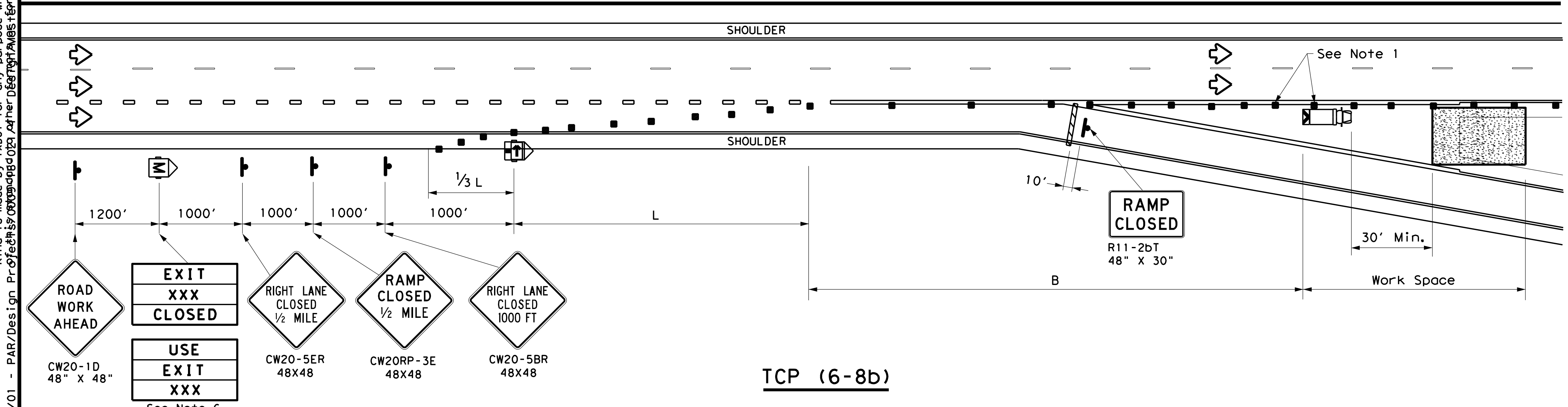
8-95 7-13	PAR	HOPKINS,ETC.		64
1-97 7-14				



TCP (6-8a)



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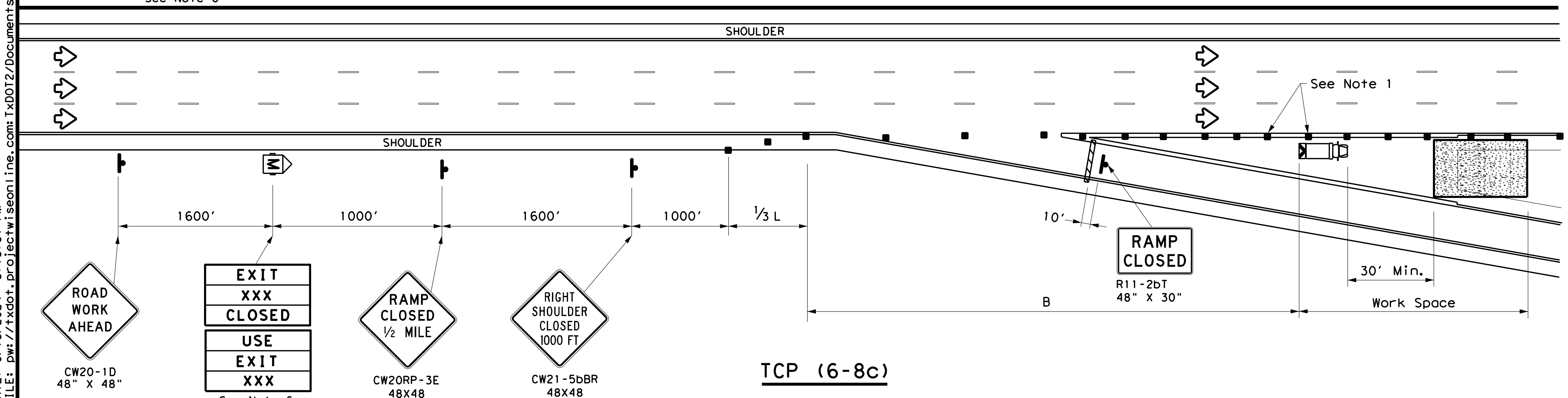

TCP (6-8c)

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'

** 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 in the gore at 20' spacing.
2. See the Standard Highway Sign Design for Texas (SHSD) for sign details.
3. The PCMS may be omitted when a permanent DMS sign 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. Truck mounted attenuator is required.
6. The PCMS may be omitted if replaced with a "RAMP CLOSED" AHEAD (CW20RP-3D) Sign.
7. Roadway ADT should be greater than 10,000.

Texas Department of Transportation

Traffic Operations Division Standard

WORK IN EXIT GORE FOR ADT GREATER THAN 10,000

TCP(6-8)-14

FILE: tcp6-8.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT February 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS	0009	18	021,ETC.	BU 67, ETC.
	DIST		COUNTY	SHEET NO.
	PAR		HOPKINS,ETC.	65

208

DATE: 9/18/2024 5:13:37 PM
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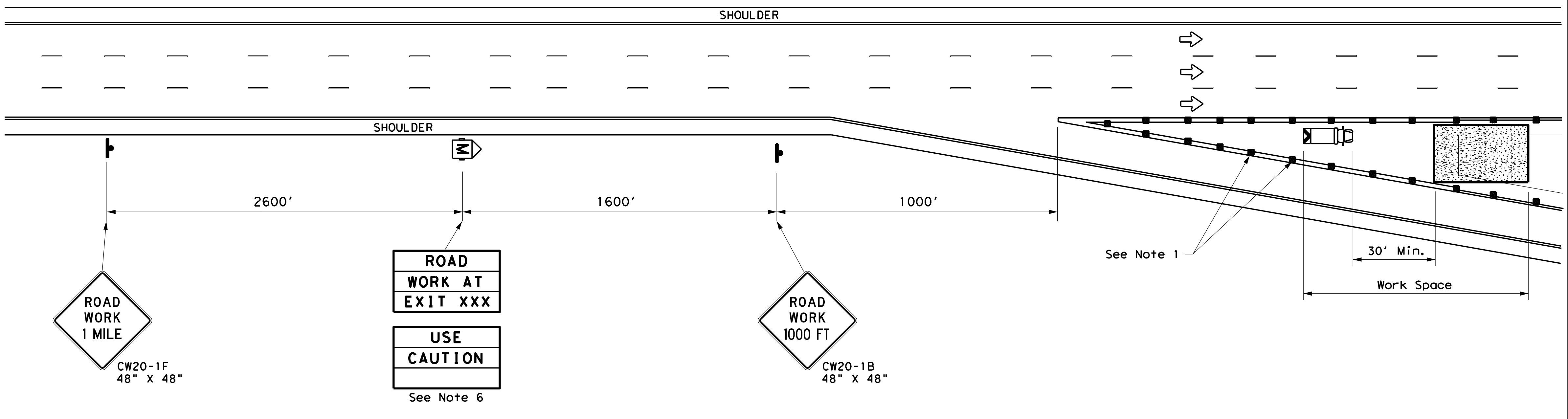
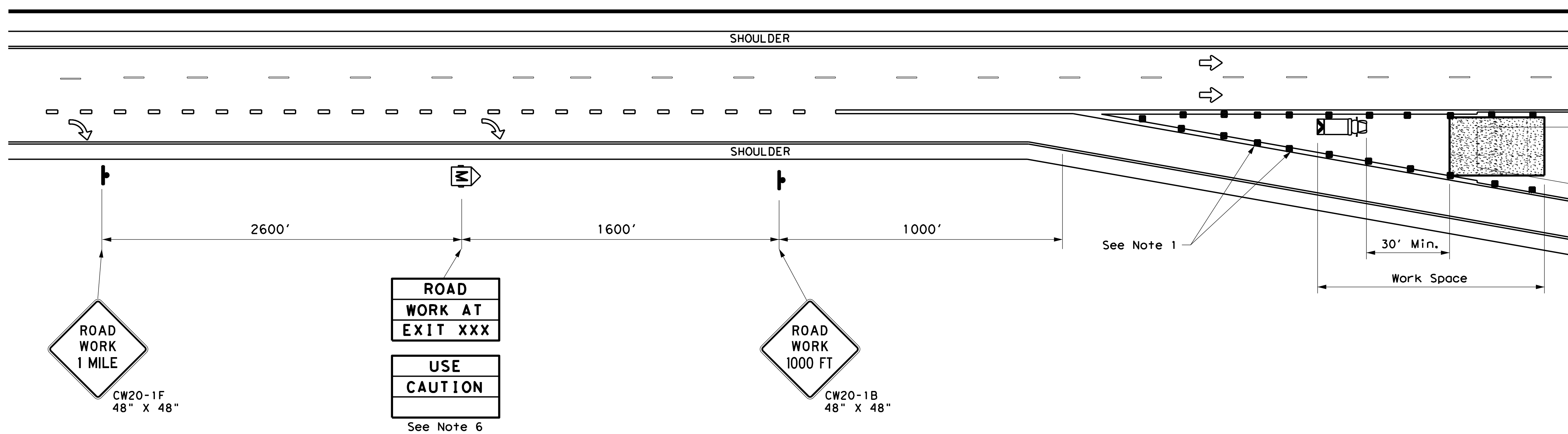


TCP (6-9a)



TCP (6-9b)

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'

** 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 in the gore at 20' spacing.
2. See the Standard Highway Sign Design for Texas (SHSD) for sign details.
3. The PCMS may be omitted when a permanent DMS sign 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) and TCP(6-8)for traffic control details.
5. Truck mounted attenuators are required.
6. The PCMS may be omitted if replaced with a "ROAD WORK ½ MILE" (CW20-1E).
7. Roadway ADT should be less than 10,000.

Texas Department of Transportation

Traffic Operations Division Standard

WORK IN EXIT GORE FOR ADT LESS THAN 10,000

TCP(6-9)-14

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© TxDOT February 2014	CONT	SECT	JOB	HIGHWAY
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	PAR		HOPKINS,ETC.	66

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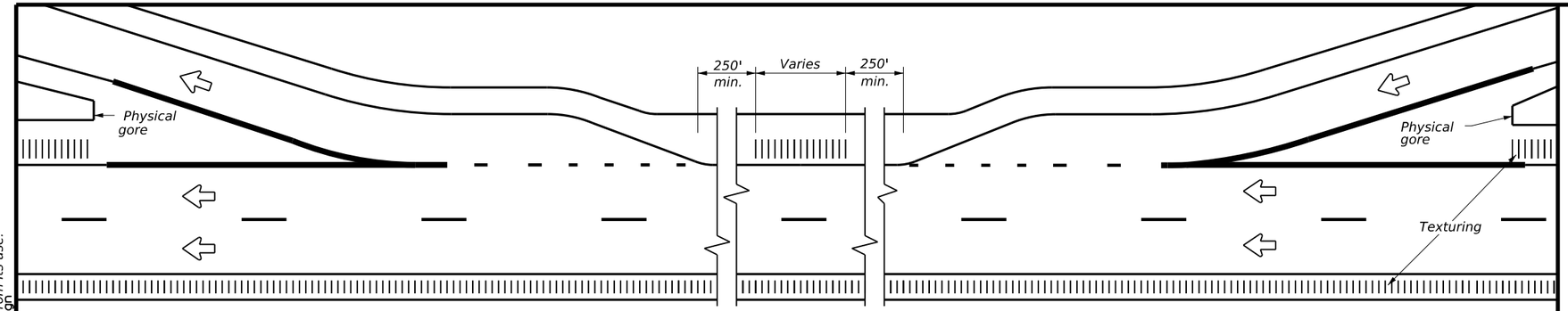
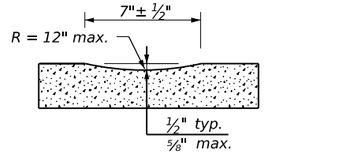
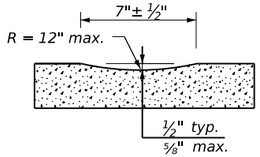


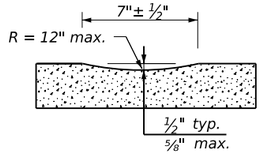
TYPICAL RUMBLE STRIP PLACEMENT AT EXIT AND ENTRANCE RAMPS



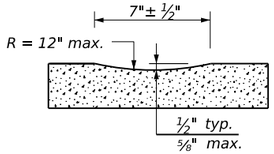
PROFILE VIEW
OPTION 1



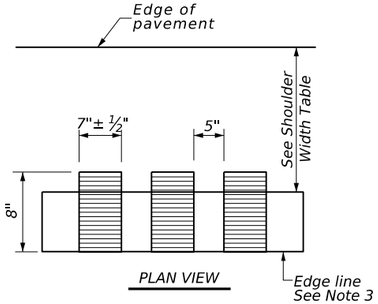
PROFILE VIEW
OPTION 2



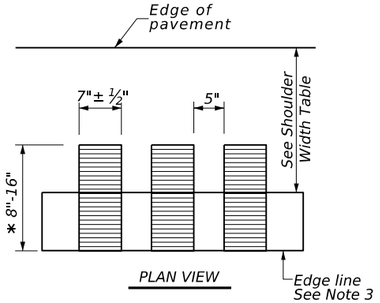
PROFILE VIEW
OPTION 3



PROFILE VIEW
OPTION 4

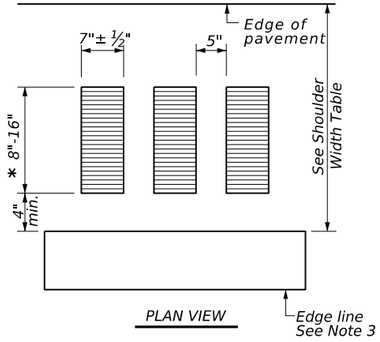


CONTINUOUS MILLED DEPRESSIONS
(Rumble Strips)



* This distance may vary based on width of shoulder

CONTINUOUS MILLED DEPRESSIONS
(Rumble Strips)



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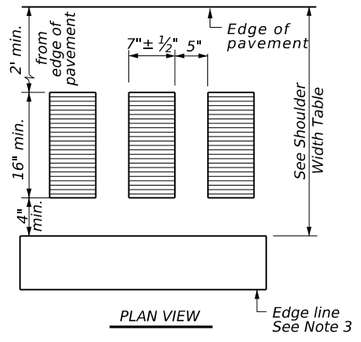
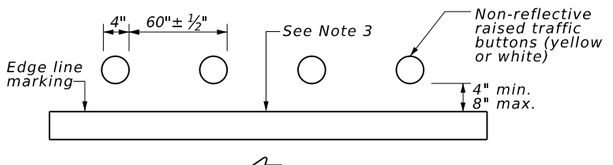
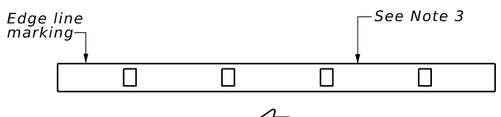


CONTINUOUS MILLED DEPRESSIONS
(Rumble Strips)



PLAN VIEW
OPTION 5

RAISED EDGE LINE
(Rumble Strips)



PLAN VIEW
OPTION 6

PROFILE EDGE LINE MARKINGS
(Rumble Strips)

SHOULDER WIDTH TABLE

EQUAL TO OR LESS THAN 2 FEET	GREATER THAN 2 FEET LESS THAN 4 FEET	EQUAL TO OR GREATER THAN 4 FEET
Option 1, 5, or 6	Option 1, 2, 3, 5, or 6	Option 2, 4, 5, or 6

GENERAL NOTES

1. Rumble strips and profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.
2. Milled rumble strips are preferred when adequate pavement depth is available. If pavement thickness is less than 2 inches, milled rumble strips shall not be used. Rumble strips shall not be milled or depressed into bridge decks.
3. Use standard sheets PM(2) and FPM(1) for positioning, dimensioning, and spacing of all reflective raised pavement markers, pavement markings, and profile markings.
4. See the Shoulder Width Table below for determining what options may be used for edge line rumble strips.
5. Breaks in edge line rumble strips shall occur at least 50 feet and no more than 150 feet in advance of bridges, railroad crossings, intersections, or driveways with high usage of large trucks when installed on conventional highways.
6. Rumble strips shall not be placed across exit or entrance ramps, acceleration or deceleration lanes, crossovers, gore areas, or intersections with other roadways.
7. Consideration should be given to noise levels when edge line rumble strips are to be installed near residential areas, schools, churches, etc. A 3/8 inch deep (minimum) milled rumble strip may be considered in these areas.
8. Consideration shall be given to bicyclists. See RS(6).

WHEN INSTALLING MILLED DEPRESSION EDGE LINE RUMBLE STRIPS:

9. See dimensions for milled rumble strips. Other shapes and dimensions may be used if approved by the Traffic Safety Division.
10. Pavement markings can be applied over milled shoulder rumble strips to create an edge line rumble stripe.

WHEN INSTALLING RAISED OR PROFILE EDGE LINE RUMBLE STRIPS:

11. Raised rumble strips consisting of non-reflective raised traffic buttons may be used. Non-reflective raised traffic buttons can be affixed to asphalt or concrete with bitumen or adhesives, as per the manufacturer's recommendations.
12. Non-reflective traffic buttons shall be placed adjacent to the pavement marking delineating the edge line when used as a rumble strip. The color of the button should match the color of the adjacent edge line marking (white or yellow). The buttons will be paid for under Item 672, "Raised Pavement Markers." Non-reflective traffic buttons must meet the requirements of DMS-4300.
13. Non-reflective traffic buttons shall not be placed across exit or entrance ramps, acceleration and deceleration lanes, crossovers, gore areas or intersections with other roadways.
14. The minimum distance between the edge line and the buttons should be used if the shoulder is less than 8 feet in width.
15. Raised profile thermoplastic markings used as edge lines may substitute for buttons.

Texas Department of Transportation

Traffic Safety Division Standard

EDGE LINE RUMBLE STRIPS ON FREEWAYS AND DIVIDED HIGHWAYS RS(1)-23

FILE: rs(1)-23.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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2-10	PAR	HOPKINS,ETC.		67
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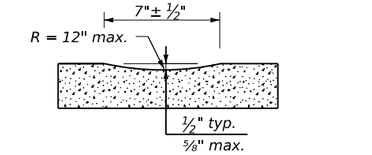
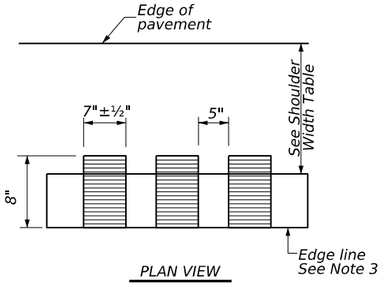
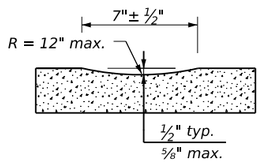


PROFILE VIEW
OPTION 1

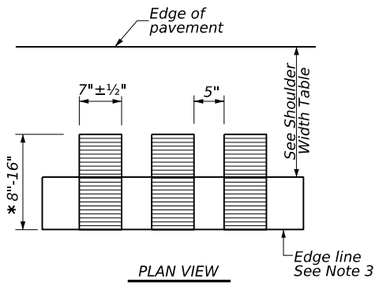


PLAN VIEW

CONTINUOUS MILLED DEPRESSIONS (Rumble Strips)



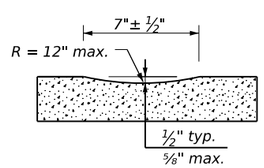
PROFILE VIEW
OPTION 2



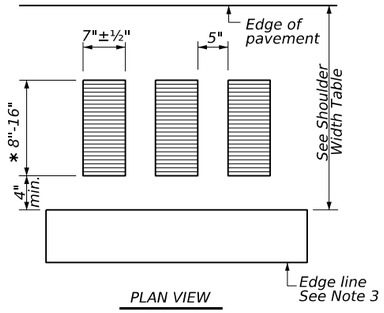
PLAN VIEW

∗ This distance may vary based on width of shoulder

CONTINUOUS MILLED DEPRESSIONS (Rumble Strips)



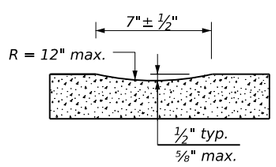
PROFILE VIEW
OPTION 3



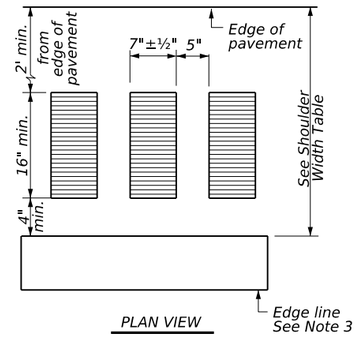
PLAN VIEW

∗ This distance may vary based on width of shoulder

CONTINUOUS MILLED DEPRESSIONS (Rumble Strips)

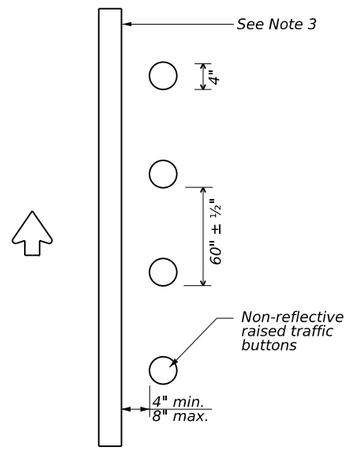


PROFILE VIEW
OPTION 4



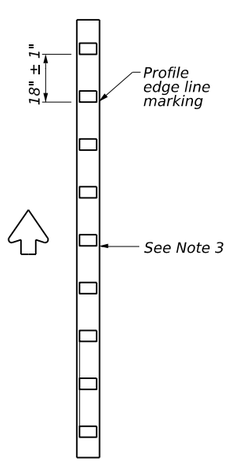
PLAN VIEW

CONTINUOUS MILLED DEPRESSIONS (Rumble Strips)



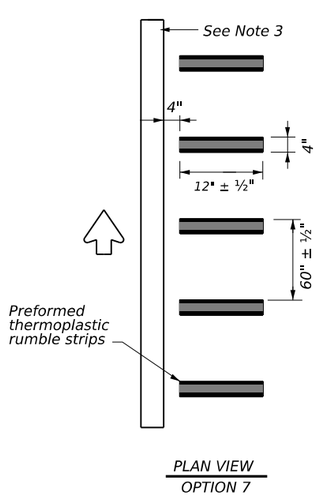
PLAN VIEW
OPTION 5

RAISED EDGE LINE (Rumble Strips)



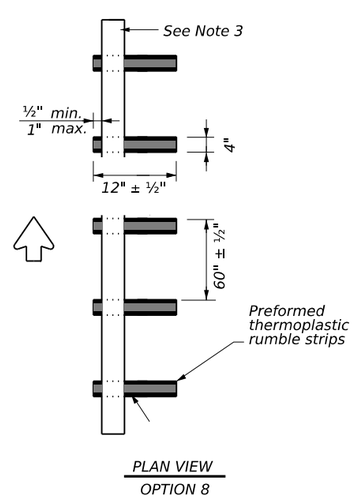
PLAN VIEW
OPTION 6

PROFILE EDGE LINE MARKINGS (Rumble Strips)



PLAN VIEW
OPTION 7

PREFORMED THERMOPLASTIC EDGE LINE (Rumble Strips)



PLAN VIEW
OPTION 8

PREFORMED THERMOPLASTIC EDGE LINE (Rumble Strips)

SHOULDER WIDTH TABLE		
EQUAL TO OR LESS THAN 2 FEET	GREATER THAN 2 FEET LESS THAN 4 FEET	EQUAL TO OR GREATER THAN 4 FEET
Option 1, 5, 6 or 8	Option 1, 2, 3 5, 6 or 7	Option 2, 4, 5 6 or 7

GENERAL NOTES

1. Rumble strips and profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.
2. Milled rumble strips are preferred when adequate pavement depth is available. If pavement thickness is less than 2 inches, milled rumble strips shall not be used. Rumble strips shall not be milled or depressed into bridge decks.
3. Use Standard Sheet PM(2) and FPM(1) for positioning, dimensioning, and spacing of all reflective raised pavement markers, pavement markings, and profile markings.
4. See the Shoulder Width Table below for determining what options may be used for edge line rumble strips.
5. Breaks in edge line rumble strips shall occur at least 50 feet and no more than 150 feet in advance of bridges, railroad crossings, intersections, or driveways with high usage of large trucks when installed on conventional highways.
6. Rumble strips shall not be placed across exit or entrance ramps, acceleration or deceleration lanes, crossovers, gore areas, or intersections with other roadways.
7. Consideration should be given to noise levels when edgeline rumble strips are to be installed near residential areas, schools, churches, etc. A 3/8 inch deep (minimum) milled rumble strip may be considered in these areas.
8. Consideration shall be given to bicyclists. See RS(6).

WHEN INSTALLING MILLED DEPRESSION EDGE LINE RUMBLE STRIPS:

9. See dimensions for milled rumble strips. Other shapes and dimensions may be used if approved by the Traffic Safety Division.
10. Pavement markings can be applied over milled shoulder rumble strips to create an edge line rumble strip.

WHEN INSTALLING RAISED OR PROFILE EDGE LINE RUMBLE STRIPS:

11. Raised rumble strips consisting of non-reflective raised traffic buttons may be used. Non-reflective raised traffic buttons can be affixed to asphalt or concrete with bitumen or adhesives, as per the manufacturer's recommendations.
12. Non-reflective traffic buttons shall be placed adjacent to the pavement marking delineating the edge line when used as a rumble strip. The color of the button should match the color of the adjacent edge line marking (white or yellow). The buttons will be paid for under Item 672, "Raised Pavement Markers." Non-reflective traffic buttons must meet the requirements of DMS-4300.
13. Non-reflective traffic buttons shall not be placed across exit or entrance ramps, acceleration and deceleration lanes, crossovers, gore areas or intersections with other roadways.
14. The minimum distance between the edge line and the buttons should be used if the shoulder is less than 8 feet in width.
15. Raised profile thermoplastic markings used as edge lines may substitute for buttons.

Texas Department of Transportation

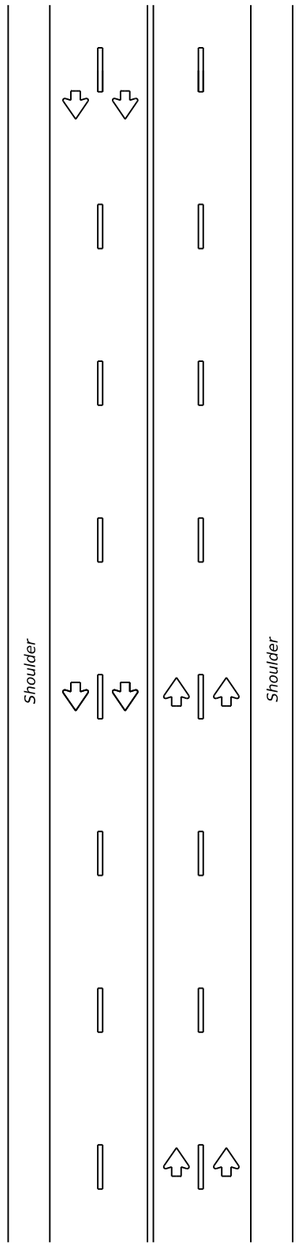
Traffic Safety Division Standard

EDGE LINE RUMBLE STRIPS ON UNDIVIDED OR TWO LANE HIGHWAYS RS(2)-23

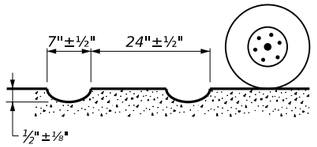
FILE: rs(2)-23.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT January 2023	CONT	SECT	JOB	HIGHWAY
REVISIONS	0009	18	021,ETC.	BU 67, ETC.
10-13 1-23	DIST	COUNTY		SHEET NO.
	PAR	HOPKINS,ETC.		68

DATE: 9/18/2024 5:14:49 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/01 - PAR/Design Projects/0009-18-021/4 - Design/Master Design Files/069 rs(3)-23.dgn

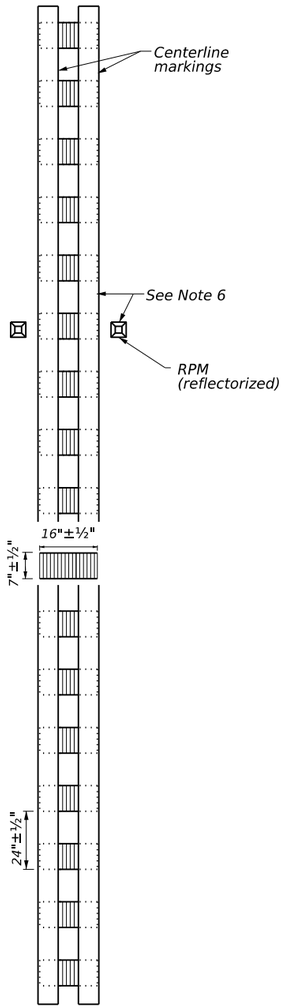
CENTERLINE RUMBLE STRIPS



MULTILANE UNDIVIDED HIGHWAY WITH SHOULDER

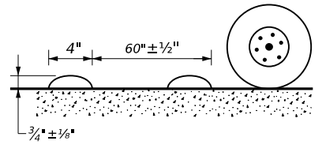


PROFILE VIEW

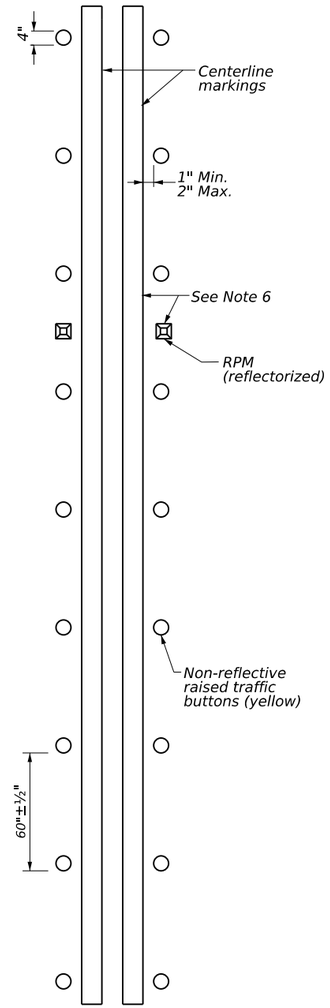


PLAN VIEW
OPTION 1

MILLED CENTERLINE RUMBLE STRIPS

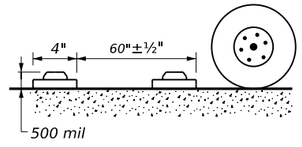


PROFILE VIEW

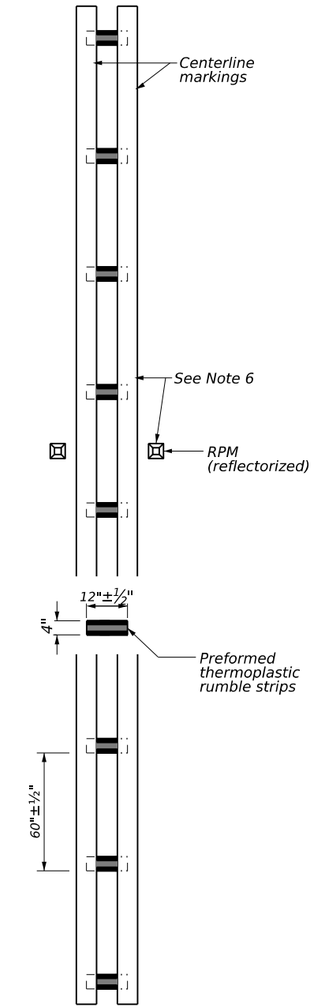


PLAN VIEW
OPTION 2

RAISED CENTERLINE RUMBLE STRIPS

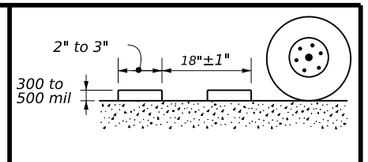


PROFILE VIEW

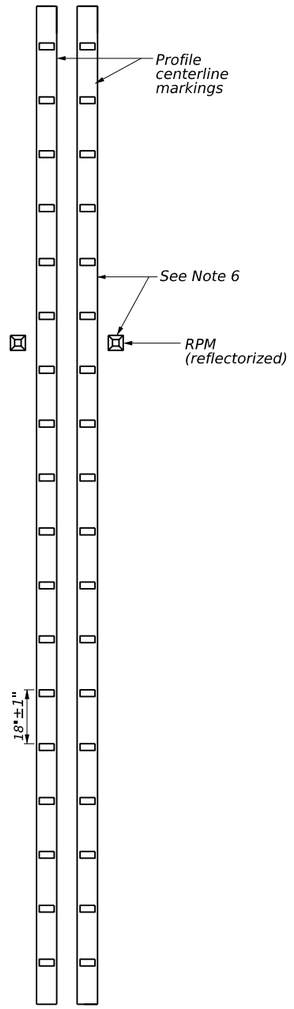


PLAN VIEW
OPTION 3

PREFORMED THERMOPLASTIC RUMBLE STRIPS



PROFILE VIEW



PLAN VIEW
OPTION 4

PROFILE CENTERLINE MARKINGS

GENERAL NOTES

1. This standard sheet provides guidelines for installing centerline rumble strips on multilane undivided highways.
2. Centerline and edge line rumble strips or profile markings shall not be placedon roadways with a posted speed limit of 45 MPH or less.
3. Milled rumble strips are preferred when adequate pavement depth is available. If pavement thickness is less than 2 inches, milled rumble strips shall not be used. Rumble strips shall not be milled or depressed into bridge decks.
4. See dimensions for milled rumble strips. Other shapes and dimensions may beused if approved by the Traffic Safety Division.
5. Breaks in milled centerline rumble strips shall occur at least 50 feet and nomore than 150 feet in advance of bridges, railroad crossing, intersections ordriveways with high usage of large trucks.
6. Use standard sheet PM(2) for positioning, dimensioning, and spacing of all reflective raised pavement markers, pavement markings and profile markings.
7. Consideration should be given to noise levels when centerline rumble strips are to be installed near residential areas, schools, churches, etc. A 3/8 inch deep (minimum) milled rumble strip may be considered in these areas.
8. Pavement markings must be applied over milled centerline rumble strips for normal centerline spacing. For wider medians, specify in the plans the exact placement of the rumble strips. Place the rumble strips under each centerline marking or centered in the middle of the median.

WHEN INSTALLING CENTERLINE RUMBLE STRIPS:

9. Raised rumble strips consisting of non-reflective raised traffic buttons may be used. Non-reflective raised traffic buttons can be affixed to asphalt or concrete with bitumen or adhesives, as per manufacturer's recommendations.
10. When using non-reflective raised traffic buttons as a centerline rumble strip, the button shall be placed adjacent to the pavement marking delineating the centerline. The color of the button should be yellow for a continuous no passing roadway. The button will be paid for under Item 672, "Raised Pavement Markers." Non-reflective traffic buttons must meet the requirements of DMS-4300.
11. Consideration shall be given to bicyclists. See RS(6).

WHEN INSTALLING EDGE LINE RUMBLE STRIPS WITH OR WITHOUT CENTERLINE RUMBLE STRIPS ON UNDIVIDED HIGHWAYS:

12. See standard sheet RS(2).

Texas Department of Transportation

Traffic Safety Division Standard

CENTERLINE RUMBLE STRIPS ON MULTILANE UNDIVIDED HIGHWAYS RS(3)-23

FILE: rs(3)-23.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS	0009	18	021,ETC.	BU 67, ETC.
10-13 1-23	DIST	COUNTY		SHEET NO.
	PAR	HOPKINS,ETC.		69

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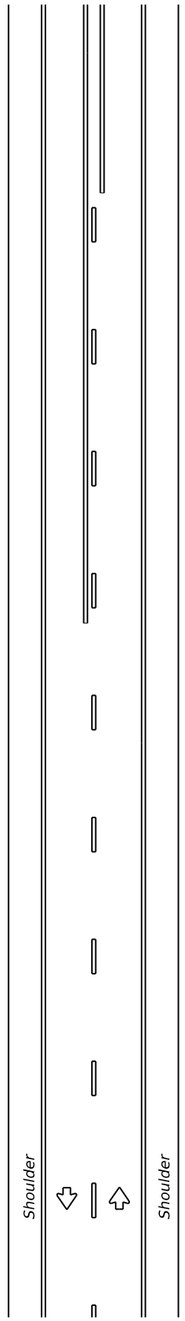
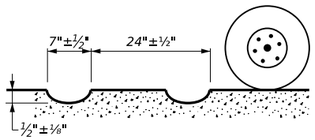
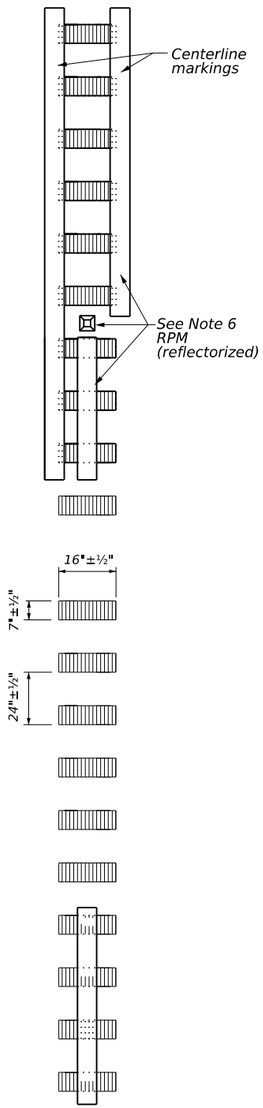
CENTERLINE RUMBLE STRIPS



TWO LANE TWO-WAY HIGHWAYS

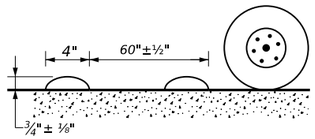


PROFILE VIEW

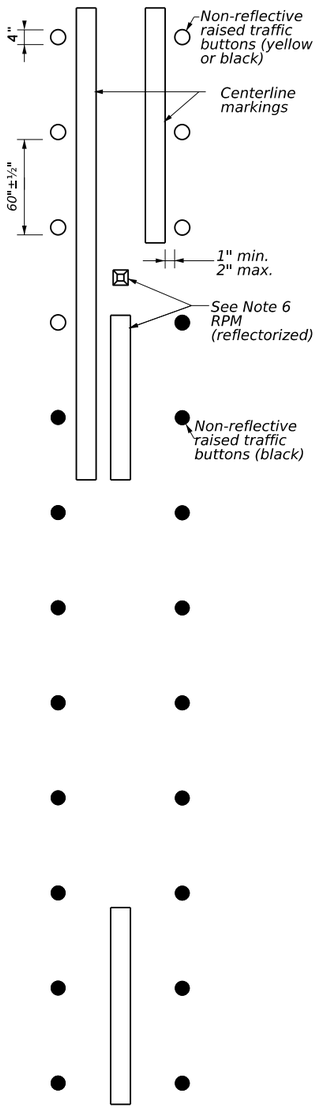


PLAN VIEW
OPTION 1

MILLED CENTERLINE RUMBLE STRIPS

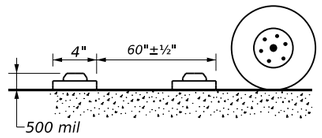


PROFILE VIEW

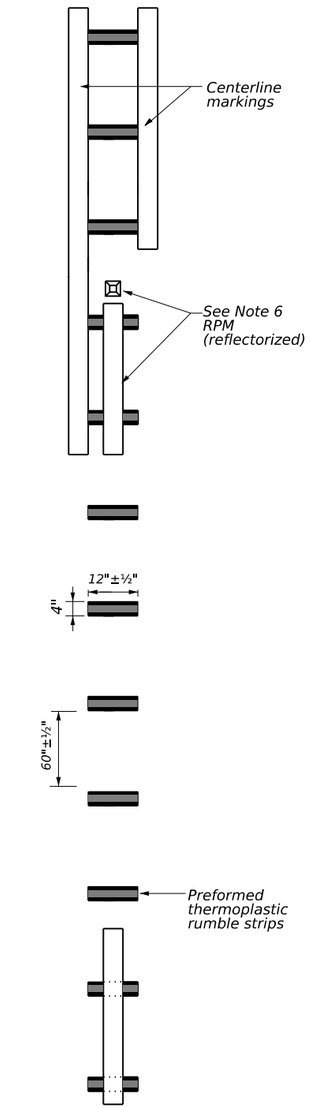


PLAN VIEW
OPTION 2

RAISED CENTERLINE RUMBLE STRIPS

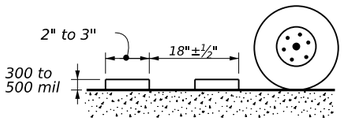


PROFILE VIEW

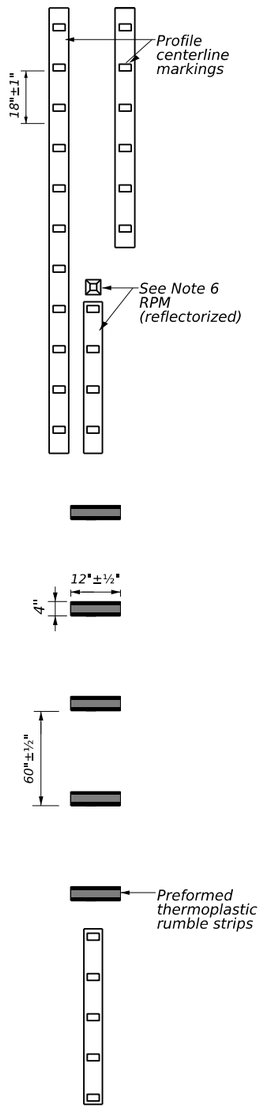


PLAN VIEW
OPTION 3

PREFORMED THERMOPLASTIC RUMBLE STRIPS



PROFILE VIEW



PLAN VIEW
OPTION 4

PROFILE CENTERLINE MARKINGS AND PREFORMED THERMOPLASTIC RUMBLE STRIPS

GENERAL NOTES

1. This standard sheet provides guidelines for installing centerline rumble strips on two-lane highways with or without shoulders.
2. Centerline and edge line rumble strips or profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.
3. Milled rumble strips are preferred when adequate pavement depth is available. If pavement thickness is less than 2 inches, milled rumble strips shall not be used. Rumble strips shall not be milled or depressed into bridge decks.
4. See dimensions for milled rumble strips. Other shapes and dimensions may be used if approved by the Traffic Safety Division.
5. Breaks in milled centerline rumble strips shall occur at least 50 feet and no more than 150 feet in advance of bridges, railroad crossings, intersections or driveways with high usage of large trucks.
6. Use standard sheet PM(2) for positioning, dimensioning, and spacing of all reflective raised pavement markers, pavement markings and profile markings.
7. Consideration should be given to noise levels when centerline rumble strips are to be installed near residential areas, schools, churches, etc. A 3/8 inch deep (minimum) milled rumble strip may be considered in these areas.
8. Pavement markings must be applied over milled centerline rumble strips.

WHEN INSTALLING CENTERLINE RUMBLE STRIPS:

9. Raised rumble strips consisting of non-reflective raised traffic buttons may be used. Non-reflective raised traffic buttons can be affixed to asphalt or concrete with bitumen or adhesives, as per manufacturer's recommendations.
10. When using non-reflective raised traffic buttons as a centerline rumble strip, the button shall be placed adjacent to the pavement marking delineating the centerline. The buttons will be paid for under Item 672, "Raised Pavement Markers." Non-reflective traffic buttons must meet the requirements of DMS-4300.
11. The color of the button should be yellow for a continuous no passing roadway. Black buttons should be used in areas where passing is allowed.
12. Consideration shall be given to bicyclists. See RS(6).

WHEN INSTALLING EDGE LINE RUMBLE STRIPS WITH OR WITHOUT CENTERLINE RUMBLE STRIPS ON UNDIVIDED HIGHWAYS:

13. See standard sheet RS(2).

Texas Department of Transportation

Traffic Safety Division Standard

CENTERLINE RUMBLE STRIPS ON TWO LANE TWO-WAY HIGHWAYS RS(4)-23

FILE: rs(4)-23.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT January 2023	CONT	SECT	JOB	HIGHWAY
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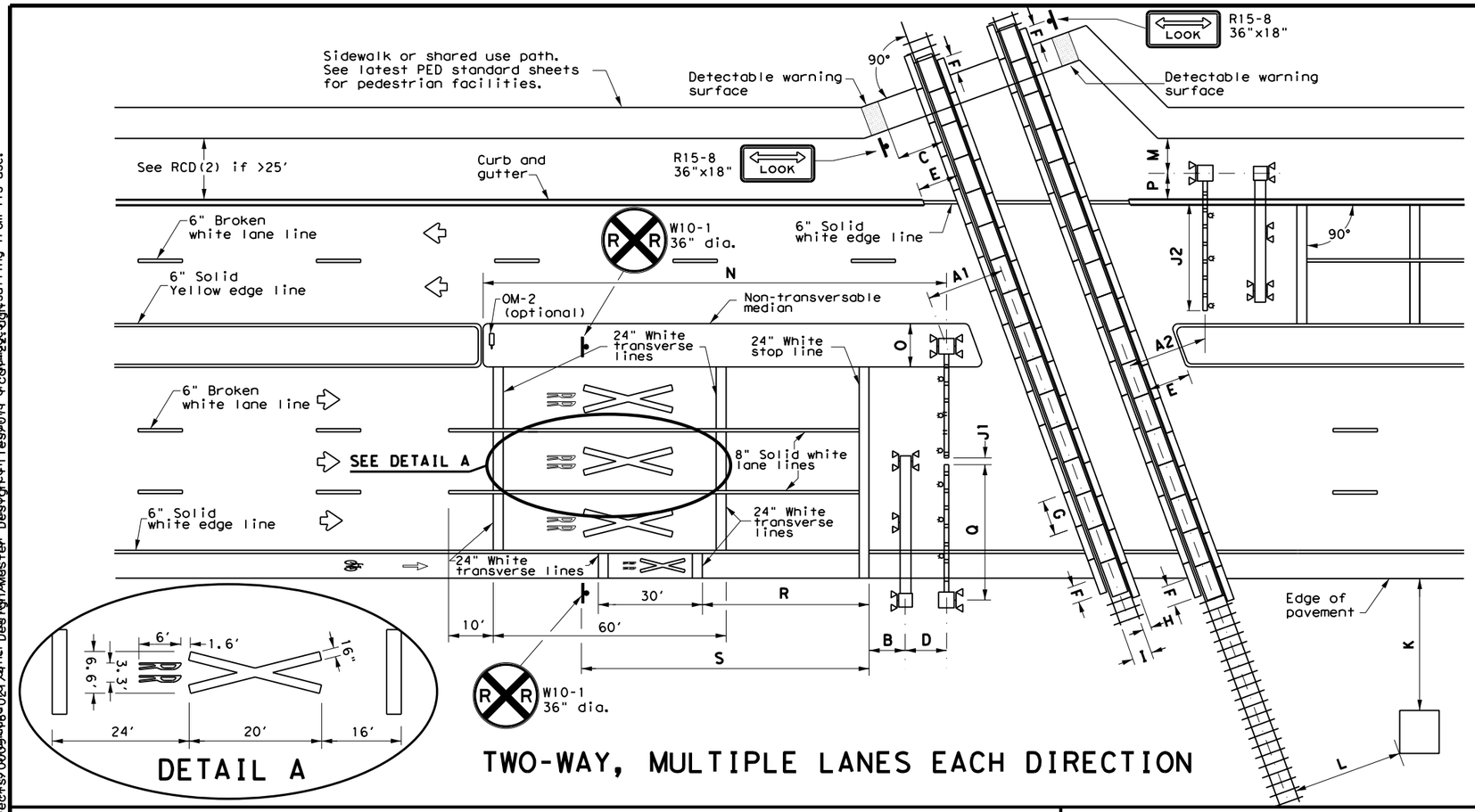
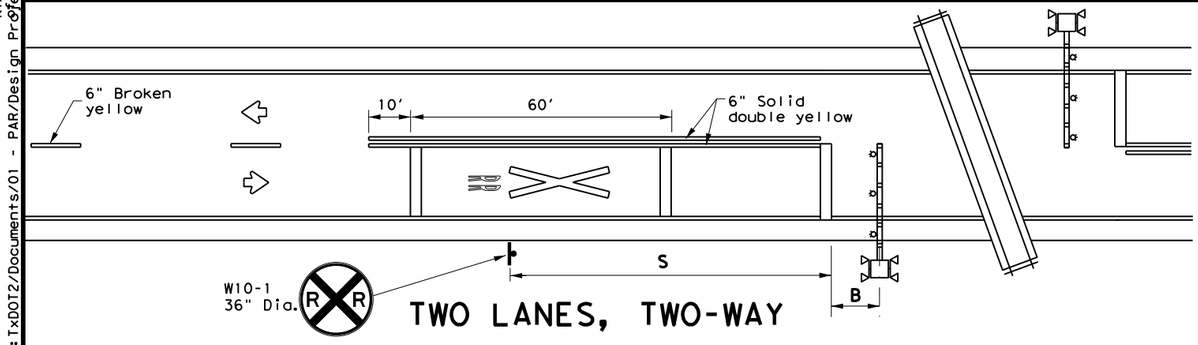
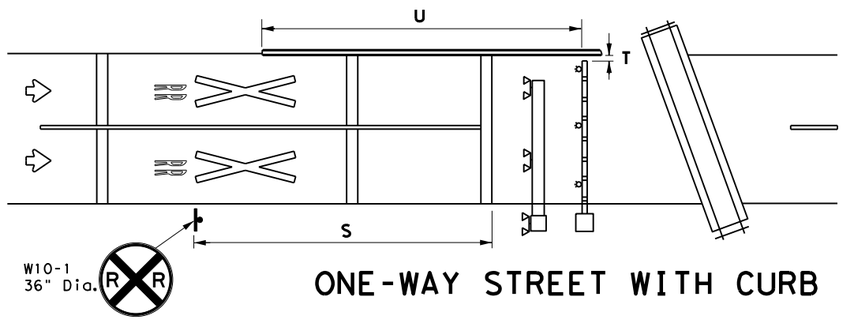
10-13 1-23	DIST	COUNTY		SHEET NO.
	PAR	HOPKINS,ETC.		70







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.

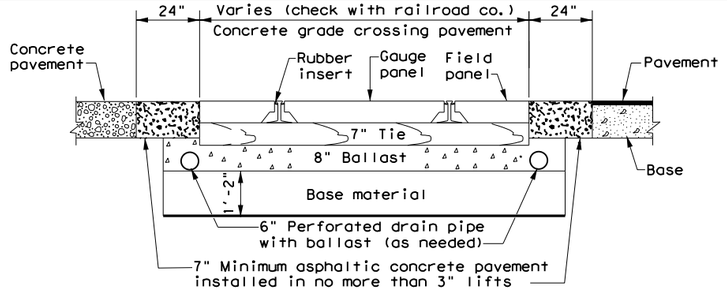
U: Non-traversable curb length from gate: 100' minimum for a Quiet Zone SSM, 10' minimum for all other locations.

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	
	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

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.

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	SECT	JOB	HIGHWAY
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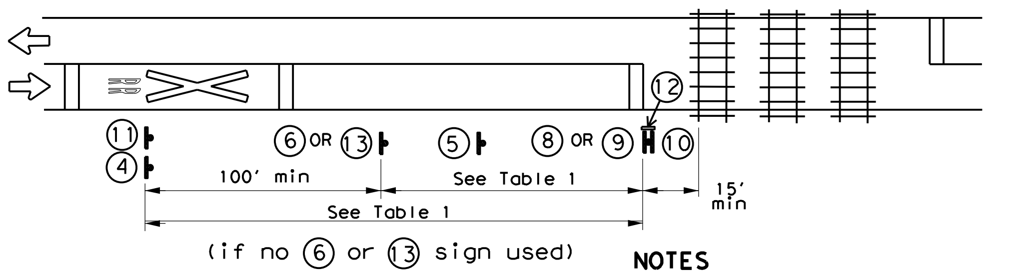
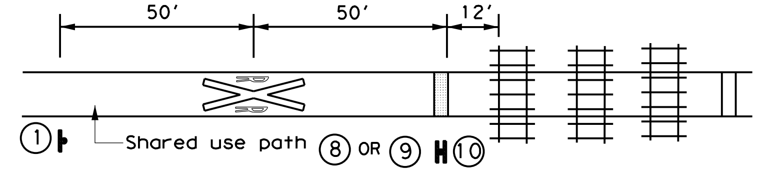
2-16	DIST	COUNTY		SHEET NO.
11-22	PAR	HOPKINS,ETC.		71



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.



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.

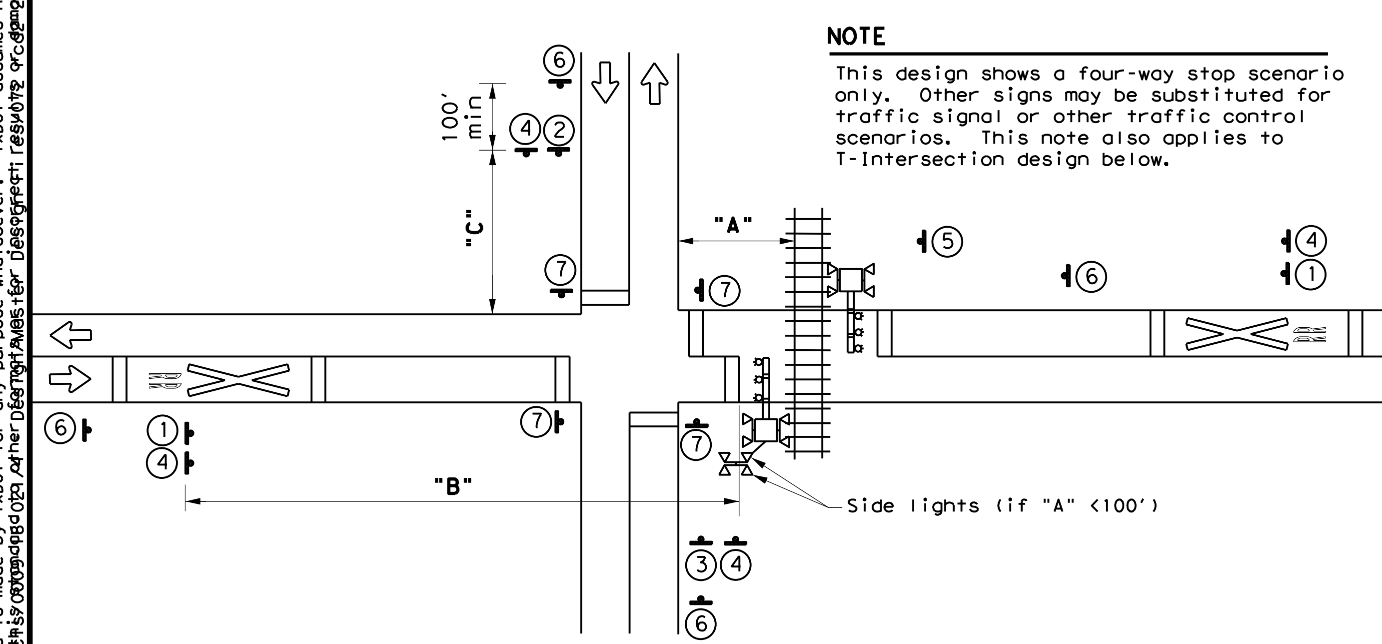
PATHWAY CROSSING

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.

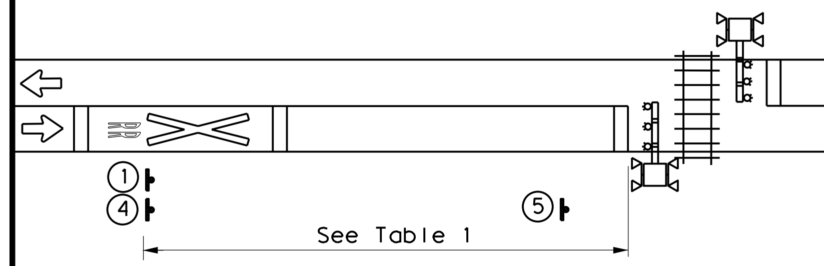


NOTE

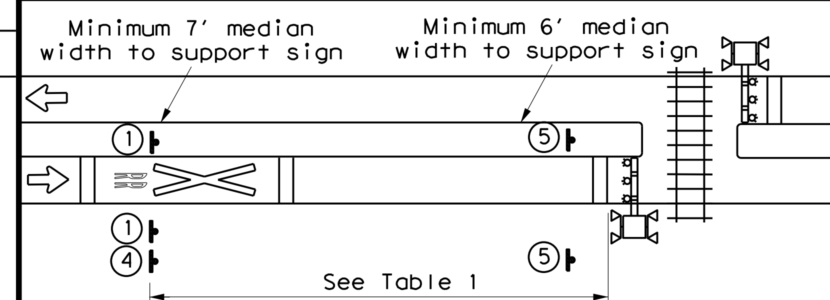
This design shows a four-way stop scenario only. Other signs may be substituted for traffic signal or other traffic control scenarios. This note also applies to T-Intersection design below.

	"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.

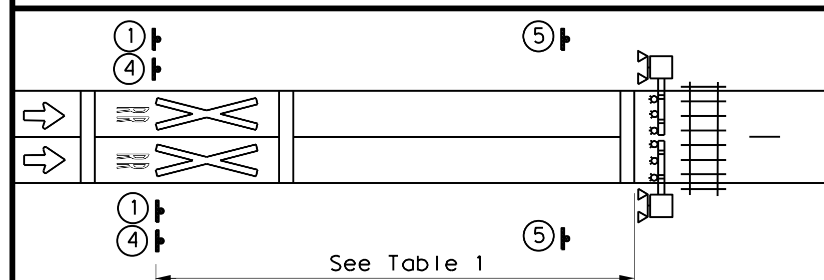
GRADE CROSSING NEAR A PARALLEL STREET



TWO-WAY

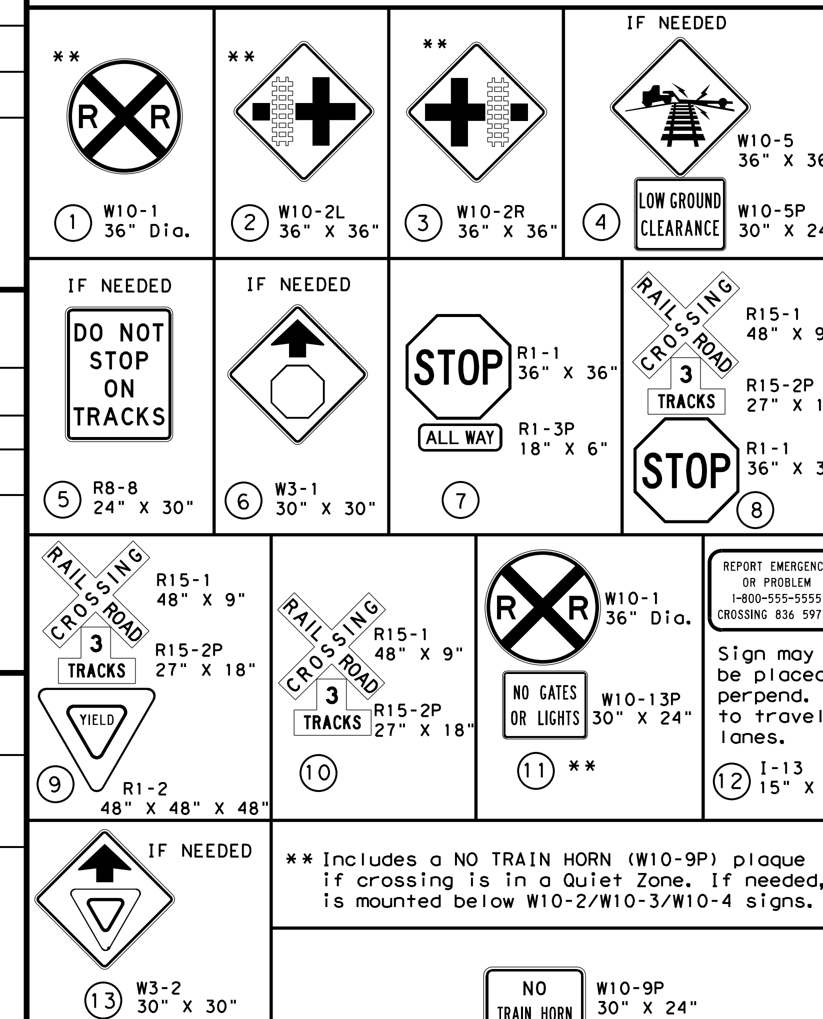


TWO-WAY WITH MEDIAN



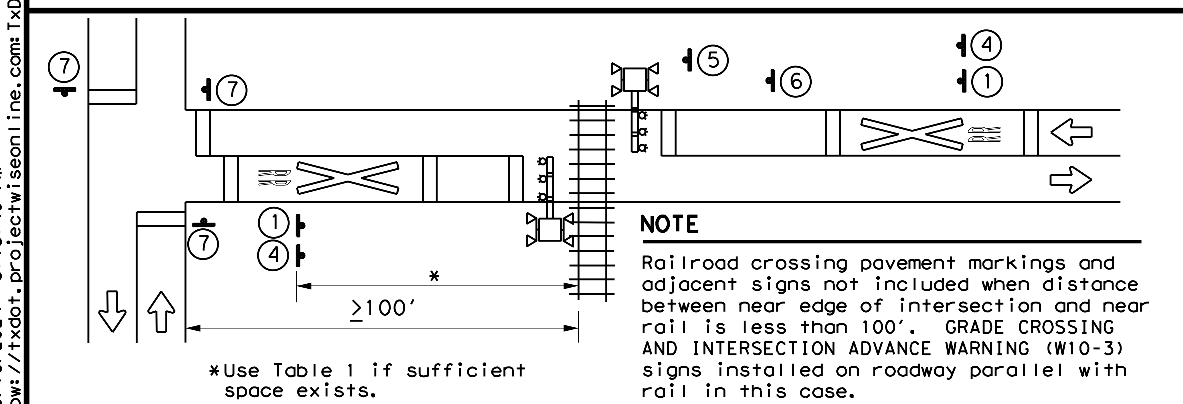
ONE-WAY

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"

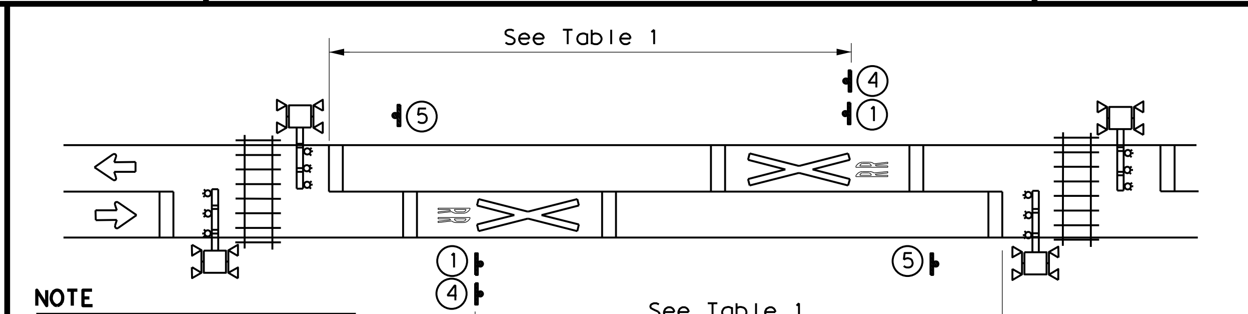


*Use Table 1 if sufficient space exists.

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.

T-INTERSECTION



NOTE

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

TWO ADJACENT CROSSINGS

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	SECT	JOB	HIGHWAY
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	DIST		COUNTY	SHEET NO.
	PAR		HOPKINS,ETC.	72

15

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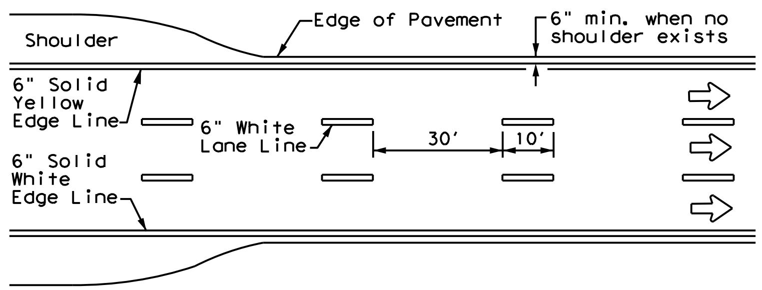
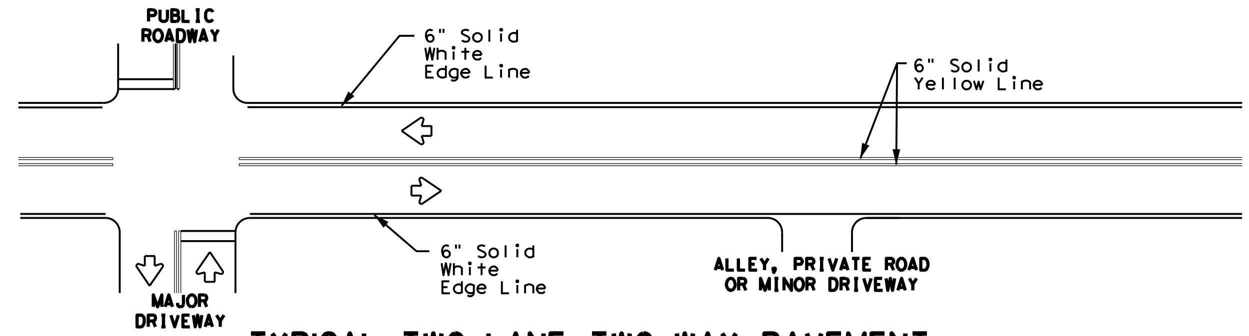


EDGE LINE AND LANE LINES ONE-WAY ROADWAY WITH OR WITHOUT SHOULDERS



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

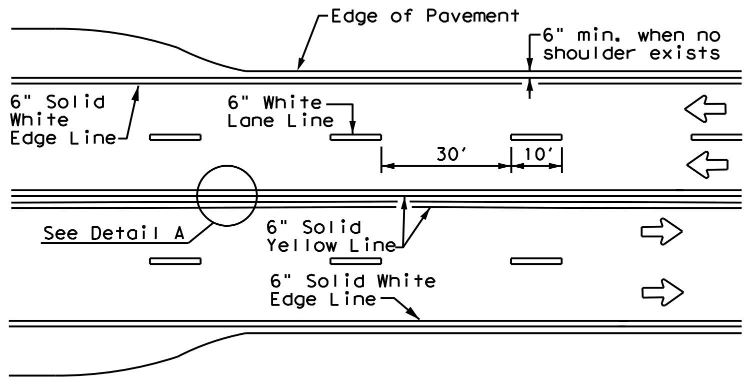
GENERAL NOTES

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.

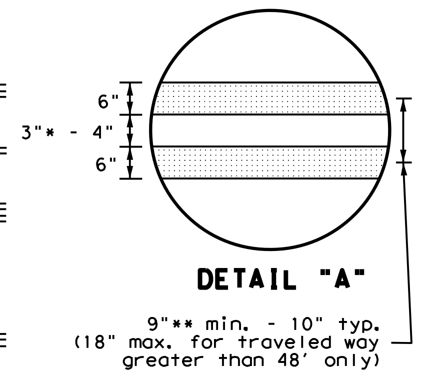
2. The traveled way includes only that portion of the roadway used for vehicular travel. It does not include the parking lanes, sidewalks, berms and shoulders. The traveled ways shall be measured from the center of edge line to the center of edge line of a two lane roadway.

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.



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

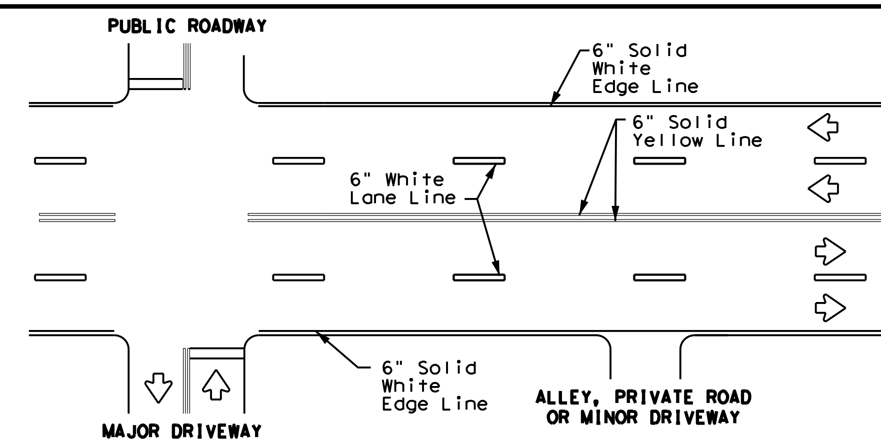


DETAIL "A"

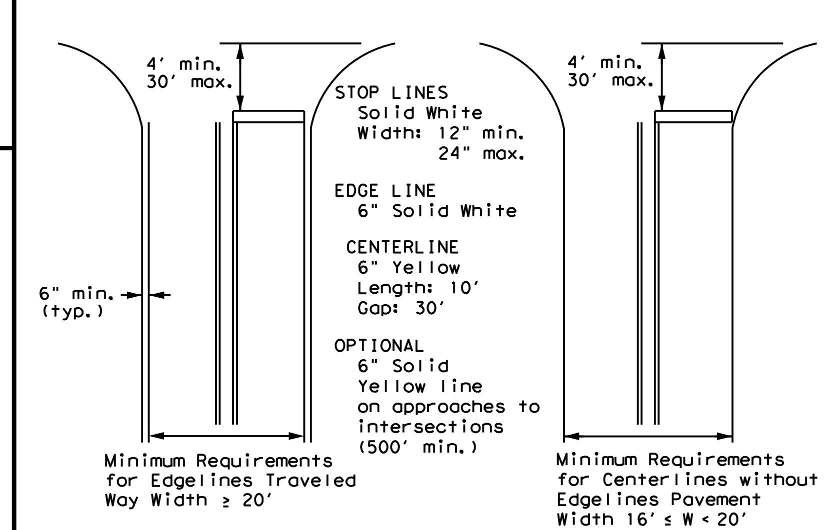
9"** min. - 10" typ. (18" max. for traveled way greater than 48' only)

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

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



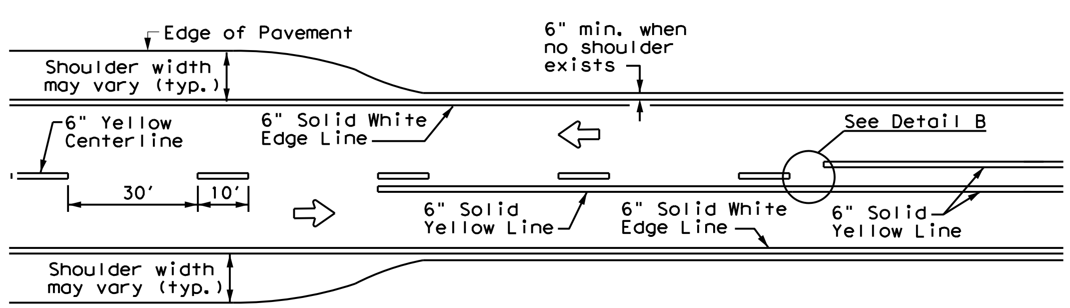
TYPICAL MULTI-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS



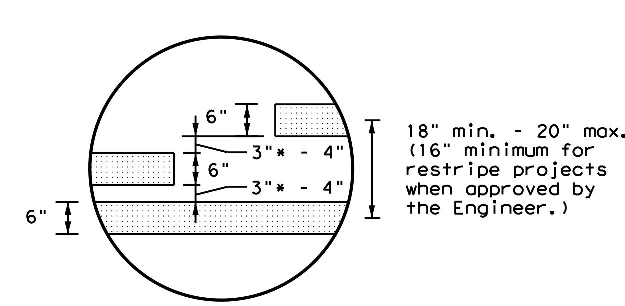
NOTE: Traveled way is exclusive of shoulder widths. Refer to General Note 2 for additional details.

GUIDE FOR PLACEMENT OF STOP LINES, EDGE LINE & CENTERLINE

Based on Traveled Way and Pavement Widths for Undivided Roadways

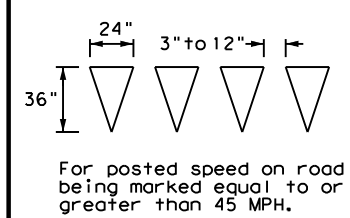


TWO LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS

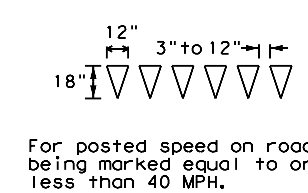


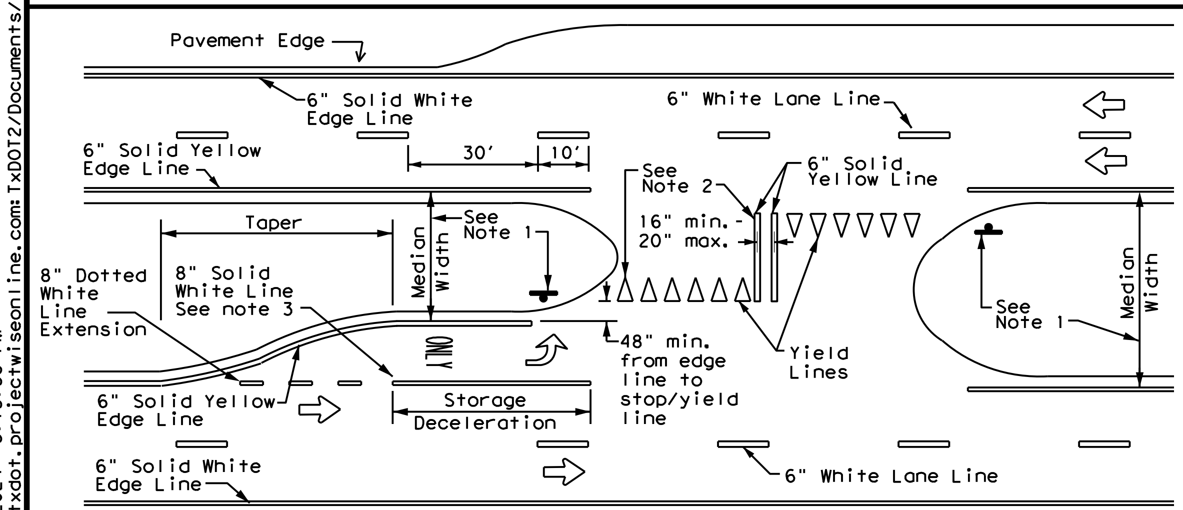
DETAIL "B"

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



YIELD LINES





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

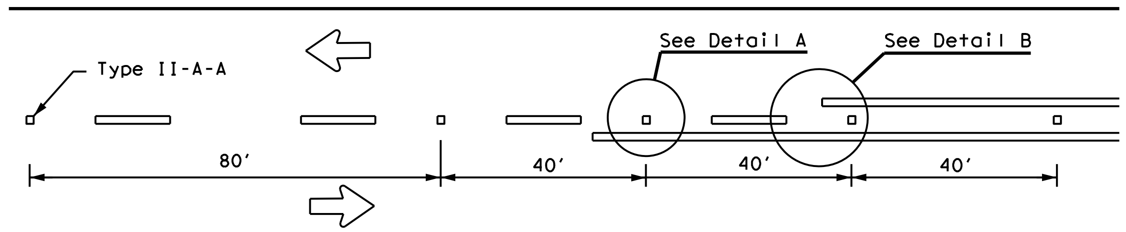
TYPICAL STANDARD PAVEMENT MARKINGS

PM(1)-22

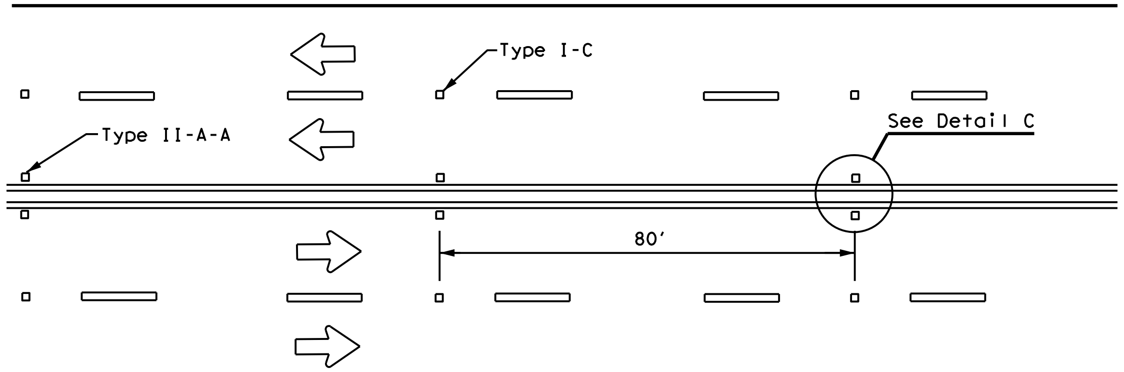
FILE: pm1-22.dgn	DN:	CK:	DW:	CK:
© TxDOT December 2022	CONT 0009	SECT 18	JOB 021, ETC.	HIGHWAY BU 67, ETC.
REVISIONS: 11-78 8-00 6-20; 8-95 3-03 12-22; 5-00 2-12	DIST PAR		COUNTY HOPKINS, ETC.	SHEET NO. 73

22A

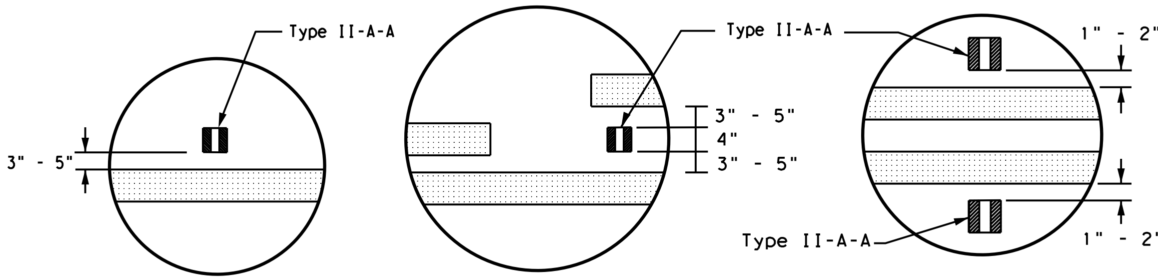
REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE



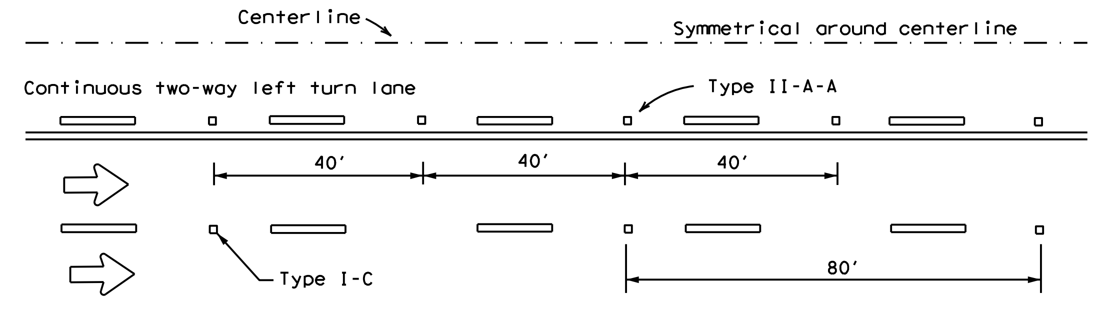
CENTERLINE FOR ALL TWO LANE TWO-WAY ROADWAYS



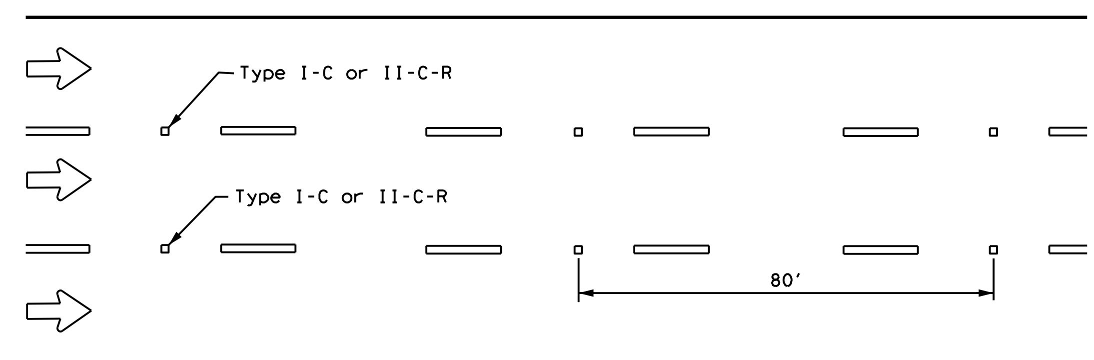
CENTERLINE & LANE LINES FOR FOUR LANE TWO-WAY ROADWAYS



DETAIL "A" DETAIL "B" DETAIL "C"



CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE



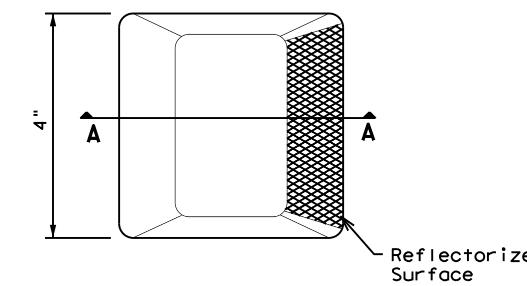
LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)

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

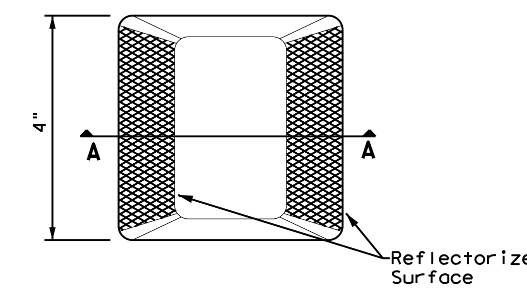
See Note 3.

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

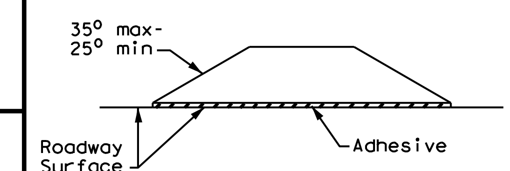
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)

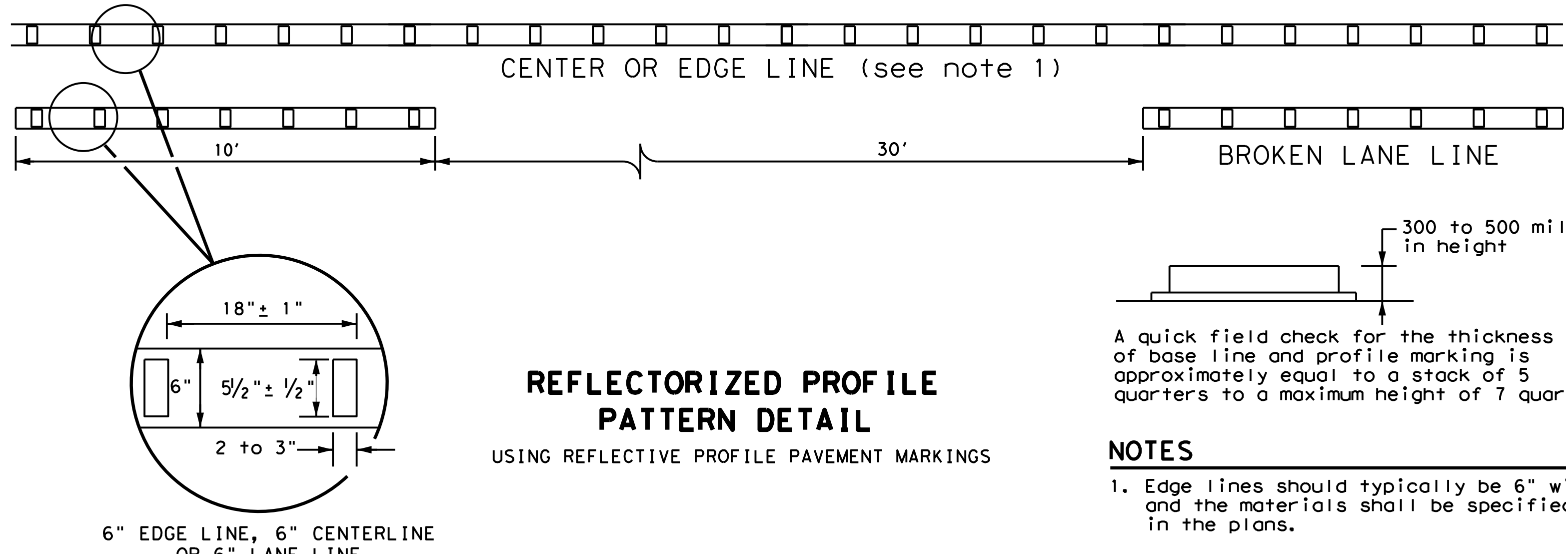


Type II (Top View)



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

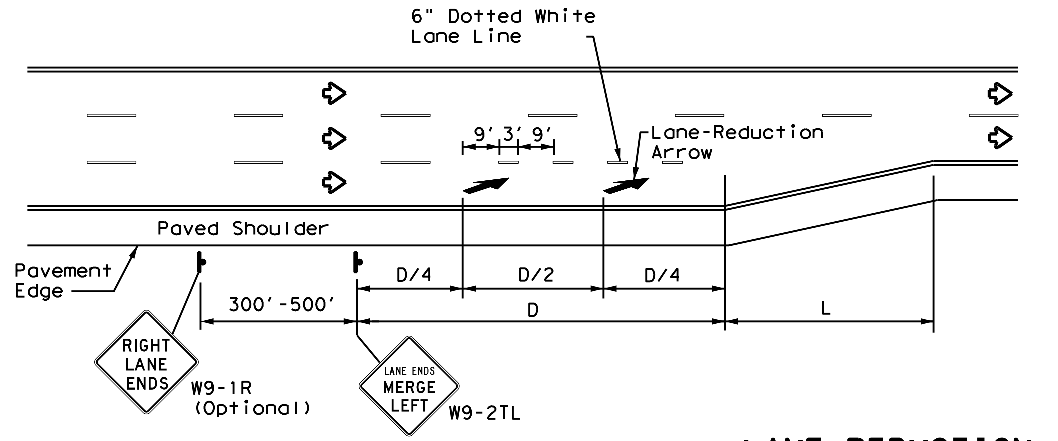
Traffic Safety Division Standard

POSITION GUIDANCE USING RAISED MARKERS REFLECTORIZED PROFILE MARKINGS

PM(2)-22

FILE: pm2-22.dgn	DN:	CK:	DW:	CK:
© TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-77 8-00 6-20	0009	18	021, ETC.	BU 67, ETC.
4-92 2-10 12-22	DIST		COUNTY	SHEET NO.
5-00 2-12	PAR		HOPKINS, ETC.	74

22B



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.

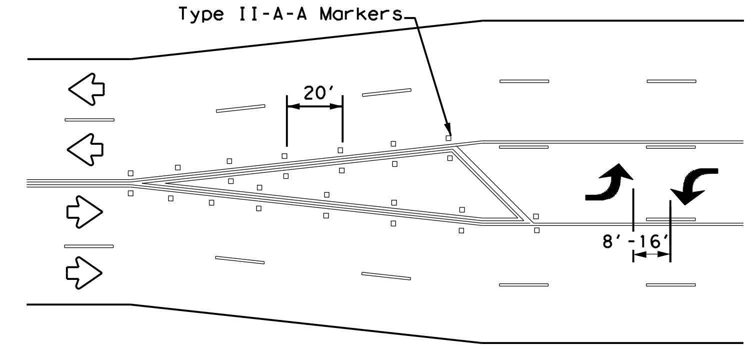
ADVANCED WARNING SIGN DISTANCE (D)		
Posted Speed	D (ft)	L (ft)
30 MPH	460	$L = \frac{WS^2}{60}$
35 MPH	565	
40 MPH	670	
45 MPH	775	L=WS
50 MPH	885	
55 MPH	990	
60 MPH	1,100	
65 MPH	1,200	
70 MPH	1,250	
75 MPH	1,350	

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.

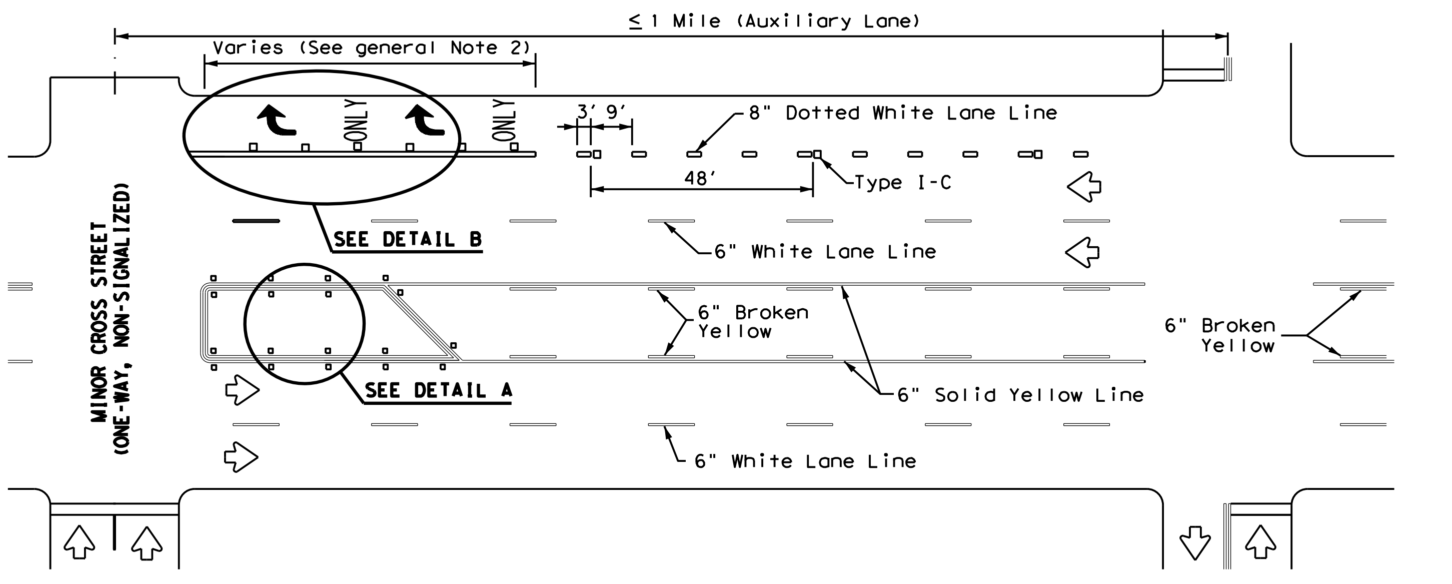
MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

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

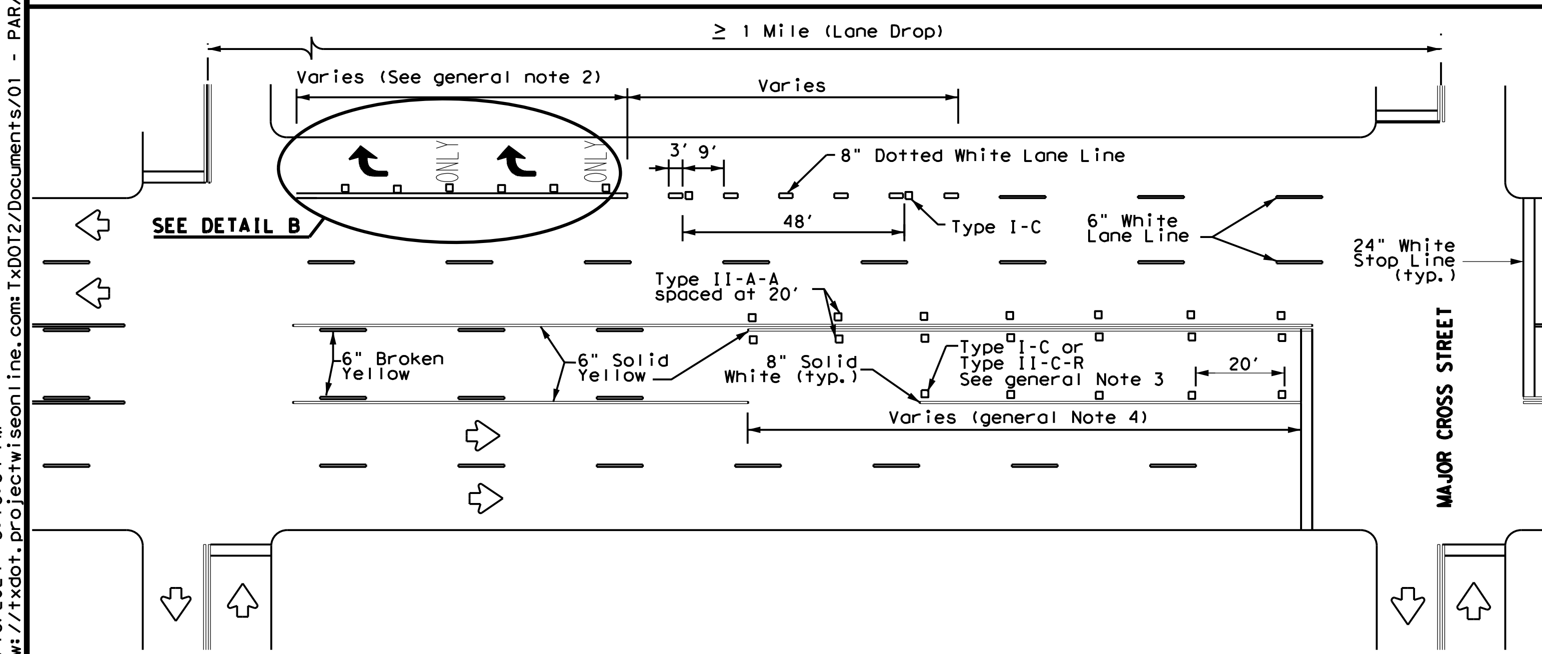


A two-way left-turn (TWLT) lane-use arrow pavement marking should be used at or just downstream from the beginning of a two-way left-turn lane within a corridor. Repeating the marking after each intersection or dedicated turn bay is not required unless stated elsewhere in the plans.

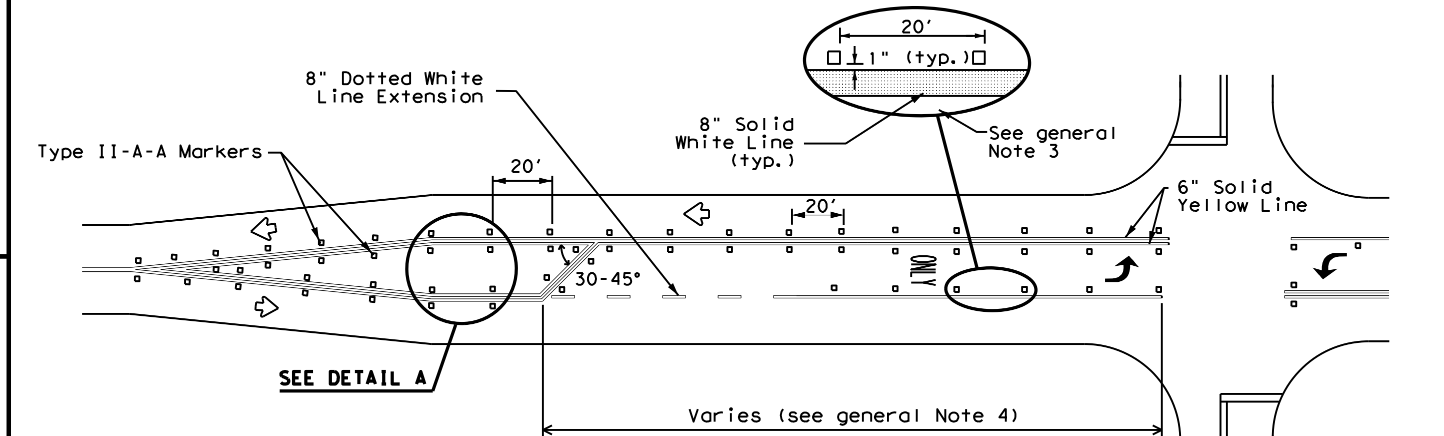
TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY



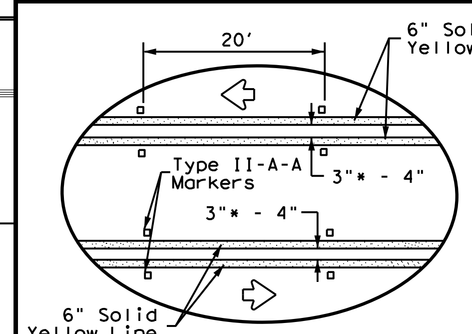
TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE



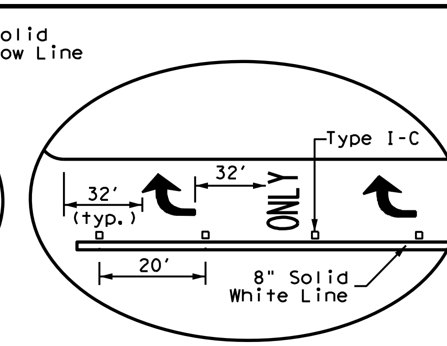
TYPICAL TWLTL AT TWO-WAY CROSS STREET AND RIGHT TURN LANE DROP



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	SECT	JOB	HIGHWAY
REVISIONS 4-98 3-03 6-20 5-00 2-10 12-22 8-00 2-12	0009	18	021,ETC.	BU 67, ETC.
	DIST		COUNTY	SHEET NO.
	PAR		HOPKINS,ETC.	75

22C

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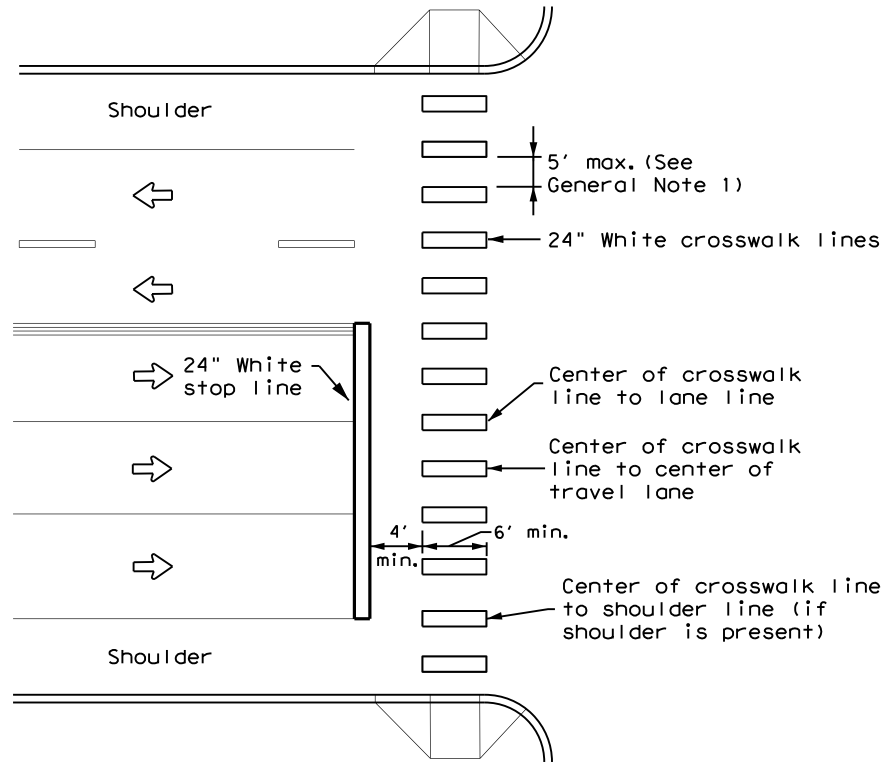


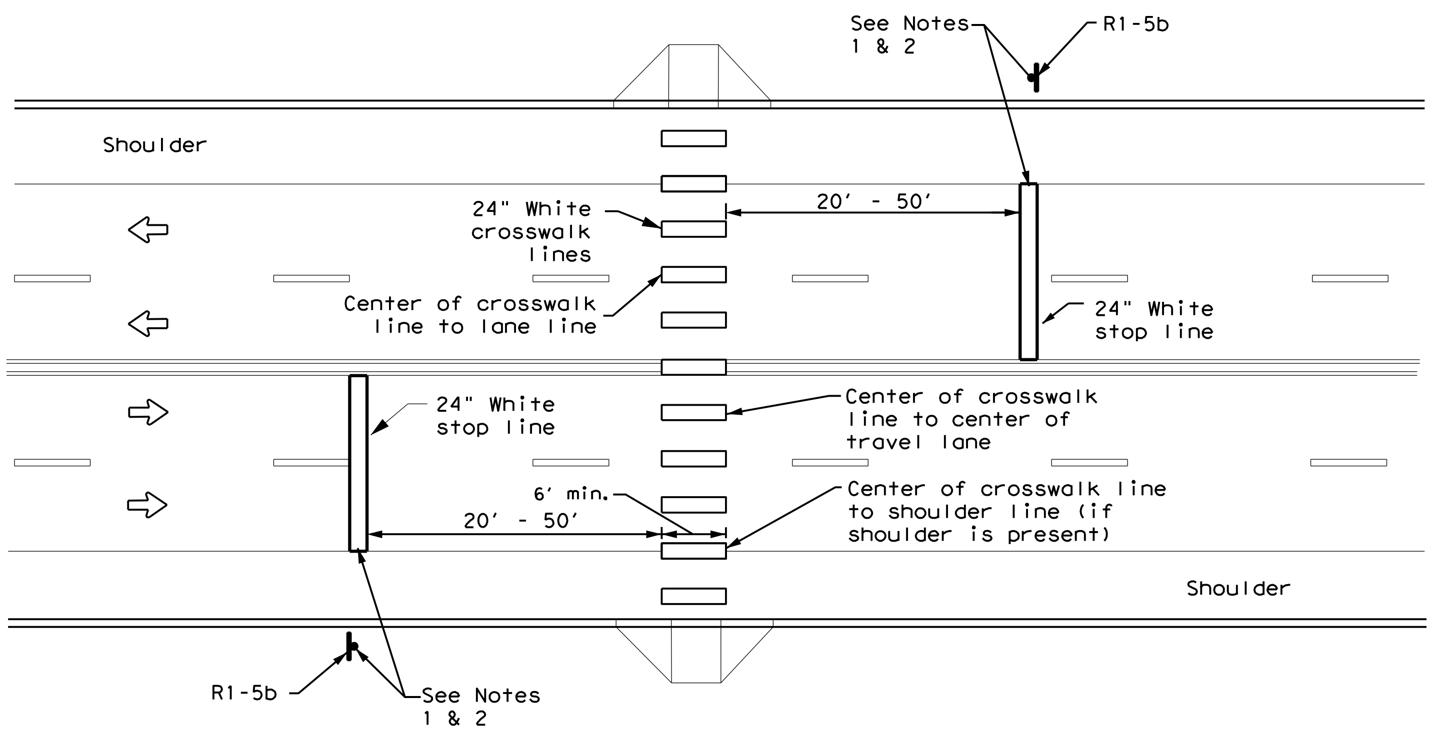
HIGH-VISIBILITY LONGITUDINAL CROSSWALK AT CONTROLLED APPROACH

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	0009	18	021,ETC.	BU 67, ETC.
	DIST		COUNTY	SHEET NO.
	PAR		HOPKINS,ETC.	76

220

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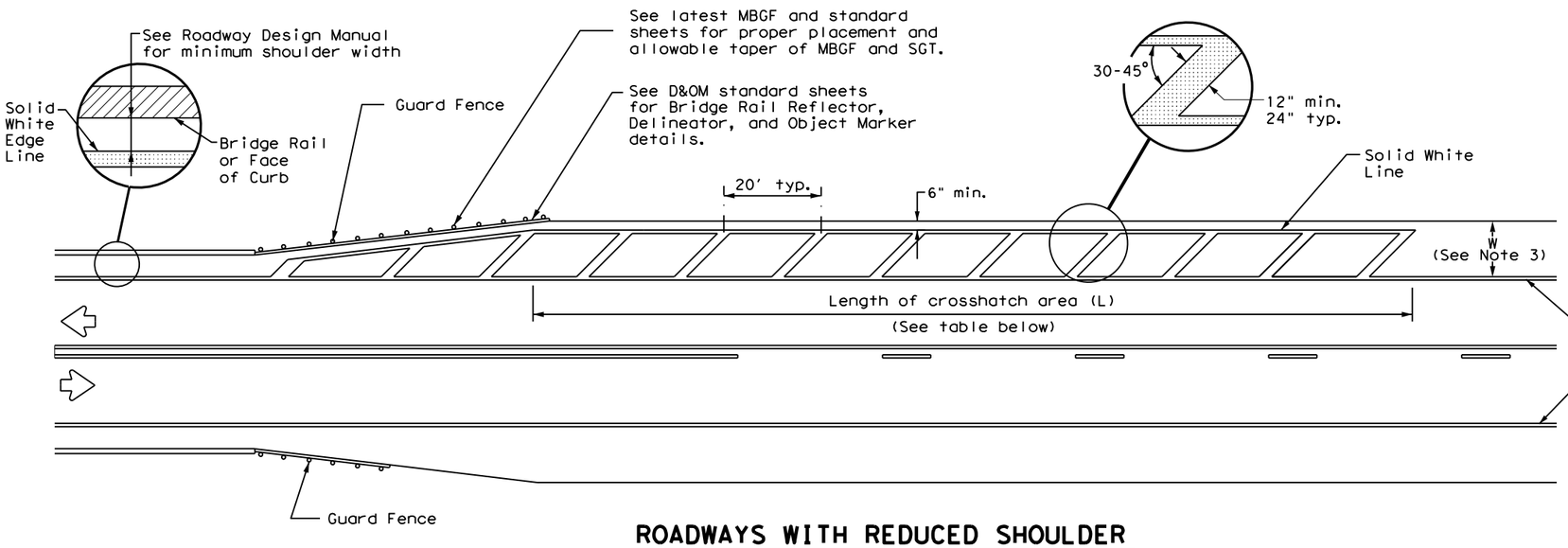

ROADWAYS WITH REDUCED SHOULDER WIDTHS ACROSS BRIDGE OR CULVERT

CROSSHATCH LENGTH (L)	
Posted Speed (MPH)	L (ft)
30	300 ft
35	
40	
45	
50	500 ft
55	
60	
65	
70	
75	

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 4 inches from the bridge rail or face of curb or 6 inches from the edge of pavement. This distance may vary due to pavement raveling or other conditions.
2. No-passing zone on bridge approach is optional. If used, the no-passing zone shall be a minimum 500 feet long from the beginning of the bridge.
3. The crosshatching should be required if the shoulder width in advance of the bridge is 4 feet or wider and a reduction of at least 3 feet in shoulder width across the bridge occurs.
4. On divided highways, review both the right and left shoulder widths for the need for narrow bridge pavement markings.

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.

Texas Department of Transportation

Traffic Safety Division Standard

PAVEMENT MARKINGS FOR ROADWAYS WITH REDUCED SHOULDER WIDTHS ACROSS BRIDGE OR CULVERT

PM(5)-22

FILE: pm5-22.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	0009	18	021,ETC.	BU 67, ETC.
	DIST	COUNTY		SHEET NO.
	PAR	HOPKINS,ETC.		77

DATE: 9/18/2024
FILE: pw://txdot.projectwiseonline.com:TxDOT2/Documents/01 - PAR/Design Projects/0009-18-021/4 - Design/Master Design Files/078 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.

2.

☒ No Action Required ☐ Required Action

Action No.

1. Prevent stormwater pollution by controlling erosion and sedimentation in accordance with TPDES Permit TXR 150000

2. Comply with the SW3P and revise when necessary to control pollution or required by the Engineer.

3. Post Construction Site Notice (CSN) with SW3P information on or near the site, accessible to the public and TCEQ, EPA or other inspectors.

4. When Contractor project specific locations (PSL's) increase disturbed soil area to 5 acres or more, submit NOI to TCEQ and the Engineer.

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.

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

☒ No Action Required ☐ Required Action

Action No.

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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.

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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) 05-07-14 ADDED NOTE SECTION IV. 01-23-2015 SECTION I (CHANGED ITEM 1122 TO ITEM 506, ADDED GRASSY SWALES.	0009	18	021,ETC.	BU 67, ETC.
	DIST	COUNTY		SHEET NO.
	PAR	HOPKINS,ETC.		78