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INDEX OF SHEETS

SEE SHEET 2 FOR INDEX OF SHEETS

STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMENT

PROJECT NO. F 2024 (416).ETC.
IH 30.ETC.
HUNT.ETC.

FHWA TEXAS DIVISION			SHEET NO.
			1
STATE	DISTRICT	COUNTY	
TEXAS	PAR	HUNT.ETC.	
CONTROL	SECTION	JOB	HIGHWAY NO.
0009	13	192.Etc.	IH 30.ETC.

DESIGN SPEED = VARIES
A.D.T.(2017) = VARIES
A.D.T.(2037) = VARIES

NET LENGTH OF ROADWAY = 2,071,613.280 FT.= 392.351 MI.
NET LENGTH OF BRIDGE = 0.00 FT.= 000.000 MI.
NET LENGTH OF PROJECT = 2,071,613.280 FT.= 392.351 MI.

LIMITS : VARIOUS

FOR THE CONSTRUCTION OF SEALCOAT

CONSISTING OF :SEALCOAT AND PAVEMENT MARKINGS

SEE LOCATION MAP SHEETS
FOR PROJECT LOCATIONS
AND PROJECT LIMITS

EXCEPTIONS: NONE
EQUATIONS: NONE

Railroad Crossings 4 retained - None Removed

Grayson County	FM 120	REF 1	Burlington Northern Santa Fe
Grayson County	FM 902	REF 3	Burlington Northern Santa Fe
Fannin County	SH 78	REF 5	Texas Northeastern Railroad
Hopkins County	FM 69	REF 28	Kansas City Southern

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 ORDERS:

FINAL CONTRACT COST:

PERCENT OVER/UNDER RUN:

CONTRACTOR:

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

AREA ENGINEER DATE

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

SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION, NOVEMBER 1, 2014 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)

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SUBMITTED FOR LETTING: 09/26/23
Ellen Perry, P.E.
DESIGN ENGINEER

RECOMMENDED FOR LETTING: 10/3/2023
DocuSigned by:
Jesse Herrera
9FA6E70E83E0467...
AREA ENGINEER

APPROVED FOR LETTING: 10/3/2023
DocuSigned by:
Kori Paramanantham
AF7AF41AFE6049E...
DISTRICT ENGINEER

FILE: $FILE$ $TIME$
DATE: $DATE$

INDEX OF SHEETS

STATE OF TEXAS
ELLEN E. PERRY
100115
LICENSED
PROFESSIONAL ENGINEER

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

Ellen Perry, P.E. — NAME
09/26/2023 — DATE

IH 30. ETC.
INDEX OF SHEETS

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Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192.ETC.	IH 30.ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT.ETC.		2

CK:
DW:
CK:
DN:

DATE: $DATE$ $TIME$
FILE: $FILE$

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0009-13-192

DISTRICT Paris

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

HIGHWAY BU 380J, FM 120, FM 1567, FM 194, FM 195, FM 196, FM 2101, FM 275, FM 3007, FM 38, FM 44, FM 514, FM 69, FM 691, FM 895, FM 902, FS 3007, IH 30, RE 3, SH 11, SH 276, SH 78, SS 139, SS 161, US 380, US 67, Various

ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL
	316-6124	AGGR(TY-PB GR-3 SAC-A)	CY	25,894.000	
	316-6126	AGGR(TY-PB GR-4 SAC-A)	CY	2,673.000	
	316-6521	ASPH (AC-20-5TR OR AC-20XP)	TON	5,624.000	
	500-6001	MOBILIZATION	LS	1.000	
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO	6.000	
	662-6109	WK ZN PAV MRK SHT TERM (TAB)TY W	EA	4,522.000	
	662-6111	WK ZN PAV MRK SHT TERM (TAB)TY Y-2	EA	24,377.000	
	666-6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	30,075.000	
	666-6171	REFL PAV MRK TY II (W) 6" (BRK)	LF	36,420.000	
	666-6174	REFL PAV MRK TY II (W) 6" (SLD)	LF	1,661,504.000	
	666-6178	REFL PAV MRK TY II (W) 8" (SLD)	LF	12,353.000	
	666-6181	REFL PAV MRK TY II (W) 18" (SLD)	LF	86.000	
	666-6182	REFL PAV MRK TY II (W) 24" (SLD)	LF	2,013.000	
	666-6184	REFL PAV MRK TY II (W) (ARROW)	EA	63.000	
	666-6192	REFL PAV MRK TY II (W) (WORD)	EA	59.000	
	666-6196	REFL PAV MRK TY II (W) (RR XING)	EA	5.000	
	666-6199	REFL PAV MRK TY II (W) 36" (YLD TRI)	EA	303.000	
	666-6208	REFL PAV MRK TY II (Y) 6" (BRK)	LF	147,230.000	
	666-6210	REFL PAV MRK TY II (Y) 6" (SLD)	LF	1,223,724.000	
	666-6306	RE PM W/RET REQ TY I (W)6"(BRK)(100MIL)	LF	16,145.000	
	666-6309	RE PM W/RET REQ TY I (W)6"(SLD)(100MIL)	LF	617,014.000	
	666-6318	RE PM W/RET REQ TY I (Y)6"(BRK)(100MIL)	LF	59,280.000	
	666-6321	RE PM W/RET REQ TY I (Y)6"(SLD)(100MIL)	LF	418,908.000	
	666-6343	REF PROF PAV MRK TY I(W)6"(SLD)(100MIL)	LF	1,519,606.000	
	666-6346	REF PROF PAV MRK TY I(Y)6"(BRK)(100MIL)	LF	146,060.000	
	666-6347	REF PROF PAV MRK TY I(Y)6"(SLD)(100MIL)	LF	864,558.000	
	668-6075	PREFAB PAV MRK TY C (W) (18") (SLD)	LF	684.000	
	668-6076	PREFAB PAV MRK TY C (W) (24") (SLD)	LF	1,950.000	
	668-6077	PREFAB PAV MRK TY C (W) (ARROW)	EA	130.000	
	668-6083	PREFAB PAV MRK TY C (W) (LNDP ARROW)	EA	2.000	
	668-6085	PREFAB PAV MRK TY C (W) (WORD)	EA	95.000	
	668-6089	PREFAB PAV MRK TY C (W) (RR XING)	EA	9.000	
	668-6092	PREFAB PAV MRK TY C (W) (36")(YLD TRI)	EA	283.000	
	672-6007	REFL PAV MRKR TY I-C	EA	1,914.000	
	672-6009	REFL PAV MRKR TY II-A-A	EA	22,596.000	
	672-6010	REFL PAV MRKR TY II-C-R	EA	1,038.000	
	677-6001	ELIM EXT PAV MRK & MRKS (4")	LF	1,519,688.000	
	3028-6002	FRICTIONAL ASPH SURF PRESERV TRTMT	SY	260,657.000	
	6001-6001	PORTABLE CHANGEABLE MESSAGE SIGN	DAY	30.000	
	6185-6002	TMA (STATIONARY)	DAY	35.000	

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0009-13-192

DISTRICT Paris

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

HIGHWAY BU 380J, FM 120, FM 1567, FM 194, FM 195, FM 196, FM 2101, FM 275, FM 3007, FM 38, FM 44, FM 514, FM 69, FM 691, FM 895, FM 902, FS 3007, IH 30, RE 3, SH 11, SH 276, SH 78, SS 139, SS 161, US 380, US 67, Various

ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL
	18	RAILROAD FLAGGING: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS	1.000	
		SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS	1.000	
		EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS	1.000	

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

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

Upon 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.

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. County road intersections will not be sealed. Intersections and turnouts that are to be sealed are noted in the miscellaneous seal summary sheets for each county.

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 materials, and equipment from the work locations.

Item 6 Control of Materials:

To comply with the latest provisions of Build America, Buy America Act (BABA Act) of the Bipartisan Infrastructure Law, the contractor must submit a notarized original of the TxDOT Construction Material Buy America Certification Form for all items classified as construction materials. This form is not required for materials classified as a manufactured product.

Refer to the Buy America Material Classification Sheet for clarification on material categorization.

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:

No significant traffic generator events identified.
Notify the appropriate railroad companies two (2) weeks prior to beginning construction activities in the railroad R.O.W.

Item 8 Prosecution and Progress:

Time will begin April 1st, 2024, 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, 2024. 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 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.

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.

County: HUNT, ETC. **Control:** 0009-13-192, ETC.

Item 316 Surface Treatments:

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**	**105 SY/CY**
GR 4 PB	**.36 gal per cy**	**125 SY/CY**
Frictional Asphalt Surface Preservation Treatment	**Per Spec 3028**	
	1st application: 1.0 to 1.5 lbs/sy; 2nd application: 1.0 to 1.5 lbs/sy. Total application after the second application: 2.5 lbs/sy minimum.	

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 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)-22. 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.

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.

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.

County: HUNT, ETC. **Control:** 0009-13-192, ETC.

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 506 Temporary Erosion, Sedimentation & Environmental Controls:

The Storm Water Pollution Prevention Plan (SWP3) consists of temporary erosion control measures needed and provided for under this Item. The disturbed area is less than one acre and use of erosion control measures is not anticipated. If physical conditions encountered at the job site require necessary controls, BMP installation, maintenance, and removal will be paid as extra work on a force account basis per Articles 4.4 and 9.7.

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 Reflectorized 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.

Item 3096 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 6001 Portable Changeable Message Board:

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

Item 6185 Truck Mounted Attenuators:

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.

2024 Trace Pavement Marking Summary															
	666-6306	666-6309	666-6318	666-6321	666-6343	666-6346	666-6347	0666-6036	668-6075	668-6076	668-6077	668-6083	668-6085	668-6089	668-6092
County	REFL PAV MRK TY I (W) 6" (BRK) (100 MIL)	REFL PAV MRK TY I (W) 6" (SLD) (100 MIL)	REFL PAV MRK TY I (Y) 6" (BRK) (100 MIL)	REFL PAV MRK TY I (Y) 6" (SLD) (100 MIL)	REF PROF PAV MRK TY I (W) 6" (SLD) (100 MIL)	REF PROF PAV MRK TY I (Y) 6" (BRK) (100 MIL)	REF PROF PAV MRK TY I (Y) 6" (SLD) (100 MIL)	REFL PAV MRK TY I (W) 8" (SLD) (100 MIL)	PRE FAB PAV MRK TY C (W) 18" (SLD) (100 MIL)	PRE FAB PAV MRK TY C (W) 24" (SLD) (100 MIL)	PRE FAB PAV MRK TY C (W) (ARROW) (100 MIL)	PRE FAB PAV MRK TY C (W) (LDNP ARW) (100 MIL)	PRE FAB PAV MRK TY C (W) (WORD) (100 MIL)	PRE FAB PAV MRK TY C (W) (RR XING) (100 MIL)	PRE FAB PAV MRK TY C (W) (YLD TRI) (100 MIL)
	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA
Grayson	250	146,550	9,950	96,060	152,310	14,990	87,070	11,045	140	320	20		20	2	10
Fannin	2,250	139,830	17,240	87,045	80,990	5,790	55,490	2,900	96	112	27	2	12	2	20
Hunt	13,235	25,990		48,210	457,886	44,980	232,376	7,660	56	644	28		28	2	187
Lamar					380,340	39,200	242,802	1,400		196					20
Red River					246,220	22,020	139,295	480		28					
Hopkins	410	304,644	32,090	187,593	201,860	19,080	107,525	6,590	392	650	55		35	3	46
Total	16,145	617,014	59,280	418,908	1,519,606	146,060	864,558	30,075	684	1,950	130	2	95	9	283

2024 Seal Coat Pavement Marking Summary																	
	662-6109	662-6111	666-6171	666-6174	666-6178	666-6181	666-6182	666-6184	666-6192	666-6196	666-6199	666-6208	666-6210	672-6007	672-6009	672-6010	677-6001
County	WK ZN PAV MRK SHT TERM (TAB) TY W	WK ZN PAV MRK SHT TERM (TAB) TY Y-2	REFL PAV MRK TY II (W) 6" (BRK)	REFL PAV MRK TY II (W) 6" (SLD)	REF PAV MRK TY II (W) 8" (SLD)	REF PAV MRK TY II (W) 18" (SLD)	REF PAV MRK TY II (W) 24" (SLD)	REF PAV MRK TY II (W) (ARROW)	REF PAV MRK TY II (W) (WORD)	REF PAV MRK TY II (W) (RR XING)	REF PAV MRK TY II (W) 36" (YLD TRI)	REFL PAV MRK TY II (Y) 6" (BRK)	REFL PAV MRK 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 PAV MKR & MKR (4")
	EA	EA	LF	LF	LF	LF	LF	EA	EA	EA	EA	LF	LF	EA	EA	EA	LF
Grayson	450	4,434	1,450	307,140	748	60	712	6	6	3	5	18,320	238,074	224	3,648		365,634
Fannin	64	1,700		126,500	250		123			1	4	6,210	97,459	14	1,528		172,743
Hunt	3,344	4,557	34,970	308,316	8,895		348	46	46		221	34,600	251,096	1,362	4,552	1,038	111,521
Rains	84	889		65,668	160		62				9	3,600	54,417	24	851		
Delta	22	1,610			140		14				5	7,090	89,422	8	1,472		
Lamar	168	3,011		221,796	660	26	186				24	17,970	136,062	56	2,573		297,306
Red River	30	1,104		162,358	300		48					14,920	88,936	18	2,013		
Hopkins	220	4,713		350,130	760		210	7	3	1	20	33,350	200,047	158	4,498		462,387
Franklin	140	2,359		119,596	440		310	4	4		15	11,170	68,211	50	1,461		110,097
Project Total	4,522	24,377	36,420	1,661,504	12,353	86	2,013	63	59	5	303	147,230	1,223,724	1,914	22,596	1,038	1,519,688

2024 Seal Coat Surface Treatment Summary						
	316-6521	316-6124	316-6126	3028-6002	316	316 & 3028
County	ASPH (AC-20 5TR or AC-20XP)	AGGR TY-PB GR 3 (SAC-A)	AGGR TY-PB GR 4 (SAC-A)	FRICTIONAL ASPH SURF PRESERVATION TREATMENT	TOTAL SEAL COAT PLACEMENT SQUARE YARDS	TOTAL SEAL COAT & ONYX PLACEMENT SQUARE YARDS
	TON	CY	CY	SY	FOR INFORMATIONAL PURPOSES ONLY	
Grayson	916	3,727	949		509,858	509,858
Fannin	409	2,065			216,887	216,887
Hunt	1,412	7,154		175,674	751,124	926,798
Rains	188	956			100,317	100,317
Delta	307	1,559			163,709	163,709
Lamar	660	3,247	93		352,567	352,567
Red River	487	2,464			258,772	258,772
Hopkins	933	3,884	870	84,983	516,757	601,740
Franklin	312	838	761		183,257	183,257
Project Total	5,624	25,894	2,673	260,657	3,053,248	3,313,905

ADDITIONAL TRAFFIC CONTROL	
6001-6001	6185-6002
Portable Changeable Message Sign	TMA (Stationary)
Day	Day
30	35

SEAL COAT
CONTRACT TOTALS
SHEET 1 of 1

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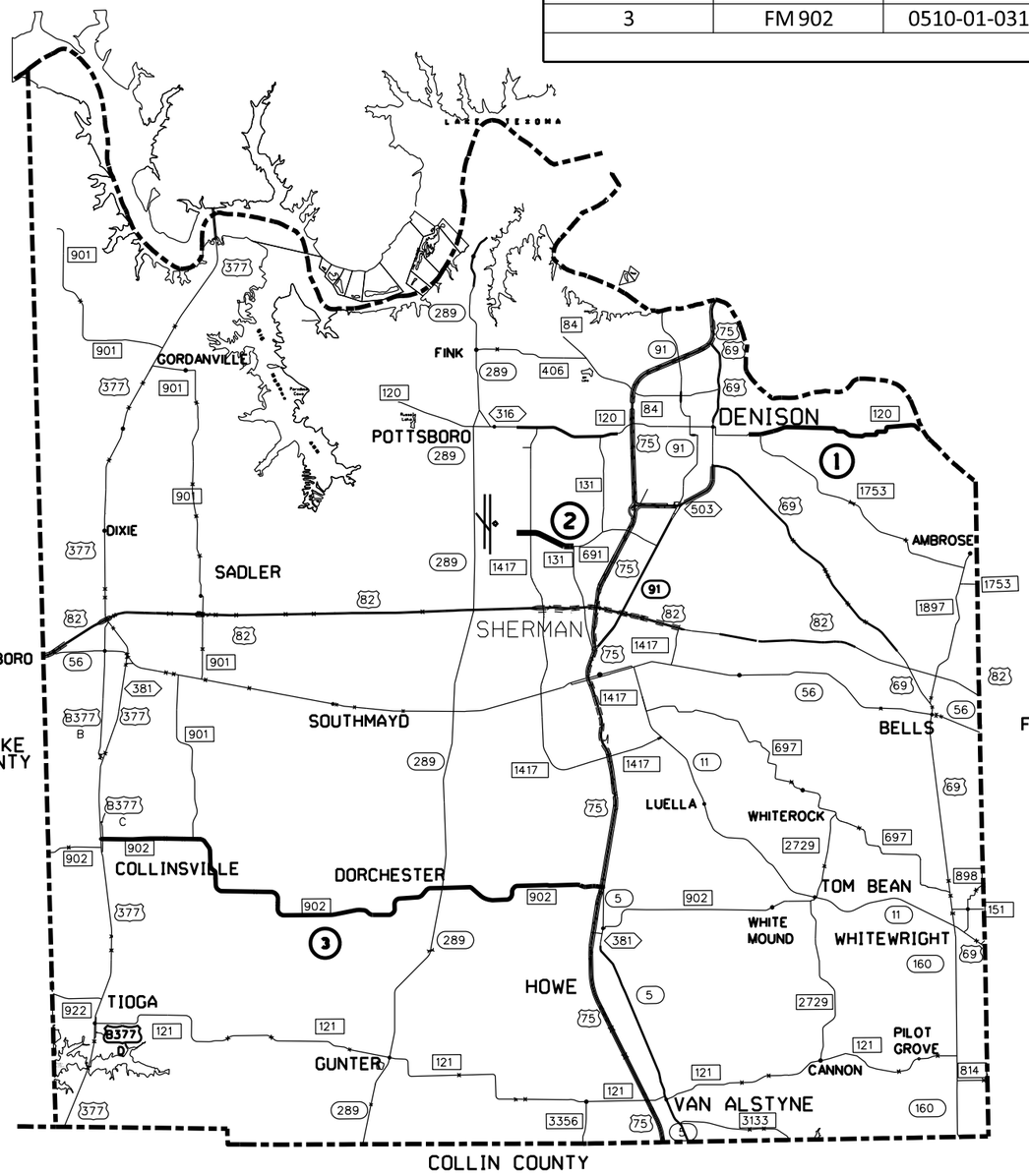
Texas Department of Transportation

CONT	SEC	JOB	HIGHWAY
0009	13	192. ETC.	IH 30. ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT. ETC.		5

DATE$ $TIME$
FILE$ $FILE$

2024 Seal Coat Locations							
Grayson County			Seal Coat Limits				
			FROM		TO		
Reference Number	Highway	C-S-J	Description	TRM	Description	TRM	Length
1	FM 120	0728-02-034	S Crockett Ave.	606+0.287	OK State Line	612+0.825	7.22
2	FM 691	0666-01-034	End of MNT	590+0.000	FM 131 S	592+0.065	2.08
3	FM 902	0510-01-031	US 377	580+0.150	SH 5	600+0.475	20.24
						Total	29.534



IH 30, ETC.
GRAYSON COUNTY PROJECT SUMMARY AND LOCATION MAP
SHEET 1 of 4

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192+ETC.	IH 30+ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT+ETC.		6

DATE: $DATE$ $TIME$
FILE: $FILE$

DN: CK: DW: CK:

2024 GRAYSON COUNTY SEAL COAT QUANTITY SUMMARY

REF. NO	HIGHWAY	C-S-J	ADT	BEGIN STATION	END STATION	LENGTH (LF)	SHOULDER WIDTH (LEFT) AVG. (LF)	SHOULDER WIDTH (RIGHT) AVG. (LF)	ROAD WIDTH (LF)	TRAVEL LANE (SY)	* MISC. SEAL AREA (SY)	SHOULDER AREA (SY)	316-6521 ASPH (AC 20-5TR or AC-20 XP) TON	316-6124 AGGR TY-PB GR 3 (SAC-A) CY	316-6126 AGGR TY-PB GR 4 (SAC-A) CY	3028-6002 FRICTIONAL ASPH SURF PRESERVATION TREATMENT SY
1	FM 120	0728-02-034	4,528	0+00	4+50	450			65	3,250			5		26	
		Start E. of brick		4+50	76+25	7,175			45	35,875			55		287	
				76+25	147+25	7,100			26	20,511	1,242		41	207		
				147+25	287+25	14,000			25	38,889			73	370		
				287+25	372+75	8,550			26	24,700			46	235		
SUBTOTALS										124,467			220	812	313	0
2	FM 691	0666-01-034	5,594	0+00	18+50	1,850			30	6,167	2,166		13		67	
				18+50	29+50	1,100			46	5,622			9		45	
				29+50	54+00	2,450			32	8,711			13		70	
				54+00	90+00	3,600			80	32,000			49		256	
				90+00	102+50	1,250			32	4,444			7		36	
				102+50	108+50	600			50	3,333			5		27	
SUBTOTALS										62,443			96	0	501	0
3	FM 902	0510-01-031	3,048	0+00	54+00	5,400			28	16,800	134		26		135	
				54+00	408+20	35,420			27	106,260	1,343		202	1,025		
		BRIDGE		408+20	409+75	155										
				409+75	818+60	40,885			27	122,655			230	1,168		
		RXR		818+70	819+25	55			27	165			0	2		
				819+45	1000+50	18,105			27	54,315			102	517		
				1000+50	1072+75	7,225			26	20,872			39	199		
		BRIDGE		1072+75	1075+20	245										
				1075+20	1076+60	140			26	404			1	4		
SUBTOTALS										322,948			600	2,915	135	0
Grayson County Totals										509,858			916	3,727	949	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/105 SY

GRADE 4 AGGREGATE
AC ASPHALT 0.36 GAL * SY * 8.54LBS / 2000 = TONS, AGGREGATE GRADE 4 TY PB CY/125 SY

FRICTIONAL ASPHALTIC SURFACE PRESERVATION TREATMENT WILL BE APPLIED IN ACCORDANCE WITH SPECIAL SPEC 3028 OR AS DIRECTED BY ENGINEER

DATE: $DATE$ $TIME$
FILE: $FILE$

IH 30, ETC.

GRAYSON COUNTY
QUANTITY SUMMARY
SHEET 2 of 4

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Texas Department of Transportation

CONT	SEC	JOB	HIGHWAY
0009	13	192.ETC.	IH 30, ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT, ETC.		7

DN: CK: DW: CK:

2024 GRAYSON COUNTY SEAL COAT PAVEMENT MARKING SUMMARY												
REF. NO	HIGHWAY	C-S-J	LENGTH	662-6109 WK ZN PAV MRK SHT TERM (TAB) TY W EA	662-6111 WK ZN PAV MRK SHT TERM (TAB) TY Y-2 EA	666-6178 REF PAV MRK TY II (W) 8" (SLD) LF	666-6181 REF PAV MRK TY II (W) 18" (SLD) LF	666-6182 REF PAV MRK TY II (W) 24" (SLD) LF	666-6184 REF PAV MRK TY II (W) (ARROW) EA	666-6192 REF PAV MRK TY II (W) (WORD) EA	666-6196 REF PAV MRK TY II (W) (RR XING) EA	666-6199 REF PAV MRK TY II (W) 36" (YLD TRI) EA
1	FM 120	0728-02-034	37,275	50	932	128		52			1	5
2	FM 691	0666-01-034	10,850	280	810	620		420	6	6		
3	FM 902	0510-01-031	107,660	120	2,692		60	240			2	
TOTALS				450	4,434	748	60	712	6	6	3	5

2024 GRAYSON COUNTY SEAL COAT PAVEMENT MARKING SUMMARY										
REF. NO	HIGHWAY	C-S-J	LENGTH	666-6171 REFL PAV MRK TY II (W) 6" (BRK) LF	666-6174 REFL PAV MRK TY II (W) 6" (SLD) LF	666-6208 REFL PAV MRK TY II (Y) 6" (BRK) LF	666-6210 REFL PAV MRK TY II (Y) 6" (SLD) LF	672-6007 REFL PAV MRKR TY I-C EA	672-6009 REFL PAV MRKR TY II-A-A EA	672-6010 REFL PAV MRKR TY II-C-R EA	677-6001 ELIM EXT PAV MRK & MRKS (4") LF
1	FM 120	0728-02-034	37,275		74,120	4,740	52,990	14	745		
2	FM 691	0666-01-034	10,850	1,450	21,700	1,450	26,900	210	720		
3	FM 902	0510-01-031	107,660		211,320	12,130	158,184		2,183		365,634
TOTALS				1,450	307,140	18,320	238,074	224	3,648	0	365,634

DATE: $DATE$ $TIME$
FILE: $FILE$

IH 30. ETC.
GRAYSON COUNTY
PAVEMENT MARKING
QUANTITY SUMMARY
SHEET 3 of 4

2023 ® ©
Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192.ETC.	IH 30. ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT. ETC.		8

REF # 1 MISCELLANEOUS QUANTITY SUMMARY							FM 120
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
CITY STREETS	N/S	N/S					
FM1753		N/S					
COUNTY ROAD INT.	N/S	N/S					
Mailbox Turnout	46						1,242
TOTALS							1,242

REF # 2 MISCELLANEOUS QUANTITY SUMMARY							FM 691
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
CITY STREETS	N/S	N/S					
FM1417	N/S	N/S					
COUNTY ROAD INT.	N/S	N/S					
FM131 INT							2166
Mailbox Turnout	0						0
TOTALS							2,166

REF # 3 MISCELLANEOUS QUANTITY SUMMARY							FM 902
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
RADII AT BU 377	X	X			45	60	134
CITY STREETS	N/S	N/S					
FM 901	N/S						
SH 289	N/S	N/S					
COUNTY ROAD INT.	N/S	N/S					
HOWE CITY ST.	N/S	N/S					
RADII AT SH 5	X	X			50	50	119
Mailbox Turnout	51						1,224
TOTALS							1,477

DATE: $DATE$ $TIME$
FILE: $FILE$

IH 30.ETC.
GRAYSON COUNTY MISCELLANEOUS QUANTITY SUMMARY SHEET 4 of 4

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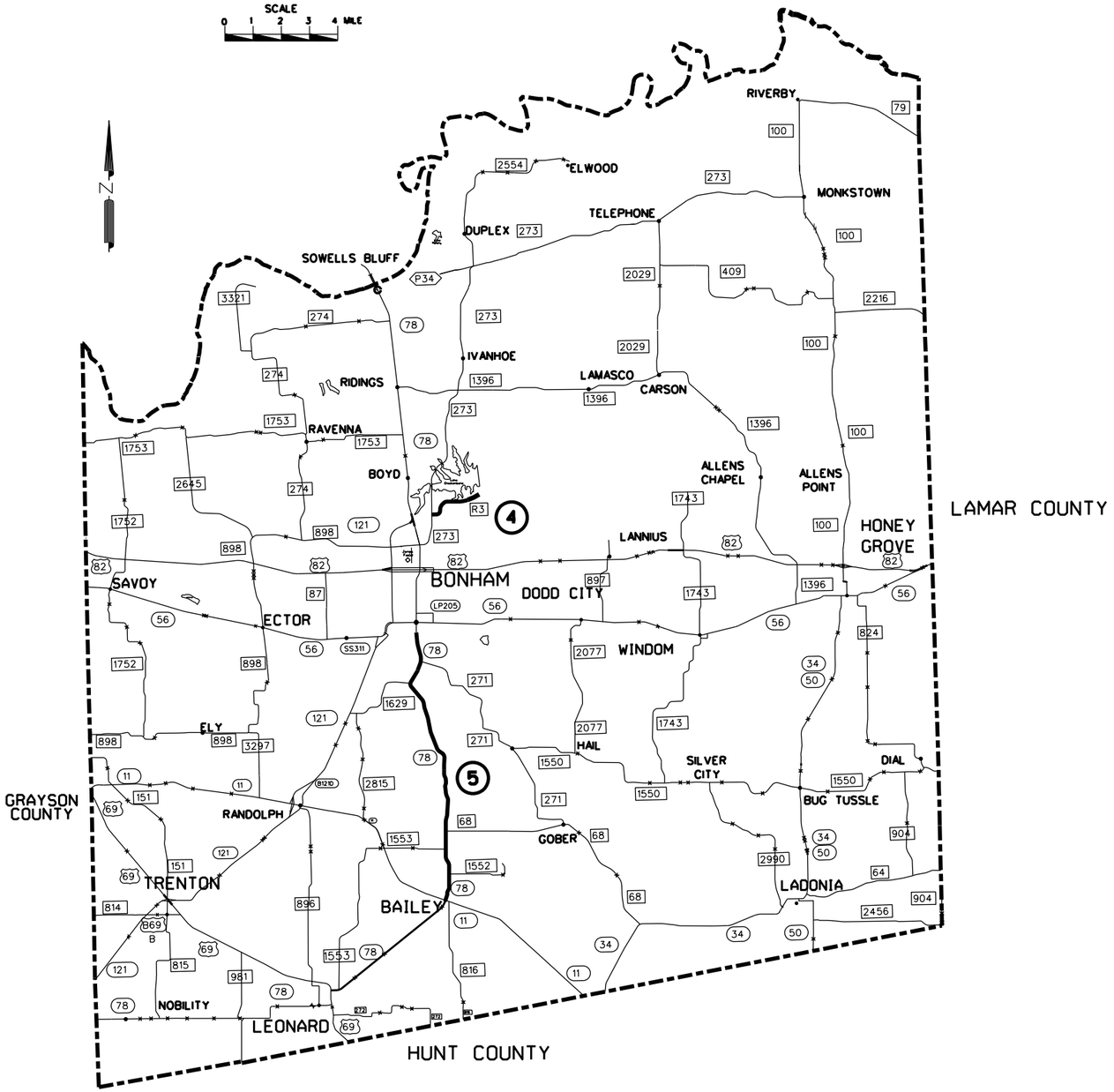
Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192.ETC.	IH 30.ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT.ETC.		9

FANNIN COUNTY

2024 Seal Coat Locations							
Fannin County			Seal Coat Limits				
			FROM		TO		
Reference Number	Highway	C-S-J	Description	TRM	Description	TRM	Length
4	RE 3	3310-01-007	FM 273	622+0.000	End of Maintenance	624+0.057	2.04
5	SH 78	0279-03-041	SH 56 (Bonham)	208+0.322	SH 11 (Bailey)	208+0.510	10.49
						Total	12.530



DATE: $DATE$ $TIME$
FILE: $FILE$

IH30.ETC.
FANNIN COUNTY PROJECT SUMMARY AND LOCATION MAP
SHEET 1 of 4

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192.ETC.	IH 30 .ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT .ETC.		10

2024 FANNIN COUNTY SEAL COAT QUANTITY SUMMARY																
													316-6521	316-6124	316-6126	3028-6002
REF. NO	HIGHWAY	C-S-J	ADT	BEGIN STATION	END STATION	LENGTH (LF)	SHOULDER WIDTH (LEFT) AVG. (LF)	SHOULDER WIDTH (RIGHT) AVG. (LF)	ROAD WIDTH (LF)	TRAVEL LANE (SY)	* MISC. SEAL AREA (SY)	SHOULDER 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	FRICTIONAL ASPH SURF PRESERVATION TREATMENT SY
4	RE 3	3310-01-007	1,179	0+00	47+50	4,750			25	13,194	929		27	135		
				47+50	107+56	6,006			26	17,351			33	165		
SUBTOTALS										31,474			60	300	0	0
5	SH 78	0279-03-041	4,906	0+00	1+77	177			52	1,023	2,587		7	34		
		RXR		1+88	2+77	89			52	514			1	5		
				2+77	28+20	2,543			35	9,889			19	94		
				28+20	542+40	51,420			30	171,400			322	1,632		
SUBTOTALS										185,413			349	1,765	0	0
Fannin County Totals										216,887			409	2,065	0	0

NOTE:

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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/105 SY

GRADE 4 AGGREGATE
AC ASPHALT 0.36 GAL * SY * 8.54LBS / 2000 = TONS, AGGREGATE GRADE 4 TY PB CY/125 SY

FRICTIONAL ASPHALTIC SURFACE PRESERVATION TREATMENT WILL BE APPLIED IN ACCORDANCE WITH SPECIAL SPEC 3028 OR AS DIRECTED BY ENGINEER

IH 30,ETC.
FANNIN COUNTY
QUANTITY SUMMARY
SHEET 2 of 4

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192,ETC.	IH 30,ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT,ETC.		11

DATE: $DATE$ $TIME$
FILE: $FILE$

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2023 FANNIN COUNTY SEAL COAT PAVEMENT MARKING SUMMARY												
REF. NO	HIGHWAY	C-S-J	LENGTH	662-6109 WK ZN PAV MRK SHT TERM (TAB) TY W	662-6111 WK ZN PAV MRK SHT TERM (TAB) TY Y-2	666-6178 REF PAV MRK TY II (W) 8" (SLD)	666-6181 REF PAV MRK TY II (W) 18" (SLD)	666-6182 REF PAV MRK TY II (W) 24" (SLD)	666-6184 REF PAV MRK TY II (W) (ARROW)	666-6192 REF PAV MRK TY II (W) (WORD)	666-6196 REF PAV MRK TY II (W) (RR XING)	666-6199 REF PAV MRK TY II (W) 36" (YLD TRI)
				EA	EA	LF	LF	LF	EA	EA	EA	EA
4	RE 3	3310-01-007	10,756	16	274			38				
5	SH 78	0279-03-041	54,240	48	1,426	250		85			1	4
TOTALS				64	1,700	250	0	123	0	0	1	4

2023 FANNIN COUNTY SEAL COAT PAVEMENT MARKING SUMMARY											
REF. NO	HIGHWAY	C-S-J	LENGTH	666-6171 REFL PAV MRK TY II (W) 6" (BRK)	666-6174 REFL PAV MRK TY II (W) 6" (SLD)	666-6208 REFL PAV MRK TY II (Y) 6" (BRK)	666-6210 REFL PAV MRK TY II (Y) 6" (SLD)	672-6007 REFL PAV MRKR TY I-C	672-6009 REFL PAV MRKR TY II-A-A	672-6010 REFL PAV MRKR TY II-C-R	677-6001 ELIM EXT PAV MRK & MRKS (4")
				LF	LF	LF	LF	EA	EA	EA	
4	RE 3	3310-01-007	10,756		20,620	560	18,746		262		
5	SH 78	0279-03-041	54,240		105,880	5,650	78,713	14	1,266		172,743
TOTALS				0	126,500	6,210	97,459	14	1,528	0	172,743

DATE: $DATE$ $TIME$
FILE: $FILE$

IH 30.ETC.
FANNIN COUNTY
PAVEMENT MARKING
QUANTITY SUMMARY
SHEET 3 of 4

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Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192.ETC.	IH 30.ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT.ETC.		12

REF # 4 MISCELLANEOUS QUANTITY SUMMARY							RE 3
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
RADII AT FM 273	X	X			45	60	134
COUNTY ROAD INT.	N/S	N/S					
RADII AT CR 2610	X	X			25	50	75
Mailbox Turnout	30						720
TOTALS							929

REF # 5 MISCELLANEOUS QUANTITY SUMMARY							SH 78
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
CITY STREETS	N/S	N/S					
FM 271	N/S						
FM 1629		N/S					
HISTORICAL MARKER	X		80	12	5	5	108
FM 68	N/S						
FM 1553		N/S					
COUNTY ROAD INT.	N/S	N/S					
FM 1552	N/S						
CITY STREETS	N/S	N/S					
SHOULDERS	X	X	900	10	15	15	1011
RADII AT SH 11	X	X			40	40	76
Mailbox Turnout	58						1392
TOTALS							2,587

IH 30.ETC.
FANNIN COUNTY MISCELLANEOUS QUANTITY SUMMARY SHEET 4 of 4

2023 ® ©

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192.ETC.	IH 30.ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT.ETC.		13

DATE: $DATE$ $TIME$
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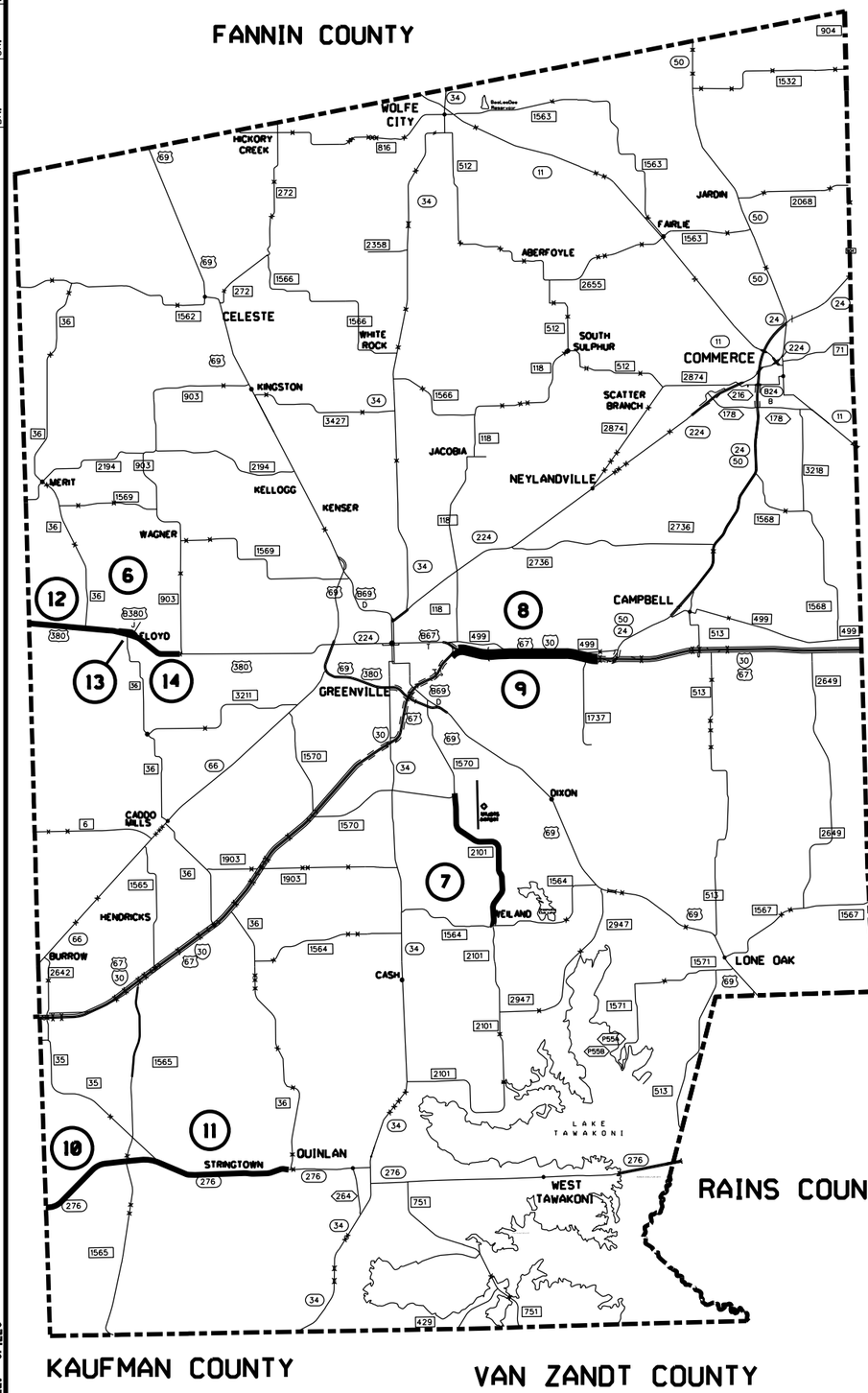

HUNT COUNTY

SCALE 0 1 2 3 4 MILE

N

2024 Seal Coat Locations

Hunt County			Seal Coat Limits				
			FROM		TO		
Reference Number	Highway	C-S-J	Description	TRM	Description	TRM	Length
6	BU0380J	0135-06-035	US 380	616+0.000	US 380	616+1.500	1.51
7	FM2101	2035-01-025	FM 1570	242+1.931	FM 1564	248+0.920	4.95
8	IH0030	0009-13-192	SS 302 (NFR)	96+0.714	SH 24 (NFR)	101+0.337	4.65
9	IH0030	0009-13-193	SS 302 E (SFR)	96+0.654	SH 24 (SFR)	101+0.432	4.72
10	SH0276	1290-05-021	Rockwall County Line	614+0.740	FM 35	618+1.896	3.88
11	SH0276	1017-03-039	FM 35	620+1.705	FM 36	624+0.035	4.11
12	US0380	0135-06-036	Collin County Line	658+0.000	BU 380 J	660+0.470	2.49
13	US0380	0135-14-002	BU 380 J	660+0.470	BU 380 J	662+0.022	1.32
14	US0380	0135-06-037	BU 380 J	662+0.022	FM 903	662+0.564	4.72
						Total	32.35

IH 30,ETC.
HUNT COUNTY
PROJECT SUMMARY
AND LOCATION MAP
SHEET 1 OF 6

2023 ©

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192,ETC.	IH 30,ETC.
DIST		COUNTY	SHEET NO.
PAR		HUNT,ETC.	14

$TIME$
DATE: $DATE$
FILE: $FILE$

2024 HUNT COUNTY SEAL COAT QUANTITY SUMMARY													316-6521	316-6124	316-6126	3028-6002
REF. NO	HIGHWAY	C-S-J	ADT	BEGIN STATION	END STATION	LENGTH (LF)	SHOULDER WIDTH (LEFT) AVG. (LF)	SHOULDER WIDTH (RIGHT) AVG. (LF)	ROAD WIDTH (LF)	TRAVEL LANE (SY)	* MISC. SEAL AREA (SY)	SHOULDER 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	FRICTIONAL ASPH SURF PRESERVATION TREATMENT SY
6	BU 380 J	0135-06-035	151	0+00	20+25	2,025	10	10	24	5,400	890	4,500	12	60		4,500
				20+25	34+50	1,425			55	8,708			16	83		
				34+50	71+20	3,670	10	8	25	10,194		7,340	19	97		7,340
				71+20	79+50	830	10	11	24	2,213		1,937	4	21		1,937
SUBTOTALS										27,405			51	261	0	13,777
7	FM 2101	2035-01-025	1,490	0+00	5+75	575			32	2,044	835		5	27		
				5+75	258+36	25,261			25	70,169			132	668		
SUBTOTALS										73,048			137	695	0	0
8	IH 30 NFR	0009-13-192	1,028	0+00	29+00	2,900			31	9,989	394		20	99		
				29+00	66+50	3,750			35	14,583			27	139		
				66+50	77+00	1,050			33	3,850			7	37		
				77+00	281+20	20,420			31	70,336			132	670		
SUBTOTALS										99,152			186	945	0	0
9	IH 30 SFR	0009-13-193	2,015	0+00	13+00	1,300			31	4,478	680		10	49		
				13+00	65+00	5,200			33	19,067			36	182		
				65+00	253+90	18,890			28	58,769			110	560		
SUBTOTALS										82,994			156	791	0	0

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/105 SY

GRADE 4 AGGREGATE
AC ASPHALT 0.36 GAL * SY * 8.54LBS / 2000 = TONS, AGGREGATE GRADE 4 TY PB CY/125 SY

FRICTIONAL ASPHALTIC SURFACE PRESERVATION TREATMENT WILL BE APPLIED IN ACCORDANCE WITH SPECIAL SPEC 3028 OR AS DIRECTED BY ENGINEER

IH 30.ETC.
HUNT COUNTY
QUANTITY SUMMARY
SHEET 2 of 6

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Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192.ETC.	IH 30.ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT.ETC.		15

CK:
DW:
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DATE: $DATE$ $TIME$
FILE: $FILE$

2024 HUNT COUNTY SEAL COAT QUANTITY SUMMARY													316-6521	316-6124	316-6126	3028-6002
REF. NO	HIGHWAY	C-S-J	ADT	BEGIN STATION	END STATION	LENGTH (LF)	SHOULDER WIDTH (LEFT) AVG. (LF)	SHOULDER WIDTH (RIGHT) AVG. (LF)	ROAD WIDTH (LF)	TRAVEL LANE (SY)	* MISC. SEAL AREA (SY)	SHOULDER 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	FRICTIONAL ASPH SURF PRESERVATION TREATMENT SY
10	SH 276	1290-05-021	9,751	0+00	6+50	650	16	18	48	3,467	0	2,456	7	33		2,456
				6+50	44+75	3825	10	10	65	27,625		8500	52	263		8500
				44+75	66+15	2140	10	10	54	12,840		4756	24	122		4756
				66+15	162+90	9675	10	10	65	69,875		21500	131	665		21500
				162+90	171+80	890	10	10	54	5,340		1978	10	51		1978
				171+80	207+17	3537	10	10	65	25,545		7860	48	243		7860
SUBTOTALS										144,692			272	1,377	0	47,050
11	SH 276	1017-03-039	10,111	207+17	239+55	3,238	10	10	65	23,386	0	7,196	44	223		7,196
		BRIDGE - NO SEAL		239+55	242+75	320										
				242+75	425+00	18,225	10	10	65	131,625		40,500	247	1,254		40,500
				425+00	440+45	1,545	10	10	45	7,725		3,433	15	74		3,433
SUBTOTALS										162,736			306	1,551	0	51,129
12	US 380 EB	0135-06-036	15,650	0+00	58+30	5,830	0	10	29	18,786	6,840	6,478	48	244		6,478
		BRIDGE - NO SEAL		58+30	60+68	238										
				60+68	63+93	325	0	10	29	1,047		361	2	10		361
		BRIDGE - NO SEAL		63+93	65+34	141										
				65+34	109+80	4,446	0	10	29	14,326		4,940	27	136		4,940
	US 380 WB	BRIDGE W. OF BU		0+00	24+00	2,400	0	10	29	7,733		2,667	15	74		2,667
				24+00	123+62	9,962	10	10	26	28,779		22,138	54	274		22,138
SUBTOTALS										77,511			146	738	0	36,584
13	US 380 EB	0135-14-002	13,866	0+00	67+65	6,765	0	10	29	21,798	2,500	7,517	46	231		7,517
	US 380 WB	W. OF X-OVER		0+00	67+65	6,765	10	0	29	21,798		7,517	41	208		7,517
SUBTOTALS										46,096			87	439	0	15,034
14	US 380 EB	0135-06-037	13,241	0+00	54+75	5,475	0	10	29	17,642	2,400	6,083	38	191		6,083
	US 380 WB	BRIDGE W. OF 903		0+00	54+15	5,415	0	10	29	17,448		6,017	33	166		6,017
SUBTOTALS										37,490			71	357	0	12,100
Hunt County Totals										751,124			1,412	7,154	0	175,674

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/105 SY

GRADE 4 AGGREGATE
AC ASPHALT 0.36 GAL * SY * 8.54LBS / 2000 = TONS, AGGREGATE GRADE 4 TY PB CY/125 SY

FRICTIONAL ASPHALTIC SURFACE PRESERVATION TREATMENT WILL BE APPLIED IN ACCORDANCE WITH SPECIAL SPEC 3028 OR AS DIRECTED BY ENGINEER

IH 30.ETC.
HUNT COUNTY
QUANTITY SUMMARY
SHEET 3 of 6

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Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192,ETC.	IH 30,ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT,ETC.		16

DATE: $DATE$ $TIME$
FILE: $FILE$

2024 HUNT COUNTY SEAL COAT PAVEMENT MARKING SUMMARY												
REF. NO	HIGHWAY	C-S-J	LENGTH	662-6109 WK ZN PAV MRK SHT TERM (TAB) TY W	662-6111 WK ZN PAV MRK SHT TERM (TAB) TY Y-2	666-6178 REF PAV MRK TY II (W) 8 "(SLD)	666-6181 REF PAV MRK TY II (W) 18" (SLD)	666-6182 REF PAV MRK TY II (W) 24" (SLD)	666-6184 REF PAV MRK TY II (W) (ARROW)	666-6192 REF PAV MRK TY II (W) (WORD)	666-6196 REF PAV MRK TY II (W) (RR XING)	666-6199 REF PAV MRK TY II (W) 36" (YLD TRI)
				EA	EA	LF	LF	LF	EA	EA	EA	EA
6	BU 380 J	0135-06-035	7,950	175	240	1,120		68	3	3		48
7	FM 2101	2035-01-025	25,836	32	675	175		32				7
8	IH 30 NFR	0009-13-192	28,120	36	700	325		66				16
9	IH 30 SFR	0009-13-193	25,390	36	650	625		26				33
10	SH 276	1290-05-021	20,717	790	1,008	1,200		80	4	4		12
11	SH 276	1017-03-039	23,328	935	1,220	500			2	2		5
12	US 380	0135-06-036	23,342	880	36	2,900		28	21	21		52
13	US 380	0135-14-002	13,530	240	16	1,000		24	8	8		24
14	US 380	0135-06-037	10,890	220	12	1,050		24	8	8		24
TOTALS				3,344	4,557	8,895	0	348	46	46	0	221

2024 HUNT COUNTY SEAL COAT PAVEMENT MARKING SUMMARY											
REF. NO	HIGHWAY	C-S-J	LENGTH	666-6171 REFL PAV MRK TY II (W) 6" (BRK)	666-6174 REFL PAV MRK TY II (W) 6" (SLD)	666-6208 REFL PAV MRK TY II (Y) 6" (BRK)	666-6210 REFL PAV MRK TY II (Y) 6" (SLD)	672-6007 REFL PAV MRKR TY I-C	672-6009 REFL PAV MRKR TY II-A-A	672-6010 REFL PAV MRKR TY II-C-R	677-6001 ELIM EXT PAV MRK & MRKS (4")
				LF	LF	LF	LF	EA	EA	EA	LF
6	BU 380 J	0135-06-035	7,950	440	15,650	360	17,994	48	440		
7	FM 2101	2035-01-025	25,836		50,180	2,970	31,120	8	595		
8	IH 30 NFR	0009-13-192	28,120		54,915	5,250	24,661	36	640	18	
9	IH 30 SFR	0009-13-193	25,390		48,880	3,730	33,905	32	610	24	
10	SH 276	1290-05-021	20,717	10,080	40,390	10,080	40,390	580	1,008		50,470
11	SH 276	1017-03-039	23,328	12,210	48,841	12,210	48,841	640	1,220		61,051
12	US 380	0135-06-036	23,342	6,120	24,620		28,200	8	15	545	
13	US 380	0135-14-002	13,530	3,390	13,660		14,215	6	12	256	
14	US 380	0135-06-037	10,890	2,730	11,180		11,770	4	12	195	
TOTALS				34,970	308,316	34,600	251,096	1,362	4,552	1,038	111,521

IH 30.ETC.
HUNT COUNTY
PAVEMENT MARKING
QUANTITY SUMMARY
SHEET 4 of 6

2023 ®©
Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192.ETC.	IH 30.ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT.ETC.		17

CK:
DW:
CK:
DN:

DATE: $DATE$ $TIME$
FILE: $FILE$

REF # 6 MISCELLANEOUS QUANTITY SUMMARY							BU 380 J
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
RADII AT US 380	X	X			70	60	203
COUNTY ROAD INT.	N/S	N/S					
RADII AT US 380	X	X			120	120	687
Mailbox Turnout	0						0
TOTALS							890

REF # 7 MISCELLANEOUS QUANTITY SUMMARY							FM 2101
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
RADII AT FM 1570	N/S	N/S					0
CITY STREETS	N/S	N/S					0
HISTORICAL MARKER	X		90	12	5	5	121
COUNTY ROAD INT.	N/S	N/S					
RADII AT FM 1564	X	X			35	50	89
Mailbox Turnout	25						625
TOTALS							835

REF # 8 MISCELLANEOUS QUANTITY SUMMARY							IH 30 NFR
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
RADII AT FM 499	X	X			30	50	81
CITY STREETS	N/S	N/S					
RAMPS	N/S						
MLK SIGN	X		120	10	5	5	135
FM 499	N/S						
MESSAGE SIGN		X	120	10	5	5	135
COUNTY ROAD INT.	N/S	N/S					
FM 499	N/S						
RADII AT FM 499/SH 24	X	X			30	30	43
Mailbox Turnout	0						0
TOTALS							394

REF # 9 MISCELLANEOUS QUANTITY SUMMARY							IH 30 SFR
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
SS 302	X		80	52	70	65	680
RAMPS	N/S						
CITY STREETS	N/S	N/S					
COUNTY ROAD INT.	N/S	N/S					
FM 1737		N/S					
Mailbox Turnout	0						0
TOTALS							680

IH 30.ETC.
HUNT COUNTY
MISCELLANEOUS
QUANTITY SUMMARY
SHEET 5 of 6

2023 ©

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192.ETC.	IH 30.ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT.ETC.		18

DATE: $DATE$ $TIME$
FILE: $FILE$

REF # 10 MISCELLANEOUS QUANTITY SUMMARY							SH 276
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
COUNTY ROAD INT.	N/S	N/S					
FM 1565	N/S	N/S					
FM 35	N/S						
Mailbox Turnout	0						0
TOTALS							0

REF # 11 MISCELLANEOUS QUANTITY SUMMARY							SH 276
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
COUNTY ROAD INT.	N/S	N/S					
FM 36	N/S						
Mailbox Turnout	0						0
TOTALS							0

REF # 12 MISCELLANEOUS QUANTITY SUMMARY							US 380
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
X-OVER	X						1800
X-OVER	X						1200
COUNTY ROAD INT.	N/S	N/S					
X-OVER	X						1200
FM 36		N/S					
X-OVER	X						1200
X-OVER	X						1440
Mailbox Turnout	0						0
TOTALS							6,840

REF # 13 MISCELLANEOUS QUANTITY SUMMARY							US 380
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
X-OVER	X						1200
BU 380	N/S						
FM 36		N/S					
X-OVER	X						1300
COUNTY ROAD INT.	N/S	N/S					
Mailbox Turnout	0						0
TOTALS							2,500

REF # 14 MISCELLANEOUS QUANTITY SUMMARY							US 380
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
COUNTY ROAD INT.	N/S	N/S					
X-OVER	X						1200
BU 380	N/S						
X-OVER	X						1200
Mailbox Turnout	0						0
TOTALS							2,400

IH 30.ETC.
HUNT COUNTY
MISCELLANEOUS
QUANTITY SUMMARY
SHEET 6 of 6

2023 ®©

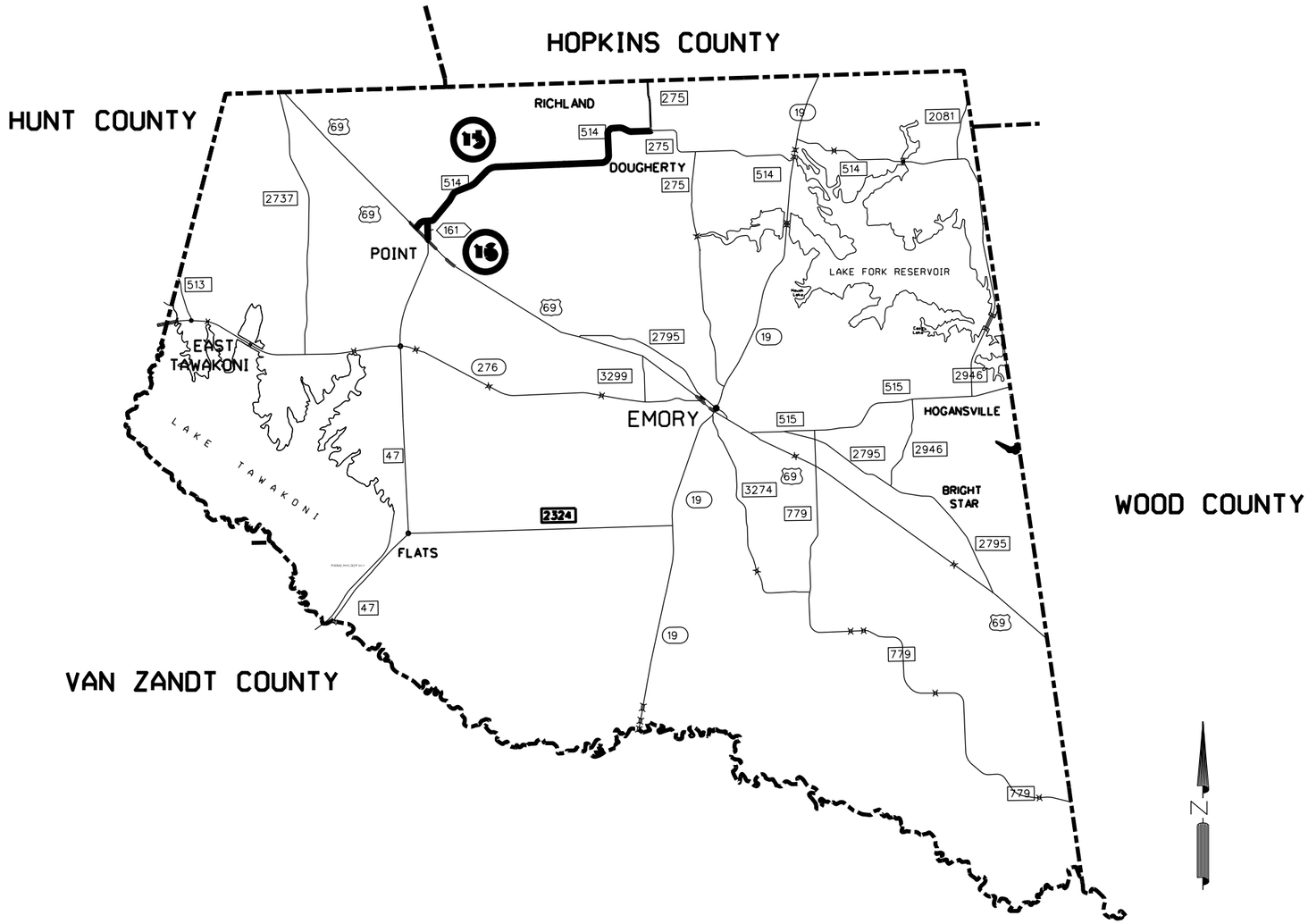
Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192.ETC.	IH 30.ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT.ETC.		19

CK:
DW:
CK:
DN:

DATE: $DATE$ $TIME$
FILE: $FILE$

2024 Seal Coat Locations							
Rains County			Seal Coat Limits				
			FROM		TO		
Reference Number	Highway	C-S-J	Description	TRM	Description	TRM	Length
15	FM 514	0770-02-016	US 69	640+0.000	FM 275 N	646+0.319	6.360
16	SS 161	0203-07-003	FM 514	252+0.000	US 69	252+0.388	0.420
						Total	6.780



IH 30. ETC.
RAINS COUNTY PROJECT SUMMARY AND LOCATION MAP
SHEET 1 OF 4

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192.ETC.	IH 30. ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT.ETC.		20

DATE: $DATE$ $TIME$
FILE: $FILE$

CK:
DW:
CK:
DN:

2024 RAINS COUNTY SEAL COAT QUANTITY SUMMARY													316-6521	316-6124	316-6126	3028-6002
REF. NO	HIGHWAY	C-S-J	ADT	BEGIN STATION	END STATION	LENGTH (LF)	SHOULDER WIDTH (LEFT) AVG. (LF)	SHOULDER WIDTH (RIGHT) AVG. (LF)	ROAD WIDTH (LF)	TRAVEL LANE (SY)	* MISC. SEAL AREA (SY)	SHOULDER 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	FRICTIONAL ASPH SURF PRESERVATION TREATMENT SY
15	FM 514	0770-02-016	529	0+00	101+50	10,150			25	28,194	954		55	278		
				101+50	105+00	350			33	1,283			2	12		
				105+00	200+50	9,550			25	26,528			50	253		
				200+50	211+80	1,130			33	4,143			8	39		
				211+80	333+35	12,155			25	33,764			63	322		
SUBTOTALS										94,866		0	178	904	0	0
16	SS 161	0203-07-003	614	0+00	22+18	2,218			21	5,175	276		10	52		
SUBTOTALS										5,451		0	10	52	0	0
Rains County Totals										100,317			188	956	0	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/105 SY

GRADE 4 AGGREGATE
AC ASPHALT 0.36 GAL * SY * 8.54LBS / 2000 = TONS, AGGREGATE GRADE 4 TY PB CY/125 SY

FRICTIONAL ASPHALTIC SURFACE PRESERVATION TREATMENT WILL BE APPLIED IN ACCORDANCE WITH SPECIAL SPEC 3028 OR AS DIRECTED BY ENGINEER

DATE: $DATE$ $TIME$
FILE: $FILE$

IH 30. ETC.
RAINS COUNTY
QUANTITY SUMMARY
SHEET 2 of 4

2023 ® ©
Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192.ETC.	IH 30. ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT.ETC.		21

2024 RAINS COUNTY SEAL COAT PAVEMENT MARKING SUMMARY												
REF. NO	HIGHWAY	C-S-J	LENGTH	662-6109 WK ZN PAV MRK SHT TERM (TAB) TY W	662-6111 WK ZN PAV MRK SHT TERM (TAB) TY Y-2	666-6178 REF PAV MRK TY II (W) 8 "(SLD)	666-6181 REF PAV MRK TY II (W) 18" (SLD)	666-6182 REF PAV MRK TY II (W) 24" (SLD)	666-6184 REF PAV MRK TY II (W) (ARROW)	666-6192 REF PAV MRK TY II (W) (WORD)	666-6196 REF PAV MRK TY II (W) (RR XING)	666-6199 REF PAV MRK TY II (W) 36" (YLD TRI)
				EA	EA	LF	LF	LF	EA	EA	EA	EA
15	FM 514	0770-02-016	33,335	68	833	100		28				5
16	SS 161	0203-07-003	2,218	16	56	60		34				4
TOTALS				84	889	160	0	62	0	0	0	9

2024 RAINS COUNTY SEAL COAT PAVEMENT MARKING SUMMARY											
REF. NO	HIGHWAY	C-S-J	LENGTH	666-6171 REFL PAV MRK TY II (W) 6" (BRK)	666-6174 REFL PAV MRK TY II (W) 6" (SLD)	666-6208 REFL PAV MRK TY II (Y) 6" (BRK)	666-6210 REFL PAV MRK TY II (Y) 6" (SLD)	672-6007 REFL PAV MRKR TY I-C	672-6009 REFL PAV MRKR TY II-A-A	672-6010 REFL PAV MRKR TY II-C-R	677-6001 ELIM EXT PAV MRK & MRKS (4")
				LF	LF	LF	LF	EA	EA	EA	LF
15	FM 514	0770-02-016	33,335		65,668	3,600	50,007	18	805		
16	SS 161	0203-07-003	2,218				4,410	6	46		
TOTALS				0	65,668	3,600	54,417	24	851	0	0

IH 30. ETC.
RAINS COUNTY
PAVEMENT MARKING
QUANTITY SUMMARY
SHEET 3 of 4

2021 ®©

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192.ETC.	IH 30.ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT.ETC.		22

DATE: $DATE$ $TIME$
FILE: $FILE$

REF # 15 MISCELLANEOUS QUANTITY SUMMARY							FM 514
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
RADII AT US 69	X	X			85	60	258
Point Texas City St's	N/S	N/S					0
COUNTY ROAD INT.	N/S	N/S					
RADII AT FM 275 N	X	X			45	55	120
Mailbox Turnout	24						576
TOTALS							954

REF # 16 MISCELLANEOUS QUANTITY SUMMARY							SS 161
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
RADII AT FM 514	X	X			35	30	51
Point Texas City St's	N/S	N/S					0
RADII AT US 69	X	X			80	55	225
Mailbox Turnout	0						0
TOTALS							276

IH 30. ETC.
RAINS COUNTY
MISCELLANEOUS
QUANTITY SUMMARY
SHEET 4 of 4

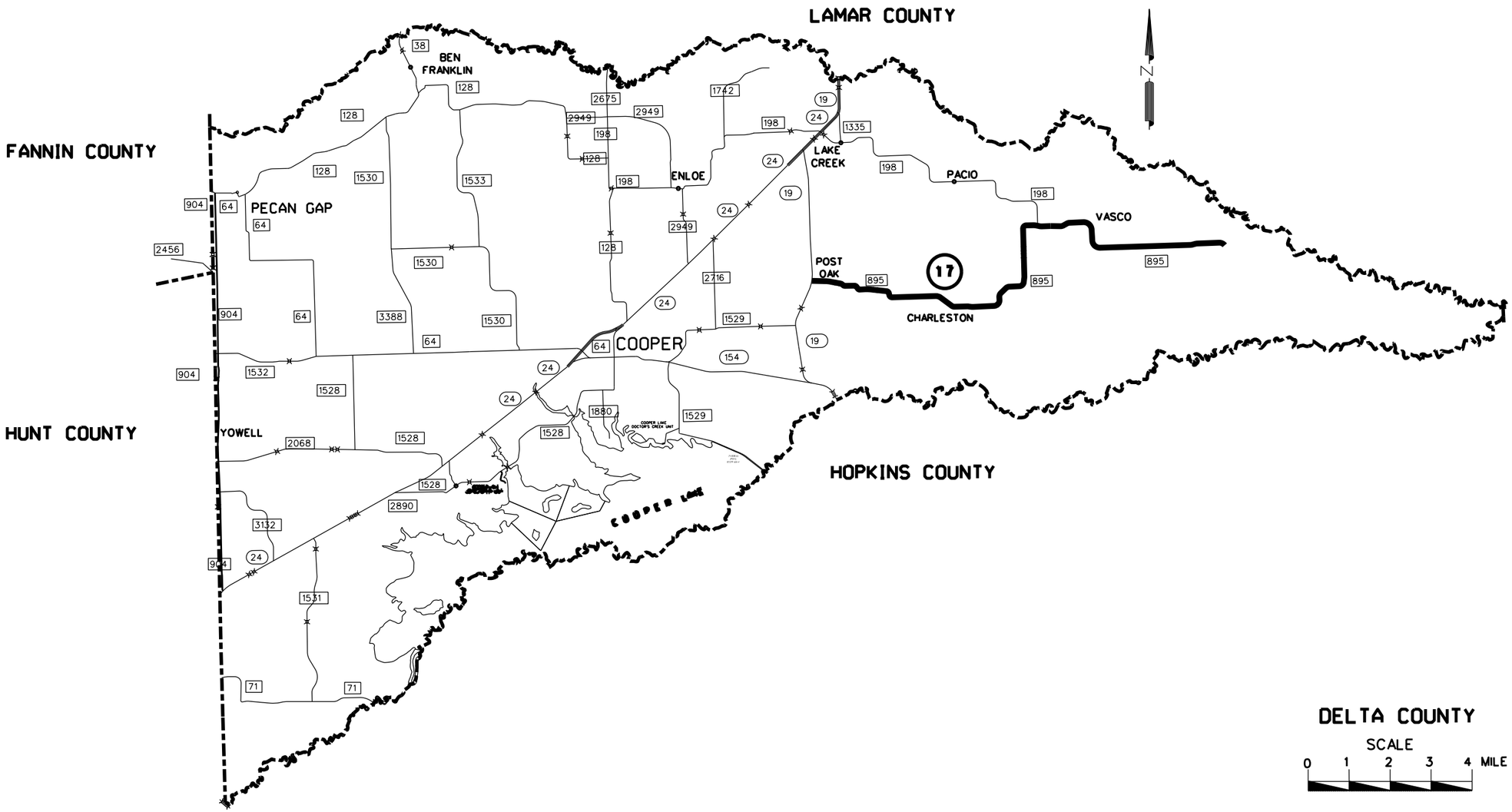
2023 ® ©

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192.ETC.	IH 30.ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT.ETC.		23

DATE: $DATE$ $TIME$
FILE: $FILE$

2024 Seal Coat Locations							
Delta County			Seal Coat Limits				
			FROM		TO		
Reference Number	Highway	C-S-J	Description	TRM	Description	TRM	Length
17	FM 895	1174-01-022	SH 19	654+0.000	End	667+0.633	12.630
						Total	12.630



DELTA COUNTY

SCALE

0 1 2 3 4 MILE

IH 30, ETC.

DELTA COUNTY PROJECT SUMMARY AND LOCATION MAP

SHEET 1 of 4

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192,ETC.	IH 30,ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT,ETC.		24

DATE: $DATE$ $TIME$
FILE: $FILE$

2024 DELTA COUNTY SEAL COAT QUANTITY SUMMARY													316-6521	316-6124	316-6126	3028-6002
REF. NO	HIGHWAY	C-S-J	ADT	BEGIN STATION	END STATION	LENGTH (LF)	SHOULDER WIDTH (LEFT) AVG. (LF)	SHOULDER WIDTH (RIGHT) AVG. (LF)	ROAD WIDTH (LF)	TRAVEL LANE (SY)	* MISC. SEAL AREA (SY)	SHOULDER 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	FRICTIONAL ASPH SURF PRESERVATION TREATMENT SY
17	FM 895	1174-01-022	491	0+00	34+59	3,459			23	8,840	1,609	0	20	100		
		BRIDGE - NO SEAL		34+59	35+60	101										
				35+60	37+60	200			30	667			1	6		
				37+60	83+35	4,575			23	11,692			22	111		
				83+35	85+60	225			30	750			1	7		
		BRIDGE - NO SEAL		85+60	86+60	100										
				86+60	88+85	225			30	750			1	7		
				88+85	225+35	13,650			23	34,883			66	332		
				225+35	347+75	12,240			22	29,920			56	285		
				347+75	349+55	180			26	520			1	5		
		BRIDGE - NO SEAL		349+55	350+50	95										
				350+50	352+50	200			26	578			1	6		
				352+50	667+50	31,500			21	73,500			138	700		
SUBTOTALS										163,709			307	1,559	0	0
Delta County Totals										163,709			307	1,559	0	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/105 SY

GRADE 4 AGGREGATE
AC ASPHALT 0.36 GAL * SY * 8.54LBS / 2000 = TONS, AGGREGATE GRADE 4 TY PB CY/125 SY

FRICTIONAL ASPHALTIC SURFACE PRESERVATION TREATMENT WILL BE APPLIED IN ACCORDANCE WITH SPECIAL SPEC 3028 OR AS DIRECTED BY ENGINEER

IH 30.ETC.
DELTA COUNTY
QUANTITY SUMMARY
SHEET 2 of 4

2023 ©
Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192. ETC.	IH 30.ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT.ETC.		25

CK:
DW:
CK:
DN:

DATE: $DATE$ $TIME$
FILE: $FILE$

2024 DELTA COUNTY SEAL COAT PAVEMENT MARKING SUMMARY												
REF. NO	HIGHWAY	C-S-J	LENGTH	662-6109 WK ZN PAV MRK SHT TERM (TAB) TY W	662-6111 WK ZN PAV MRK SHT TERM (TAB) TY Y-2	666-6178 REF PAV MRK TY II (W) 8" (SLD)	666-6181 REF PAV MRK TY II (W) 18" (SLD)	666-6182 REF PAV MRK TY II (W) 24" (SLD)	666-6184 REF PAV MRK TY II (W) (ARROW)	666-6192 REF PAV MRK TY II (W) (WORD)	666-6196 REF PAV MRK TY II (W) (RR XING)	666-6199 REF PAV MRK TY II (W) 36" (YLD TRI)
				EA	EA	LF	LF	LF	EA	EA	EA	EA
17	FM 895	1174-01-022	66,745	22	1,610	140		14				5
TOTALS				22	1,610	140	0	14	0	0	0	5

2024 DELTA COUNTY SEAL COAT PAVEMENT MARKING SUMMARY											
REF. NO	HIGHWAY	C-S-J	LENGTH	666-6171 REFL PAV MRK TY II (W) 6" (BRK)	666-6174 REFL PAV MRK TY II (W) 6" (SLD)	666-6208 REFL PAV MRK TY II (Y) 6" (BRK)	666-6210 REFL PAV MRK TY II (Y) 6" (SLD)	672-6007 REFL PAV MRKR TY I-C	672-6009 REFL PAV MRKR TY II-A-A	672-6010 REFL PAV MRKR TY II-C-R	677-6001 ELIM EXT PAV MRK & MRKS (4")
				LF	LF	LF	LF	EA	EA	EA	LF
17	FM 895	1174-01-022	66,745			7,090	89,422	8	1,472		
TOTALS				0	0	7,090	89,422	8	1,472	0	0

IH 30.ETC.
DELTA COUNTY
PAVEMENT MARKING
QUANTITY SUMMARY
SHEET 3 of 4

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192. ETC.	IH 30. ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT.ETC.		26

DATE: $DATE$ $TIME$
FILE: $FILE$

REF # 17 MISCELLANEOUS QUANTITY SUMMARY							FM 895
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
RADII AT SH 19	X	X			80	80	305
COUNTY ROAD INT.	N/S	N/S					
HISTORICAL MARKER			80	14			124
Mailbox Turnout	59						1180
TOTALS							1,609

IH 30. ETC.
DELTA COUNTY
MISCELLANEOUS
QUANTITY SUMMARY
SHEET 4 of 4

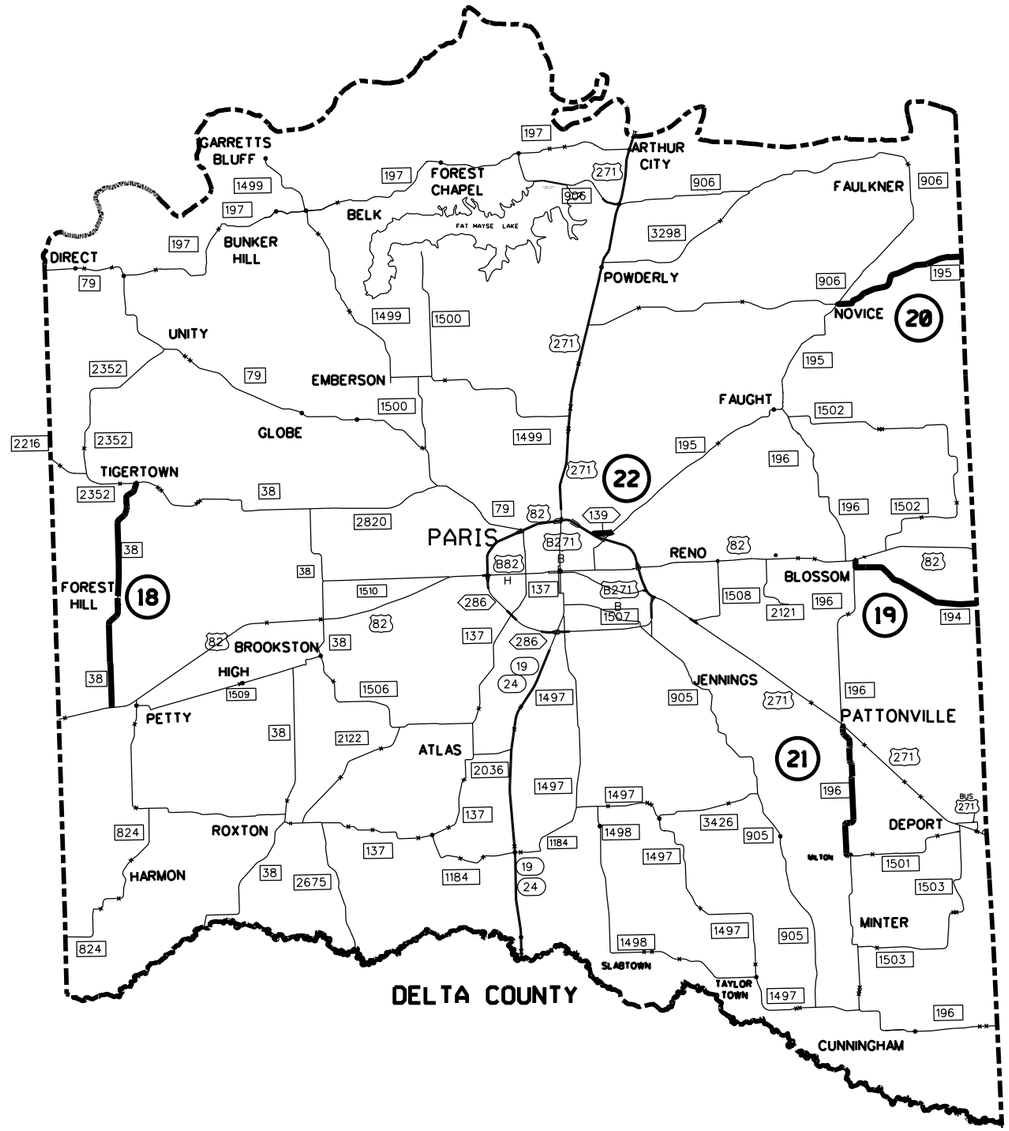
2023

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192. ETC.	IH 30. ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT. ETC.		27

DATE: $DATE$ $TIME$
FILE: $FILE$

2024 Seal Coat Locations							
Lamar County			Seal Coat Limits				
			FROM		TO		
Reference Number	Highway	C-S-J	Description	TRM	Description	TRM	Length
18	FM 38	0435-01-085	US 82 (Petty)	204+1.928	FM 2352	214+0.060	8.06
19	FM 194	0045-16-012	US 82	666+0.868	Red River County Line	670+0.781	4.78
20	FM 195	0730-02-059	FM 906	668+1.404	Red River County Line	676+0.042	4.74
21	FM 196	0680-01-018	US 271	210+0.534	FM 1501	214+1.383	4.85
22	SS 139	1690-02-004	LP 286	654+1.955	FM 195	656+0.587	0.63
						Total	23.060



IH30.ETC.
LAMAR COUNTY PROJECT SUMMARY AND LOCATION MAP
SHEET 1 of 4

2023 © Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192,ETC.	IH 30,ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT,ETC.		28

DATE: $DATE$ $TIME$
FILE: $FILE$

2024 LAMAR COUNTY SEAL COAT QUANTITY SUMMARY													316-6521	316-6124	316-6126	3028-6002
REF. NO	HIGHWAY	C-S-J	ADT	BEGIN STATION	END STATION	LENGTH (LF)	SHOULDER WIDTH (LEFT) AVG. (LF)	SHOULDER WIDTH (RIGHT) AVG. (LF)	ROAD WIDTH (LF)	TRAVEL LANE (SY)	* MISC. SEAL AREA (SY)	SHOULDER 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	FRICTIONAL ASPH SURF PRESERVATION TREATMENT SY
18	FM 38	0435-01-085	1,305	0+00	273+80	27,380			29	88,224	1,487	0	169	854		
				273+80	425+25	15,145			27	45,435			85	433		
SUBTOTALS										135,146			254	1,287	0	0
19	FM 194	0045-16-012	1,624	0+00	14+00	1,400			26	4,044	225	0	8	41		
				14+00	109+30	9,530			25	26,472			50	252		
		BRDGE - NO SEAL		109+30	110+30	100										
				110+30	184+35	7,405			25	20,569			39	196		
		BRDGE - NO SEAL		184+35	185+20	85										
				185+20	251+44	6,624			22	16,192			30	154		
SUBTOTALS										67,502			127	643	0	0
20	FM 195	0730-02-059	454	0+00	170+00	17,000			26	49,111	155	0	93	469		
				170+00	173+65	365			42	1,703			3	16		
		BRDGE - NO SEAL		173+65	177+85	420										
				177+85	180+90	305			42	1,423			3	14		
				180+90	249+85	6,895			27	20,685			39	197		
SUBTOTALS										73,077			138	696	0	0
21	FM 196	0680-01-018	1,197	0+00	232+00	23,200			25	64,444	756	0	122	621		
SUBTOTALS										65,200			122	621	0	0
22	SS 139	1690-02-004	1,192	0+00	6+50	650			48	3,467	302	0	6		30	
				6+50	28+10	2,160			26	6,240			10		50	
				28+10	33+00	490			30	1,633			3		13	
SUBTOTALS										11,642			19	0	93	0
Lamar County Totals										352,567			660	3,247	93	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/105 SY

GRADE 4 AGGREGATE
AC ASPHALT 0.36 GAL * SY * 8.54LBS / 2000 = TONS, AGGREGATE GRADE 4 TY PB CY/125 SY

FRICTIONAL ASPHALTIC SURFACE PRESERVATION TREATMENT WILL BE APPLIED IN ACCORDANCE WITH SPECIAL SPEC 3028 OR AS DIRECTED BY ENGINEER

IH 30, ETC.

LAMAR COUNTY
QUANTITY SUMMARY
SHEET 2 of 4

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192,ETC.	IH 30,ETC.
DIST	COUNTY		
PAR	HUNT, ETC.		29

DATE: $DATE$ $TIME$
FILE: $FILE$

2024 LAMAR COUNTY SEAL COAT PAVEMENT MARKING SUMMARY												
REF. NO	HIGHWAY	C-S-J	LENGTH	662-6109 WK ZN PAV MRK SHT TERM (TAB) TY W	662-6111 WK ZN PAV MRK SHT TERM (TAB) TY Y-2	666-6178 REF PAV MRK TY II (W) 8" (SLD)	666-6181 REF PAV MRK TY II (W) 18" (SLD)	666-6182 REF PAV MRK TY II (W) 24" (SLD)	666-6184 REF PAV MRK TY II (W) (ARROW)	666-6192 REF PAV MRK TY II (W) (WORD)	666-6196 REF PAV MRK TY II (W) (RR XING)	666-6199 REF PAV MRK TY II (W) 36" (YLD TRI)
				EA	EA	LF	LF	LF	EA	EA	EA	EA
18	FM 38	0435-01-085	42,525	56	1,063	400		34				14
19	FM 194	0045-16-012	25,144	48	629			72				
20	FM 195	0730-02-059	24,985	12	625	140		16				5
21	FM 196	0680-01-018	23,200	10	610		26					
22	SS 139	1690-02-004	3,300	42	84	120		64				5
TOTALS				168	3,011	660	26	186	0	0	0	24

2024 LAMAR COUNTY SEAL COAT PAVEMENT MARKING SUMMARY											
REF. NO	HIGHWAY	C-S-J	LENGTH	666-6171 REFL PAV MRK TY II (W) 6" (BRK)	666-6174 REFL PAV MRK TY II (W) 6" (SLD)	666-6208 REFL PAV MRK TY II (Y) 6" (BRK)	666-6210 REFL PAV MRK TY II (Y) 6" (SLD)	672-6007 REFL PAV MRKR TY I-C	672-6009 REFL PAV MRKR TY II-A-A	672-6010 REFL PAV MRKR TY II-C-R	677-6001 ELIM EXT PAV MRK & MRKS (4")
				LF	LF	LF	LF	EA	EA	EA	LF
18	FM 38	0435-01-085	42,525		85,050	7,100	43,058	40	893		135,208
19	FM 194	0045-16-012	25,144		34,775	3,880	26,667		527		
20	FM 195	0730-02-059	24,985		49,966	2,990	36,137	16	601		89,093
21	FM 196	0680-01-018	23,200		45,405	4,000	23,600		468		73,005
22	SS 139	1690-02-004	3,300		6,600		6,600		84		
TOTALS				0	221,796	17,970	136,062	56	2,573	0	297,306

IH 30.ETC.
LAMAR COUNTY
PAVEMENT MARKING
QUANTITY SUMMARY
SHEET 3 of 4

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192.ETC.	IH 30 .ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT.ETC.		30

CK:
DW:
CK:
DN:

DATE: $DATE$ $TIME$
FILE: $FILE$

REF # 18 MISCELLANEOUS QUANTITY SUMMARY							FM 38
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
RADII AT FM 2352	X	X			100	140	706
COUNTY ROAD INT.	N/S	N/S					
RADII AT US 82	X	X			60	65	187
Mailbox Turnout	22						594
TOTALS							1,487

REF # 20 MISCELLANEOUS QUANTITY SUMMARY							FM 195
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
RADII AT FM 906	X	X			70	40	155
COUNTY ROAD INT.	N/S	N/S					
Mailbox Turnout	0						0
TOTALS							155

REF # 22 MISCELLANEOUS QUANTITY SUMMARY							SS 139
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
RADII AT LP 286	X	X			45	75	182
RADII AT FM 195	X	X			55	45	120
Mailbox Turnout	0						0
TOTALS							302

REF # 19 MISCELLANEOUS QUANTITY SUMMARY							FM 194
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
RADII AT US 82	X	X			40	60	124
RADII AT TURN	X				65		101
CITY STREETS	N/S	N/S					0
COUNTY ROAD INT.	N/S	N/S					
Mailbox Turnout	0						0
TOTALS							225

REF # 21 MISCELLANEOUS QUANTITY SUMMARY							FM 196
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
COUNTY ROAD INT.	N/S	N/S					
FM 1501	N/S						0
Mailbox Turnout	28						756
TOTALS							756

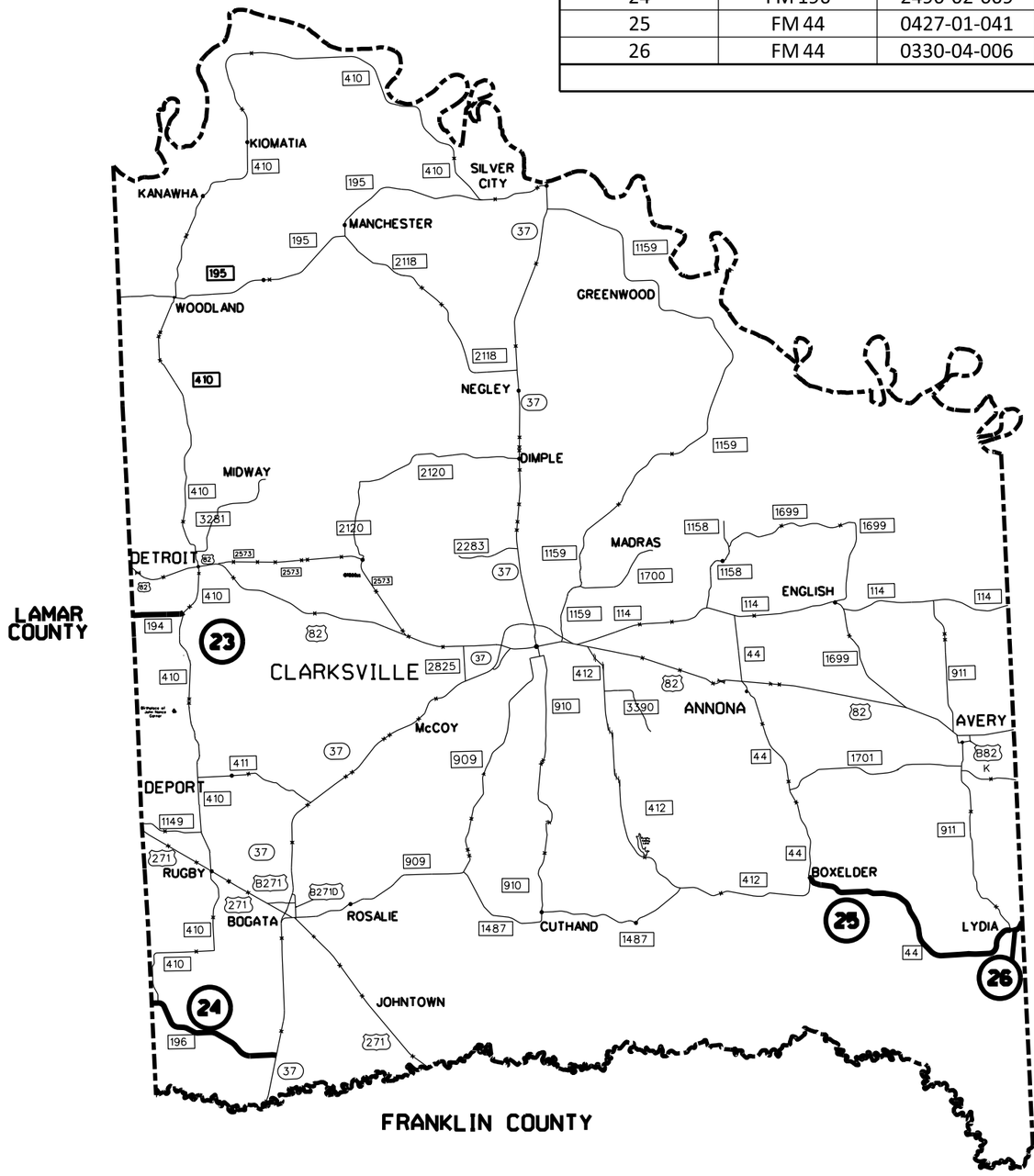
IH 30,ETC.
LAMAR COUNTY MISCELLANEOUS QUANTITY SUMMARY
SHEET 4 of 4

2023 ®©
Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192,ETC.	IH 30,ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT, ETC.		31

DATE: $DATE$ $TIME$
FILE: $FILE$

2024 Seal Coat Locations							
Red River County			Seal Coat Limits				
			FROM		TO		
Reference Number	Highway	C-S-J	Description	TRM	Description	TRM	Length
23	FM 194	0045-17-007	Lamar County Line	670+0.781	FM 410	672+1.870	1.89
24	FM 196	2490-02-009	Lamar County Line	226+0.210	SH 37	232+1.452	5.47
25	FM 44	0427-01-041	FM 412	212+0.463	FM 911	220+1.924	9.50
26	FM 44	0330-04-006	FM 911	222+0.014	Bowie County Line	224+0.041	0.61
						Total	17.460



IH 30.ETC
RED RIVER COUNTY PROJECT SUMMARY AND LOCATION MAP
SHEET 1 of 4

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192.ETC.	IH 30 .ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT, ETC.		32

DATE: $DATE$
FILE: $FILE$

2024 RED RIVER COUNTY SEAL COAT QUANTITY SUMMARY													316-6521	316-6124	316-6126	3028-6002
REF. NO	HIGHWAY	C-S-J	ADT	BEGIN STATION	END STATION	LENGTH (LF)	SHOULDER WIDTH (LEFT) AVG. (LF)	SHOULDER WIDTH (RIGHT) AVG. (LF)	ROAD WIDTH (LF)	TRAVEL LANE (SY)	* MISC. SEAL AREA (SY)	SHOULDER 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	FRICTIONAL ASPH SURF PRESERVATION TREATMENT SY
23	FM 194	0045-17-007	211	0+00	36+96	3,696			22	9,035	48	0	17	87		
	Bridge	No Seal		36+96	37+76	80										
				37+76	98+53	6,077			22	14,855		0	28	141		
SUBTOTALS										23,938			45	228	0	0
24	FM 196	2490-02-009	494	0+00	287+84	28,784			25	79,956	163	0	151	763		
SUBTOTALS										80,119			151	763	0	0
25	FM 44	0427-01-041	98	0+00	500+50	50,050			26	144,589	1,306	0	274	1,389		
SUBTOTALS										145,895			274	1,389	0	0
26	FM 44	0330-04-006	132	0+00	29+15	2,915			27	8,745	75	0	17	84		
SUBTOTALS										8,820			17	84	0	0
Red River County Totals										258,772			487	2,464	0	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/105 SY

GRADE 4 AGGREGATE
AC ASPHALT 0.36 GAL * SY * 8.54LBS / 2000 = TONS, AGGREGATE GRADE 4 TY PB CY/125 SY

FRICTIONAL ASPHALTIC SURFACE PRESERVATION TREATMENT WILL BE APPLIED IN ACCORDANCE WITH SPECIAL SPEC 3028 OR AS DIRECTED BY ENGINEER

IH 30.ETC.
RED RIVER COUNTY
QUANTITY SUMMARY
SHEET 2 of 4

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Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192.ETC.	IH 30.ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT.ETC.		33

CK:
DW:
CK:
DN:

DATE: $DATE$ $TIME$
FILE: $FILE$

2024 RED RIVER COUNTY SEAL COAT PAVEMENT MARKING SUMMARY												
REF. NO	HIGHWAY	C-S-J	LENGTH	662-6109 WK ZN PAV MRK SHT TERM (TAB) TY W	662-6111 WK ZN PAV MRK SHT TERM (TAB) TY Y-2	666-6178 REF PAV MRK TY II (W) 8" (SLD)	666-6181 REF PAV MRK TY II (W) 18" (SLD)	666-6182 REF PAV MRK TY II (W) 24" (SLD)	666-6184 REF PAV MRK TY II (W) (ARROW)	666-6192 REF PAV MRK TY II (W) (WORD)	666-6196 REF PAV MRK TY II (W) (RR XING)	666-6199 REF PAV MRK TY II (W) 36" (YLD TRI)
				EA	EA	LF	LF	LF	EA	EA	EA	EA
23	FM 194	0045-17-007	9,853		248							
24	FM 196	2490-02-009	28,784	30	856	300		26				
25	FM 44	0427-01-041	50,050					22				
26	FM 44	0330-04-006	2,915									
TOTALS				30	1,104	300	0	48	0	0	0	0

2024 RED RIVER COUNTY SEAL COAT PAVEMENT MARKING SUMMARY											
REF. NO	HIGHWAY	C-S-J	LENGTH	666-6171 REFL PAV MRK TY II (W) 6" (BRK)	666-6174 REFL PAV MRK TY II (W) 6" (SLD)	666-6208 REFL PAV MRK TY II (Y) 6" (BRK)	666-6210 REFL PAV MRK TY II (Y) 6" (SLD)	672-6007 REFL PAV MRKR TY I-C	672-6009 REFL PAV MRKR TY II-A-A	672-6010 REFL PAV MRKR TY II-C-R	677-6001 ELIM EXT PAV MRK & MRKS (4")
				LF	LF	LF	LF	EA	EA	EA	LF
23	FM 194	0045-17-007	9,853			2,310	6,596		198		
24	FM 196	2490-02-009	28,784		57,568	5,360	31,960	18	728		
25	FM 44	0427-01-041	50,050		98,960	7,250	44,550		1,012		
26	FM 44	0330-04-006	2,915		5,830		5,830		75		
TOTALS				0	162,358	14,920	88,936	18	2,013	0	0

IH 30.ETC.
RED RIVER COUNTY
PAVEMENT MARKING
QUANTITY SUMMARY
SHEET 3 of 4

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192.ETC.	IH 30.ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT.ETC.		34

DATE: $DATE$ $TIME$
FILE: $FILE$

REF # 23 MISCELLANEOUS QUANTITY SUMMARY							FM 194
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
COUNTY ROAD INT.	N/S	N/S					
Mailbox Turnout	2						48
TOTALS							48

REF # 24 MISCELLANEOUS QUANTITY SUMMARY							FM 196
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
FM 410	N/S						0
COUNTY ROAD INT.	N/S	N/S					
Historical Marker		N/S					0
RADII AT SH 37	X	X			30	30	43
Mailbox Turnout	6						120
TOTALS							163

REF # 25 MISCELLANEOUS QUANTITY SUMMARY							FM 44
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
COUNTY ROAD INT.	N/S	N/S					
RADII AT FM 911	X	X			30	20	31
Mailbox Turnout	34						1275
TOTALS							1,306

REF # 26 MISCELLANEOUS QUANTITY SUMMARY							FM 44
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
COUNTY ROAD INT.	N/S	N/S					
Mailbox Turnout	2						75
TOTALS							75

IH 30,ETC.
RED RIVER COUNTY MISCELLANEOUS QUANTITY SUMMARY SHEET 4 of 4

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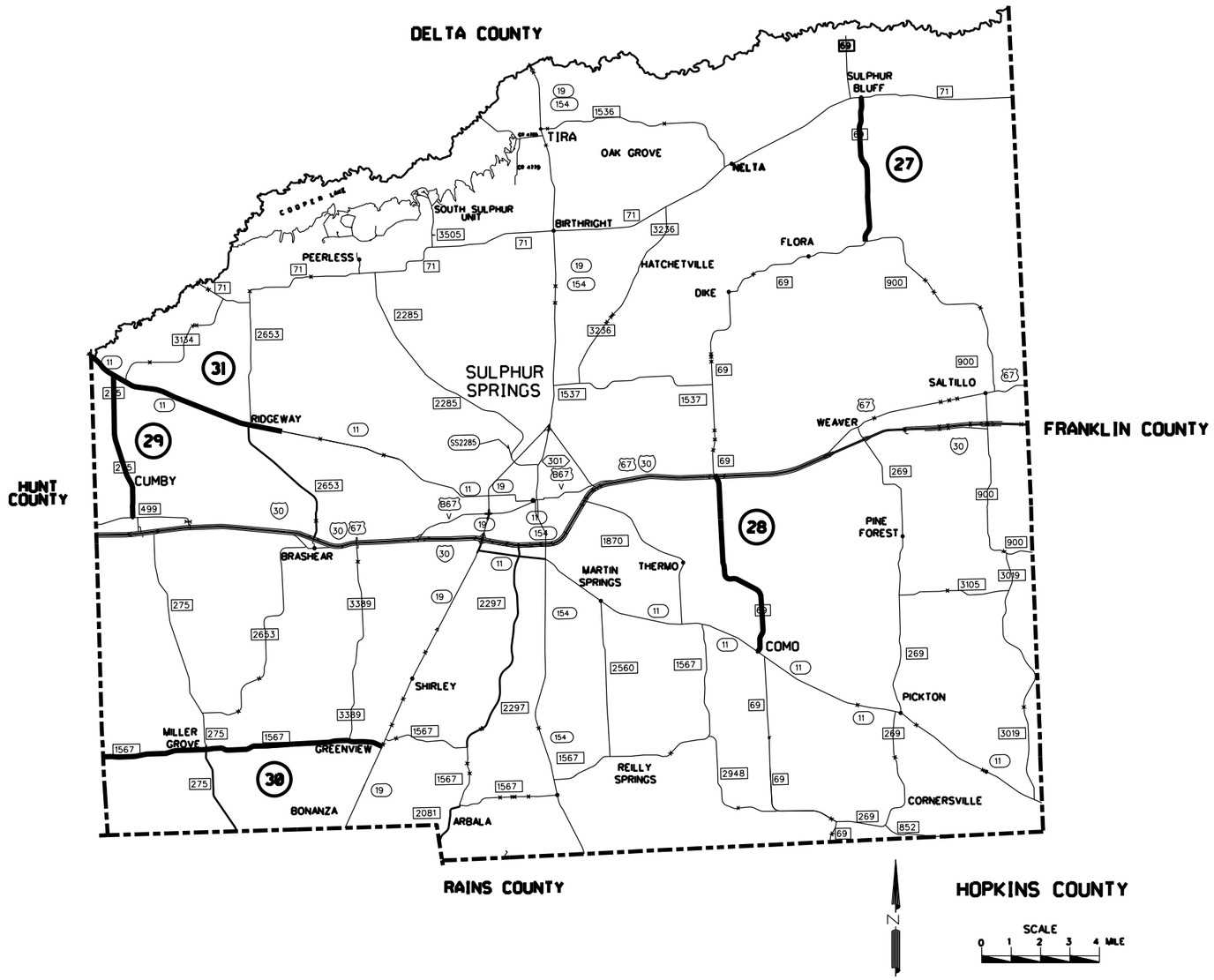
Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192,ETC.	IH 30,ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT, ETC.		35

DATE: $DATE$ $TIME$
FILE: $FILE$

2024 Seal Coat Locations							
Hopkins County			Seal Coat Limits				
			FROM		TO		
Reference Number	Highway	C-S-J	Description	TRM	Description	TRM	Length
27	FM 69	0766-01-032	FM 71	224+0.541	FM 900	228+1.603	5.06
28	FM 69	0766-02-018	IH 30	240+1.901	SH 11	248+0.577	6.90
29	FM 275	0725-01-049	SH 11	234+0.000	FM 499	238+1.039	5.02
30	FM 1567	0641-03-019	Hunt County Line	642+0.000	SH 19	650+1.634	9.70
31	SH 11	0083-02-058	Hunt County Line	654+0.066	CR 4717	660+0.950	6.88
						Total	33.564



IH 30,ETC
HOPKINS COUNTY PROJECT SUMMARY AND LOCATION MAP
SHEET 1 of 4

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Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192,ETC.	IH 30,ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT,ETC.		36

DATE: $DATE$ $TIME$
FILE: $FILE$

2024 HOPKINS COUNTY SEAL COAT QUANTITY SUMMARY

REF. NO	HIGHWAY	C-S-J	ADT	BEGIN STATION	END STATION	LENGTH (LF)	SHOULDER WIDTH (LEFT) AVG. (LF)	SHOULDER WIDTH (RIGHT) AVG. (LF)	ROAD WIDTH (LF)	TRAVEL LANE (SY)	* MISC. SEAL AREA (SY)	SHOULDER AREA (SY)	316-6521 ASPH (AC 20-5TR or AC-20 XP) TON	316-6124 AGGR TY-PB GR 3 (SAC-A) CY	316-6126 AGGR TY-PB GR 4 (SAC-A) CY	3028-6002 FRICTIONAL ASPH SURF PRESERVATION TREATMENT SY
27	FM 69	0766-01-032	340	0+00	266+65	26,665			23	68,144	353		129	652		
SUBTOTALS										68,497			129	652	0	0
28	FM 69	0766-02-018	1,404	0+00	344+30	34,430			28	107,116	2,855		207	1,047		
		RXR CROSSING		344+30	368+10	2,380			25	6,611			12	63		
SUBTOTALS										116,582			219	1,110	0	0
29	FM 275	0725-01-049	1,377	0+00	253+00	25,300			28	78,711	607	0	149	755		
				253+00	265+10	1,210			23	3,092		0	6	29		
SUBTOTALS										82,410			155	784	0	0
30	FM 1567	0641-03-019	1,186	0+00	86+45	8,645			25	24,014	1,179	0	47	240		
	NO SEAL	BRIDGE		86+45	87+40	95										
				87+40	114+85	2,745			25	7,625		0	14	73		
	NO SEAL	BRIDGE		114+85	115+80	95										
				115+80	185+65	6,985			25	19,403		0	36	185		
	NO SEAL	FM 275		185+65	185+90	25										
				189+90	269+25	7,935			25	22,042		0	41	210		
	NO SEAL	BRIDGE		269+25	270+15	90										
				270+15	332+55	6,240			25	17,333		0	33	165		
	NO SEAL	BRIDGE		332+55	333+45	90										
				333+45	344+15	1,070			25	2,972		0	6	28		
	NO SEAL	BRIDGE		344+15	345+00	85				0						
				345+00	510+25	16,525			25	45,903		0	86	437		
SUBTOTALS										140,471			263	1,338	0	0
31	SH 11	0083-02-058	4,040	0+00	41+50	4,150	11	11	25	11,528	0	10,144	18		92	10,144
				41+50	77+00	3,550	11	11	41	16,172		8,678	25		129	8,678
				77+00	164+00	8,700	11	11	25	24,167		21,267	37		193	21,267
				164+00	308+00	14,400	10	11	26	41,600		33,600	64		333	33,600
				308+00	317+50	950	11	11	40	4,222		2,322	6		34	2,322
				317+50	355+95	3,845	10	11	26	11,108		8,972	17		89	8,972
SUBTOTALS										108,797			167	0	870	84,983
Hopkins County Totals										516,757			933	3,884	870	84,983

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/105 SY

GRADE 4 AGGREGATE
AC ASPHALT 0.36 GAL * SY * 8.54LBS / 2000 = TONS, AGGREGATE GRADE 4 TY PB CY/125 SY

FRICTIONAL ASPHALTIC SURFACE PRESERVATION TREATMENT WILL BE APPLIED IN ACCORDANCE WITH SPECIAL SPEC 3028 OR AS DIRECTED BY ENGINEER

IH 30.ETC.
HOPKINS COUNTY
QUANTITY SUMMARY
SHEET 2 of 4

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Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192.ETC.	IH 30.ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT.ETC.		37

CK: DW: CK: DN:

DATE: $DATE$ $TIME$
FILE: $FILE$

2024 HOPKINS COUNTY SEAL COAT PAVEMENT MARKING SUMMARY												
REF. NO	HIGHWAY	C-S-J	LENGTH	662-6109 WK ZN PAV MRK SHT TERM (TAB) TY W	662-6111 WK ZN PAV MRK SHT TERM (TAB) TY Y-2	666-6178 REF PAV MRK TY II (W) 8" (SLD)	666-6181 REF PAV MRK TY II (W) 18" (SLD)	666-6182 REF PAV MRK TY II (W) 24" (SLD)	666-6184 REF PAV MRK TY II (W) (ARROW)	666-6192 REF PAV MRK TY II (W) (WORD)	666-6196 REF PAV MRK TY II (W) (RR XING)	666-6199 REF PAV MRK TY II (W) 36" (YLD TRI)
				EA	EA	LF	LF	LF	EA	EA	EA	EA
27	FM 69	0766-01-032	26,665	10	700			18				
28	FM 69	0766-02-018	36,810	30	940	120		50			1	
29	FM 275	0725-01-049	26,510	68	662	160		28				10
30	FM 1567	0641-03-019	51,025	64	1,269	100		72				10
31	SH 11	0083-02-058	35,595	48	1,142	380		42	7	3		
TOTALS				220	4,713	760	0	210	7	3	1	20

2024 HOPKINS COUNTY SEAL COAT PAVEMENT MARKING SUMMARY											
REF. NO	HIGHWAY	C-S-J	LENGTH	666-6171 REFL PAV MRK TY II (W) 6" (BRK)	666-6174 REFL PAV MRK TY II (W) 6" (SLD)	666-6208 REFL PAV MRK TY II (Y) 6" (BRK)	666-6210 REFL PAV MRK TY II (Y) 6" (SLD)	672-6007 REFL PAV MRKR TY I-C	672-6009 REFL PAV MRKR TY II-A-A	672-6010 REFL PAV MRKR TY II-C-R	677-6001 ELIM EXT PAV MRK & MRKS (4")
				LF	LF	LF	LF	EA	EA	EA	LF
27	FM 69	0766-01-032	26,665		53,190	5,120	24,470		560		82,780
28	FM 69	0766-02-018	36,810		73,252	7,480	50,472	20	1,005		131,204
29	FM 275	0725-01-049	26,510		52,980	4,880	27,028	24	582		84,888
30	FM 1567	0641-03-019	51,025		101,518	8,930	53,067	32	1,109		163,515
31	SH 11	0083-02-058	35,595		69,190	6,940	45,010	82	1,242		
TOTALS				0	350,130	33,350	200,047	158	4,498	0	462,387

IH 30.ETC.
HOPKINS COUNTY
PAVEMENT MARKING
QUANTITY SUMMARY
SHEET 3 of 4

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Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192.ETC.	IH 30.ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT.ETC.		38

DATE: $DATE$ $TIME$
FILE: $FILE$

REF # 27 MISCELLANEOUS QUANTITY SUMMARY							FM 69
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
RADII AT FM 71	X	X			40	55	110
COUNTY ROAD INT.	N/S	N/S					
Mailbox Turnout	9						243
TOTALS							353

REF # 28 MISCELLANEOUS QUANTITY SUMMARY							FM 69
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	
IH 30 FR CONNECTOR	X		910	18	30	60	1927
COUNTY ROAD INT.	N/S	N/S					
RADII at SH 11	X	X			60	60	172
Mailbox Turnout	28						756
TOTALS							2,855

REF # 29 MISCELLANEOUS QUANTITY SUMMARY							FM 275
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
RADII AT SH 11	X	X			60	60	172
COUNTY ROAD INT.	N/S	N/S					
RADII AT FM 499	X	X			5	10	3
Mailbox Turnout	16						432
TOTALS							607

REF # 30 MISCELLANEOUS QUANTITY SUMMARY							FM 1567
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
COUNTY ROAD INT.	N/S	N/S					
RADII AT FM 275	X	X			35	30	51
RADII AT FM 275	X	X			65	80	253
FM 3389	N/S						0
RADII AT SH 19	X	X			50	50	119
Mailbox Turnout	28						756
TOTALS							1,179

REF # 31 MISCELLANEOUS QUANTITY SUMMARY							SH 11
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
FM 275		N/S					
FM 3134	N/S						
COUNTY ROAD INT.	N/S	N/S					
FM 2653	N/S	N/S					
Mailbox Turnout							0
TOTALS							0

IH 30.ETC.
HOPKINS COUNTY
MISCELLANEOUS
QUANTITY SUMMARY
SHEET 4 of 4

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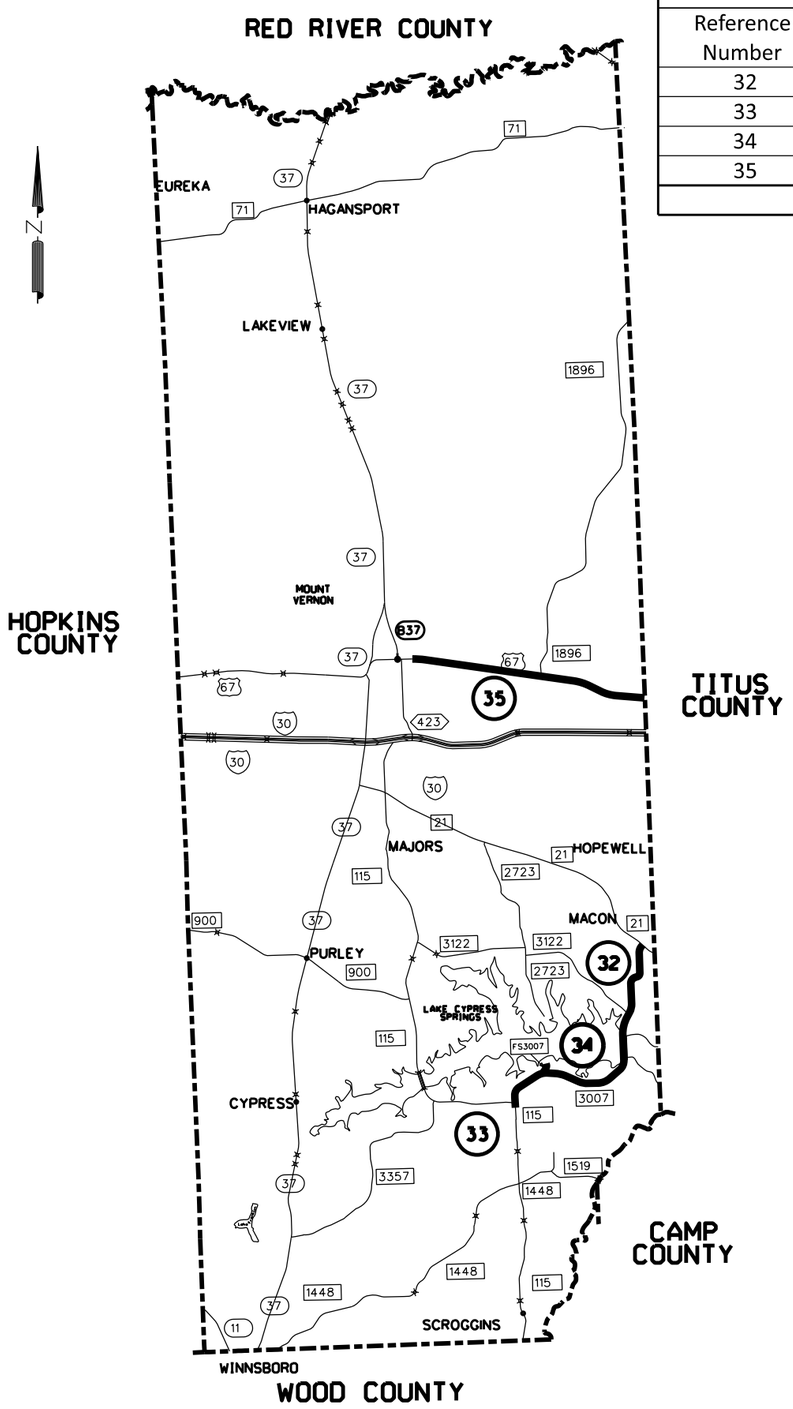
Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192.ETC.	IH 30.ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT.ETC.		39

DATE: $DATE$ $TIME$
FILE: $FILE$



2024 Seal Coat Locations							
Franklin County			Seal Coat Limits				
			FROM		TO		
Reference Number	Highway	C-S-J	Description	TRM	Description	TRM	Length
32	FM 3007	2731-02-014	FM 21	238+1.978	FS 3007	244+0.753	4.748
33	FM 3007	0723-01-041	FS 3007	244+0.753	FM 115	246+0.582	5.817
34	FS 3007	0723-01-042	FM 3007	242+1.967	End of MNT	244+0.218	0.251
35	US 67	0010-05-025	CR 2010	292+1.401	Titus C/L	288+0.000	5.290
						Total	16.106

FRANKLIN

SCALE
0 1 2 3 4 MILE

IH 30, ETC
FRANKLIN COUNTY PROJECT SUMMARY AND LOCATION MAP
SHEET 1 of 4

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Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192, ETC.	IH 30,ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT,ETC.		40

CK:
DW:
CK:
DN:

DATE: $DATE$ $TIME$
FILE: $FILE$

2024 FRANKLIN COUNTY SEAL COAT QUANTITY SUMMARY													316-6521	316-6124	316-6126	3028-6002
REF. NO	HIGHWAY	C-S-J	ADT	BEGIN STATION	END STATION	LENGTH (LF)	SHOULDER WIDTH (LEFT) AVG. (LF)	SHOULDER WIDTH (RIGHT) AVG. (LF)	ROAD WIDTH (LF)	TRAVEL LANE (SY)	* MISC. SEAL AREA (SY)	SHOULDER 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	FRICTIONAL ASPH SURF PRESERVATION TREATMENT SY
32	FM 3007	2731-02-014	1,218	0+00	167+50	16,750			24	44,667	743		85	432		
				167+50	255+00	8,750			23	22,361			42	213		
SUBTOTALS										67,771			127	645	0	0
33	FM 3007	0723-01-041	1,204	255+00	314+25	5,925			23	15,142	1,505		31	159		
SUBTOTALS										16,647			31	159	0	0
34	FS 3007	0723-01-042	34	0+00	13+10	1,310			22	3,202	388		7	34		
SUBTOTALS										3,590			7	34	0	0
35	US 67	0010-05-025	2,586	0+00	142+50	14,250			29	45,917	2,867		75		390	
				142+50	154+10	1,160			48	6,187			10		49	
				154+10	279+10	12,500			29	40,278			62		322	
SUBTOTALS										95,249			147	0	761	0
Franklin County Totals										183,257			312	838	761	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/105 SY

GRADE 4 AGGREGATE
AC ASPHALT 0.36 GAL * SY * 8.54LBS / 2000 = TONS, AGGREGATE GRADE 4 TY PB CY/125 SY

FRICTIONAL ASPHALTIC SURFACE PRESERVATION TREATMENT WILL BE APPLIED IN ACCORDANCE WITH SPECIAL SPEC 3028 OR AS DIRECTED BY ENGINEER

IH 30. ETC.
FRANKLIN COUNTY
QUANTITY SUMMARY
SHEET 2 of 4

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Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192.ETC.	IH 30.ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT.ETC.		41

DATE: $DATE$ $TIME$
FILE: $FILE$

2024 FRANKLIN COUNTY SEAL COAT PAVEMENT MARKING SUMMARY												
				662-6109	662-6111	666-6178	666-6181	666-6182	666-6184	666-6192	666-6196	666-6199
REF. NO	HIGHWAY	C-S-J	LENGTH	WK ZN PAV MRK SHT TERM (TAB) TY W	WK ZN PAV MRK SHT TERM (TAB) TY Y-2	REF PAV MRK TY II (W) 8" (SLD)	REF PAV MRK TY II (W) 18" (SLD)	REF PAV MRK TY II (W) 24" (SLD)	REF PAV MRK TY II (W) (ARROW)	REF PAV MRK TY II (W) (WORD)	REF PAV MRK TY II (W) (RR XING)	REF PAV MRK TY II (W) 36" (YLD TRI)
				EA	EA	LF	LF	LF	EA	EA	EA	EA
32	FM 3007	2731-02-014	25,500	12	670			16				
33	FM 3007	0723-01-041	5,925	36	156	240		40				11
34	FS 3007	0723-01-042	1,310	12	46			14				
35	US 67	0010-05-025	2,586	80	1,487	200		240	4	4		4
TOTALS				140	2,359	440	0	310	4	4	0	15

2024 FRANKLIN COUNTY SEAL COAT PAVEMENT MARKING SUMMARY											
				666-6171	666-6174	666-6208	666-6210	672-6007	672-6009	672-6010	677-6001
REF. NO	HIGHWAY	C-S-J	LENGTH	REFL PAV MRK TY II (W) 6" (BRK)	REFL PAV MRK TY II (W) 6" (SLD)	REFL PAV MRK TY II (Y) 6" (BRK)	REFL PAV MRK 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 PAV MRK & MRKS (4")
				LF	LF	LF	LF	EA	EA	EA	LF
32	FM 3007	2731-02-014	25,500		50,514	5,010	30,405		554		85,929
33	FM 3007	0723-01-041	5,925		11,662	580	6,726	20	158		18,968
34	FS 3007	0723-01-042	1,310		2,600		2,600		34		5,200
35	US 67	0010-05-025	2,586		54,820	5,580	28,480	30	715		
TOTALS				0	119,596	11,170	68,211	50	1,461	0	110,097

DATE: $DATE$ $TIME$
FILE: $FILE$

IH 30. ETC.
FRANKLIN COUNTY
PAVEMENT MARKING
QUANTITY SUMMARY
SHEET 3 of 4

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Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192. ETC.	IH 30. ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT. ETC.		42

REF # 32 MISCELLANEOUS QUANTITY SUMMARY							FM 3007
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
RADII AT FM 21	X	X			30	30	43
COUNTY ROAD INT.	N/S	N/S					
FM 3122		N/S					0
Mailbox Turnout	28						700
						TOTALS	743

REF # 33 MISCELLANEOUS QUANTITY SUMMARY							FM 3007
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
RADII AT FM 21	X	X			20	115	325
COUNTY ROAD INT.	N/S	N/S					
CONNECTOR AT FM 21		X	300	24	80	80	1105
Mailbox Turnout	3						75
						TOTALS	1,505

REF # 34 MISCELLANEOUS QUANTITY SUMMARY							FS 3007
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
RADII AT FM 3007	X	X			40	45	86
COUNTY ROAD INT.	N/S	N/S					
CR 4375 SHOULDER		X	210	10	20	20	252
Mailbox Turnout	2						50
						TOTALS	388

REF # 35 MISCELLANEOUS QUANTITY SUMMARY							US 67
	LEFT	RIGHT	LENGTH	WIDTH	r1	r2	SY
Shoulder		X	240	10		15	272
COUNTY ROAD INT.	N/S	N/S					
FM 1896	X		70	30	65	65	435
Historical Marker	X		150	10	15	15	177
Shoulder	X	X	310	20	20	20	708
Mailbox Turnout	51						1275
						TOTALS	2,867

IH 30. ETC.
FRANKLIN COUNTY MISCELLANEOUS QUANTITY SUMMARY SHEET 4 of 4

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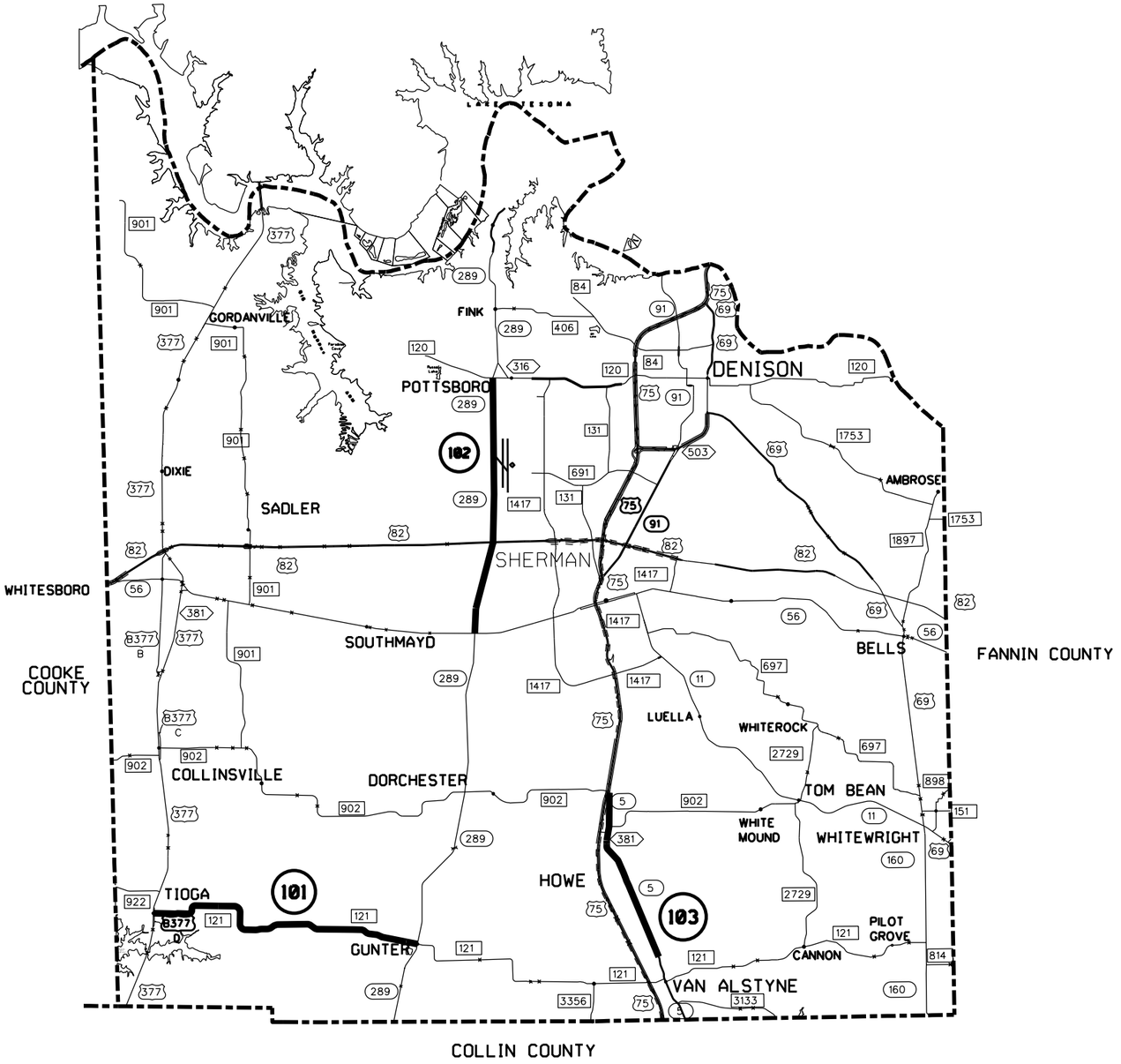
CONT	SECT	JOB	HIGHWAY
0009	13	192. ETC.	IH30. ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT.ETC.		43

DATE: $DATE$ $TIME$
FILE: $FILE$

2024 GRAYSON COUNTY TRACE LOCATIONS						
Grayson County		Pavement Marking Limits				
0901-00-061		FROM		TO		
Reference	Highway	Description	TRM	Description	TRM	Length
101	FM 121	US 377	578	SH 289	588 + 1.345	11.314
102	SH 289	FM 120	198 + 1.403	SH 56	208 + 1.622	10.215
103	SH 5	US 75	214 - 0.040	Redden County Road W.	220 + 0.299	6.259
					Total	27.788



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GRAYSON COUNTY

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IH 30. ETC.
GRAYSON COUNTY TRACE PROJECT SUMMARY AND LOCATION MAP SHEET 1 of 2

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Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192.ETC.	IH 30.ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT.ETC.		44

DATE: $DATE$ $TIME$
FILE: $FILE$

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2024 GRAYSON COUNTY TRACE PAVEMENT MARKING SUMMARY

REF. NO	HIGHWAY	LENGTH	666-6306 REFL PAV MRK TY I (W) 6" (BRK) (100 MIL)	666-6309 REFL PAV MRK TY I (W) 6" (SLD) (100 MIL)	666-6318 REFL PAV MRK TY I (Y) 6" (BRK) (100 MIL)	666-6321 REFL PAV MRK TY I (Y) 6" (SLD) (100 MIL)	666-6343 REF PROF PAV MRK TY I (W) 6" (SLD) (100 MIL)	666-6346 REF PROF PAV MRK TY I (Y) 6" (BRK) (100 MIL)	666-6347 REF PROF PAV MRK TY I (Y) 6" (SLD) (100 MIL)	666-6036 REFL PAV MRK TY I (W) 8" (SLD) (100 MIL)	668-6075 PRE FAB PAV MRK TY C (W) 18"(SLD) (100 MIL)	668-6076 PRE FAB PAV MRK TY C (W) 24"(SLD) (100 MIL)	668-6077 PRE FAB PAV MRK TY C (W) (ARROW) (100 MIL)	668-6085 PRE FAB PAV MRK TY C (W) (WORD) (100 MIL)	668-6089 PRE FAB PAV MRK TY C (W) (RR XING) (100 MIL)	668-6092 PRE FAB PAV MRK TY C (W) (YLD TRI) (100 MIL)
			LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA
101	FM 121	59,910					117,820	10,090	72,820		50	102			2	
102	SH 289	53,475	250	118,950	9,950	72,060				10,495		90	15	15		10
103	SH 5	33,045		27,600		24,000	34,490	4,900	14,250	550	90	128	5	5		
TOTALS			250	146,550	9,950	96,060	152,310	14,990	87,070	11,045	140	320	20	20	2	10

IH 30. ETC.
GRAYSON COUNTY
TRACE QUANTITY
SUMMARY
SHEET 2 of 2

2023

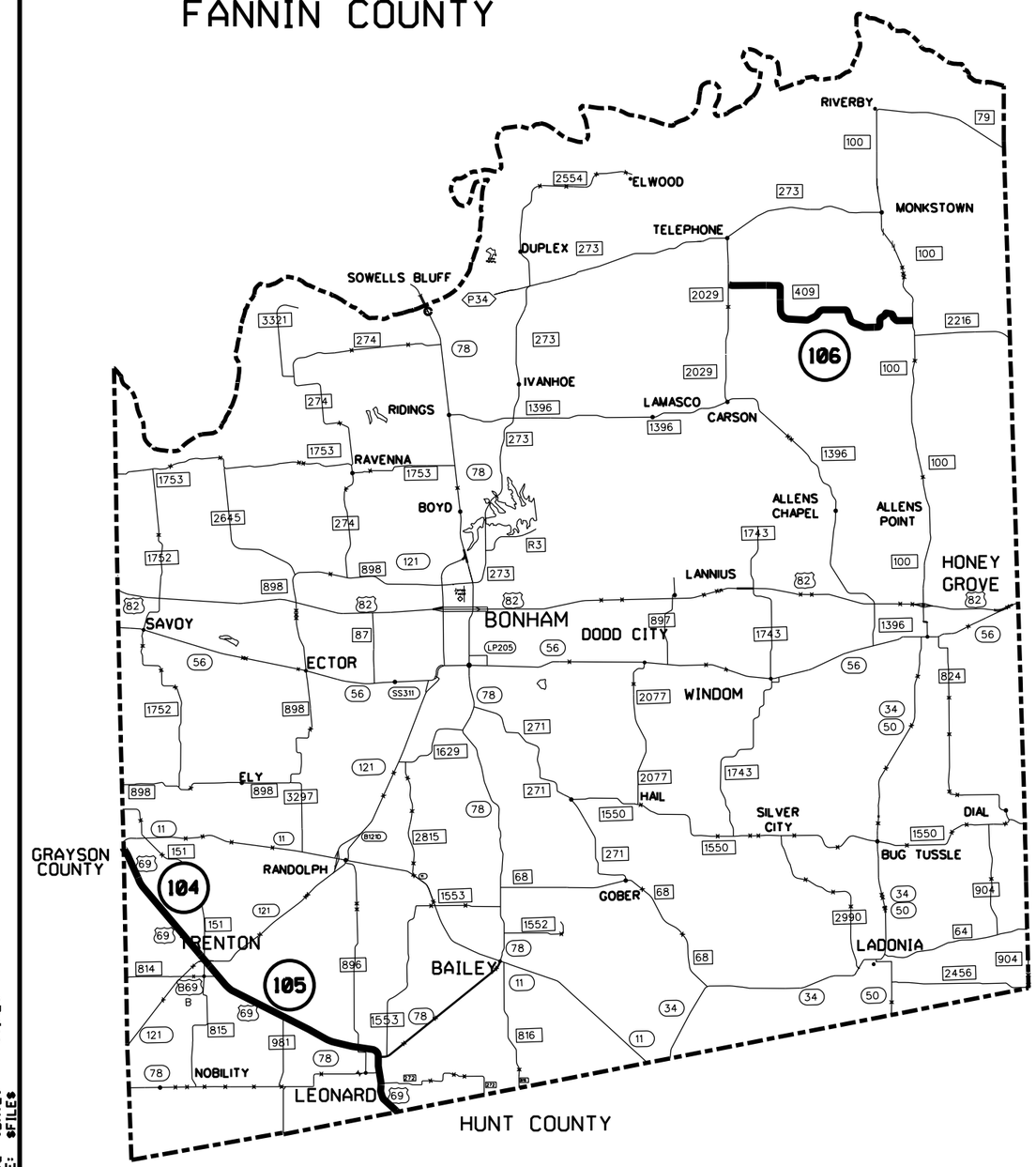
Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192.ETC.	IH 30.ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT.ETC.		45

DATE: $DATE$ $TIME$
FILE: $FILE$

2024 FANNIN COUNTY TRACE LOCATIONS						
Fannin County		Pavement Marking Limits				
0901-00-061		FROM		TO		
Reference	Highway	Description	TRM	Description	TRM	Length
104	US 69	Grayson County Line	220	SH 121	224 + 0.696	4.55
105	US 69	SH 121	224 + 0.743	Hunt County Line	232 + 1.459	8.982
106	FM 409	FM 2029	628 - 0.015	FM 100	636 + 0.088	7.781
					Total	21.313

FANNIN COUNTY



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IH 30.ETC.
FANNIN COUNTY TRACE PROJECT SUMMARY AND LOCATION MAP SHEET 1 of 2

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192.ETC.	IH 30.ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT.ETC.		46

DATE: $DATE$ $TIME$
FILE: $FILE$

2024 FANNIN COUNTY TRACE PAVEMENT MARKING SUMMARY																	
REF. NO	HIGHWAY	LENGTH	666-6306 REFL PAV MRK TY I (W) 6" (BRK) (100 MIL)	666-6309 REFL PAV MRK TY I (W) 6" (SLD) (100 MIL)	666-6318 REFL PAV MRK TY I (Y) 6" (BRK) (100 MIL)	666-6321 REFL PAV MRK TY I (Y) 6" (SLD) (100 MIL)	666-6343 REF PROF PAV MRK TY I (W) 6" (SLD) (100 MIL)	666-6346 REF PROF PAV MRK TY I (Y) 6" (BRK) (100 MIL)	666-6347 REF PROF PAV MRK TY I (Y) 6" (SLD) (100 MIL)	666-6036 REFL PAV MRK TY I (W) 8" (SLD) (100 MIL)	668-6075 PRE FAB PAV MRK TY C (W) 18"(SLD) (100 MIL)	668-6076 PRE FAB PAV MRK TY C (W) 24"(SLD) (100 MIL)	668-6077 PRE FAB PAV MRK TY C (W) (ARROW) (100 MIL)	668-6083 PRE FAB PAV MRK TY C (W) (LDNP ARW) (100 MIL)	668-6085 PRE FAB PAV MRK TY C (W) (WORD) (100 MIL)	668-6089 PRE FAB PAV MRK TY C (W) (RR XING) (100 MIL)	668-6092 PRE FAB PAV MRK TY C (W) (YLD TRI) (100 MIL)
			LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA
104	US 69	23,675		45,350	5,690	22,935											
105	US 69	48,240	2,250	94,480	11,550	64,110				2,900	96	72	27	2	12	2	20
106	FM 409	40,995					80,990	5,790	55,490			40					
TOTALS			2,250	139,830	17,240	87,045	80,990	5,790	55,490	2,900	96	112	27	2	12	2	20

IH 30.ETC.
FANNIN COUNTY
TRACE QUANTITY
SUMMARY
SHEET 2 of 2

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192.ETC.	IH 30.ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT.ETC.		47

DATE: $DATE$ $TIME$
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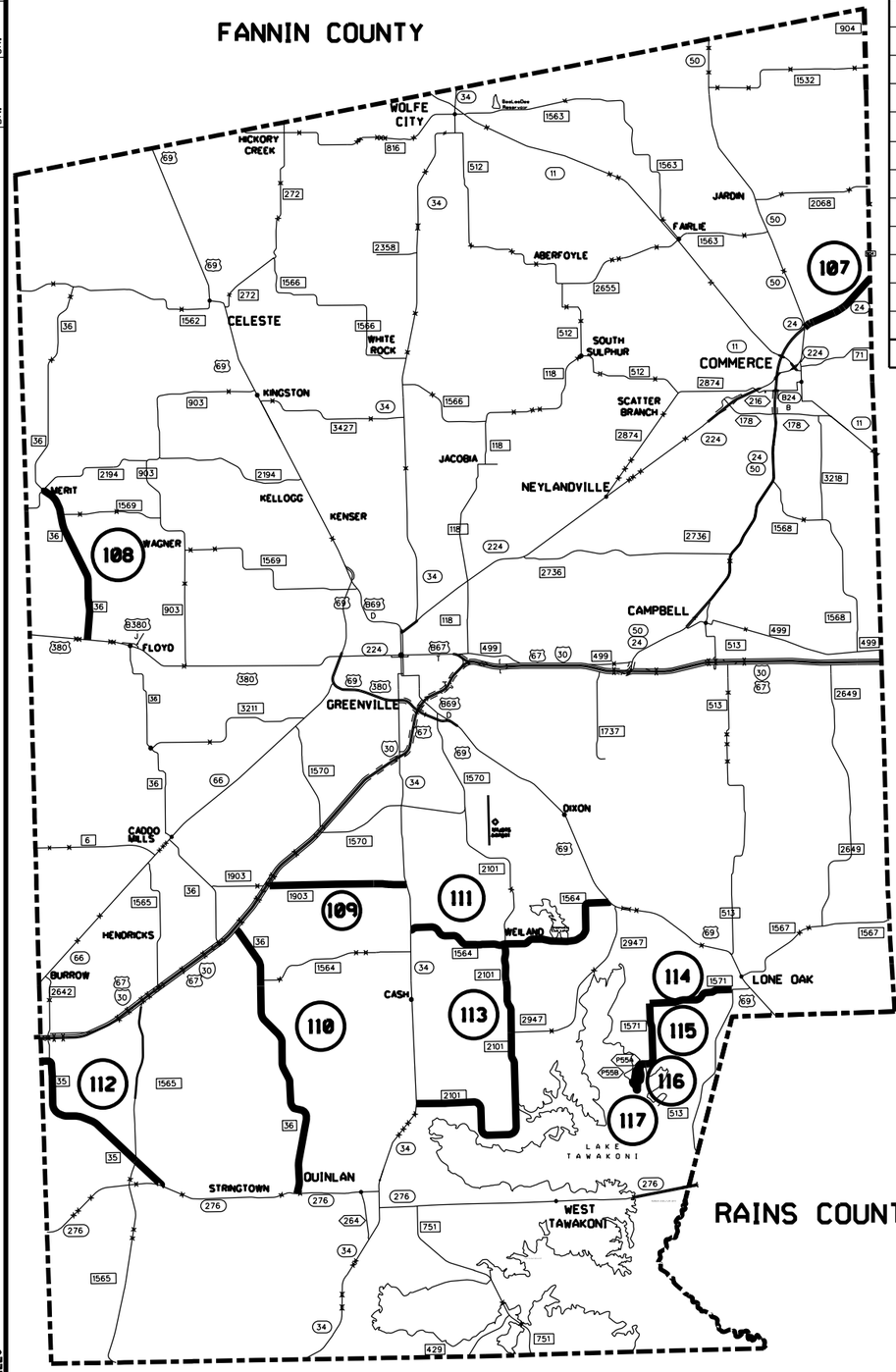

2024 HUNT COUNTY TRACE LOCATIONS						
Hunt County		Pavement Marking Limits				
0901-00-061		FROM		TO		
Reference	Highway	Description	TRM	Description	TRM	Length
107	SH 24	SH 50	238 + 0.011	Delta County Line	240 + 0.392	2.391
108	FM 36	FM 2194	234 + 0.452	US 380	238 + 1.270	4.821
109	FM 1903	FM 36	620 - 0.064	SH 34	624 + 1.679	5.781
110	FM 36	IH 30	252 - 0.781	SH 276	260 + 0.114	8.567
111	FM 1564	SH 34	628 - 0.669	US 69	634 + 0.433	7.062
112	FM 35	Rockwall County Line	616 + 0.005	SH 276	620 + 1.687	5.619
113	FM 2101	FM 1564	258+0.240	SH 34	248+0.920	9.312
114	FM 1571	FM 513	636+0.505	SPUR 1571	632+1.932	2.538
115	FM 1571	SPUR 1571	632+1.932	PR 55 A	632+0.000	1.977
116	PR 55 A	FM 1571	252-0.023	End of Maintenance	252+1.822	1.905
117	PR 55 B	PR 55 A	252+0.433	End of Maintenance	252-0.004	0.412
					Total	50.385

HUNT COUNTY

SCALE
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IH 30,ETC.
HUNT COUNTY
TRACE PROJECT
SUMMARY AND
LOCATION MAP
SHEET 1 OF 2

2023 ©

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192,ETC.	IH 30,ETC.
DIST		COUNTY	SHEET NO.
PAR		HUNT,ETC.	48

DATE: $DATE$ $TIME$
FILE: $FILE$

2024 HUNT COUNTY TRACE PAVEMENT MARKING SUMMARY															
REF. NO	HIGHWAY	LENGTH	666-6306 REFL PAV MRK TY I (W) 6" (BRK) (100 MIL)	666-6309 REFL PAV MRK TY I (W) 6" (SLD) (100 MIL)	666-6318 REFL PAV MRK TY I (Y) 6" (BRK) (100 MIL)	666-6321 REFL PAV MRK TY I (Y) 6" (SLD) (100 MIL)	666-6343 REF PROF PAV MRK TY I (W) 6" (SLD) (100 MIL)	666-6346 REF PROF PAV MRK TY I (Y) 6" (BRK) (100 MIL)	666-6347 REF PROF PAV MRK TY I (Y) 6" (SLD) (100 MIL)	666-6036 REFL PAV MRK TY I (W) 8" (SLD) (100 MIL)	668-6075 PRE FAB PAV MRK TY C (W) 18"(SLD) (100 MIL)	668-6076 PRE FAB PAV MRK TY C (W) 24"(SLD) (100 MIL)	668-6077 PRE FAB PAV MRK TY C (W) (ARROW) (100 MIL)	668-6085 PRE FAB PAV MRK TY C (W) (WORD) (100 MIL)	668-6089 PRE FAB PAV MRK TY C (W) (RR XING) (100 MIL)	668-6092 PRE FAB PAV MRK TY C (W) (YLD TRI) (100 MIL)
			LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA
107	SH 24	12,490	13,235	24,070		24,870				3,240		180	18	18		126
108	FM 36	25,585					51,170	5,580	23,670	120		80			2	4
109	FM 1903	21,000					41,280	5,780	19,990	220		120				4
110	FM 36	45,540					89,080	9,360	38,280	700		28				15
111	FM 1564	37,280					72,560	5,880	44,560	400		36				8
112	FM 35	30,240					60,480	6,140	28,780	2,280		64	10	10		20
113	FM 2101	49,168					95,836	8,930	42,636	400	56	57				5
114	FM 1571	13,400					25,900	1,810	18,100			26				
115	FM 1571	10,440					21,580	1,500	16,360	200		13				5
116	PR 55 A	10,060		1,920		19,120				60		20				
117	PR 55 B	2,175				4,220				40		20				
TOTALS			13,235	25,990	0	48,210	457,886	44,980	232,376	7,660	56	644	28	28	2	187

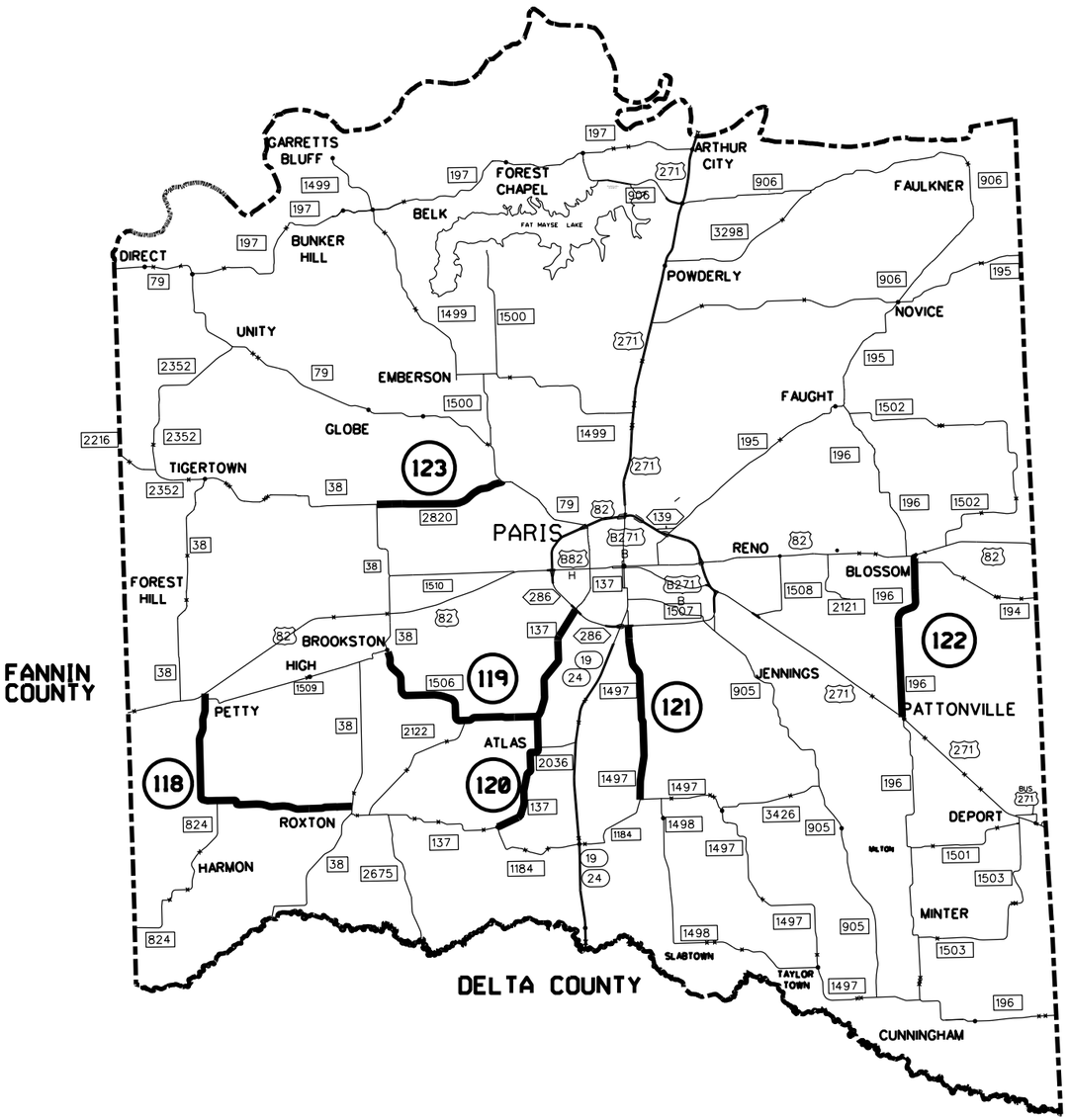
IH 30.ETC.
HUNT COUNTY
TRACE QUANTITY
SUMMARY
SHEET 2 of 2

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192.ETC.	IH 30.ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT.ETC.		49

DATE: $DATE$ $TIME$
FILE: $FILE$

2024 LAMAR COUNTY TRACE LOCATIONS						
Lamar County		Pavement Marking Limits				
0901-00-061		FROM		TO		
Reference	Highway	Description	TRM	Description	TRM	Length
118	FM 137	US 82	218 - 0.037	FM 38	226 + 0.985	9.019
119	FM 1506	FM 38	646 - 0.028	FM 137	652 + 0.930	6.91
120	FM 137	Loop 286	202 + 1.531	FM 1184	212 + 0.285	8.694
121	FM 1497	SH 19/24	204 + 0.403	FM 1184	210 + 0.685	6.198
122	FM 196	US 82	206 - 1.451	US 271	210 + 0.355	5.774
123	FM 2820	FM 38	646 - 0.026	FM 79	650 + 0.556	4.543
					Total	41.138



LAMAR COUNTY

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IH 30.ETC.
LAMAR COUNTY TRACE PROJECT SUMMARY AND LOCATION MAP SHEET 1 of 2

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CONT	SECT	JOB	HIGHWAY
0009	13	192, ETC.	IH 30, ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT, ETC.		50

DATE: $DATE$ $TIME$
FILE: $FILE$

CK:
DW:
CK:
DN:

2024 LAMAR COUNTY TRACE PAVEMENT MARKING SUMMARY

REF. NO	HIGHWAY	LENGTH	666-6306 REFL PAV MRK TY I (W) 6" (BRK) (100 MIL)	666-6309 REFL PAV MRK TY I (W) 6" (SLD) (100 MIL)	666-6318 REFL PAV MRK TY I (Y) 6" (BRK) (100 MIL)	666-6321 REFL PAV MRK TY I (Y) 6" (SLD) (100 MIL)	666-6343 REF PROF PAV MRK TY I (W) 6" (SLD) (100 MIL)	666-6346 REF PROF PAV MRK TY I (Y) 6" (BRK) (100 MIL)	666-6347 REF PROF PAV MRK TY I (Y) 6" (SLD) (100 MIL)	666-6036 REFL PAV MRK TY I (W) 8" (SLD) (100 MIL)	668-6075 PRE FAB PAV MRK TY C (W) 18"(SLD) (100 MIL)	668-6076 PRE FAB PAV MRK TY C (W) 24"(SLD) (100 MIL)	668-6077 PRE FAB PAV MRK TY C (W) (ARROW) (100 MIL)	668-6085 PRE FAB PAV MRK TY C (W) (WORD) (100 MIL)	668-6089 PRE FAB PAV MRK TY C (W) (RR XING) (100 MIL)	668-6092 PRE FAB PAV MRK TY C (W) (YLD TRI) (100 MIL)
			LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA
118	FM 137	47,410					87,600	8,000	51,770	200		14				
119	FM 1506	36,442					30,200	7,270	41,442			16				
120	FM 137	44,410					86,820	7,800	48,820	80						
121	FM 1497	34,970					68,690	6,130	43,190	820		42				15
122	FM 196	31,650					61,300	6,880	31,650			108				
123	FM 2820	23,865					45,730	3,120	25,930	300		16				5
TOTALS			0	0	0	0	380,340	39,200	242,802	1,400	0	196	0	0	0	20

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LAMAR COUNTY
TRACE QUANTITY
SUMMARY
SHEET 2 of 2

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192.ETC.	IH 30.ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT.ETC.		51

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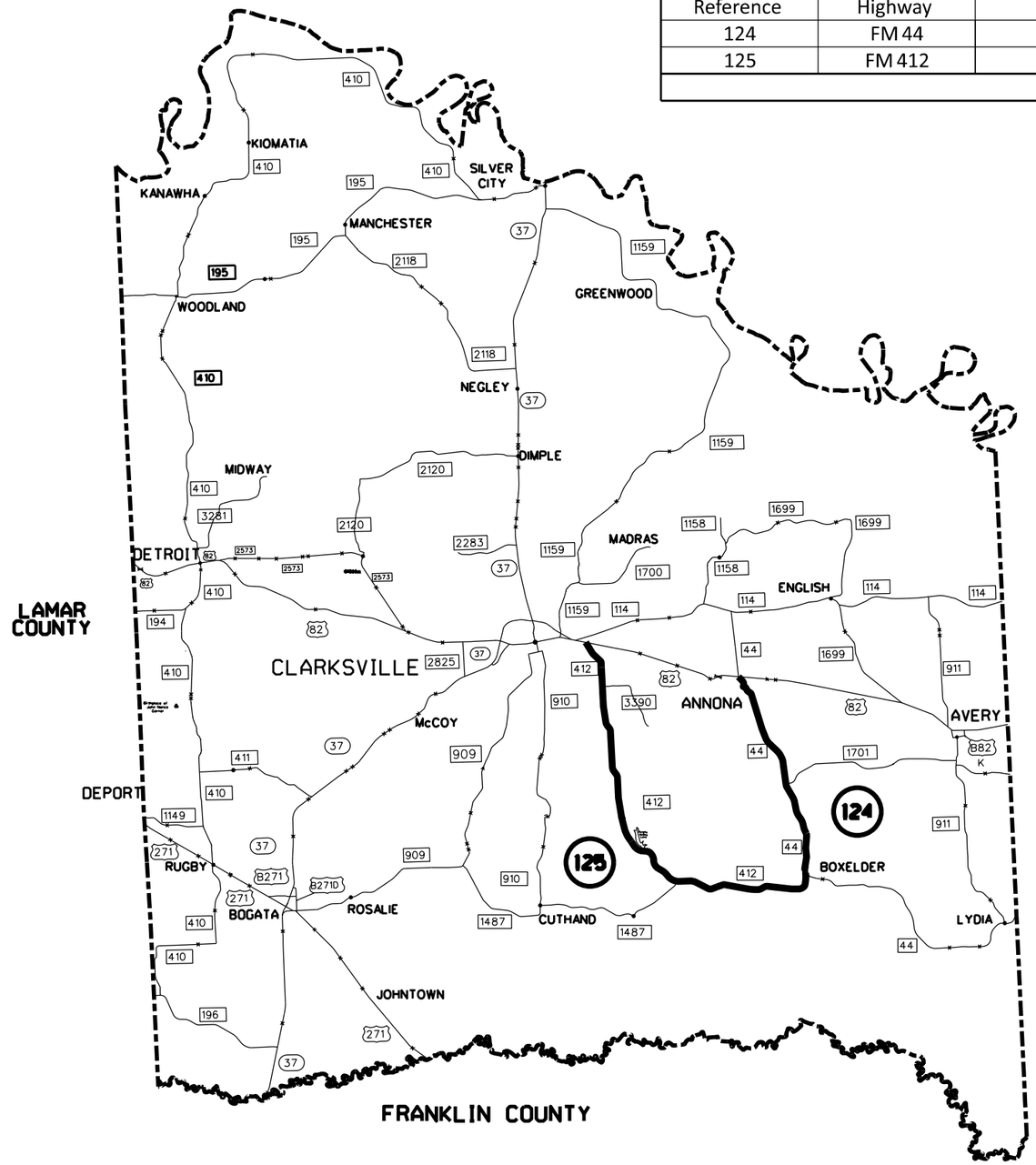
FILE: $FILE$

RED RIVER

2024 RED RIVER COUNTY TRACE LOCATIONS						
Red River County		Pavement Marking Limits				
0901-00-061		FROM		TO		
Reference	Highway	Description	TRM	Description	TRM	Length
124	FM 44	US 82	204 + 0.451	FM 412	212 + 0.517	8.063
125	FM 412	US 82	204 - 0.088	FM 44	214 + 0.426	15.871
					Total	23.934



IH 30.ETC.
RED RIVER COUNTY TRACE PROJECT SUMMARY AND LOCATION MAP
SHEET 1 of 2

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192.ETC.	IH 30.ETC.
DIST	COUNTY		SHEET NO.
PAR	HUNT.ETC.		52

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FILE: $FILE$ $TIME$

2024 RED RIVER COUNTY TRACE PAVEMENT MARKING SUMMARY															
REF. NO	HIGHWAY	LENGTH	666-6306 REFL PAV MRK TY I (W) 6" (BRK) (100 MIL)	666-6309 REFL PAV MRK TY I (W) 6" (SLD) (100 MIL)	666-6318 REFL PAV MRK TY I (Y) 6" (BRK) (100 MIL)	666-6321 REFL PAV MRK TY I (Y) 6" (SLD) (100 MIL)	666-6343 REF PROF PAV MRK TY I (W) 6" (SLD) (100 MIL)	666-6346 REF PROF PAV MRK TY I (Y) 6" (BRK) (100 MIL)	666-6347 REF PROF PAV MRK TY I (Y) 6" (SLD) (100 MIL)	666-6036 REFL PAV MRK TY I (W) 8" (SLD) (100 MIL)	668-6075 PRE FAB PAV MRK TY C (W) 18"(SLD) (100 MIL)	668-6076 PRE FAB PAV MRK TY C (W) 24"(SLD) (100 MIL)	668-6077 PRE FAB PAV MRK TY C (W) (ARROW) (100 MIL)	668-6085 PRE FAB PAV MRK TY C (W) (WORD) (100 MIL)	668-6089 PRE FAB PAV MRK TY C (W) (RR XING) (100 MIL)	668-6092 PRE FAB PAV MRK TY C (W) (YLD TRI) (100 MIL)
			LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA
124	FM 44	41,960					81,920	7,510	47,570	480		14				
125	FM 412	83,650					164,300	14,510	91,725			14				
TOTALS			0	0	0	0	246,220	22,020	139,295	480	0	28	0	0	0	0

IH 30 .ETC.
RED RIVER COUNTY TRACE QUANTITY SUMMARY
SHEET 2 of 2

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
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DIST	COUNTY		SHEET NO.
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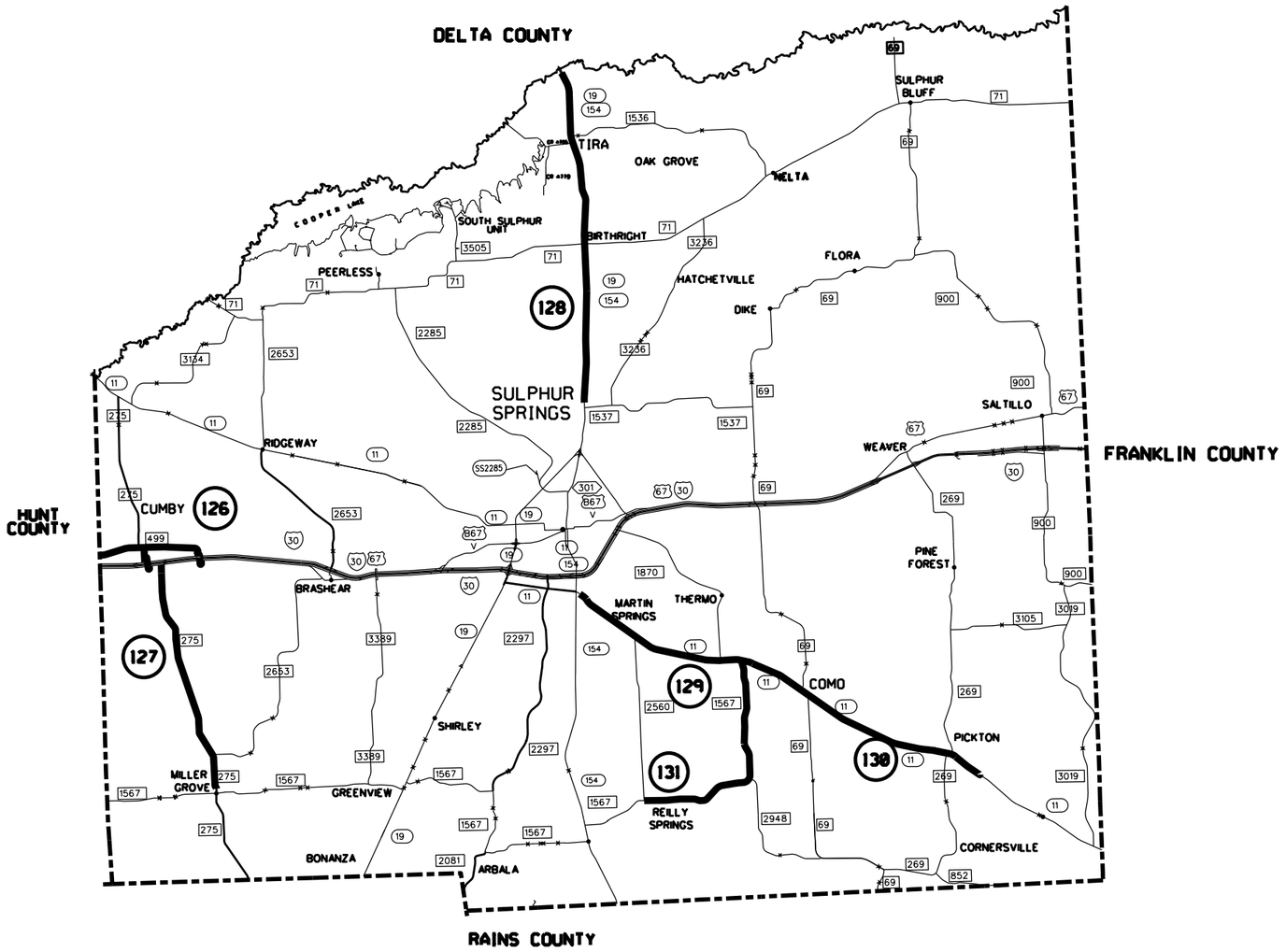
FILE: $FILE$

HOPKINS COUNTY

2024 HOPKINS COUNTY TRACE LOCATIONS						
Hopkins County		Pavement Marking Limits				
0901-00-061		FROM		TO		
Reference	Highway	Description	TRM	Description	TRM	Length
126	FM 499	Hunt County Line	642 + 0.016	IH 30	644 + 1.177	3.463
127	FM 275	FM 499	242 - 1.508	FM 1567	248 + 0.214	7.783
128	SH 19	Delta County Line	224 + 0.823	FM 1537	236 + 1.005	11.133
129	SH 11	SH 154	668 + 5.556	0.7 Miles East FM 69 South	682 + 0.041	9.179
130	SH 11	0.7 Miles East FM 69 South	682 + 0.048	.43 miles west of FM 3019	690+1.564	4.555
131	FM 1567	FM 2560	662 + 1.162	SH 11	670 + 0.760	7.576
					Total	43.689



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HOPKINS COUNTY TRACE PROJECT SUMMARY AND LOCATION MAP SHEET 1 of 2

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Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
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DIST	COUNTY		SHEET NO.
PAR	HUNT,ETC.		54

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DW:
CK:
DN:

DATE: $DATE$ $TIME$
FILE: $FILE$

2024 HOPKINS COUNTY TRACE PAVEMENT MARKING SUMMARY															
REF. NO	HIGHWAY	LENGTH	666-6306 REFL PAV MRK TY I (W) 6" (BRK) (100 MIL)	666-6309 REFL PAV MRK TY I (W) 6" (SLD) (100 MIL)	666-6318 REFL PAV MRK TY I (Y) 6" (BRK) (100 MIL)	666-6321 REFL PAV MRK TY I (Y) 6" (SLD) (100 MIL)	666-6343 REF PROF PAV MRK TY I (W) 6" (SLD) (100 MIL)	666-6346 REF PROF PAV MRK TY I (Y) 6" (BRK) (100 MIL)	666-6347 REF PROF PAV MRK TY I (Y) 6" (SLD) (100 MIL)	666-6036 REFL PAV MRK TY I (W) 8" (SLD) (100 MIL)	668-6075 PRE FAB PAV MRK TY C (W) 18"(SLD) (100 MIL)	668-6076 PRE FAB PAV MRK TY C (W) 24"(SLD) (100 MIL)	668-6077 PRE FAB PAV MRK TY C (W) (ARROW) (100 MIL)	668-6085 PRE FAB PAV MRK TY C (W) (WORD) (100 MIL)	668-6089 PRE FAB PAV MRK TY C (W) (RR XING) (100 MIL)	668-6092 PRE FAB PAV MRK TY C (W) (YLD TRI) (100 MIL)
			LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA
126	FM 499	18,463		3,570	150	3,550	32,000	3,000	20,000		52	160				
127	FM 275	41,540		3,178	80	3,100	90,000	9,000	41,000	120	50	202			2	
128	SH 19	55,750		109,762	11,800	44,600				980		64	7	11		18
129	SH 11	45,630	290	89,620	9,850	68,042				3,860	180	72	38	14		18
130	SH 11	50,150	120	98,514	10,210	68,301				1,430	110	138	10	10	1	10
131	FM 1567	39,913					79,860	7,080	46,525	200		14				
TOTALS			410	304,644	32,090	187,593	201,860	19,080	107,525	6,590	392	650	55	35	3	46

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HOPKINS COUNTY
TRACE QUANTITY
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Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0009	13	192.ETC.	IH 30.ETC.
DIST	COUNTY		SHEET NO.
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PART 1 - GENERAL

1.01 DESCRIPTION

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

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

1.02 REQUEST FOR INFORMATION / CLARIFICATION

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

1.03 PLANS / SPECIFICATIONS

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

PART 2 - UTILITIES AND FIBER OPTIC

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

PART 3 - CONSTRUCTION

3.01 GENERAL

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

B. Construction activities within 12 feet of the operational tracks will only be allowed if absolutely necessary and the Railroad's Designated Representative grants approval. Construction activities within 12 feet of the operational track(s) preferably allow the tracks to stay operational. In such cases, coordination and approval by the Railroad Track Manager is required with regard to schedule, flagging, and slow orders. See Sections 3.07 and 3.08 for additional information.

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

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

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

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

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

3.02 RAILROAD OPERATIONS

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

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

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

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

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

3.03 RIGHT OF ENTRY, ADVANCE NOTICE AND WORK STOPPAGES

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

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

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

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

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

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

3.04 INSURANCE

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

3.05 RAILROAD SAFETY ORIENTATION

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

"KCS/TEXMEX will not accept on-track safety training certificates from other railroads. Contractor's employees entering the KCS railroad shall hold current certificates at all times. The training can be had by contacting Larry Slater of TrackSense Inc. at 330-847-8661 or by email at lslater@neo.rr.com."

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

3.06 COOPERATION

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

3.07 MINIMUM CONSTRUCTION CLEARANCES FOR FALSEWORK AND OTHER TEMPORARY STRUCTURES

Abide by the following minimum temporary clearances during the course of construction:
A. 15' - 0" (BNSF), 14'-0" (KCS), and 12'-0" (UPRR) horizontal from centerline of track
B. 22' (KCS) and 21' - 6" (UPRR & BNSF) vertically above top of rail.

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

3.08 APPROVAL OF REDUCED CLEARANCES

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

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

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

DATE: DATE TIME
FILE: DOCUMENT NAME

SHEET 1 OF 2

Texas Department of Transportation | Traffic Operations Division

RAILROAD REQUIREMENTS FOR NON-BRIDGE CONSTRUCTION PROJECTS

FILE:	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS	0009	13	192,ETC.	IH 30,ETC.
	DIST	COUNTY		SHEET NO.
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3.09 MAINTENANCE OF RAILROAD FACILITIES

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

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

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

3.10 SITE INSPECTIONS BY RAILROAD's DESIGNATED REPRESENTATIVE

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

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

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

3.11 RAILROAD REPRESENTATIVES

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

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

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

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

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

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

3.12 COMMUNICATIONS AND SIGNAL LINES

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

3.13 TRAFFIC CONTROL

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

3.14 CONSTRUCTION EXCAVATIONS AND BORING ACTIVITIES UNDER TRACK

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

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

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

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

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

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

C. Projects involving a boring or jack and bore operation under track such as drainage pipes or culverts and utilities require an installation plan reviewed and approved by the Railroad and TxDOT prior to proceeding with such construction. A railroad inspector and contractor-assisted monitoring of ground and track movement is required to maintain safe passage of rail traffic. Stop installation and do not allow passage of trains if movements in excess of ¼" vertical or horizontal is detected in the tracks. Immediately repair the damage to the satisfaction of TxDOT and the Railroad before proceeding.

3.15 RAILROAD FLAGGING

Per the RIGHT OF ENTRY agreement for flagging, notify the Railroad Representative at least 10 working days in advance of Contractor work and at least 30 working days in advance of any Contractor work in which any person or equipment will be within 25 feet of nearest rail.

3.16 CLEANING OF RIGHT-OF-WAY

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

Texas Department of Transportation

Traffic Operations Division

RAILROAD REQUIREMENTS FOR NON-BRIDGE CONSTRUCTION PROJECTS

FILE:	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT October 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS	0009	13	192.ETC.	IH 30.ETC.
	DIST	COUNTY		SHEET NO.
	PAR	HUNT.ETC.		57

DATE:
FILE:

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

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

DOT No.: 672948X
Crossing Type: AT GRADE
RR Company Operating Track at Crossing: BNSF
RR Company Owning Track at Crossing: BNSF
RR MP: 636.473
RR Subdivision: MADILL
City: DENISON
County: GRAYSON
CSJ at this Crossing: 009-13-192, ETC.
Latitude: 33.7554913
Longitude: -96.5323980

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

SEALCOAT AND STRIPING

Scope of Work to be performed by Railroad Company:

FLAGGING

II. FLAGGING & INSPECTION

No. of Days of Railroad Flagging Expected: 2

On this project, night or weekend flagging is:

☐ Expected
☑ Not Expected

Flagging services will be provided by:

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

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

Contact Information for Flagging:

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

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

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

☐ OTHERS:

Contractor must incorporate railroad construction inspection into anticipated construction schedule.

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

III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

☐ Required.
☑ Not Required

Railroad Point of Contact: _____

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

IV. RAILROAD INSURANCE REQUIREMENTS

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

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

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

Escalated Limits

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

Railroad Protective Liability Limits

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

V. CONTRACTOR'S RIGHT OF ENTRY (CROE)

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

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

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

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

VI. RAILROAD COORDINATION MEETING

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

VII. RAILROAD SAFETY ORIENTATION

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

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

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

VIII. SUBCONTRACTORS

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

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency
Call: BNSF RAILROAD
Railroad Emergency Line at: 800-832-5452
Location: DOT 672948X
RR Milepost: 636.473
Subdivision: MADILL

RRD Review Only
Initials: JLL
Date: 8/1/2023

Texas Department of Transportation — Rail Division

RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS

FILE: rr-scope-of-work.pdf		DN: TxDOT	CK:	DW:		CK:	
© TxDOT June 2014		CONT	SECT	JOB		HIGHWAY	
REVISIONS		0009	13	192, ETC.		IH 30, ETC.	
6/2023		DIST	COUNTY			SHEET NO.	
		PAR	HUNT, ETC.			58	

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

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

DOT No.: 672080A
Crossing Type: AT GRADE
RR Company Operating Track at Crossing: BNSF
RR Company Owning Track at Crossing: BNSF
RR MP: 657.590
RR Subdivision: MADILL
City: DORCHESTER
County: GRAYSON
CSJ at this Crossing: 009-13-192, ETC.
Latitude: 33.529704
Longitude: -96.6884392

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

SEALCOAT AND STRIPING

Scope of Work to be performed by Railroad Company:

FLAGGING

II. FLAGGING & INSPECTION

No. of Days of Railroad Flagging Expected: 2

On this project, night or weekend flagging is:

☐ Expected
☑ Not Expected

Flagging services will be provided by:

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

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

Contact Information for Flagging:

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

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

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

☐ OTHERS:

Contractor must incorporate railroad construction inspection into anticipated construction schedule.

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

III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

☐ Required.
☑ Not Required

Railroad Point of Contact: _____

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

IV. RAILROAD INSURANCE REQUIREMENTS

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

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

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

Escalated Limits

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

Railroad Protective Liability Limits

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

V. CONTRACTOR'S RIGHT OF ENTRY (CROE)

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

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

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

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

VI. RAILROAD COORDINATION MEETING

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

VII. RAILROAD SAFETY ORIENTATION

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

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

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

VIII. SUBCONTRACTORS

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

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency
Call: BNSF RAILROAD
Railroad Emergency Line at: 800-832-5452
Location: DOT 672080A
RR Milepost: 657.590
Subdivision: MADILL

RRD Review Only
Initials: JLL
Date: 8/1/2023

Texas Department of Transportation — Rail Division

RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS

FILE: rr-scope-of-work.pdf		DN: TxDOT	CK:	DW:		CK:	
© TxDOT June 2014		CONT	SECT	JOB		HIGHWAY	
REVISIONS		0009	13	192, ETC.		IH 30, ETC.	
6/2023		DIST	COUNTY			SHEET NO.	
		PAR	HUNT, ETC.			59	

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

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

DOT No.: 795166A
Crossing Type: AT GRADE
RR Company Operating Track at Crossing: TNER
RR Company Owning Track at Crossing: TNER
RR MP: 128.080
RR Subdivision: BONHAM
City: BONHAM
County: FANNIN
CSJ at this Crossing: 009-13-192, ETC.
Latitude: 33.5732900
Longitude: -96.1781400

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

SEALCOAT AND STRIPING

Scope of Work to be performed by Railroad Company:

FLAGGING

II. FLAGGING & INSPECTION

No. of Days of Railroad Flagging Expected: 2

On this project, night or weekend flagging is:

☐ Expected
☑ Not Expected

Flagging services will be provided by:

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

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

Contact Information for Flagging:

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

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

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

☑ OTHERS:

TNER
Call center 877-315-0513, Select #1 for flagging
gw.info@railpros.com

Contractor must incorporate railroad construction inspection into anticipated construction schedule.

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

III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

☐ Required.
☑ Not Required

Railroad Point of Contact: _____

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

IV. RAILROAD INSURANCE REQUIREMENTS

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

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

Escalated Limits

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

Railroad Protective Liability Limits

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

V. CONTRACTOR'S RIGHT OF ENTRY (CROE)

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

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

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VI. RAILROAD COORDINATION MEETING

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VII. RAILROAD SAFETY ORIENTATION

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

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

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

VIII. SUBCONTRACTORS

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

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency
Call: TNER RAILROAD
Railroad Emergency Line at: 800-979-4958
Location: DOT 795166A
RR Milepost: 128.080
Subdivision: BONHAM

RRD Review Only
Initials: JLL
Date: 8/26/2023

Texas Department of Transportation — Rail Division

RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS

FILE: rr-scope-of-work.pdf		DN: TxDOT	CK:	DW:		CK:	
© TxDOT June 2014		CONT	SECT	JOB		HIGHWAY	
REVISIONS		0009	13	192, ETC.		IH 30, ETC.	
6/2023		DIST	COUNTY			SHEET NO.	
		PAR	HUNT, ETC.			60	

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

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

DOT No.: 331593H
Crossing Type: AT GRADE
RR Company Operating Track at Crossing: CPKCR
RR Company Owning Track at Crossing: CPKCR
RR MP: 130.970
RR Subdivision: GREENVILLE
City: COMO
County: HOPKINS
CSJ at this Crossing: 009-13-192, ETC.
Latitude: 33.0585771
Longitude: -95.4733567

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

SEALCOAT AND STRIPING

Scope of Work to be performed by Railroad Company:

FLAGGING

II. FLAGGING & INSPECTION

No. of Days of Railroad Flagging Expected: 2

On this project, night or weekend flagging is:

☐ Expected
☑ Not Expected

Flagging services will be provided by:

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

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

Contact Information for Flagging:

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

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

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

☐ OTHERS:

Contractor must incorporate railroad construction inspection into anticipated construction schedule.

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

III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

☐ Required.
☑ Not Required

Railroad Point of Contact: _____

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

IV. RAILROAD INSURANCE REQUIREMENTS

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Escalated Limits

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

Railroad Protective Liability Limits

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

V. CONTRACTOR'S RIGHT OF ENTRY (CROE)

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

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

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

VIII. SUBCONTRACTORS

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

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency
Call: CPKCR RAILROAD
Railroad Emergency Line at: 877-527-9464
Location: DOT 331593H
RR Milepost: 130.970
Subdivision: GREENVILLE

RRD Review Only
Initials: JLL
Date: 9/26/2023

Texas Department of Transportation | Rail Division

RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS

FILE: rr-scope-of-work.pdf		DN: TxDOT	CK:	DW:		CK:	
© TxDOT June 2014		CONT	SECT	JOB		HIGHWAY	
REVISIONS		0009	13	192, ETC.		IH 30, ETC.	
6/2023		DIST	COUNTY			SHEET NO.	
		PAR	HUNT, ETC.			61	

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DATE:
FILE:

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

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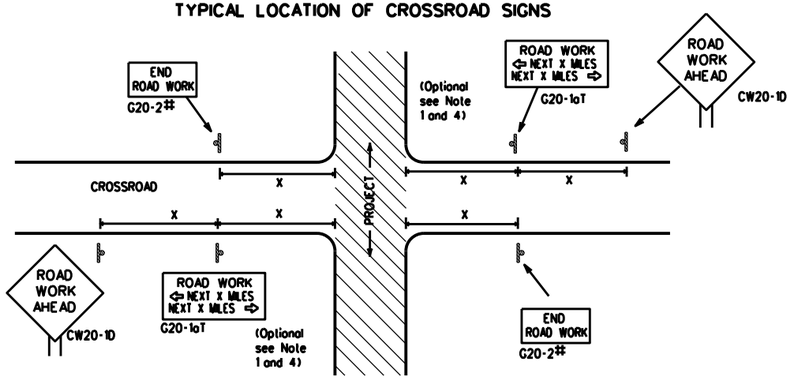
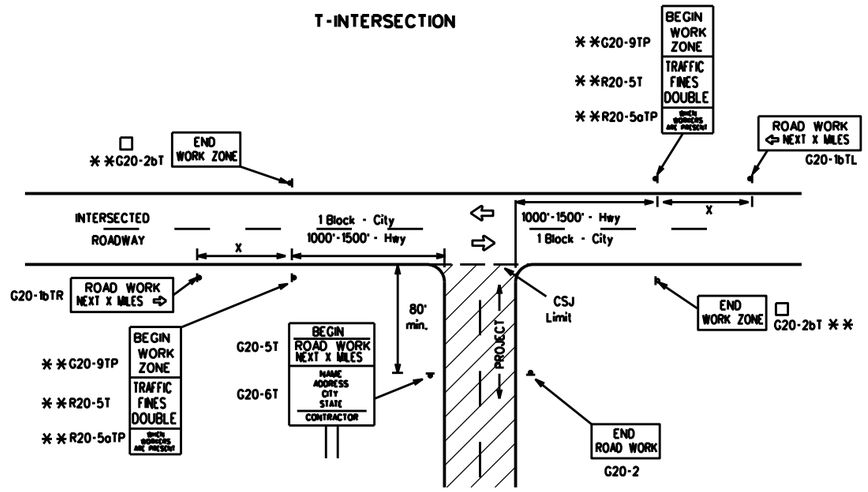
TYPICAL LOCATION OF CROSSROAD SIGNS



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

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

T-INTERSECTION



CSJ LIMITS AT T-INTERSECTION

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

TYPICAL CONSTRUCTION WARNING SIGN SIZE AND SPACING

1.5.6

SIZE

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

SPACING

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

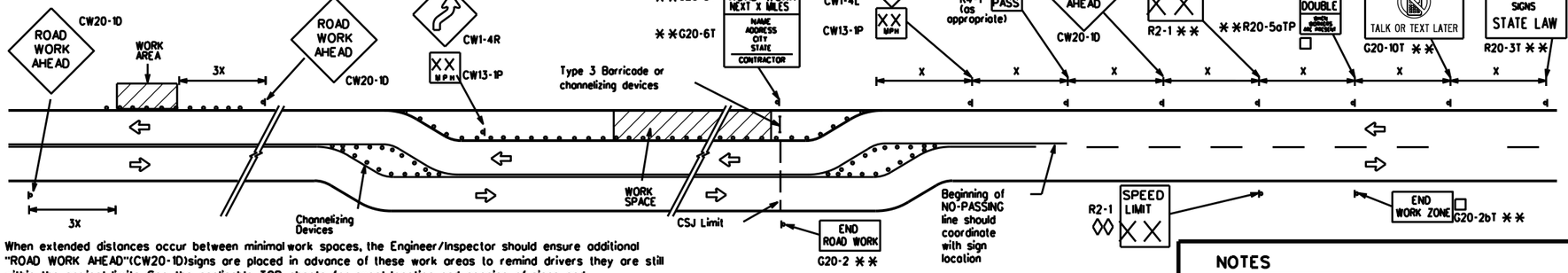
* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

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

GENERAL NOTES

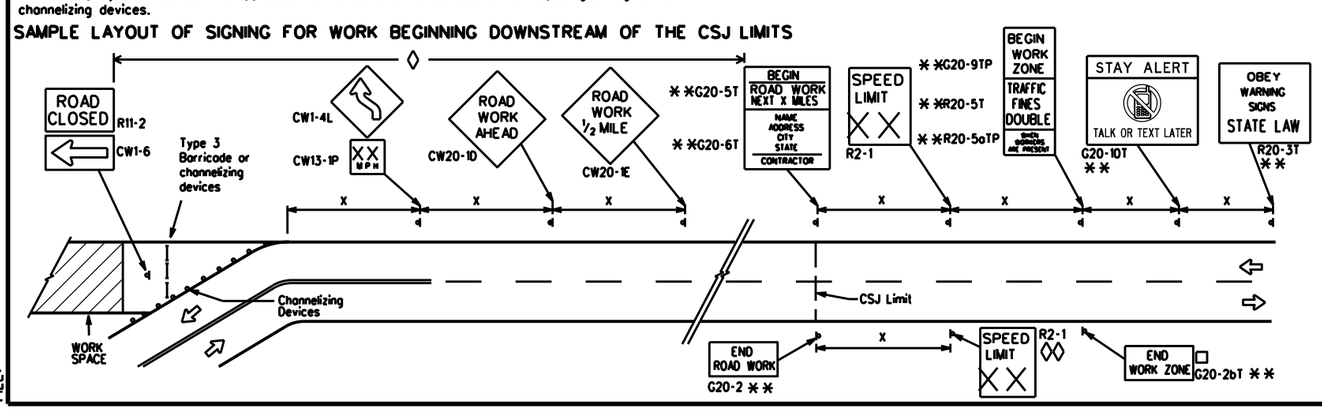
1. Special or larger size signs may be used as necessary.
2. Distance between signs should be increased as required to have 1500 feet advance warning.
3. Distance between signs should be increased as required to have 1/2 mile or more advance warning.
4. 36" x 36" "ROAD WORK AHEAD" (CW20-1D)signs may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

WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS



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

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



SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT 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

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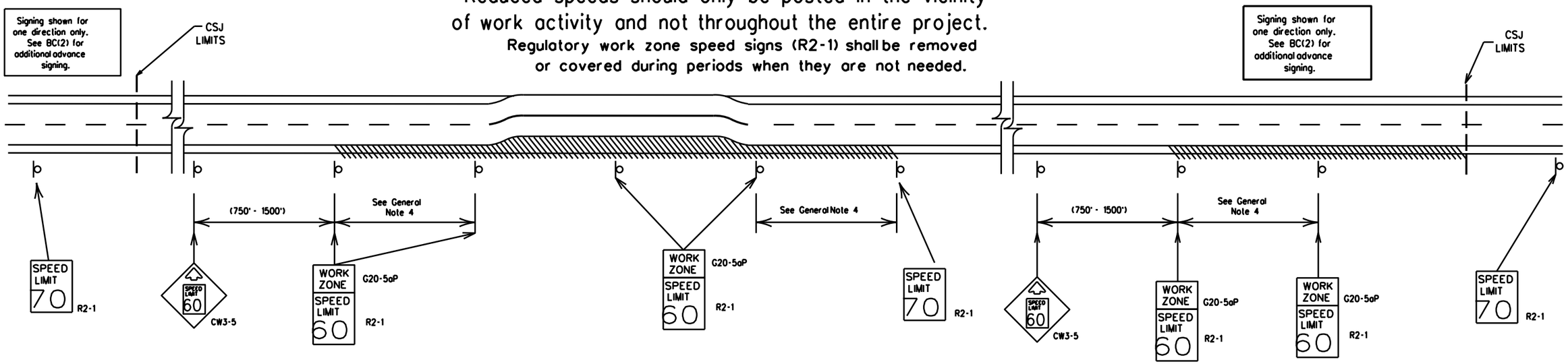
TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

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

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

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



GUIDANCE FOR USE:

LONG/INTERMEDIATE TERM WORK ZONE SPEED LIMITS

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

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

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

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

SHORT TERM WORK ZONE SPEED LIMITS

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

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

GENERAL NOTES

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT

BC(3)-21

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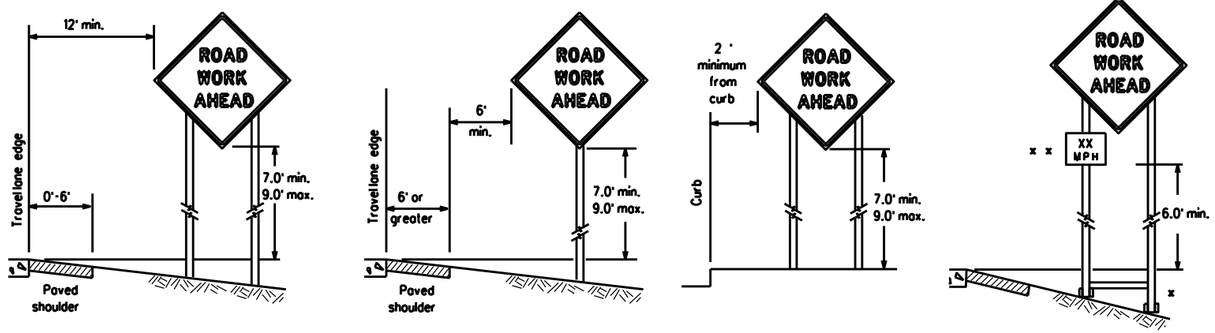
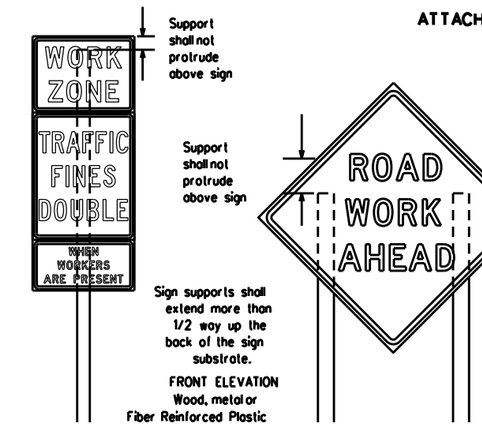
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS



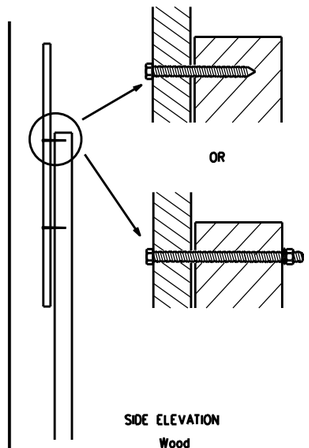
x When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

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

ATTACHMENT FOR SIGN SUPPORTS



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.

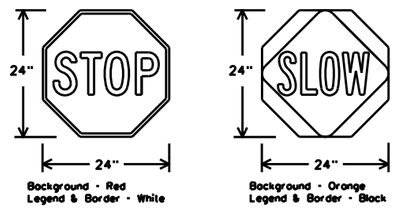


Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

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.

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 lightness 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 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.

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BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

BC(4)-21

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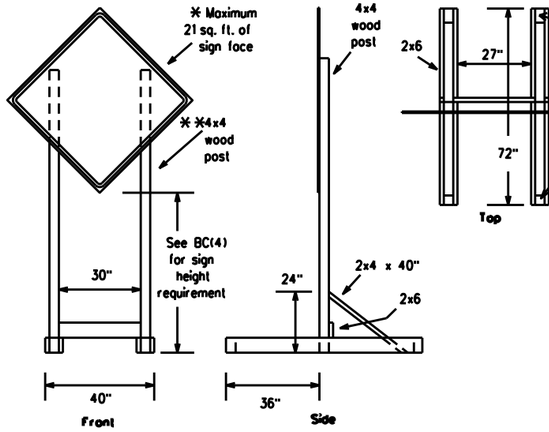
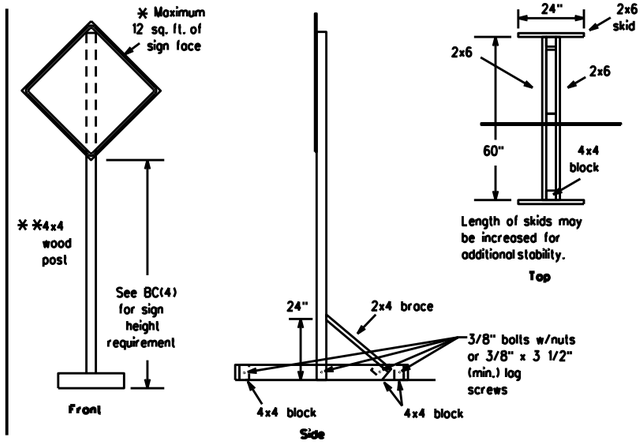
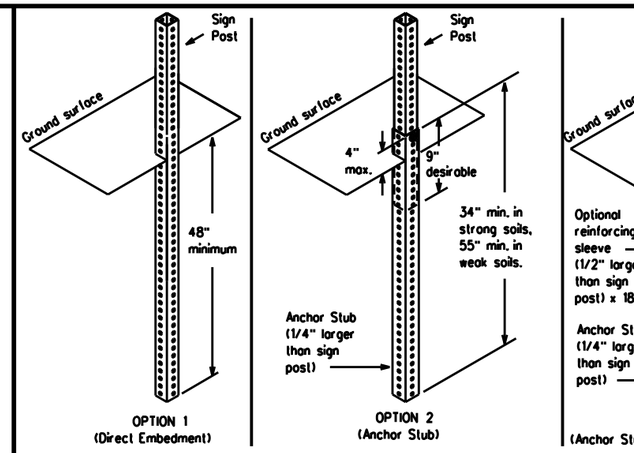


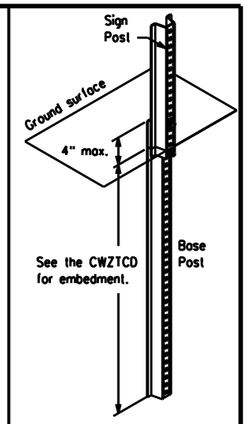


SKID MOUNTED WOOD SIGN SUPPORTS

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



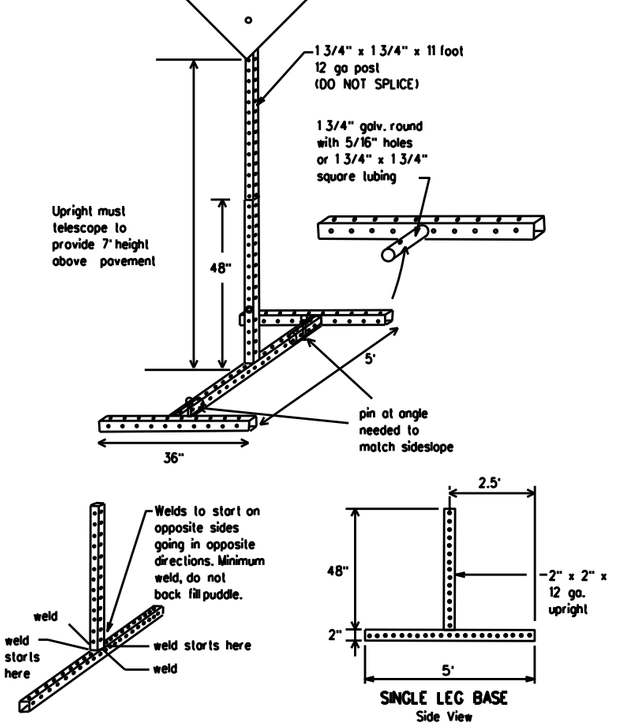
PERFORATED SQUARE METAL TUBING

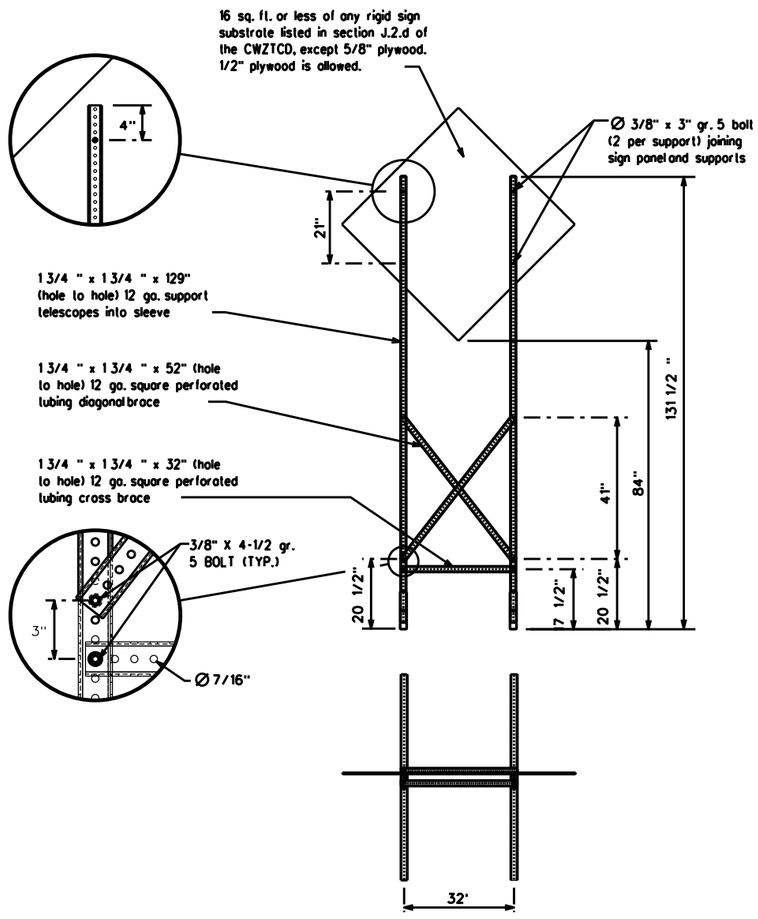


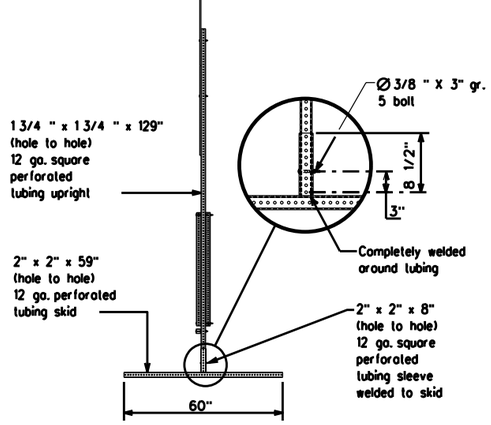
WING CHANNEL
Lap-splice/base bolted anchor

GROUND MOUNTED SIGN SUPPORTS

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







SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS

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

WEDGE ANCHORS

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

OTHER DESIGNS

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

GENERAL NOTES

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

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

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

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0009	13	192, ETC.	IH 30, ETC
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	PAR	HUNT, ETC.		66

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

PORTABLE CHANGEABLE MESSAGE SIGNS

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

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

SHEET 6 OF 12

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
REVISIONS	0009	13	192, ETC.	IH 30, ETC.
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	PAR	HUNT, ETC.		67

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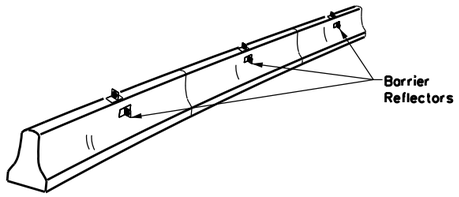
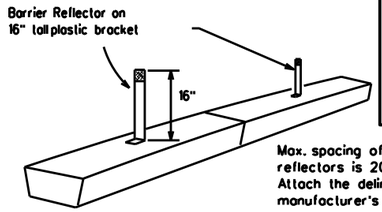
1. Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
2. Color of Barrier Reflectors shall be as specified in the TMUTCD. The cost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



CONCRETE TRAFFIC BARRIER (CTB)

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

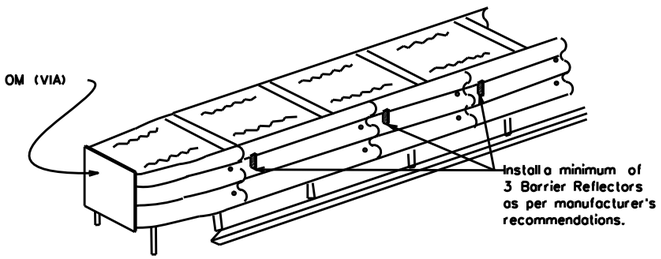


Max. spacing of barrier reflectors is 20 feet.
Attach the delineators as per manufacturer's recommendations.

LOW PROFILE CONCRETE BARRIER (LPCB) USED IN WORK ZONES

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

LOW PROFILE CONCRETE BARRIER (LPCB)

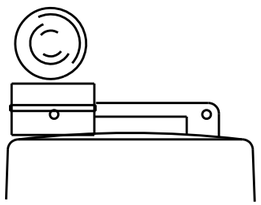


DELINEATION OF END TREATMENTS

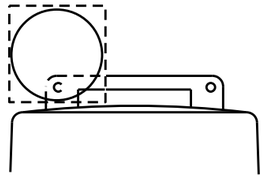
END TREATMENTS FOR CTB'S USED IN WORK ZONES

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

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS



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



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

WARNING LIGHTS

1. Warning lights shall meet the requirements of the TMUTCD.
2. Warning lights shall NOT be installed on barricades.
3. Type A-Low Intensity Flashing Warning Lights are commonly used with drums. They are intended to warn of or mark a potentially hazardous area. Their use shall be as indicated on this sheet and/or other sheets of the plans by the designation "FL". The Type A Warning Lights shall not be used with signs manufactured with Type B or C 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

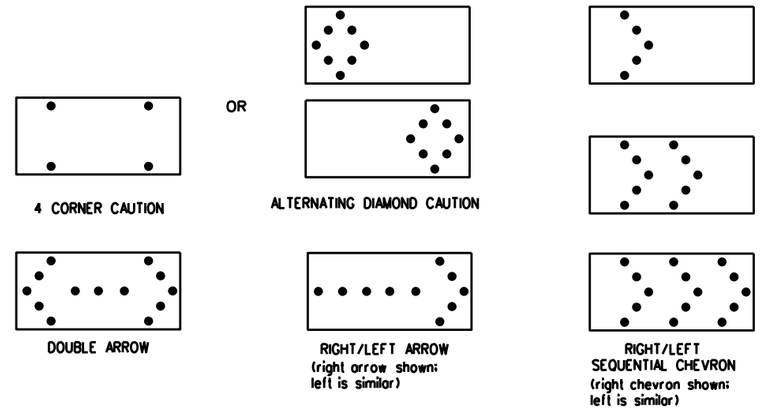
1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
3. A series of sequential flashing warning lights placed on channelizing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



4 CORNER CAUTION

ALTERNATING DIAMOND CAUTION

DOUBLE ARROW

RIGHT/LEFT ARROW
(right arrow shown; left is similar)

RIGHT/LEFT SEQUENTIAL CHEVRON
(right chevron shown; left is similar)

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

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

ATTENTION

Flashing Arrow Boards shall be equipped with automatic dimming devices.

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

FLASHING ARROW BOARDS

TRUCK-MOUNTED ATTENUATORS

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

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Traffic Safety Division Standard

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

BC(7)-21

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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:

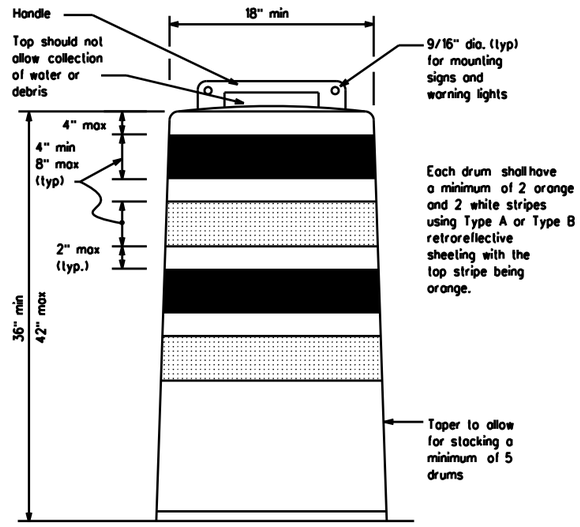
1. Plastic drums shall be a two-piece design: the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents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

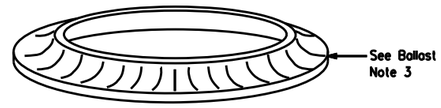
RETROREFLECTIVE SHEETING

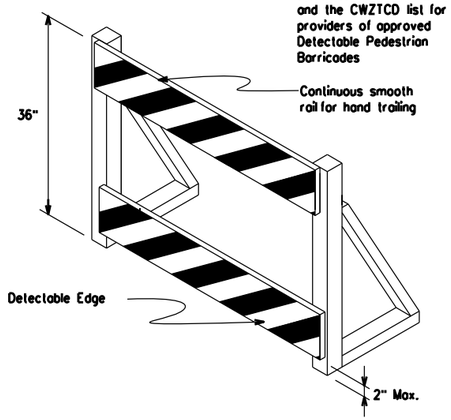
1. The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Sign Face Materials." Type A or Type B reflective sheeting shall be supplied unless otherwise specified in the plans.
2. The sheeting shall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

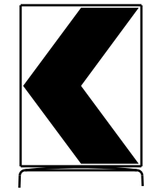




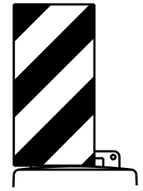


DETECTABLE PEDESTRIAN BARRICADES

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 or Type C Orange_{FL} 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

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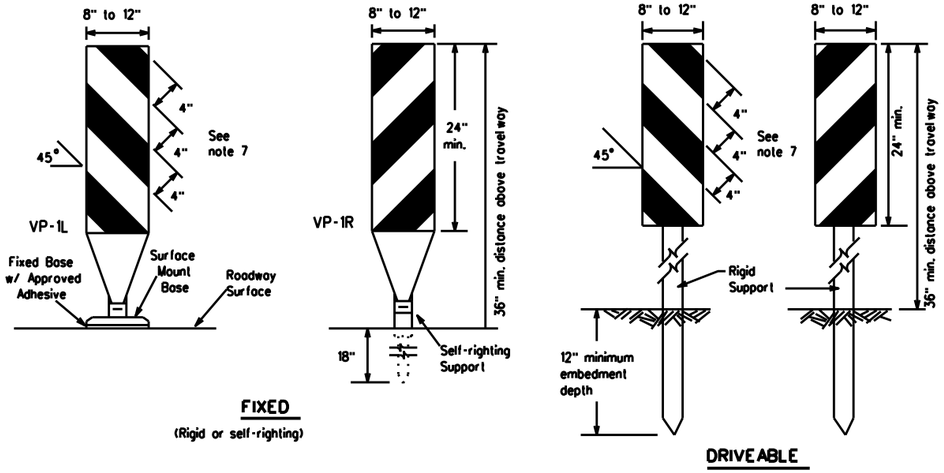
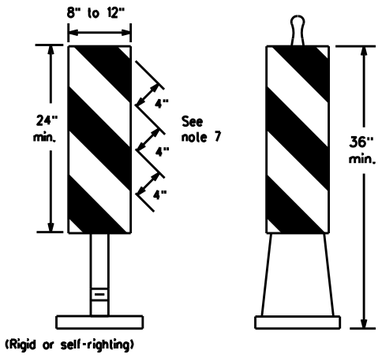


FIXED
(Rigid or self-righting)

DRIVEABLE

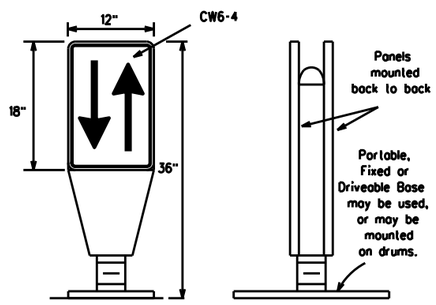


(Rigid or self-righting)

PORTABLE

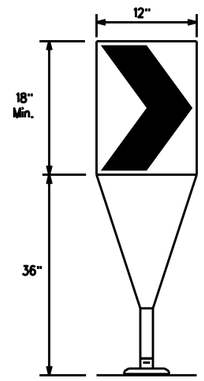
1. Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
2. VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is 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 or Type C conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.

OPPOSING TRAFFIC LANE DIVIDERS (OTLD)



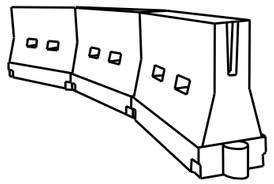
Fixed Base w/ Approved Adhesive (Driveable Base, or Flexible Support can be used)

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 or Type C 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 **			Suggested Maximum Spacing of Channelizing Devices	
		10' Offset	11' Offset	12' Offset	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

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(9)-21

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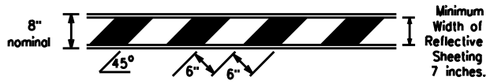
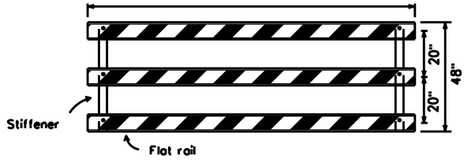
TYPE 3 BARRICADES

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.



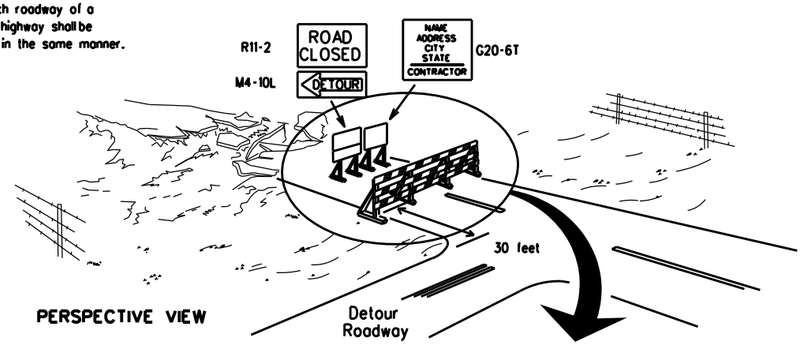
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



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

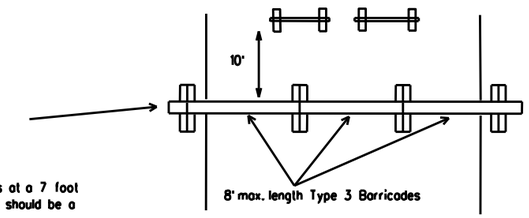
Each roadway of a divided highway shall be barricaded in the same manner.



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.

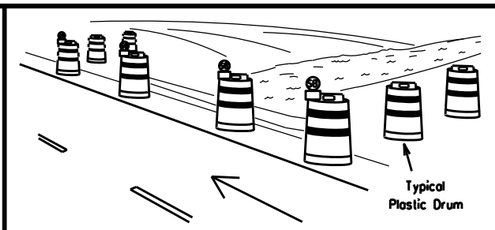
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

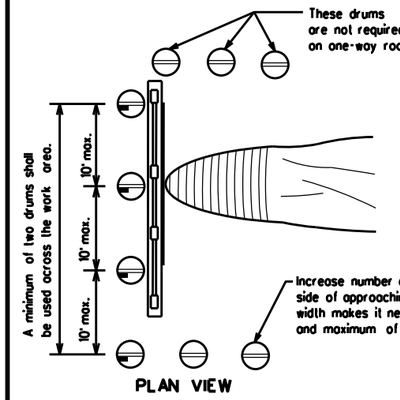
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

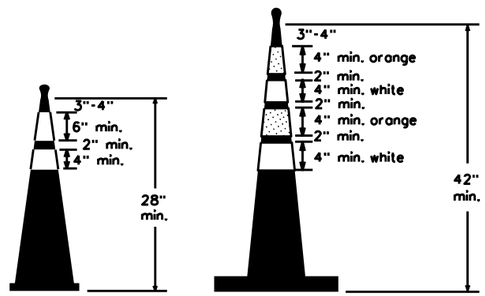
1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder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



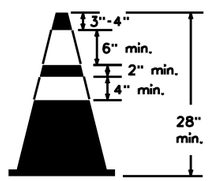
PLAN VIEW

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

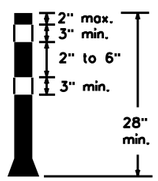
CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



Two-Piece cones



One-Piece cones

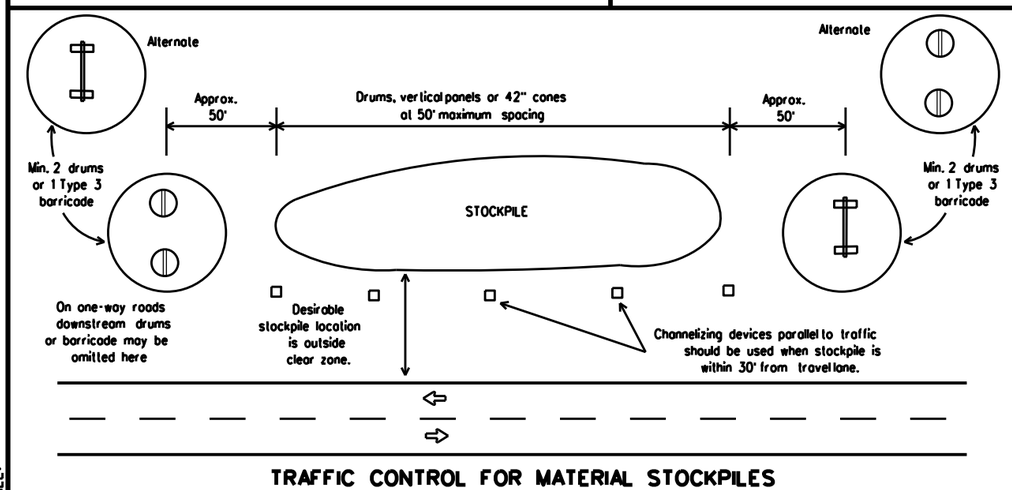


Tubular Marker

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

DATE:
FILE:

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 9-07 8-14 7-13 5-21	0009	13	192, ETC.	IH 30, ETC.
	DIST	COUNTY		SHEET NO.
	PAR	HUNT, ETC.		71

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DATE:
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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.

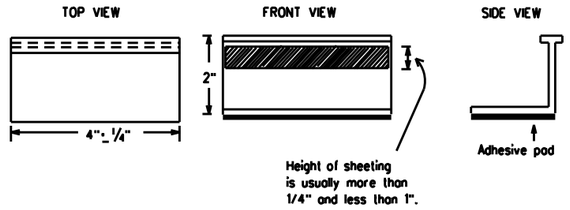
MAINTAINING WORK ZONE PAVEMENT MARKINGS

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	13	192, ETC.	IH 30 ,ETC.
2-98 9-07 5-21	DIST	COUNTY		SHEET NO.
1-02 7-13	PAR	HUNT, ETC.		72
11-02 8-14				

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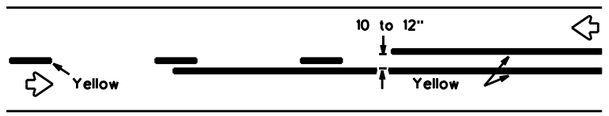
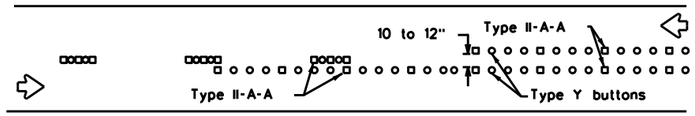
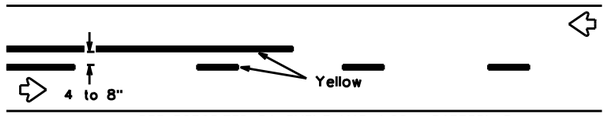
PAVEMENT MARKING PATTERNS



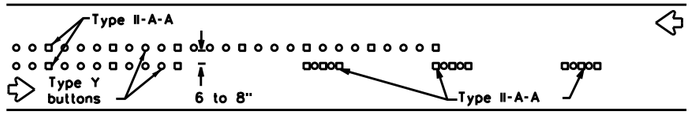
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



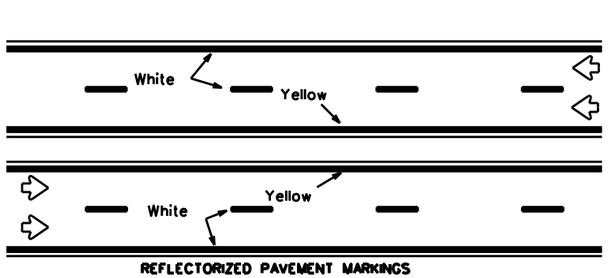
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



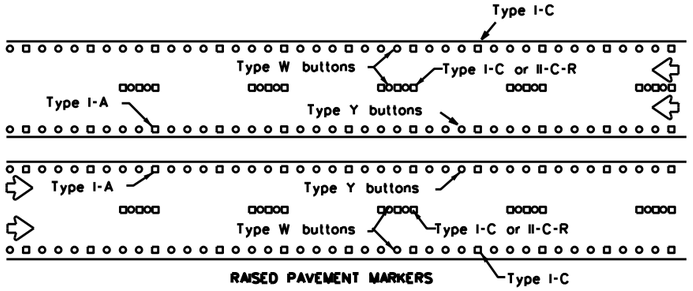
RAISED PAVEMENT MARKERS - PATTERN B

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

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



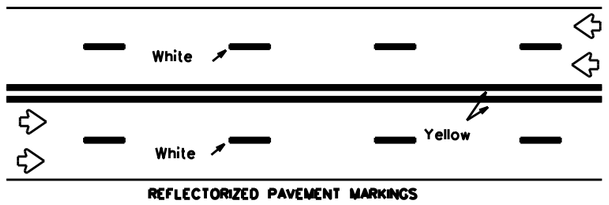
REFLECTORIZED PAVEMENT MARKINGS



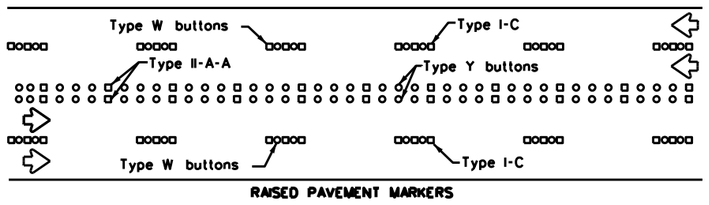
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



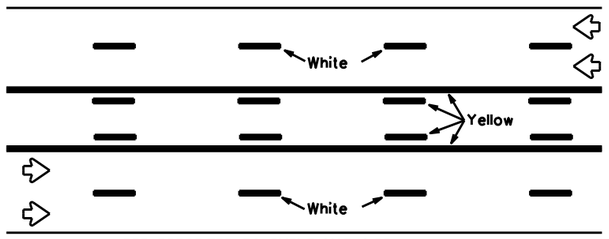
REFLECTORIZED PAVEMENT MARKINGS



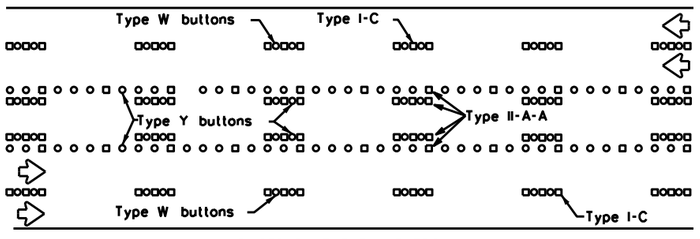
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS



RAISED PAVEMENT MARKERS

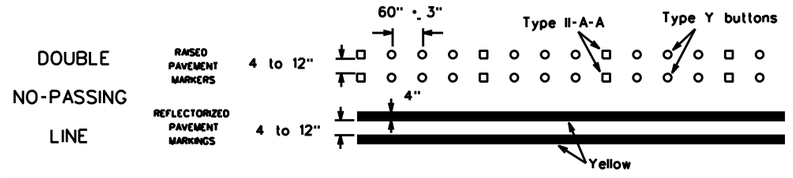
Prefabricated markings may be substituted for reflectorized pavement markings.

TWO-WAY LEFT TURN LANE

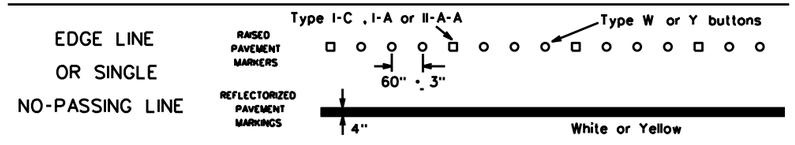
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

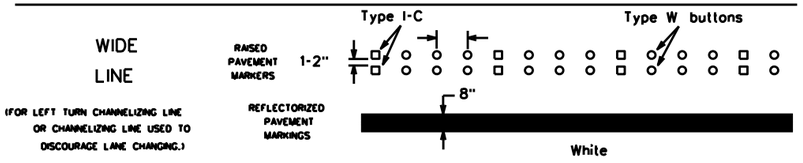


EDGE LINE OR SINGLE NO-PASSING LINE



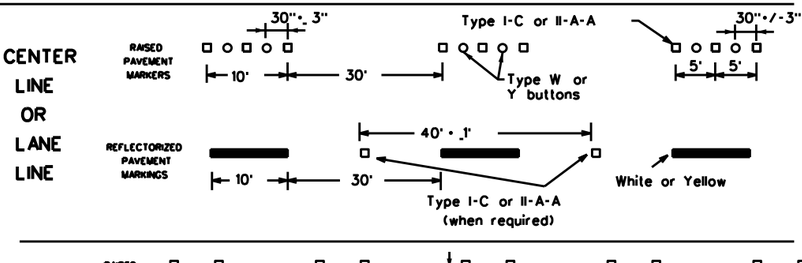
WIDE LINE

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

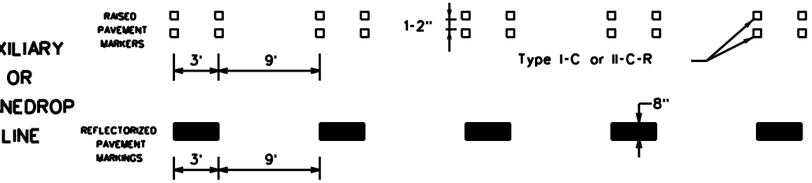


BROKEN LINES

CENTER LINE OR LANE LINE

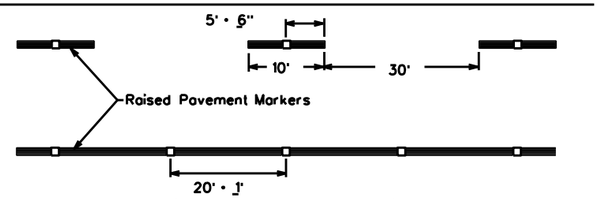


AUXILIARY OR LANEDROP LINE



REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

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



Centerline only - not to be used on edge lines

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

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	13	192, ETC.	IH 30, ETC.
	DIST	COUNTY		SHEET NO.
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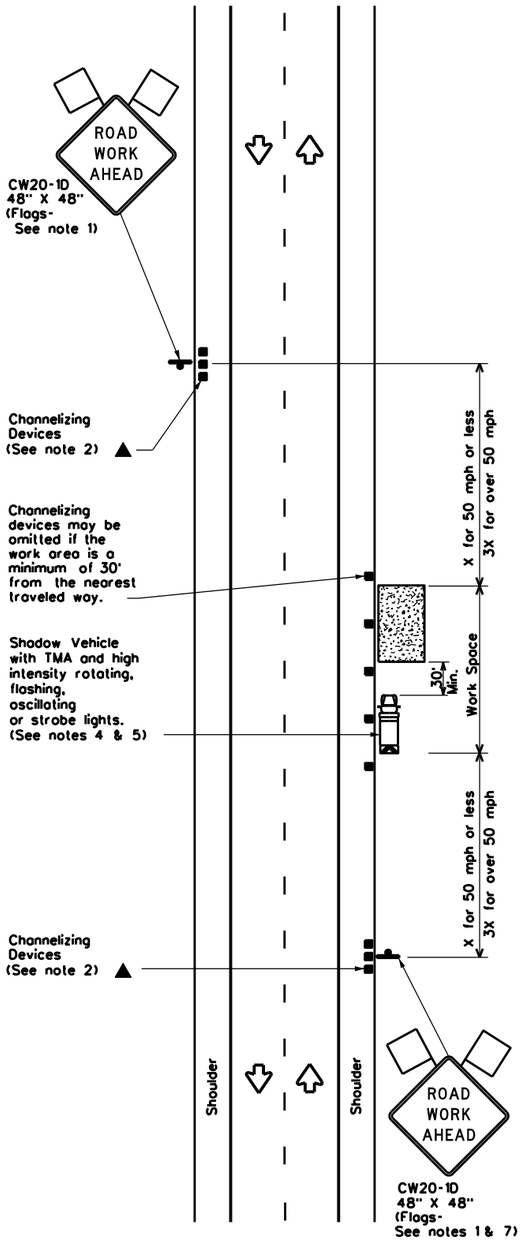
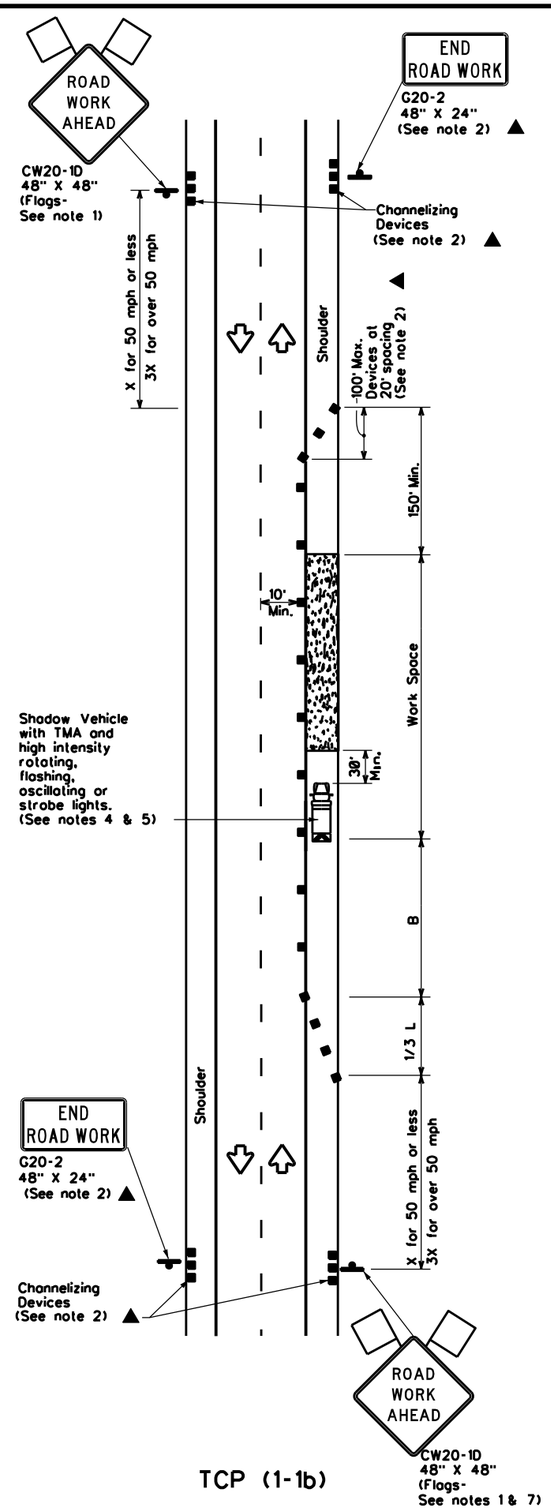


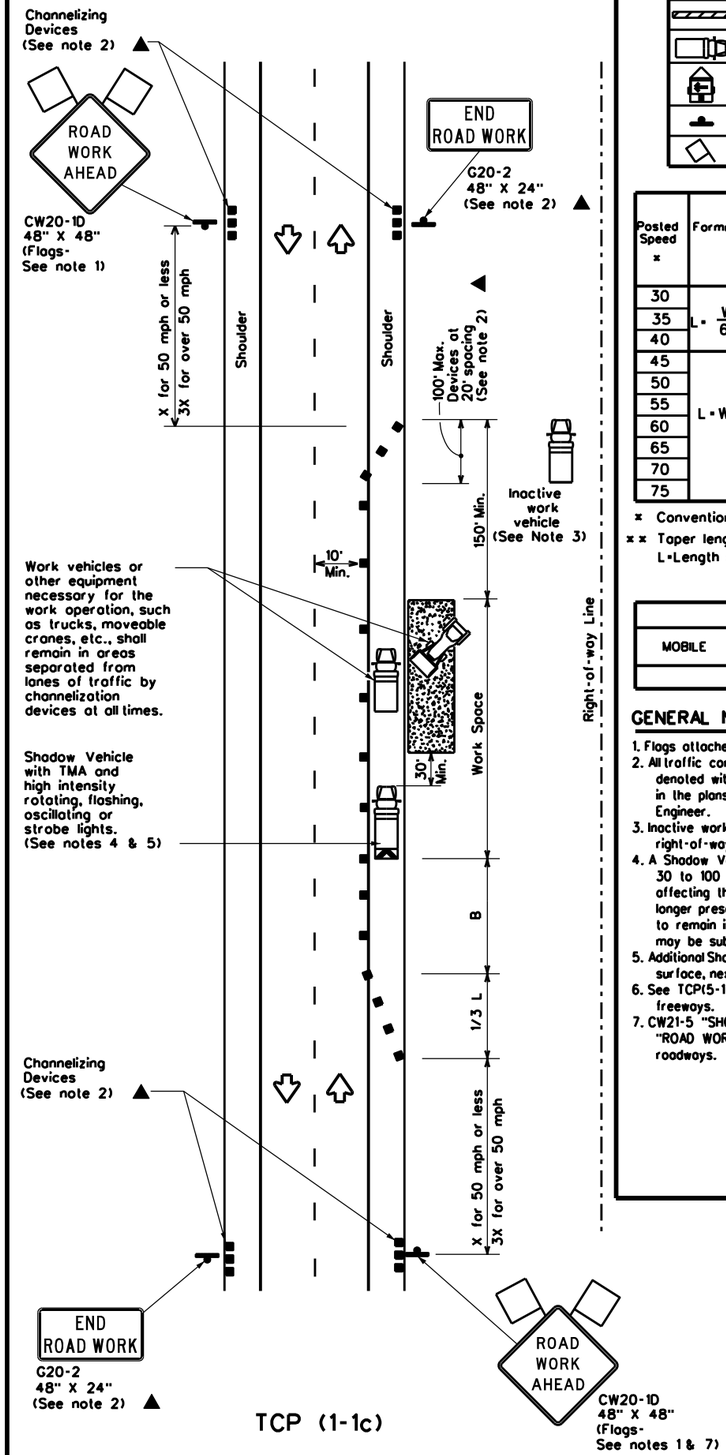
TCP (1-1a)

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	M	Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

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

* Conventional Roads Only

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

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

GENERAL NOTES

1. Flags attached to signs where shown are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. 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 8-95 2-12 1-97 2-18	0009	13	192.ETC.	IH 30.ETC.
	DIST	COUNTY		SHEET NO.
	PAR	HUNT.ETC.		74

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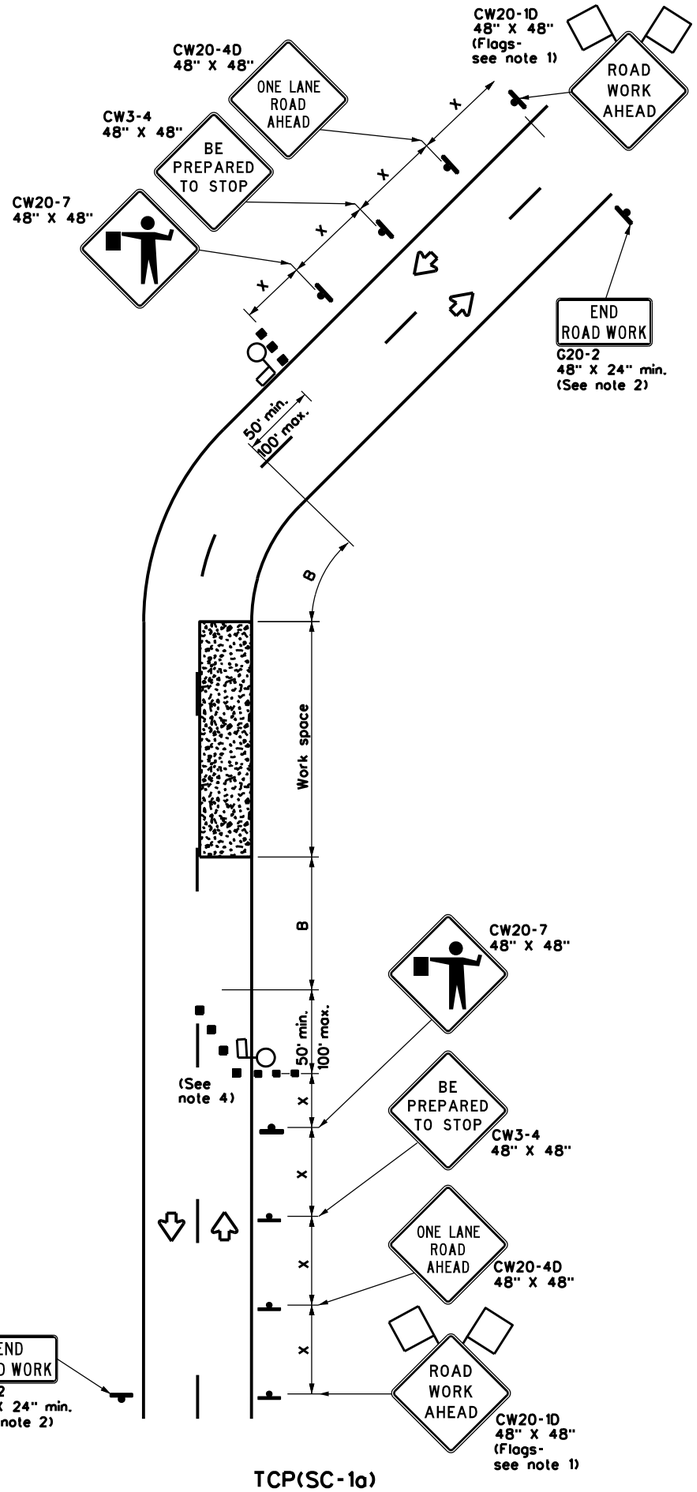
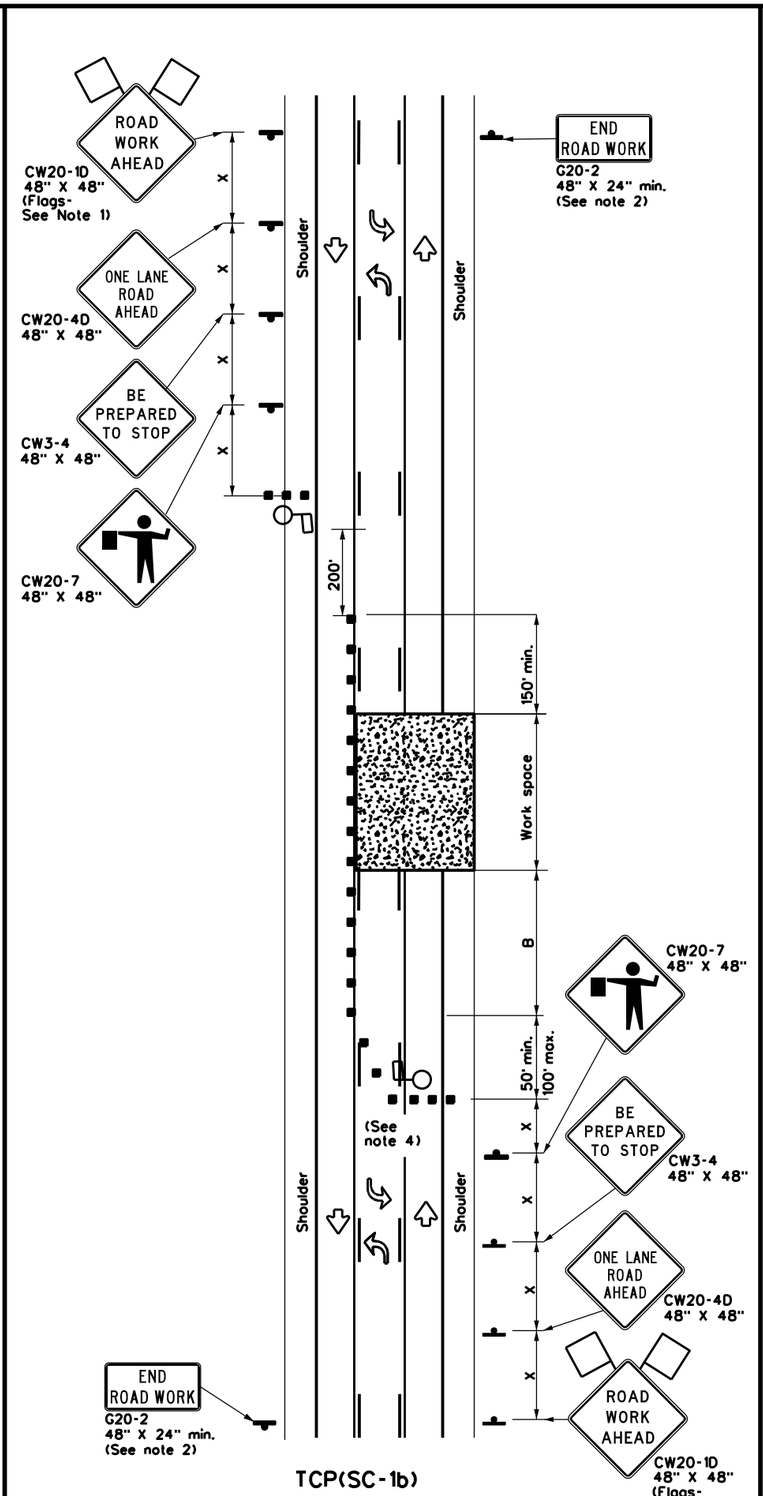


TCP(SC-1a)

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



TCP(SC-1b)

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

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

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

* Conventional Roads Only

* * Taper lengths have been rounded off.

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

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

GENERAL NOTES

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

TCP (SC-1a)

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

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:
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REVISIONS 4-21 10-22	0009	13	192, ETC.	IH 30, ETC.
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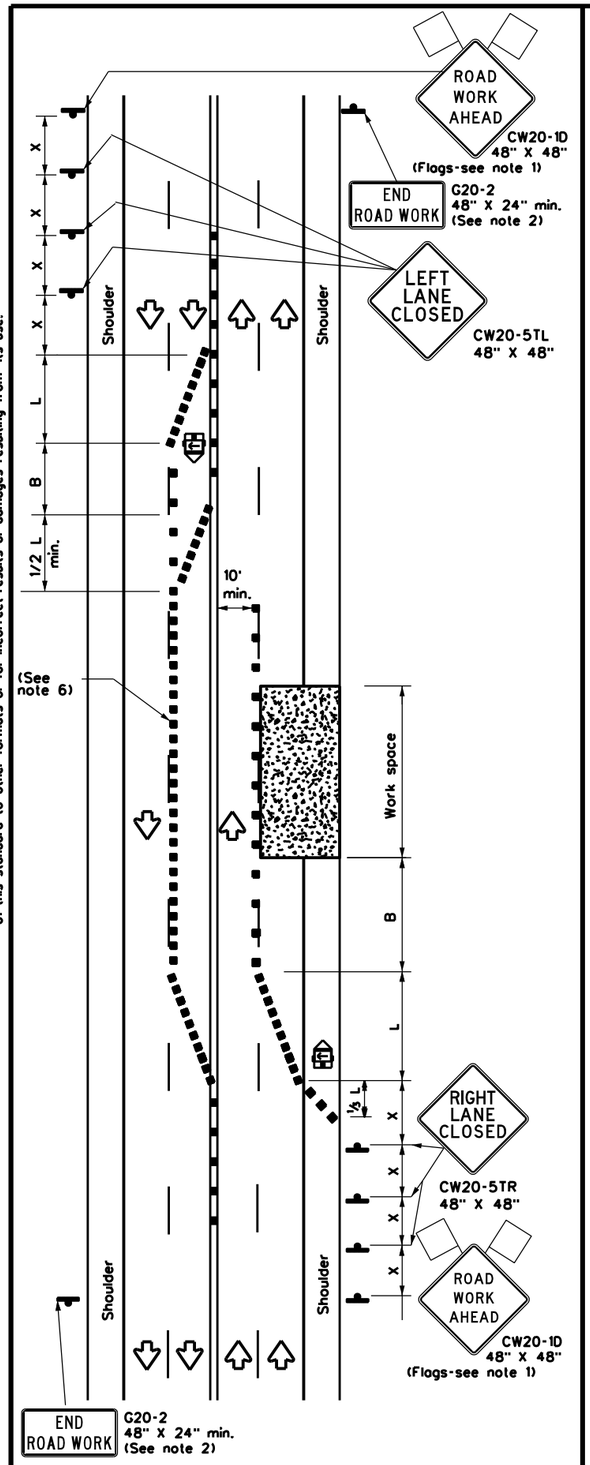
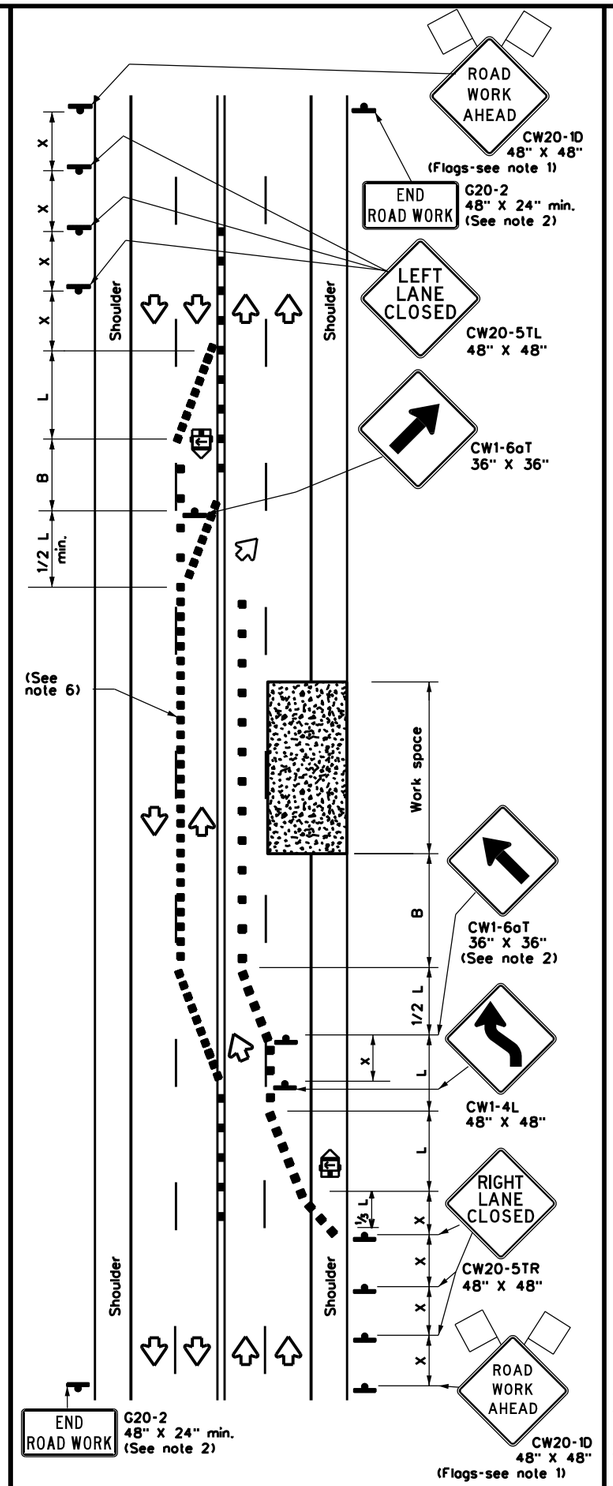


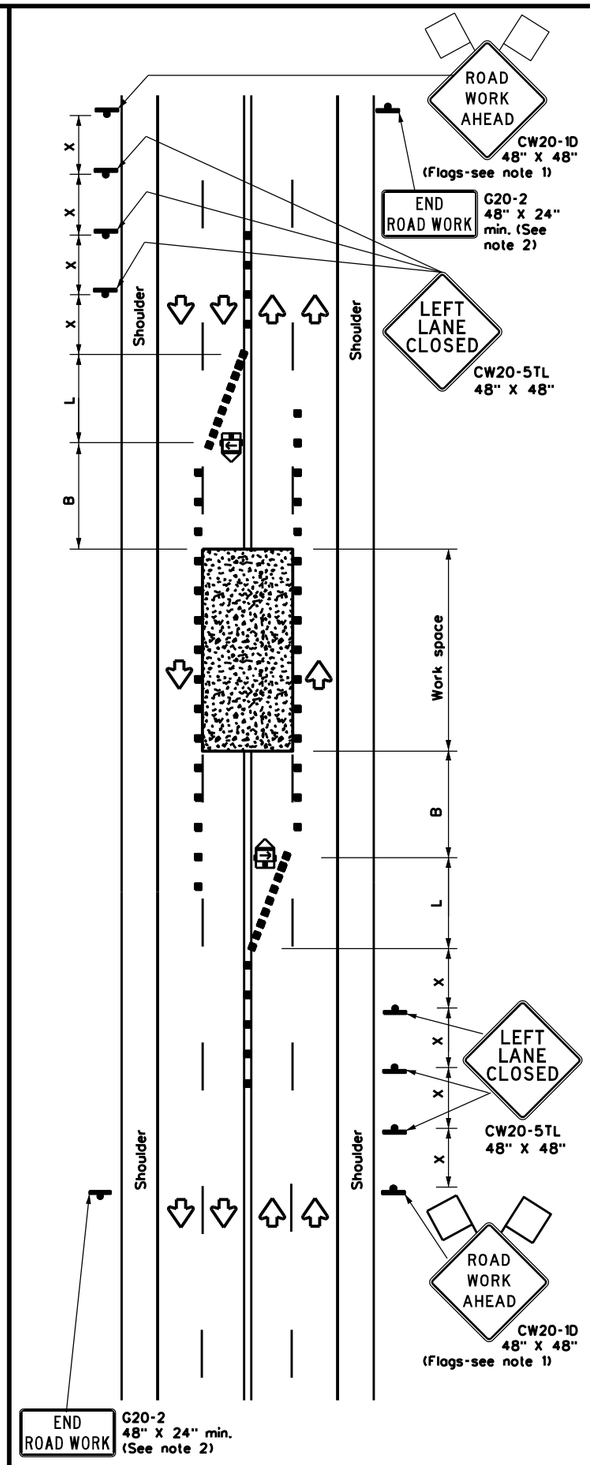
TCP (SC-2a)

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	M	Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices: On a Taper	On a Tangent	Minimum Sign Spacing Distance "X"	Suggested Longitudinal Buffer Space "B"
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.

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:
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REVISIONS 4-21 10-22	0009	13	192, ETC.	IH 30, ETC.
	DIST	COUNTY		SHEET NO.
	PAR	HUNT, ETC.		76

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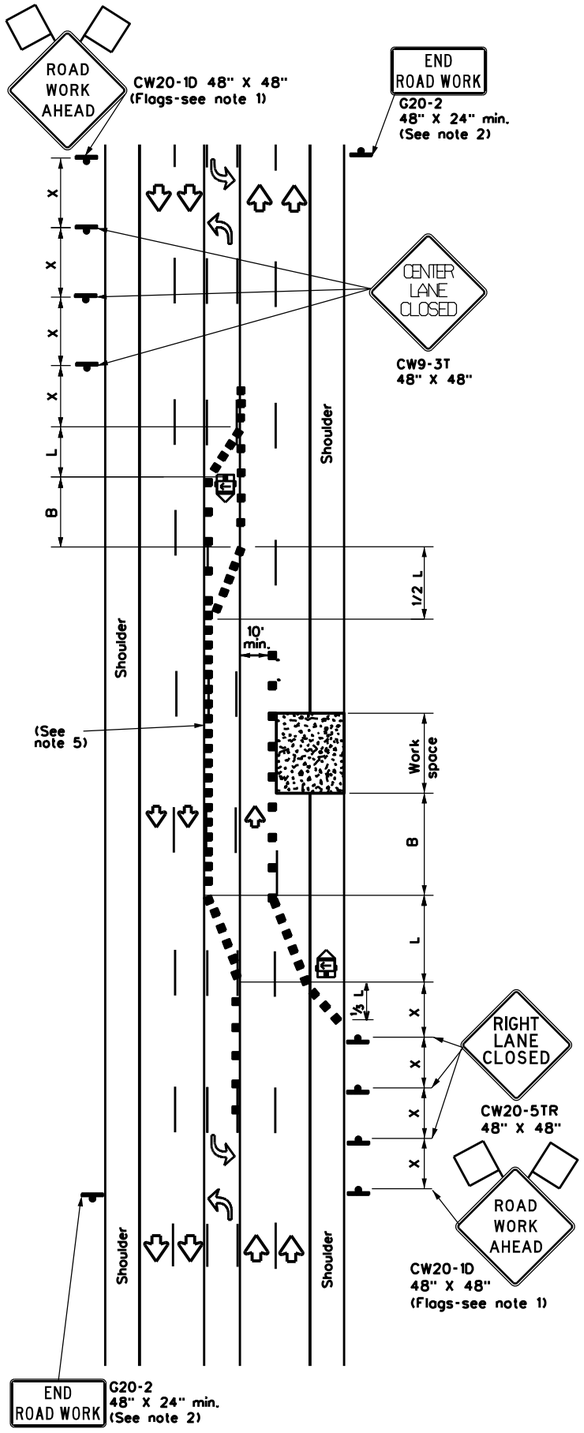
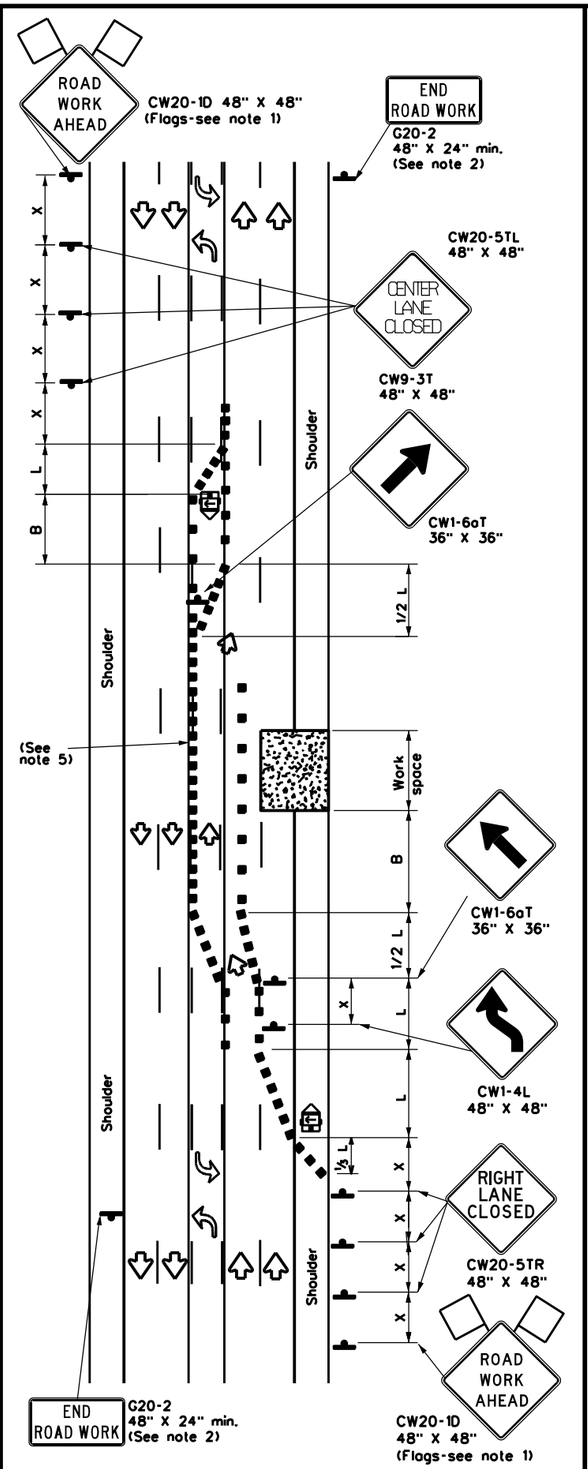


TCP(SC-3a)

ONE LANE CLOSED

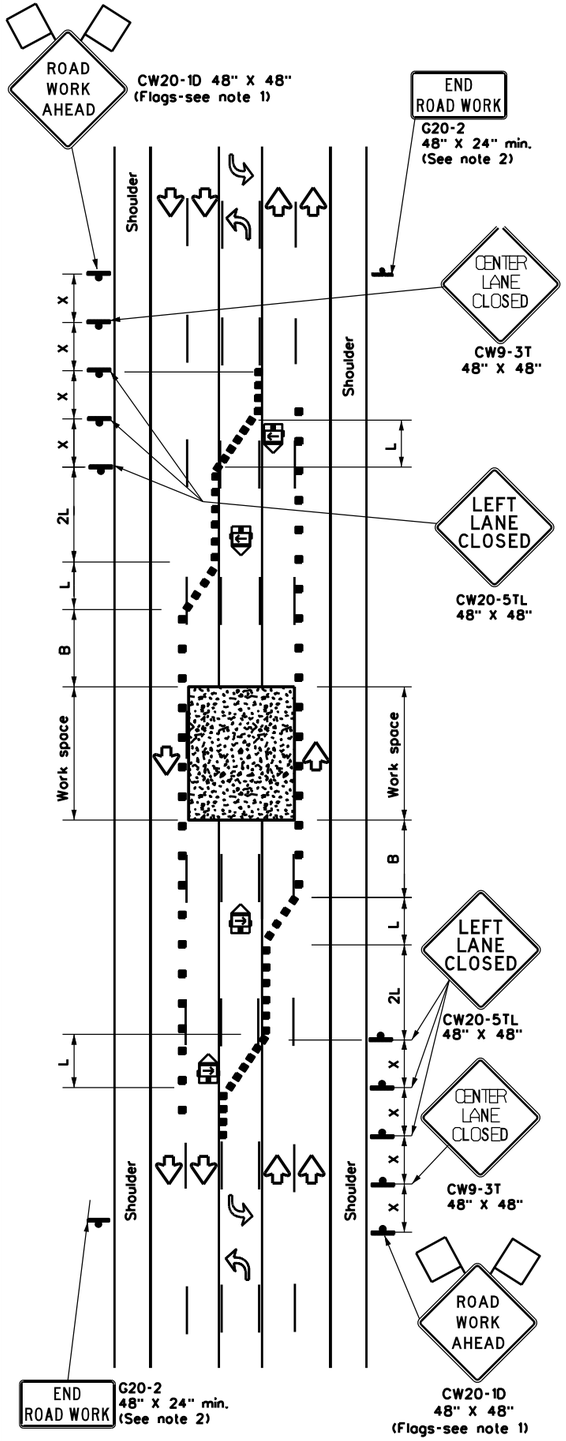
CONTROL W/ CHANNELIZING DEVICES



TCP(SC-3b)

TWO LANES CLOSED

CONTROL W/ CHANNELIZING DEVICES



TCP(SC-3c)

CENTER LANES CLOSED

CONTROL W/ CHANNELIZING DEVICES

LEGEND

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

x Conventional Roads Only
x x 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

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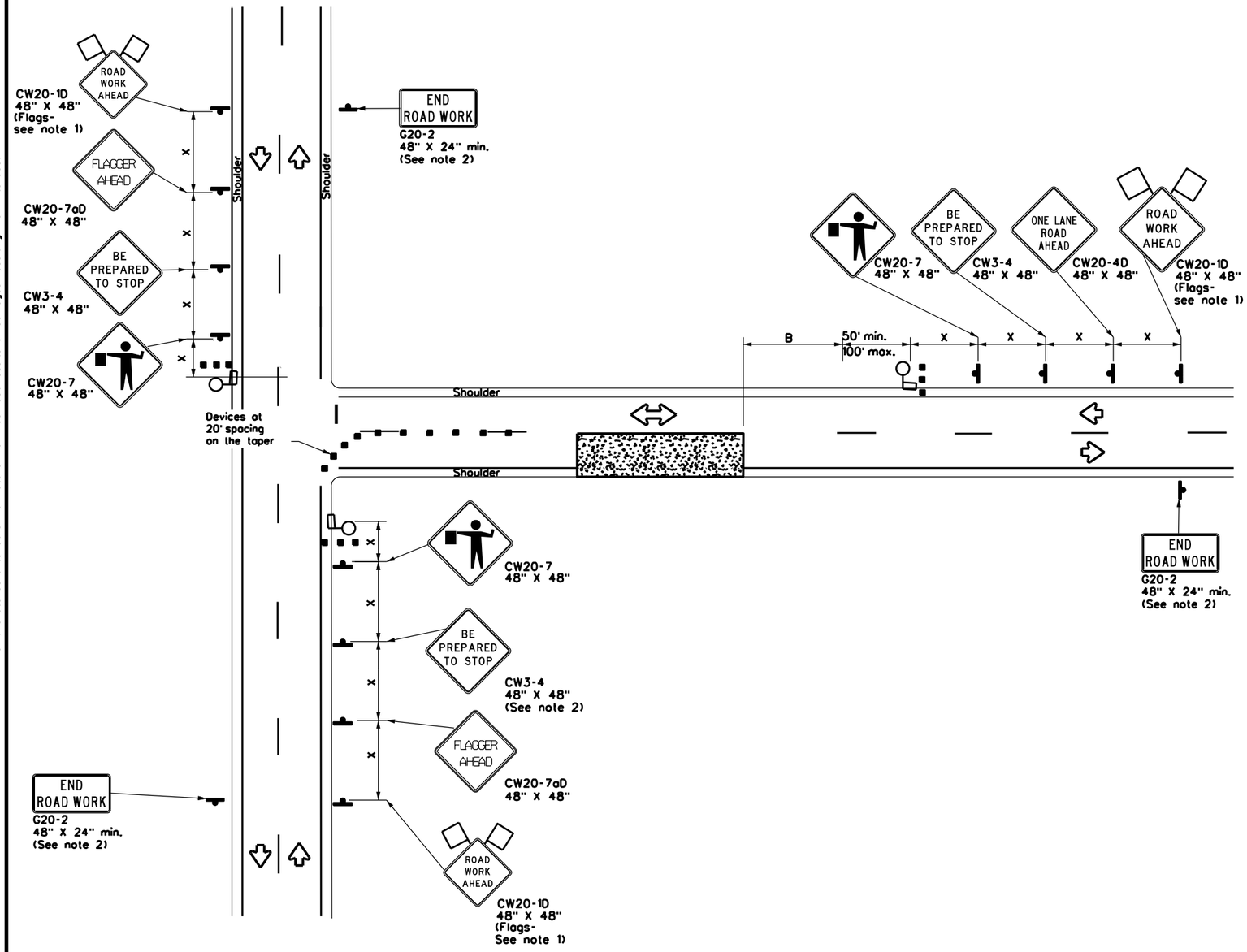

ONE LANE TWO-WAY (T-INTERSECTION) CONTROL WITH PILOT VEHICLE

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

Posted Speed x	Formula	Minimum Desirable Taper Lengths x x			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'

x Conventional Roads Only

x x Taper lengths have been rounded off.

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

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

GENERAL NOTES

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

Texas Department of Transportation

Traffic Safety Division Standard

TRAFFIC CONTROL PLAN SEAL COAT OPERATIONS NEAR INTERSECTION

TCP(SC-4)-22

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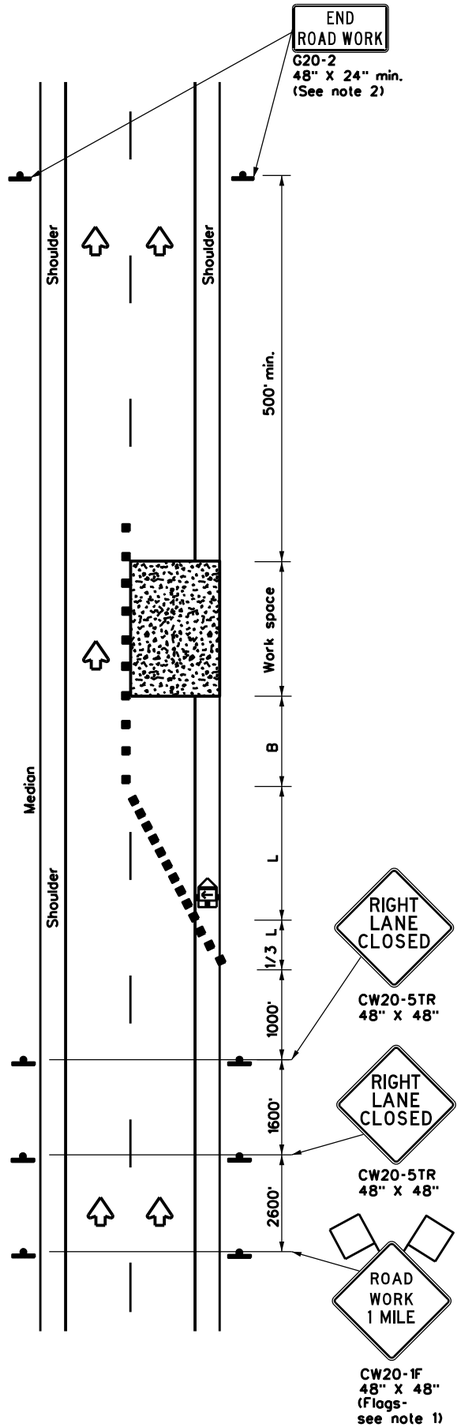
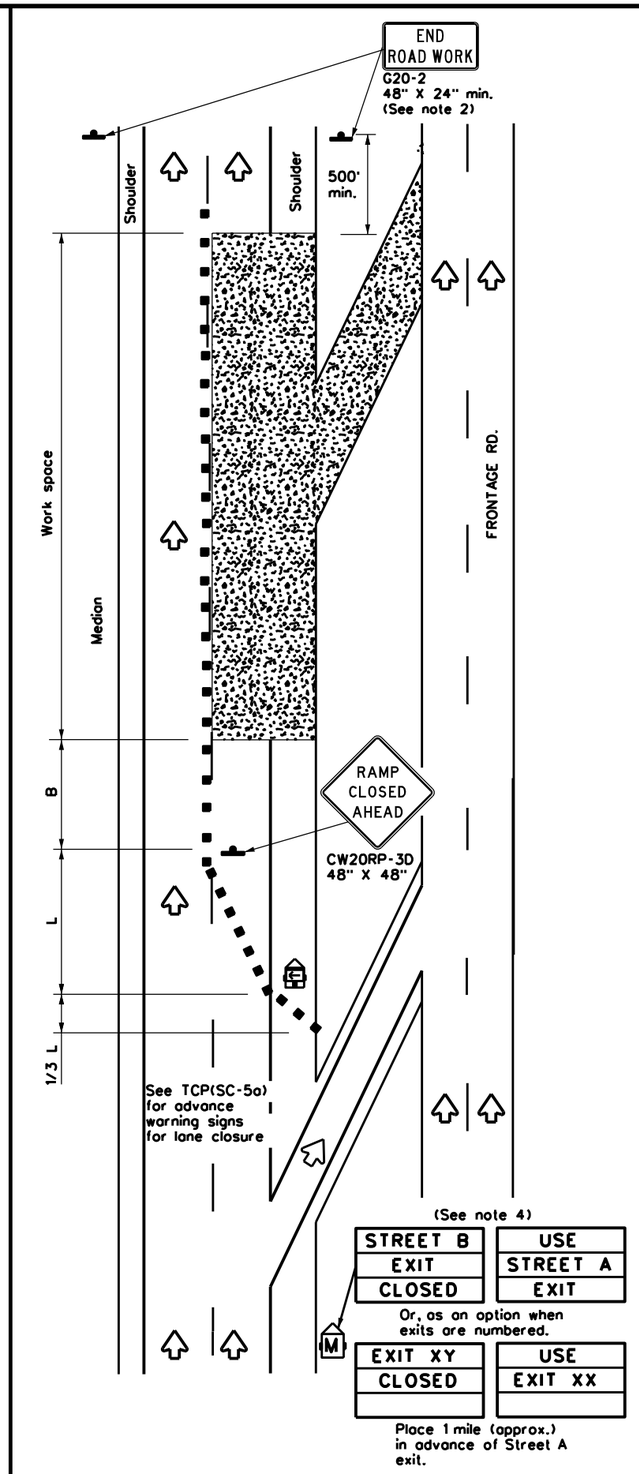


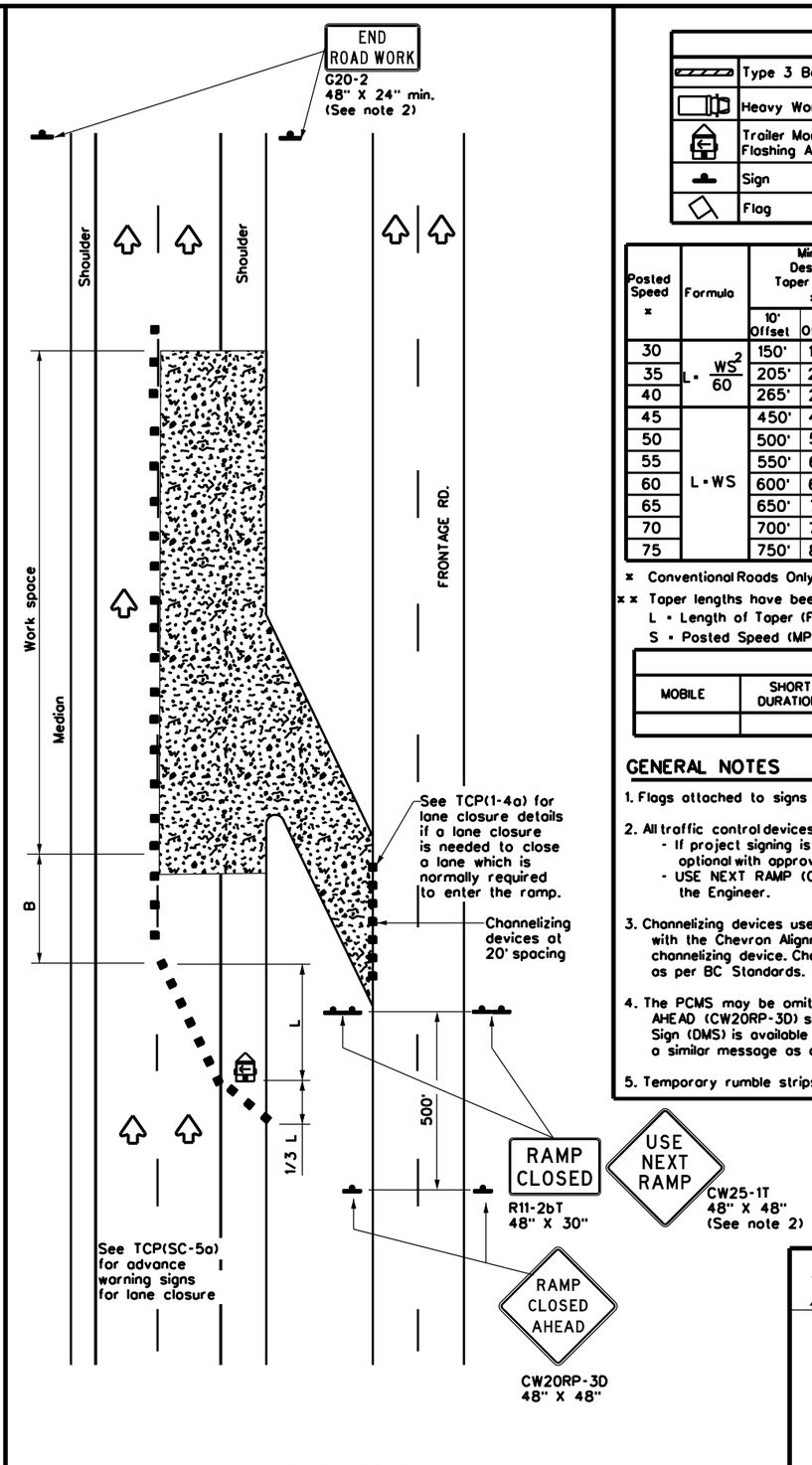
TCP (SC-5a)

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	M	Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

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

* Conventional Roads Only

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

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

GENERAL NOTES

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

Texas Department of Transportation

Traffic Safety Division Standard

TRAFFIC CONTROL PLAN SEAL COAT OPERATIONS DIVIDED HIGHWAYS

TCP(SC-5)-22

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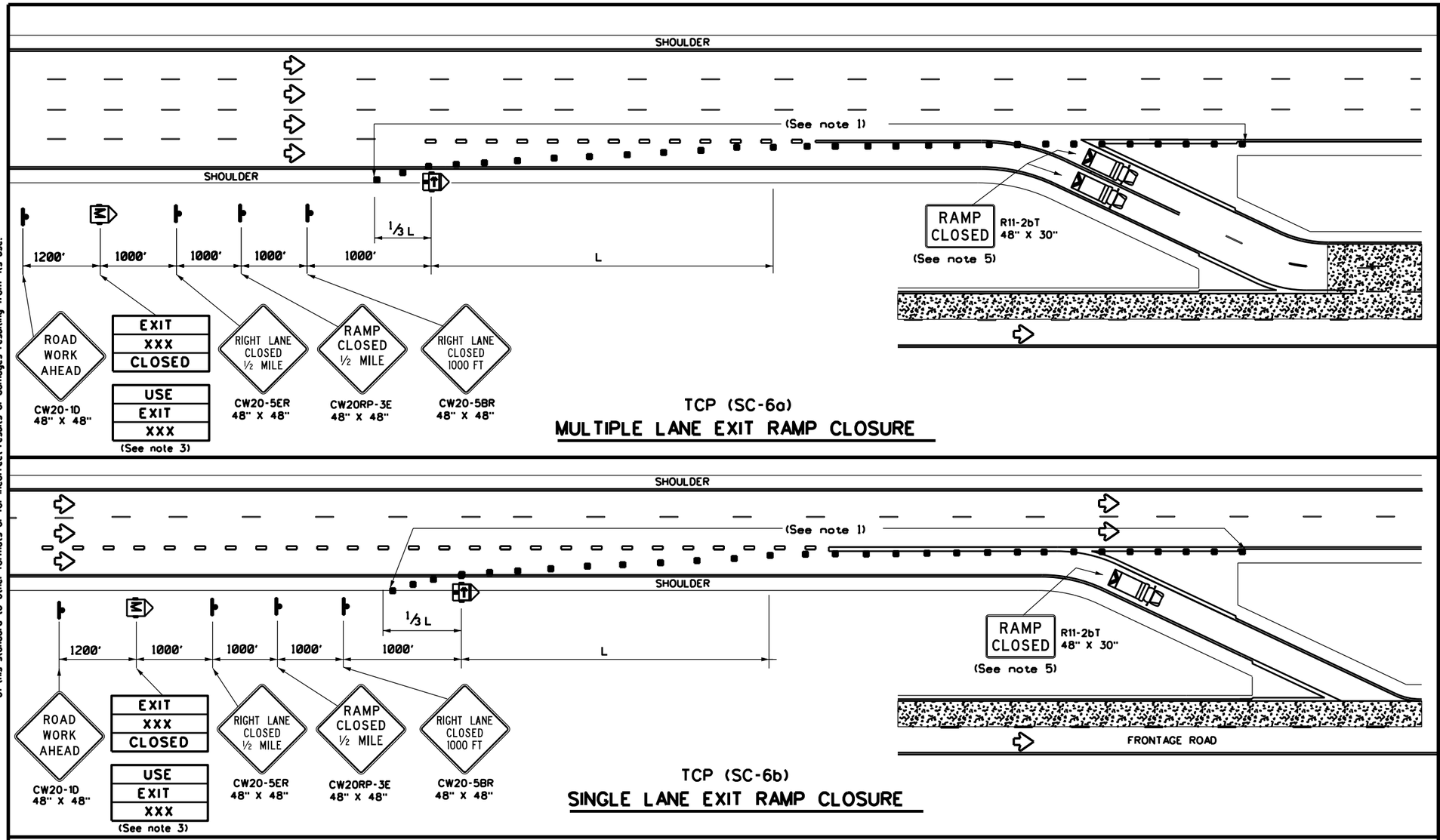
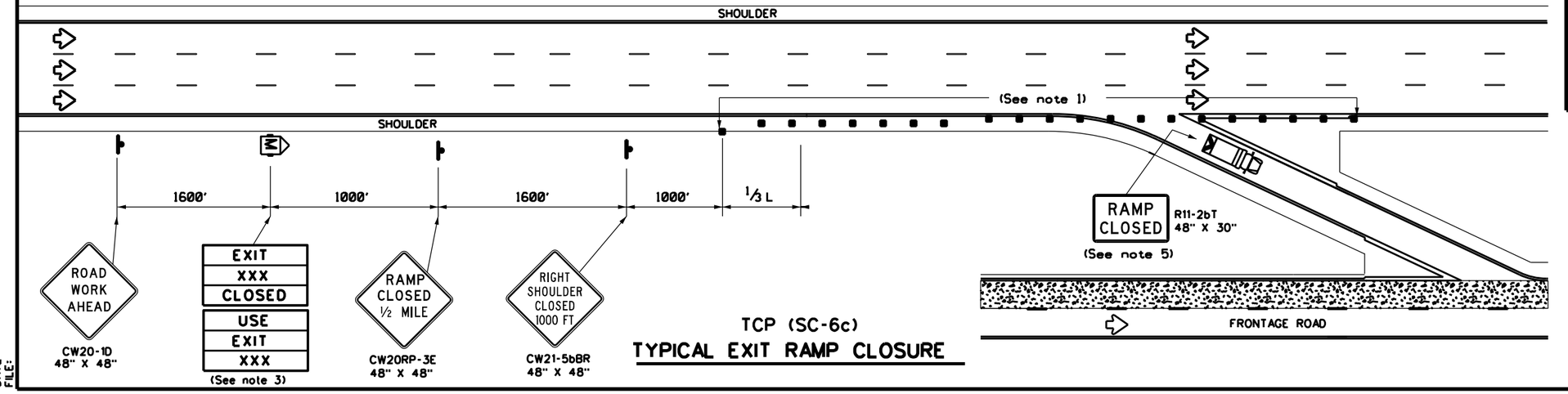


TCP (SC-6a)

MULTIPLE LANE EXIT RAMP CLOSURE

TCP (SC-6b)

SINGLE LANE EXIT RAMP CLOSURE



TCP (SC-6c)

TYPICAL EXIT RAMP CLOSURE

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

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

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

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

GENERAL NOTES

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

Texas Department of Transportation

Traffic Safety Division Standard

TRAFFIC CONTROL PLAN SEAL COAT OPERATIONS DIVIDED HIGHWAYS

TCP(SC-6)-22

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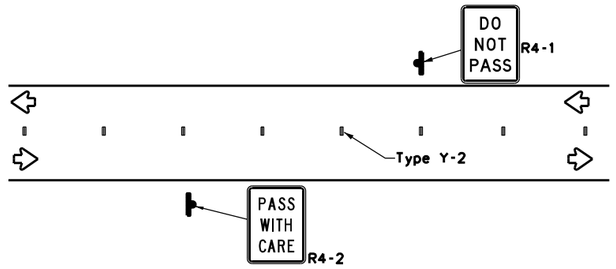
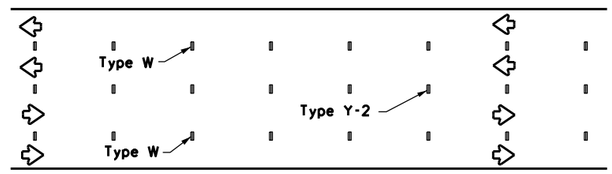
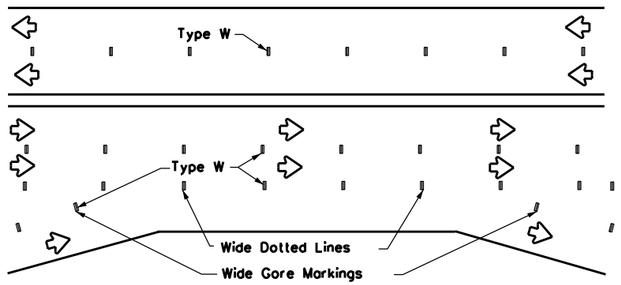
WORK ZONE SHORT TERM PAVEMENT MARKINGS PATTERNS (TABS)



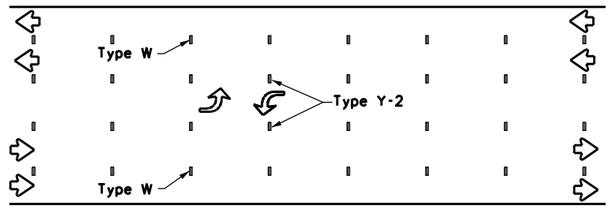
CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO LANE TWO-WAY HIGHWAYS



LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



LANE LINES FOR DIVIDED HIGHWAY

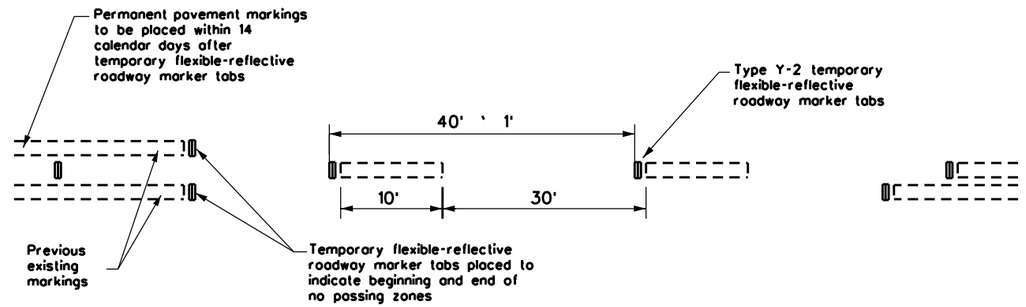


TWO-WAY LEFT TURN LANE

WORK ZONE SHORT TERM PAVEMENT MARKINGS DETAILS (TABS)

SOLID LINES	DOUBLE NO-PASSING LINE	40' ' 1' — Type Y-2
	SINGLE NO-PASSING LINE or CHANNELIZATION LINE	40' ' 1' — Type Y-2 or W
	8" WIDE SOLID LINE	20' ' 1' — Type Y-2 or W
BROKEN LINES (FOR CENTER LINE OR LANE LINE)		40' ' 1' — Type Y-2 or W
WIDE DOTTED LINES (FOR LANE DROP LINES)		12' ' 1' — Type W
WIDE GORE MARKINGS		20' ' 1' — Type W

TABS ON CENTERLINES OF TWO-LANE TWO-WAY ROADS



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.

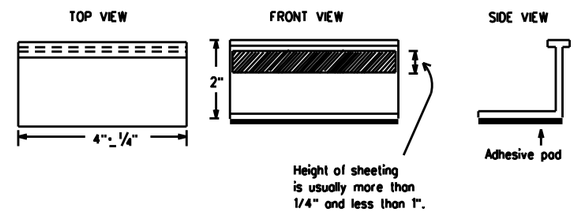
NOTES:

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
REVISIONS		0009	13	192, ETC.	IH 30, ETC.
4-21		DIST	COUNTY		SHEET NO.
10-22		PAR	HUNT, ETC.		81

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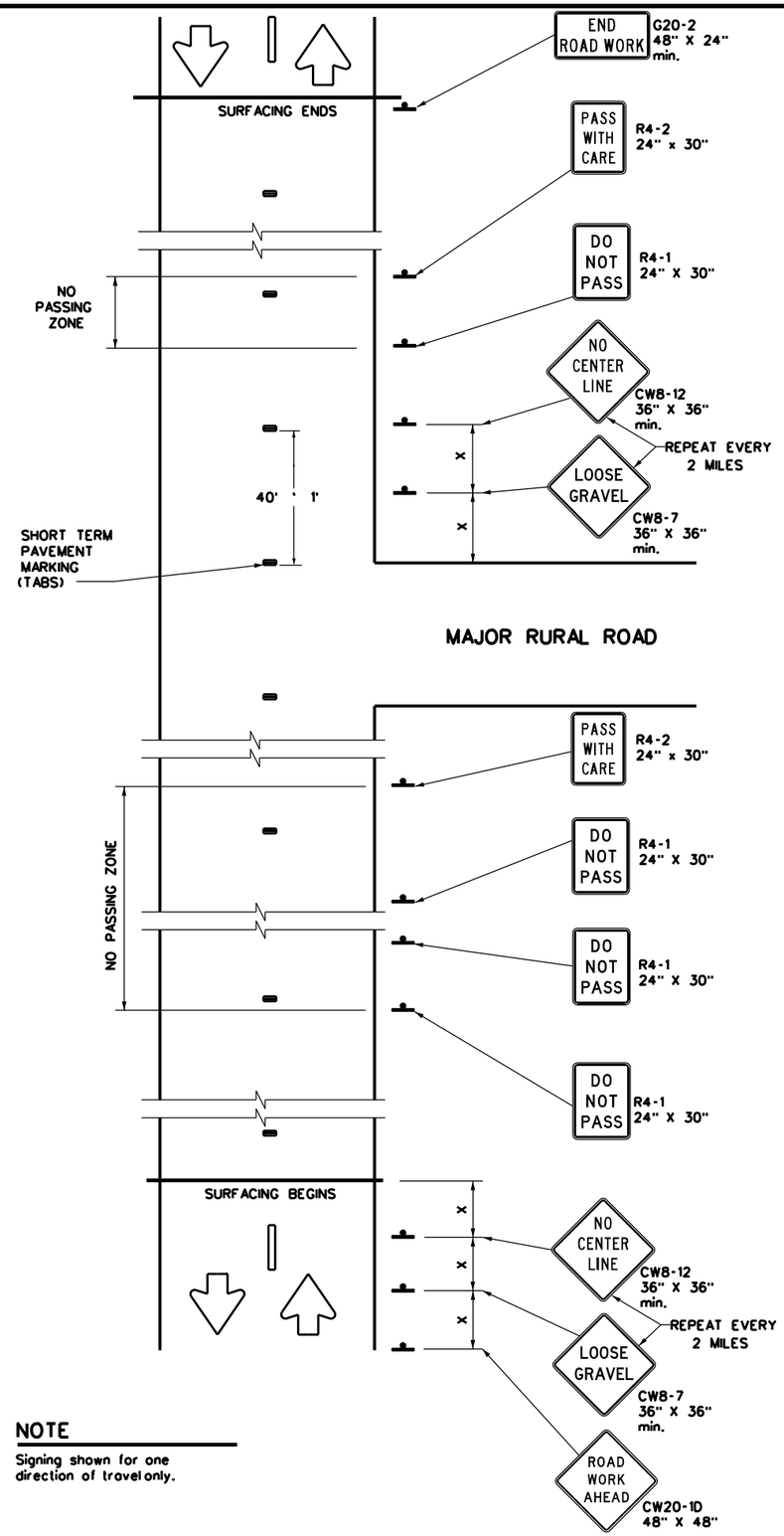

NOTE

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
©TxDOT October 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	0009	13	192, ETC.	IH 30, ETC.
4-21	DIST	COUNTY		SHEET NO.
10-22	PAR	HUNT, ETC.		82

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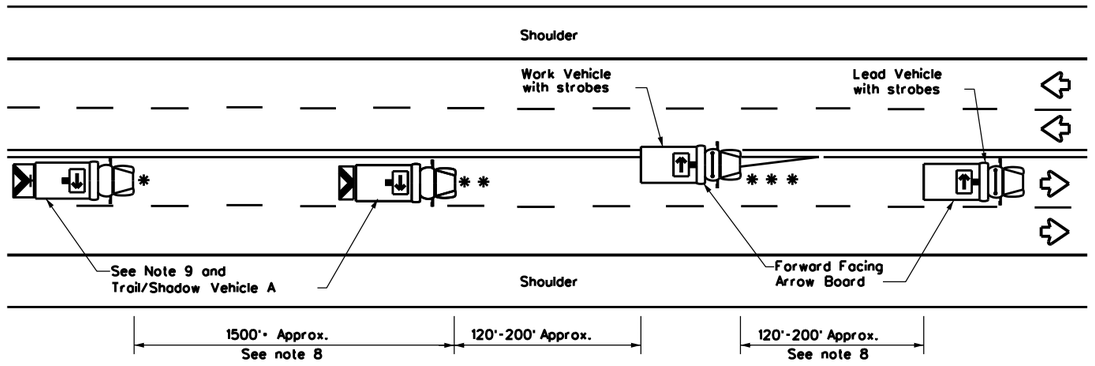
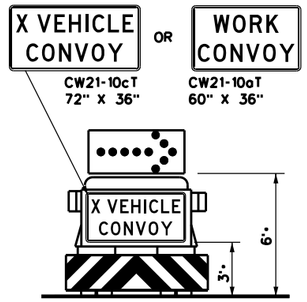


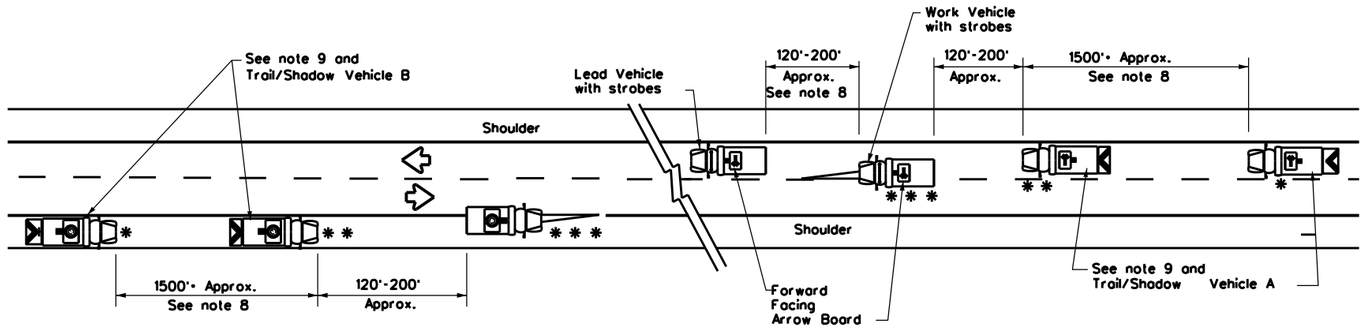
TCP (3-1a)

UNDIVIDED MULTILANE ROADWAY



TRAIL/SHADOW VEHICLE A

with RIGHT Directional display Flashing Arrow Board

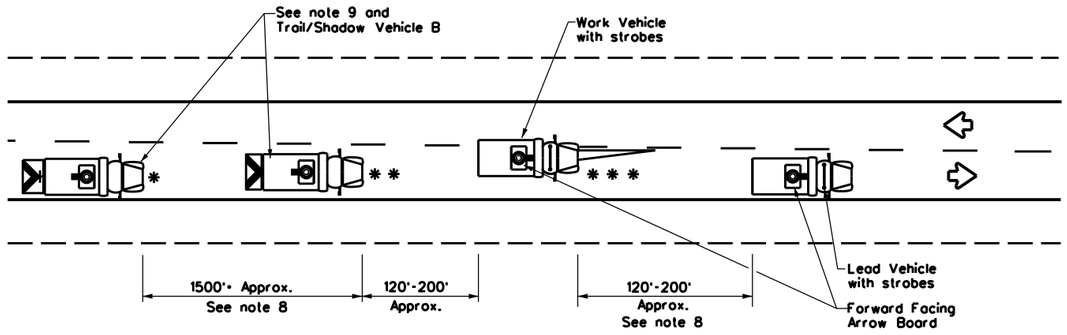


WORK ON SHOULDER

WORK ON TRAVEL LANE

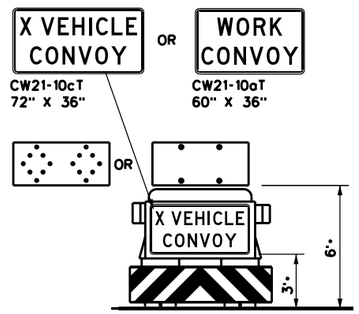
TCP (3-1b)

TWO-WAY ROADWAY WITH PAVED SHOULDERS



TCP (3-1c)

TWO-WAY ROADWAY WITHOUT PAVED SHOULDERS



TRAIL/SHADOW VEHICLE B

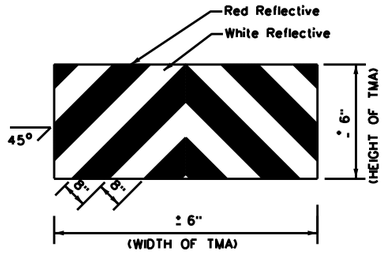
with Flashing Arrow Board in CAUTION display

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

FILE: tcp3-1.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	0009	13	192.ETC.	IH30, ETC.
2-94 4-98 8-95 7-13 1-97	DIST	COUNTY		SHEET NO.
	PAR	HUNT, ETC.		83

DATE: $DATE$ $TIME$
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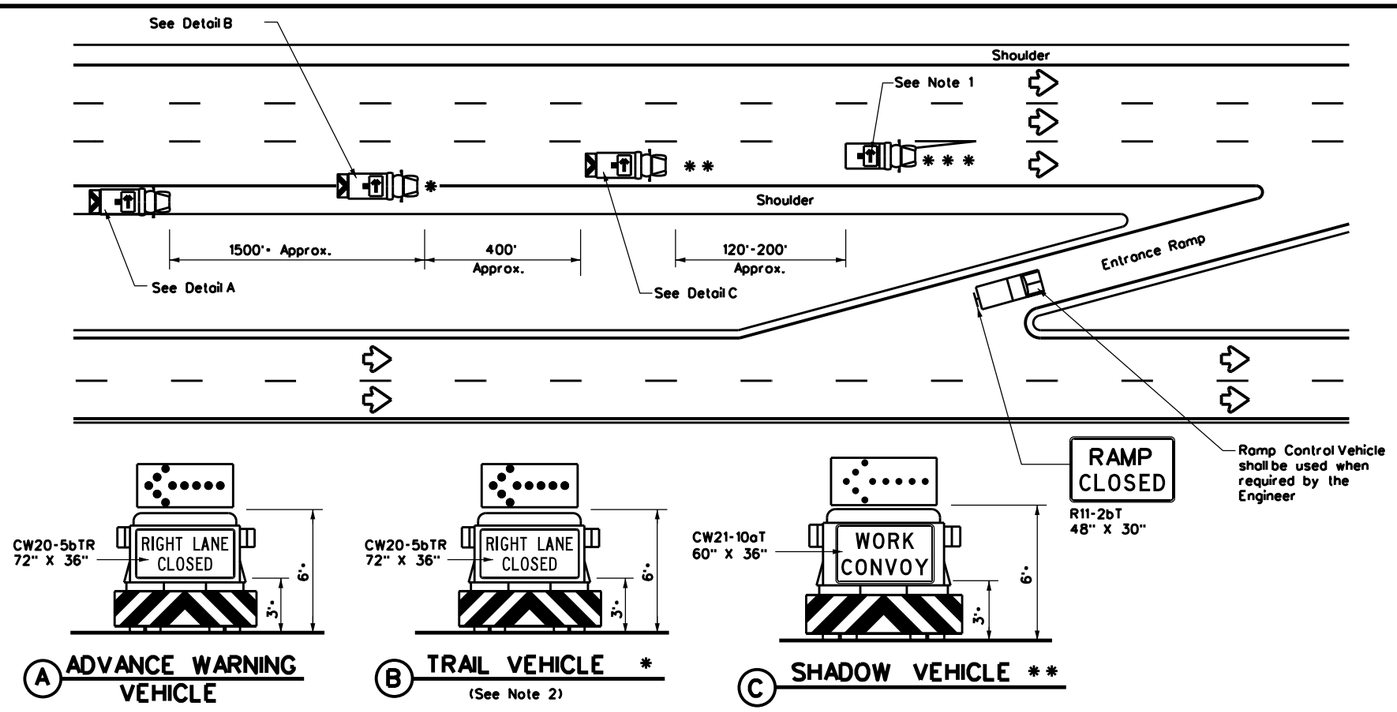
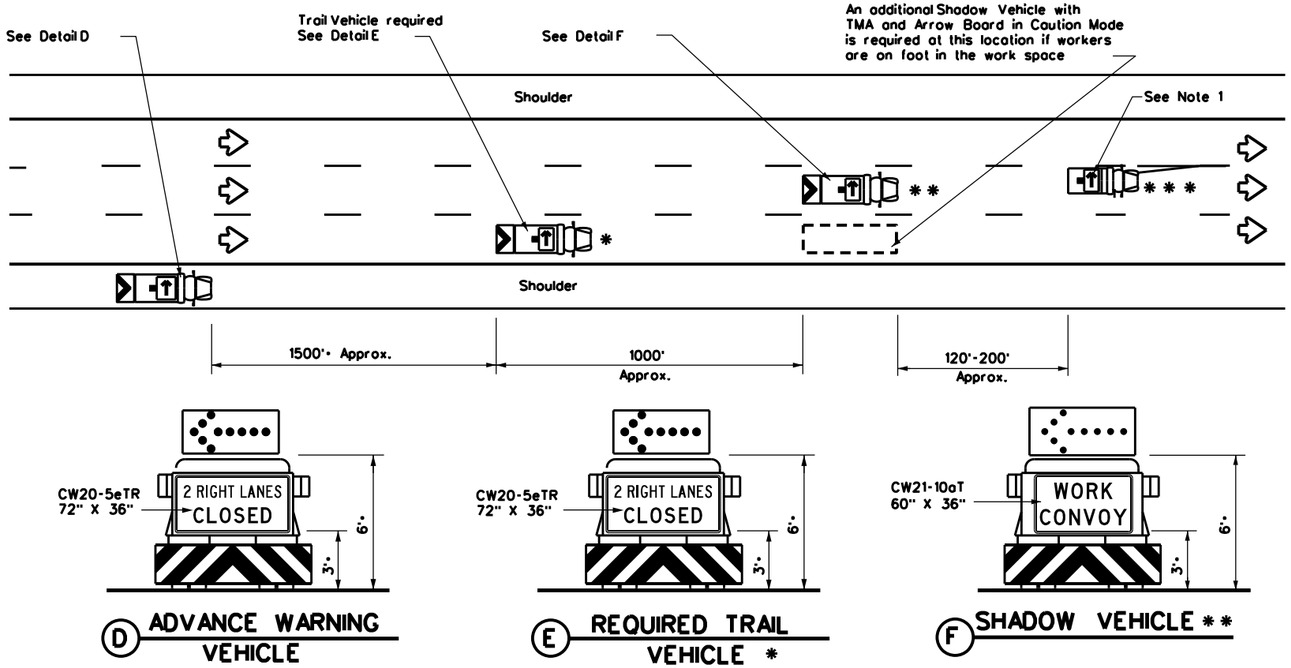


RIGHT LANE CLOSURE ON DIVIDED HIGHWAY - TCP(3-2a)



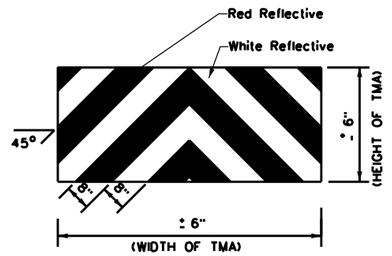
INTERIOR LANE CLOSURE ON MULTI-LANE DIVIDED HIGHWAY - TCP(3-2b)

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

FILE: tcp3-2.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS	0009	13	192,ETC.	IH 30,ETC.
2-94 4-98 8-95 7-13 1-97	DIST	COUNTY		SHEET NO.
	PAR	HUNT,ETC.		84

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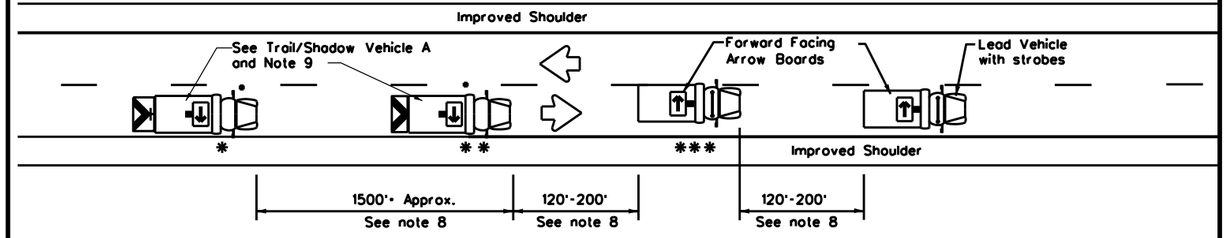
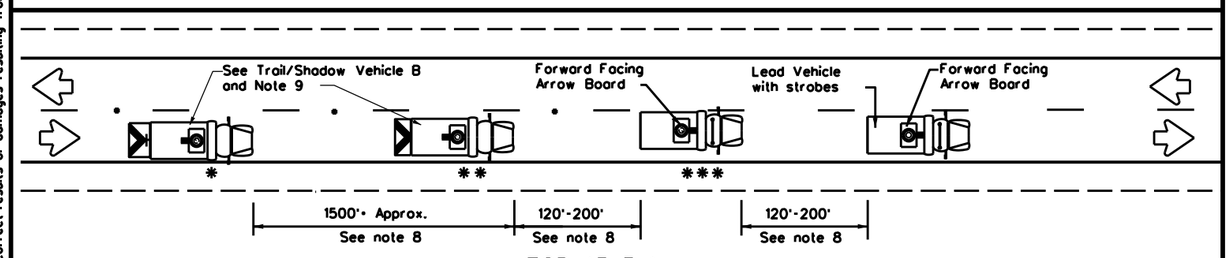


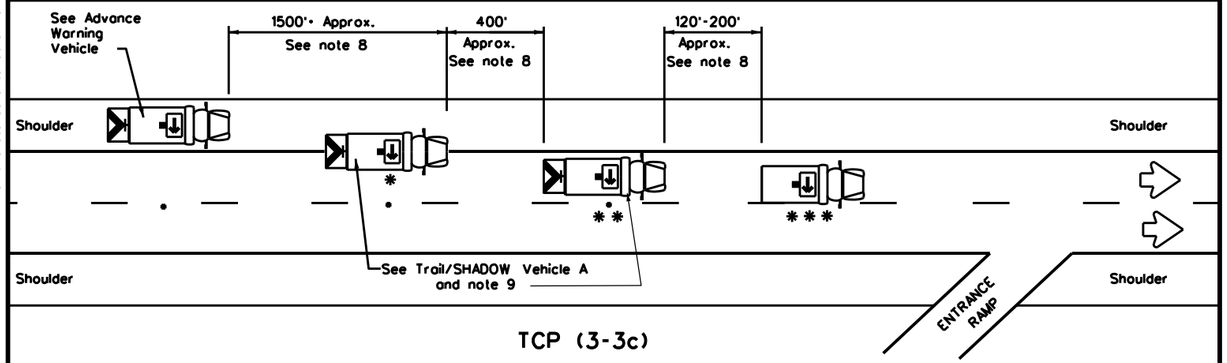
TCP (3-3a)

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



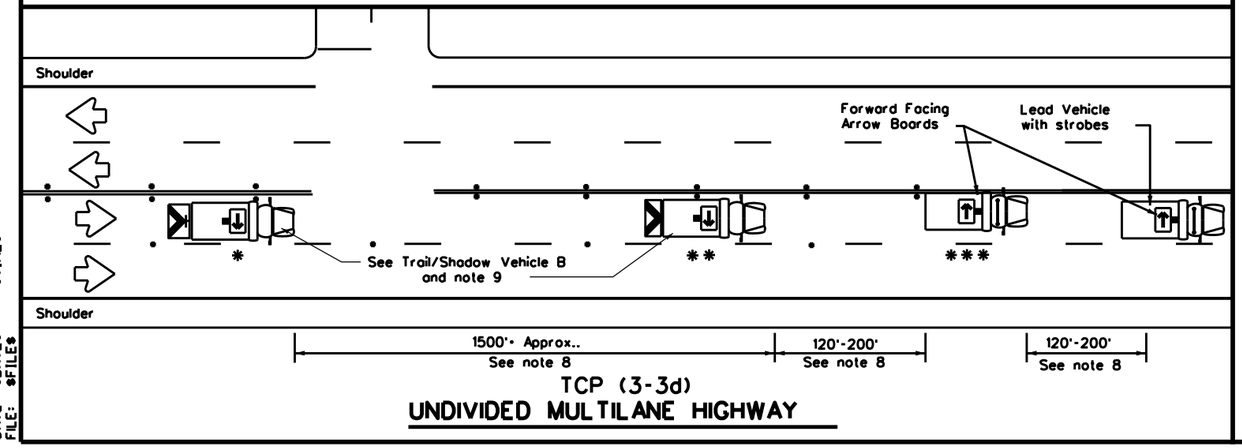
TCP (3-3b)

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



TCP (3-3c)

DIVIDED MULTILANE HIGHWAY



TCP (3-3d)

UNDIVIDED MULTILANE HIGHWAY

$TIME$
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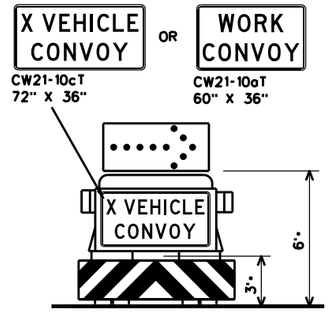
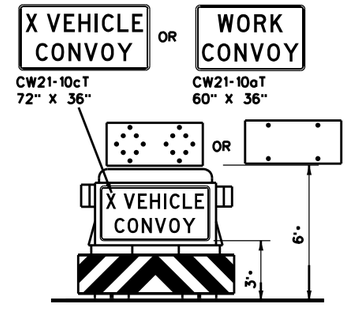


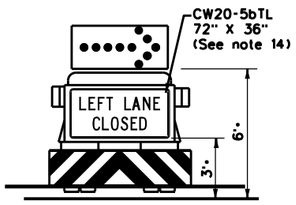
TRAIL/SHADOW VEHICLE A

with RIGHT Directional display
Flashing Arrow Board

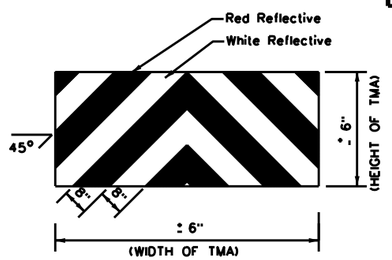


TRAIL/SHADOW VEHICLE B

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
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REVISIONS	0009	13	192.ETC.	IH 30.ETC.
2-94 4-98	DIST	COUNTY		SHEET NO.
8-95 7-13	PAR	HUNT.ETC.		85
1-97 7-14				

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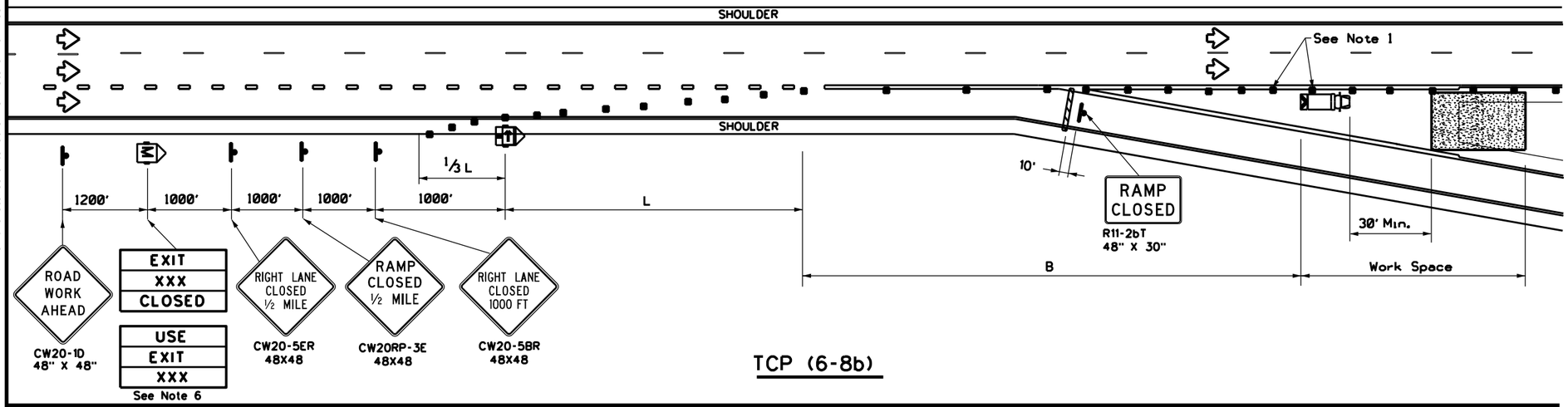
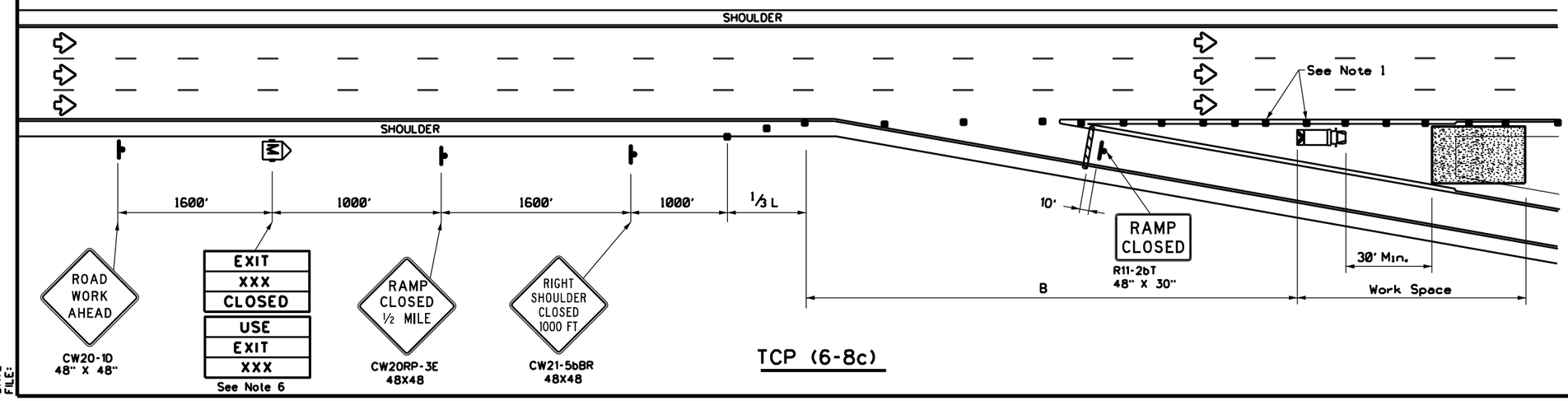
TCP (6-8a)



TCP (6-8b)



TCP (6-8c)

LEGEND

	Type 3 Barricade		Channelizing Devices (CDs)
	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 "L" ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent	Suggested Longitudinal Buffer Space "B"
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

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	PAR	HUNT,ETC.		86

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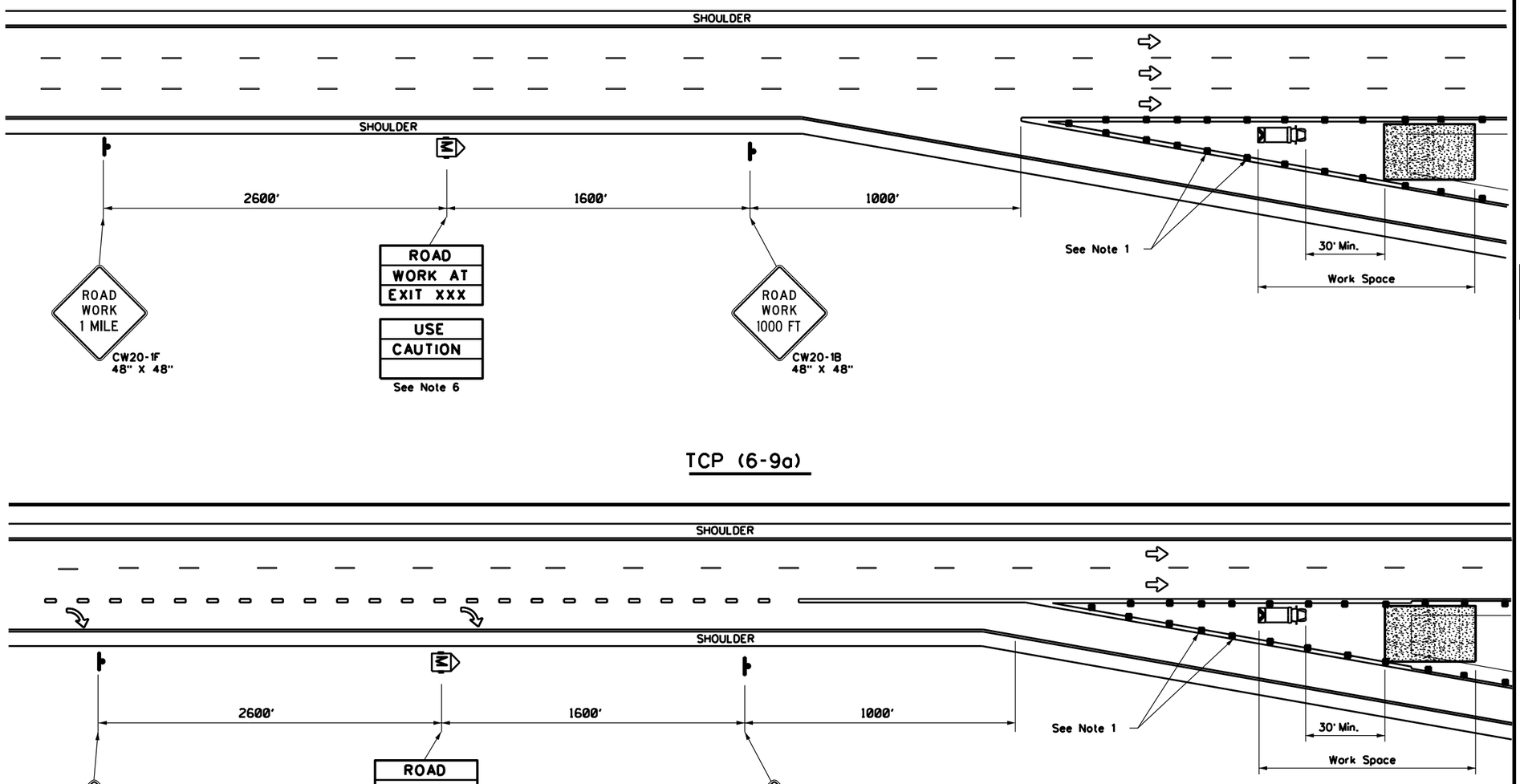

TCP (6-9a)

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" ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent	Suggested Longitudinal Buffer Space "B"
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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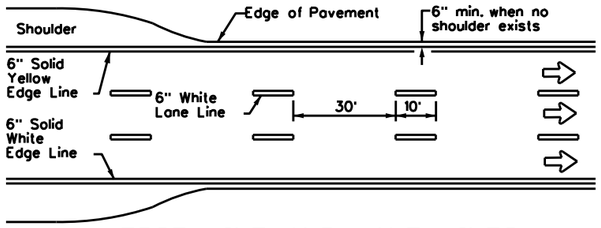
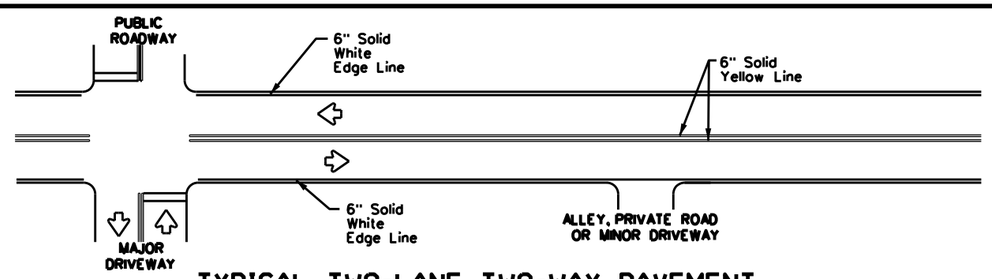
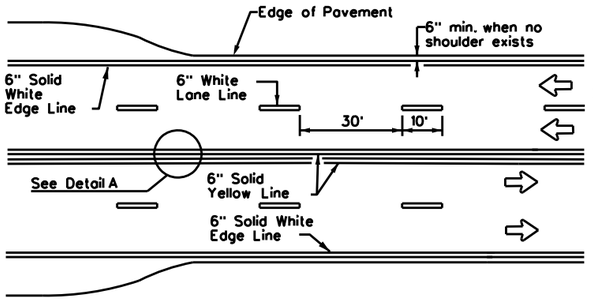
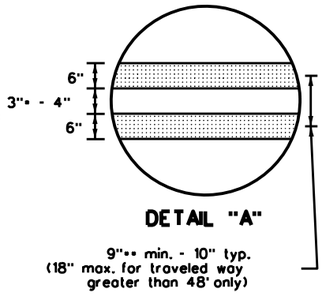


EDGE LINE AND LANE LINES ONE-WAY ROADWAY WITH OR WITHOUT SHOULDERS



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

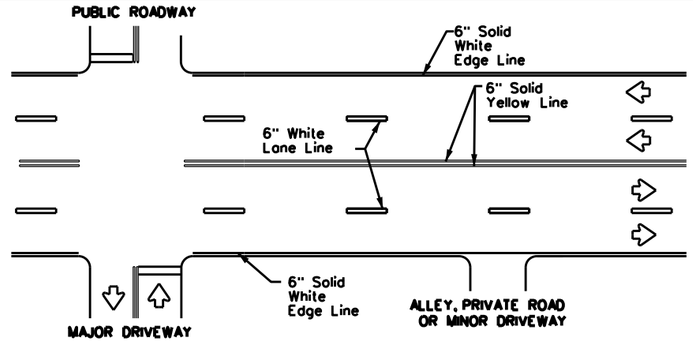




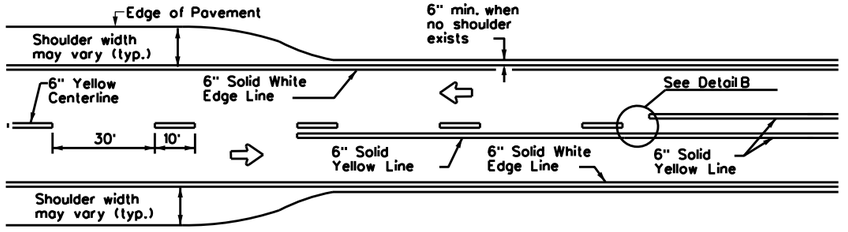
CENTERLINE AND LANE LINES FOUR LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS

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

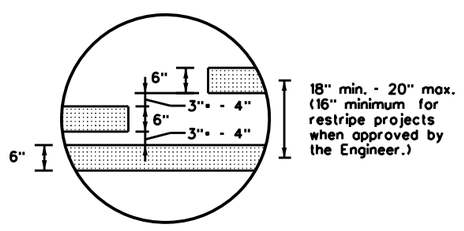
•• 8" minimum for restripe projects when approved by the Engineer.



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

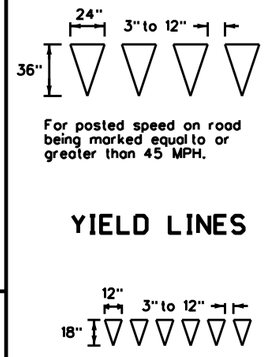


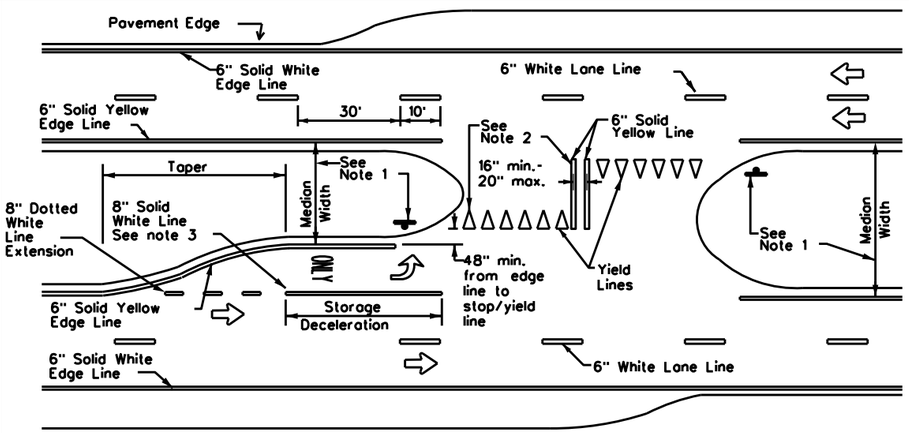
TWO LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS



DETAIL "B"

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





FOUR LANE DIVIDED ROADWAY CROSSOVERS

NOTES

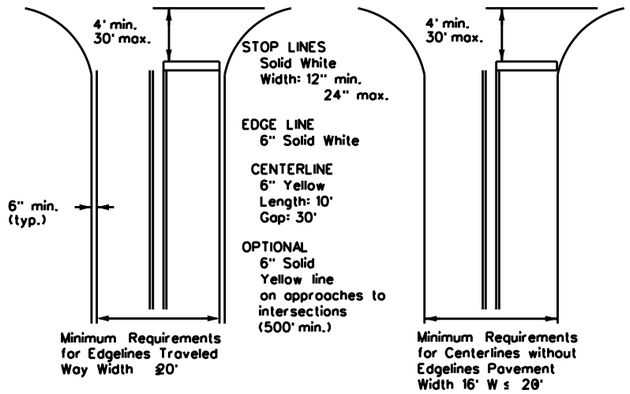
1. Where divided highways are separated by median widths at the median opening itself of 30 feet or more, median openings shall be signed as two separate intersections.
   Each median opening has two width measurements, with one measurement for each approach. The narrow median width will be the controlling 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.

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.



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

Texas Department of Transportation

Traffic Safety Division Standard

TYPICAL STANDARD PAVEMENT MARKINGS

PM(1)-22

FILE: pm1-22.dgn	DN:	CK:	DW:	CK:
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REVISIONS 11-78 8-00 6-20 8-95 3-03 12-22 5-00 2-12	0009	13	192, ETC.	IH 30, ETC.
	DIST	COUNTY		SHEET NO.
	PAR	HUNT, ETC.		88

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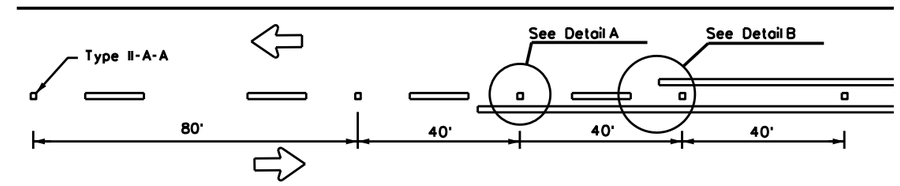
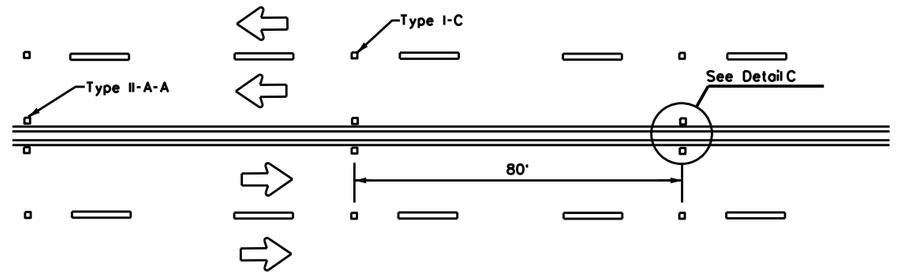
FILE:

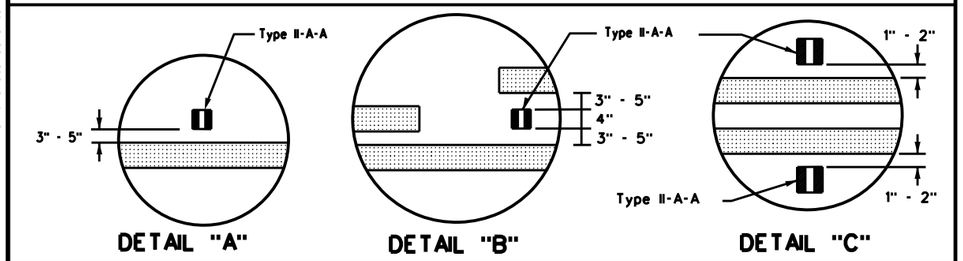
REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE

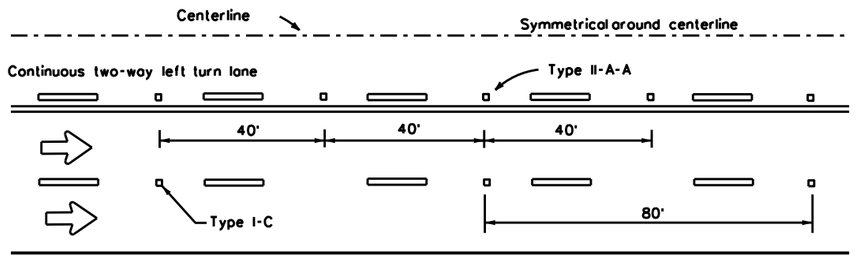


CENTERLINE FOR ALL TWO LANE TWO-WAY ROADWAYS

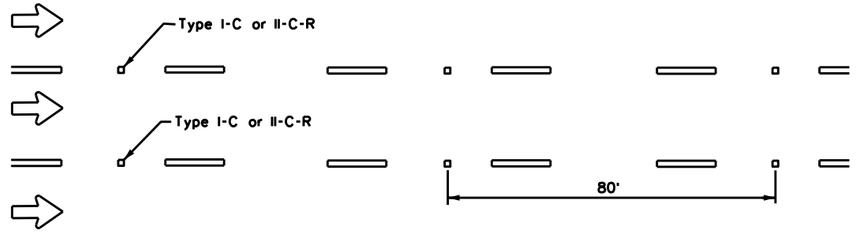


CENTERLINE & LANE LINES FOR FOUR LANE TWO-WAY ROADWAYS





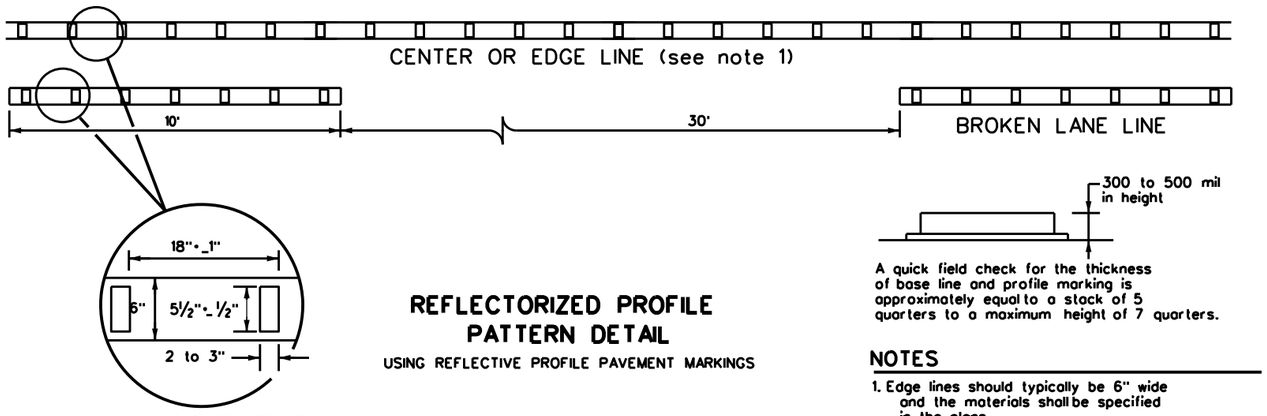
CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE



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

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

See Note 3.



REFLECTORIZED PROFILE PATTERN DETAIL

USING REFLECTIVE PROFILE PAVEMENT MARKINGS

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

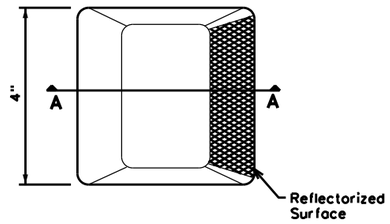
1. Edge lines should typically be 6" wide and the materials shall be specified in the plans.
2. Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.

GENERAL NOTES

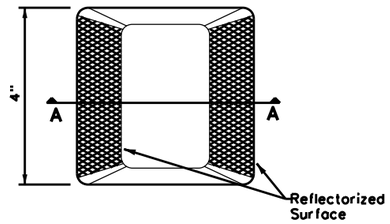
1. All raised pavement markers placed along broken lines shall be placed in line with and midway between the stripes.
2. On concrete pavements the raised pavement markers should be placed to one side of the longitudinal joints.
3. Use raised pavement marker Type I-C with undivided roadways, flush medians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

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

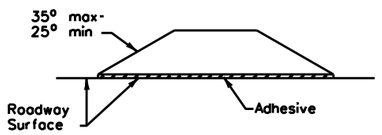
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)



Type II (Top View)



SECTION A

RAISED PAVEMENT MARKERS

Texas Department of Transportation

Traffic Safety Division Standard

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

FILE: pm2-22.dgn	DN:	CK:	DW:	CK:
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REVISIONS 4-77 8-00 6-20 4-92 2-10 12-22 5-00 2-12	0009	13	192, ETC.	IH 30, ETC.
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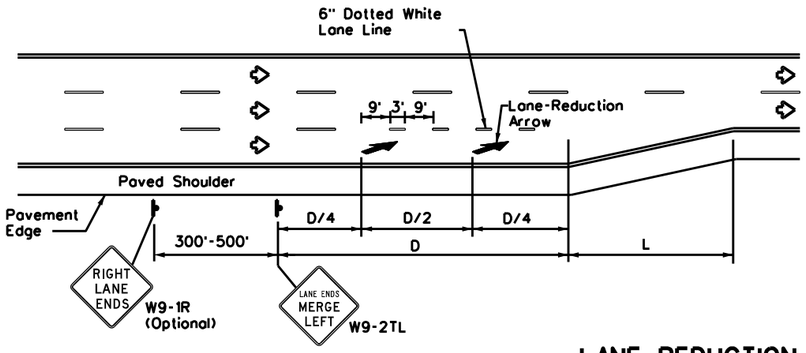


LANE REDUCTION

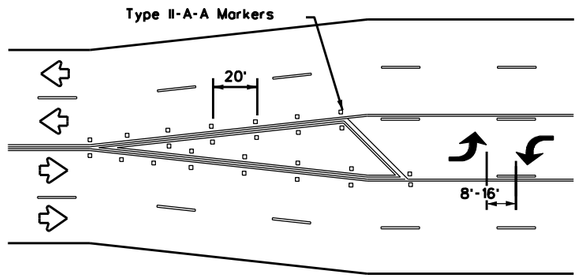
NOTES

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

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

GENERAL NOTES

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

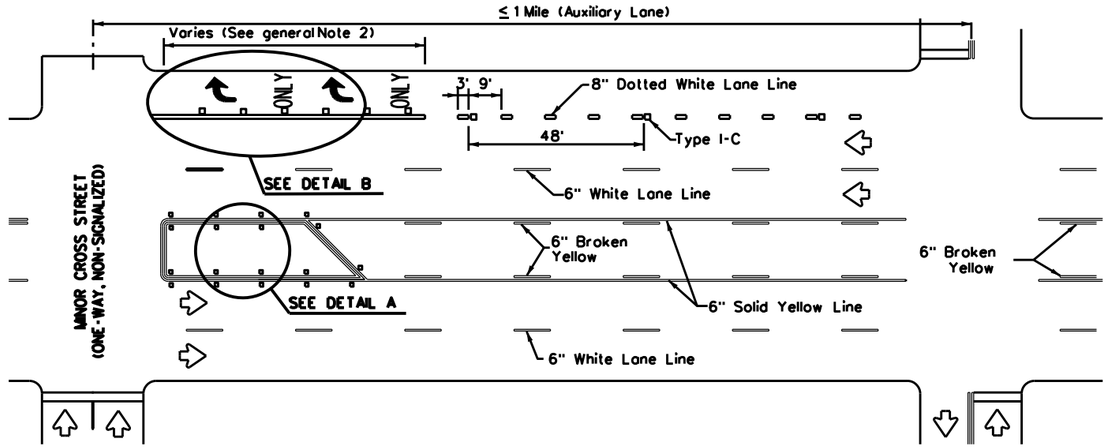


A two-way left-turn (TWLT) lane-use arrow pavement marking should be used at or just downstream from the beginning of a two-way left-turn lane within a corridor. Repeating the marking after each intersection or dedicated turn bay is not required unless stated elsewhere in the plans.

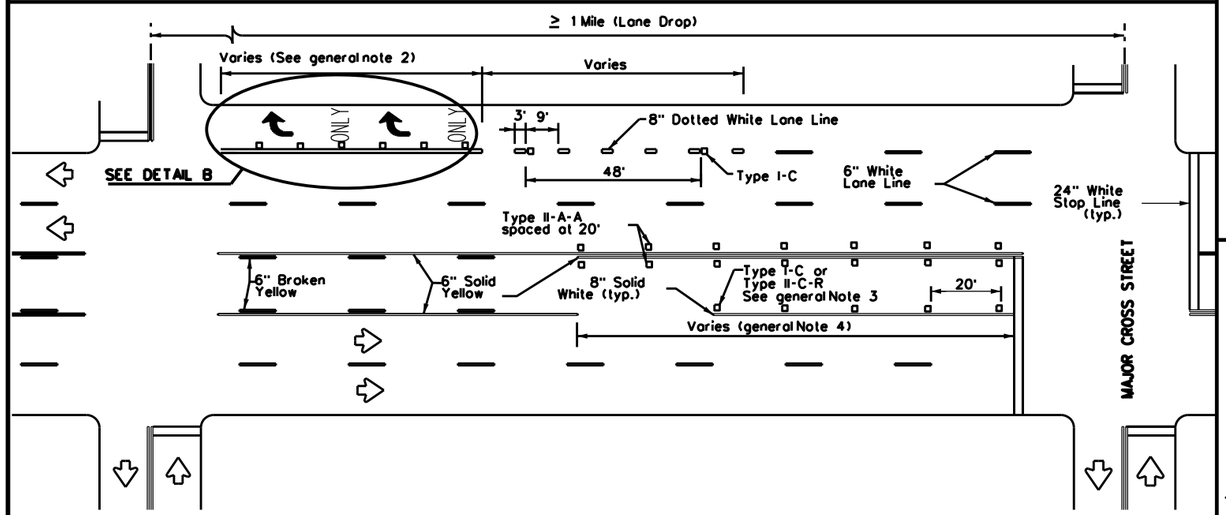
TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY

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

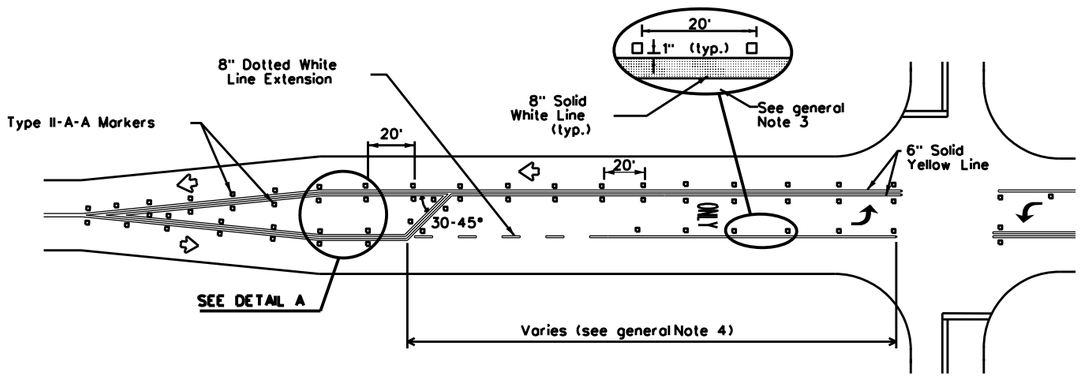
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



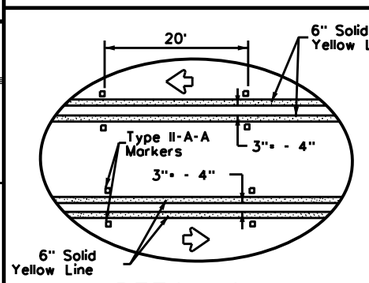
TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE



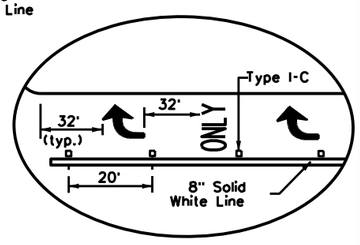
TYPICAL TWLTL AT TWO-WAY CROSS STREET AND RIGHT TURN LANE DROP



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	0009	13	192, ETC.	IH 30, ETC.
4-98 3-03 6-20	DIST	COUNTY		SHEET NO.
5-00 2-10 12-22	PAR	HUNT, ETC.		90
8-00 2-12				

DATE:
FILE:

22C

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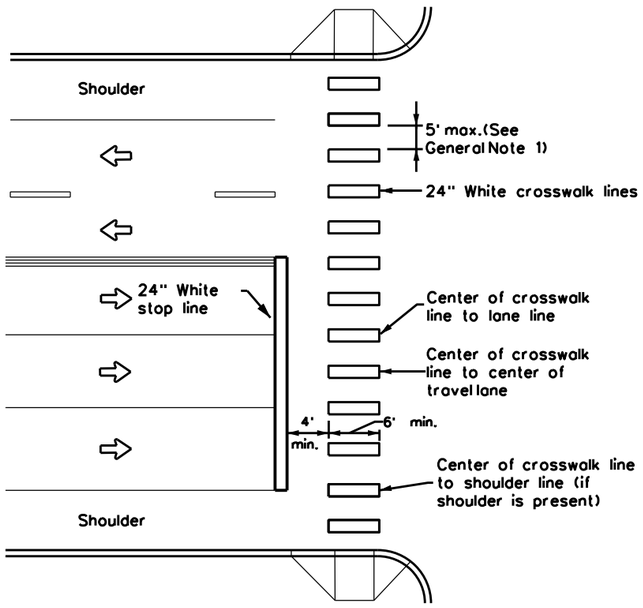


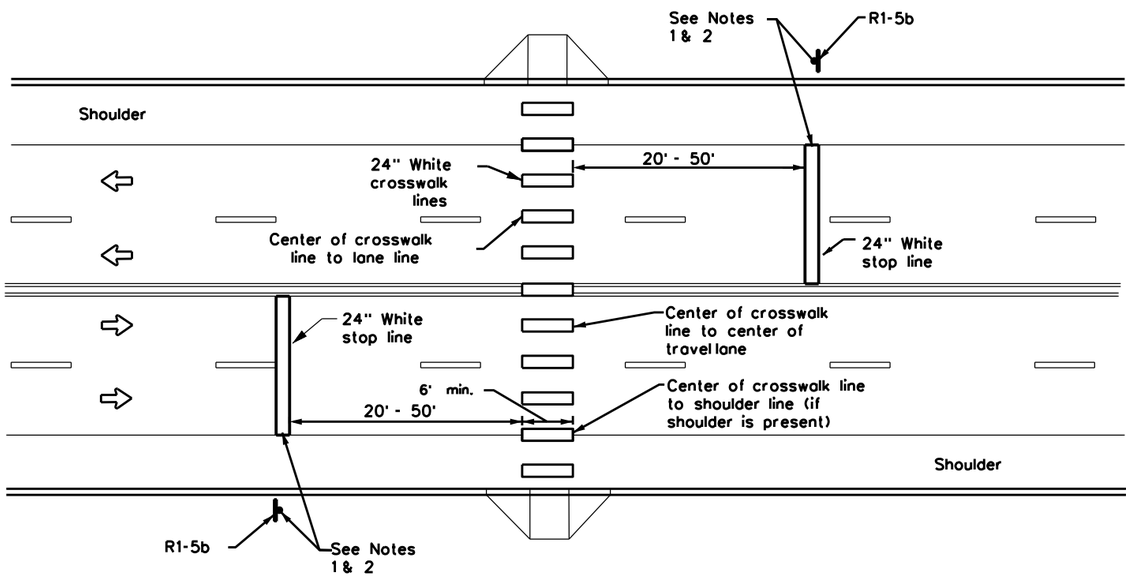
HIGH-VISIBILITY LONGITUDINAL CROSSWALK AT CONTROLLED APPROACH

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:
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REVISIONS 6-20 6-22 12-22	0009	13	192, ETC.	IH 30, ETC.
	DIST	COUNTY		SHEET NO.
	PAR	HUNT, ETC.		91

22D

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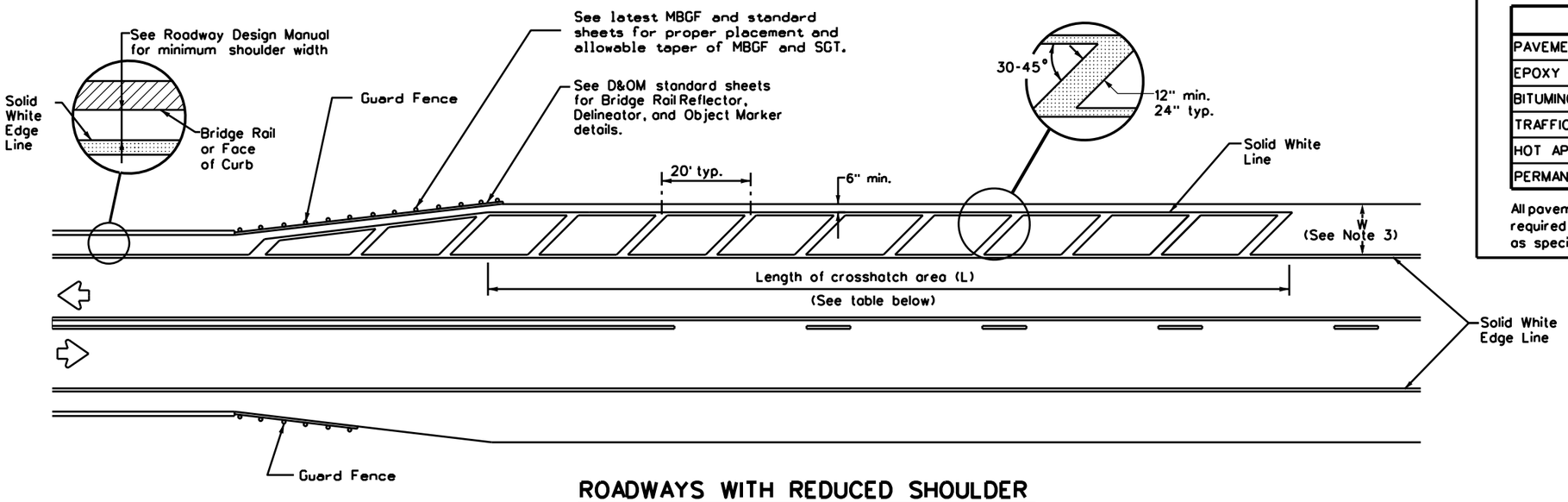

ROADWAYS WITH REDUCED SHOULDER WIDTHS ACROSS BRIDGE OR CULVERT

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	13	192, ETC.	IH 30, ETC.
	DIST	COUNTY		SHEET NO.
	PAR	HUNT, ETC.		92

DATE:
FILE:

22E

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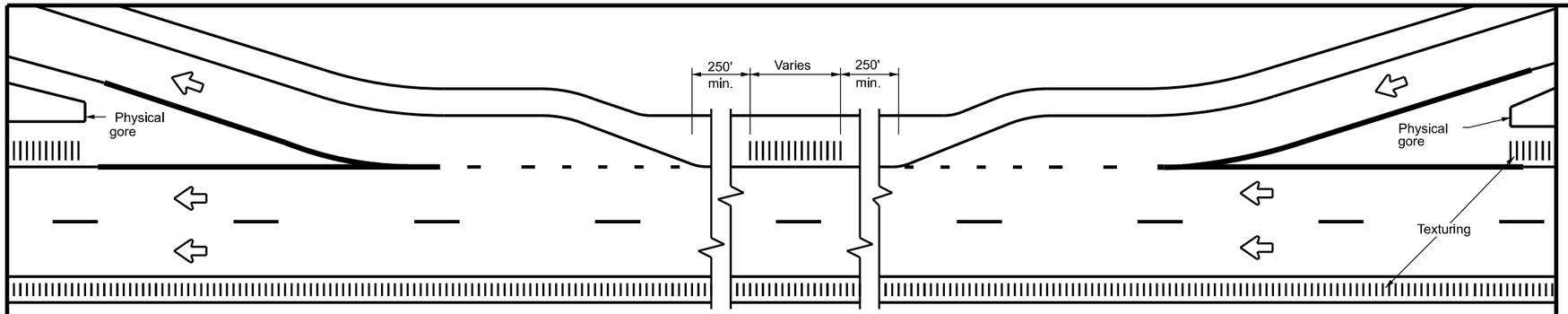
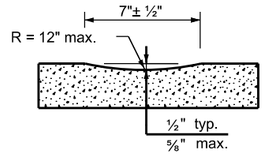
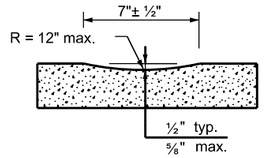


TYPICAL RUMBLE STRIP PLACEMENT AT EXIT AND ENTRANCE RAMPS



PROFILE VIEW
OPTION 1

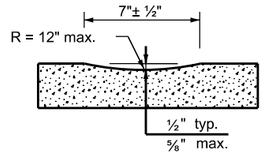
CONTINUOUS MILLED DEPRESSIONS (Rumble Strips)



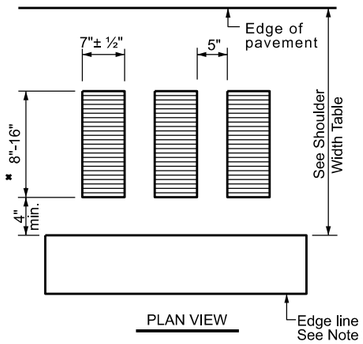
PROFILE VIEW
OPTION 2

✖ This distance may vary based on width of shoulder

CONTINUOUS MILLED DEPRESSIONS (Rumble Strips)

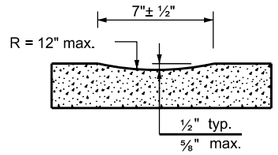


PROFILE VIEW
OPTION 3

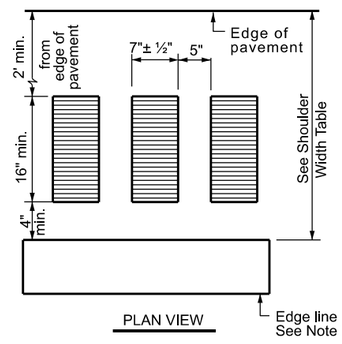


✖ This distance may vary based on width of shoulder

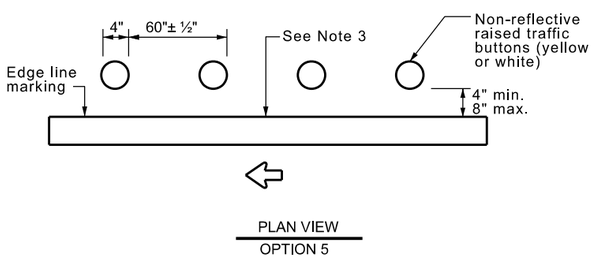
CONTINUOUS MILLED DEPRESSIONS (Rumble Strips)



PROFILE VIEW
OPTION 4

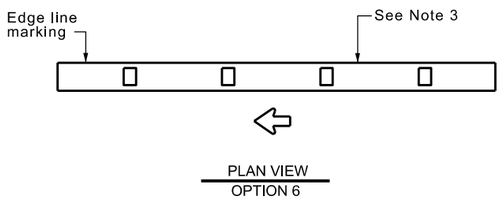


CONTINUOUS MILLED DEPRESSIONS (Rumble Strips)



PLAN VIEW
OPTION 5

RAISED EDGE LINE (Rumble Strips)



PLAN VIEW
OPTION 6

PROFILE EDGE LINE MARKINGS (Rumble Strips)

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.

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

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
© TxDOT January 2023	CONT	SECT	JOB	HIGHWAY
REVISIONS	0009	13	192, ETC.	IH 30, ETC.
4-06 1-23	DIST	COUNTY		SHEET NO.
2-10	PAR	HUNT, ETC.		93
10-13				

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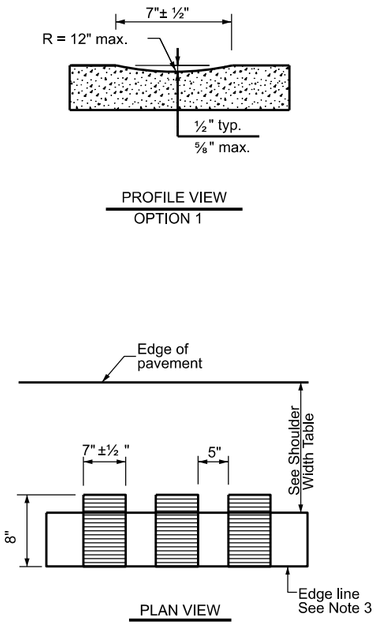
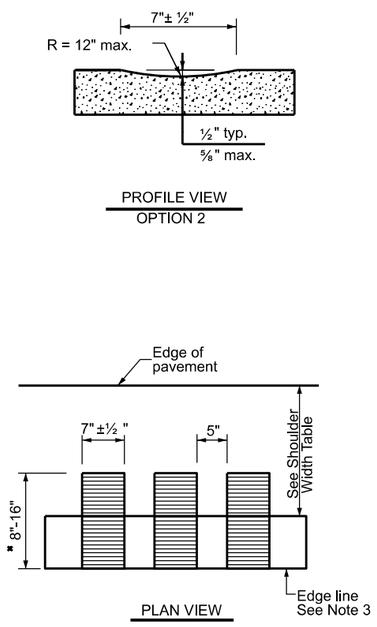
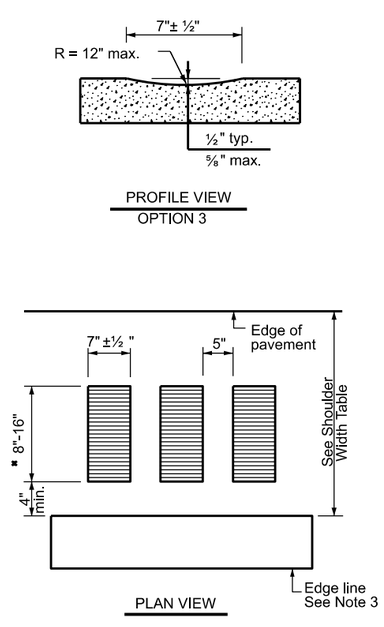


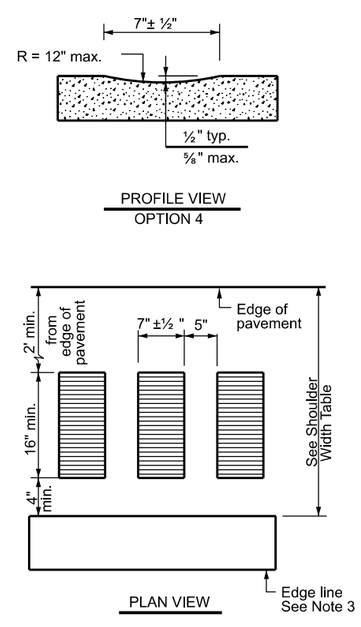
CONTINUOUS MILLED DEPRESSIONS
(Rumble Strips)



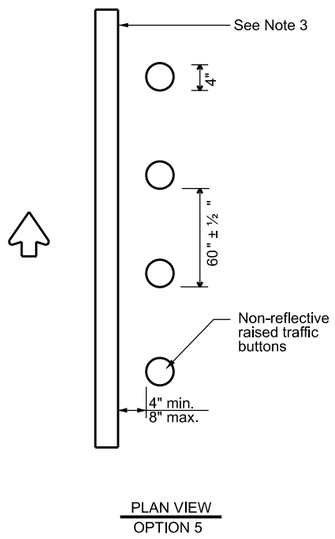
CONTINUOUS MILLED DEPRESSIONS
(Rumble Strips)



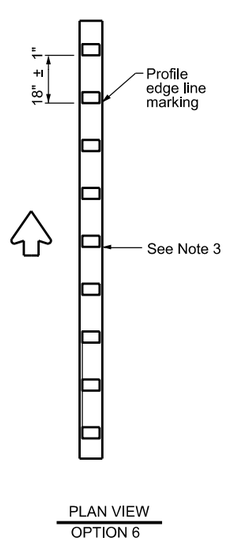
CONTINUOUS MILLED DEPRESSIONS
(Rumble Strips)



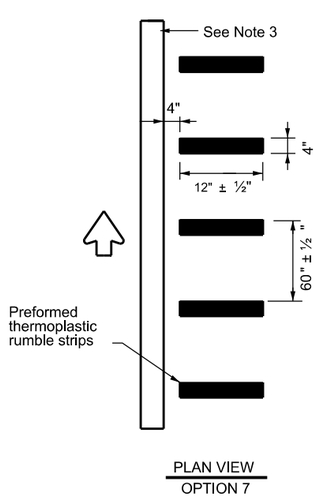
CONTINUOUS MILLED DEPRESSIONS
(Rumble Strips)



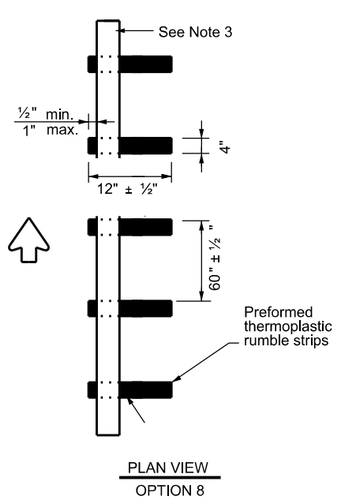
RAISED EDGE LINE
(Rumble Strips)



PROFILE EDGE LINE MARKINGS
(Rumble Strips)



PREFORMED THERMOPLASTIC EDGE LINE
(Rumble Strips)



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	13	192, ETC.	IH 30, ETC.
10-13	DIST	COUNTY		SHEET NO.
1-23	PAR	HUNT, ETC.		94

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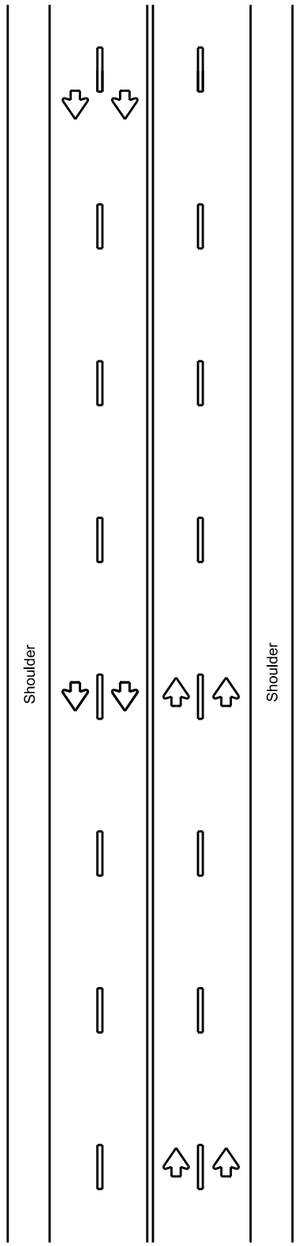
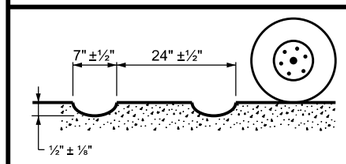
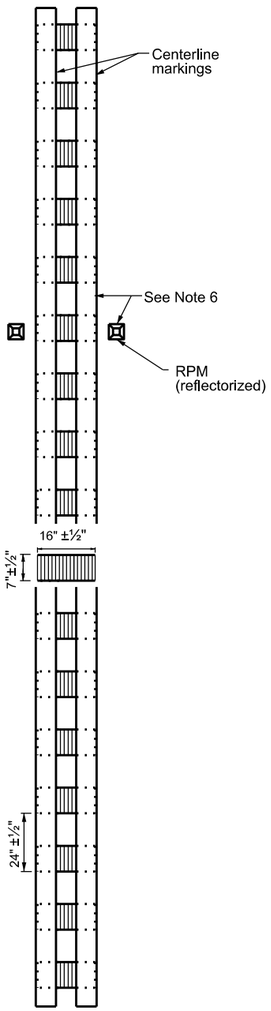
CENTERLINE RUMBLE STRIPS



MULTILANE UNDIVIDED HIGHWAY WITH SHOULDER

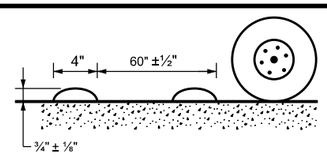


PROFILE VIEW

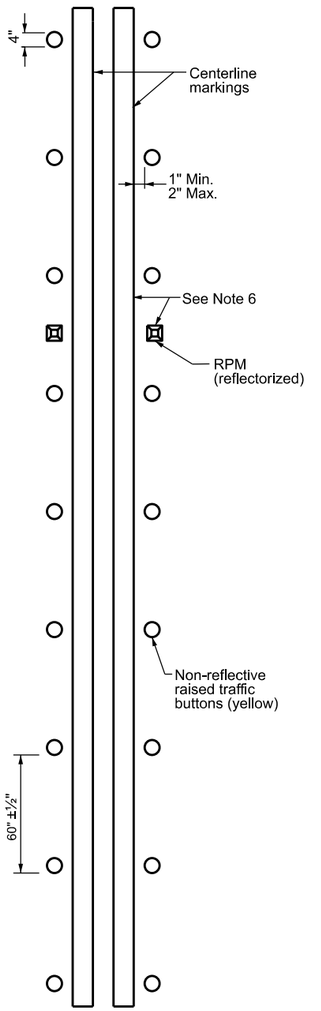


PLAN VIEW
OPTION 1

MILLED CENTERLINE RUMBLE STRIPS

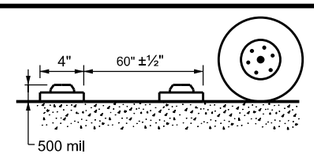


PROFILE VIEW

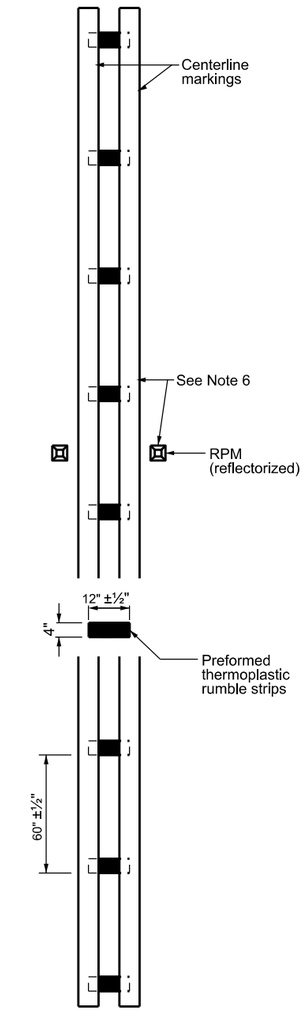


PLAN VIEW
OPTION 2

RAISED CENTERLINE RUMBLE STRIPS

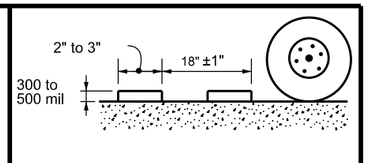


PROFILE VIEW

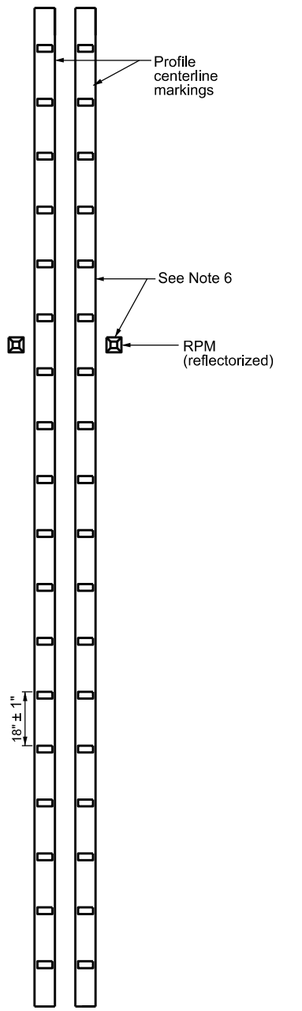


PLAN VIEW
OPTION 3

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
© TxDOT January 2023	CONT	SECT	JOB	HIGHWAY
REVISIONS	0009	13	192, ETC.	IH 30, ETC.
10-13 1-23	DIST	COUNTY		SHEET NO.
	PAR	HUNT, ETC.		95

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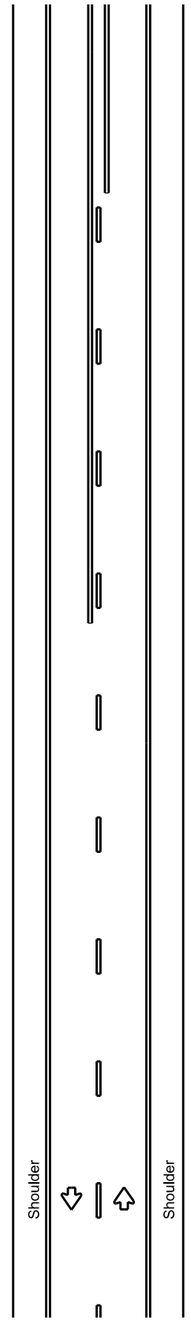
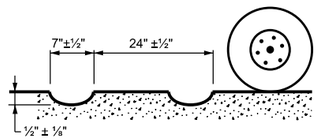
DATE:
FILE:

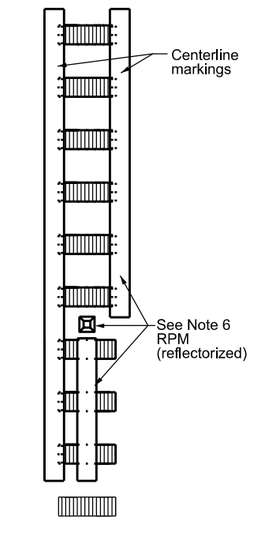
CENTERLINE RUMBLE STRIPS



TWO LANE TWO-WAY HIGHWAYS

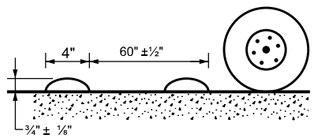


PROFILE VIEW

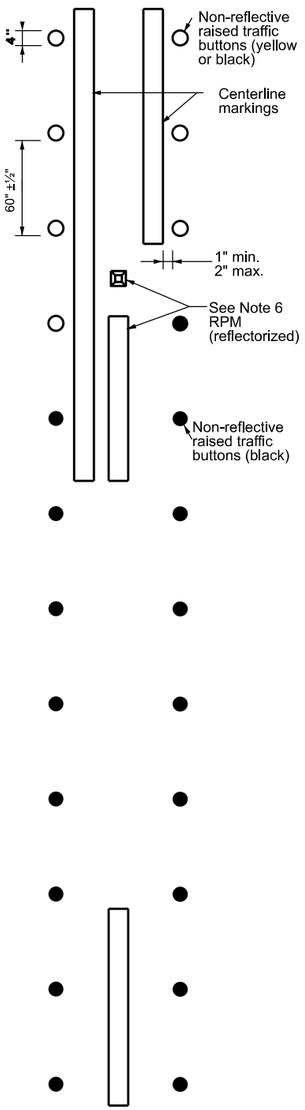


PLAN VIEW
OPTION 1

MILLED CENTERLINE RUMBLE STRIPS

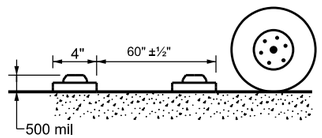


PROFILE VIEW

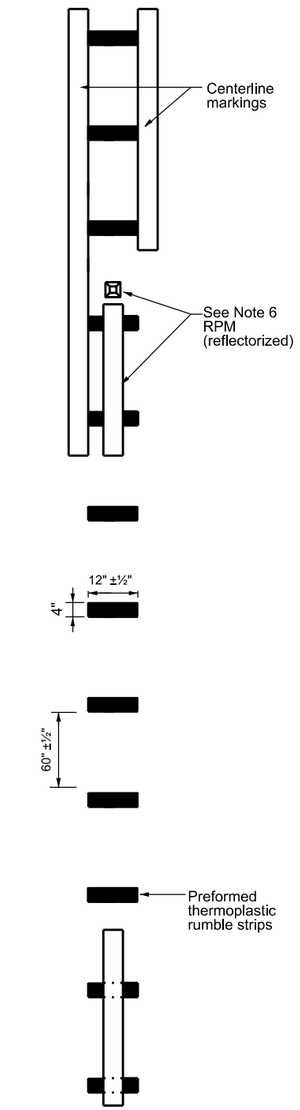


PLAN VIEW
OPTION 2

RAISED CENTERLINE RUMBLE STRIPS

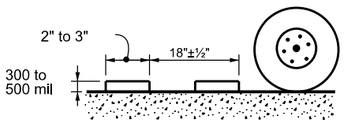


PROFILE VIEW

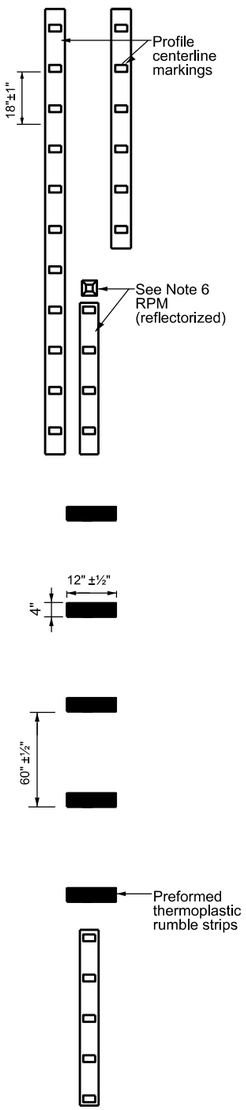


PLAN VIEW
OPTION 3

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
REVISIONS	0009	13	192, ETC.	IH 30, ETC.
10-13	DIST	COUNTY		SHEET NO.
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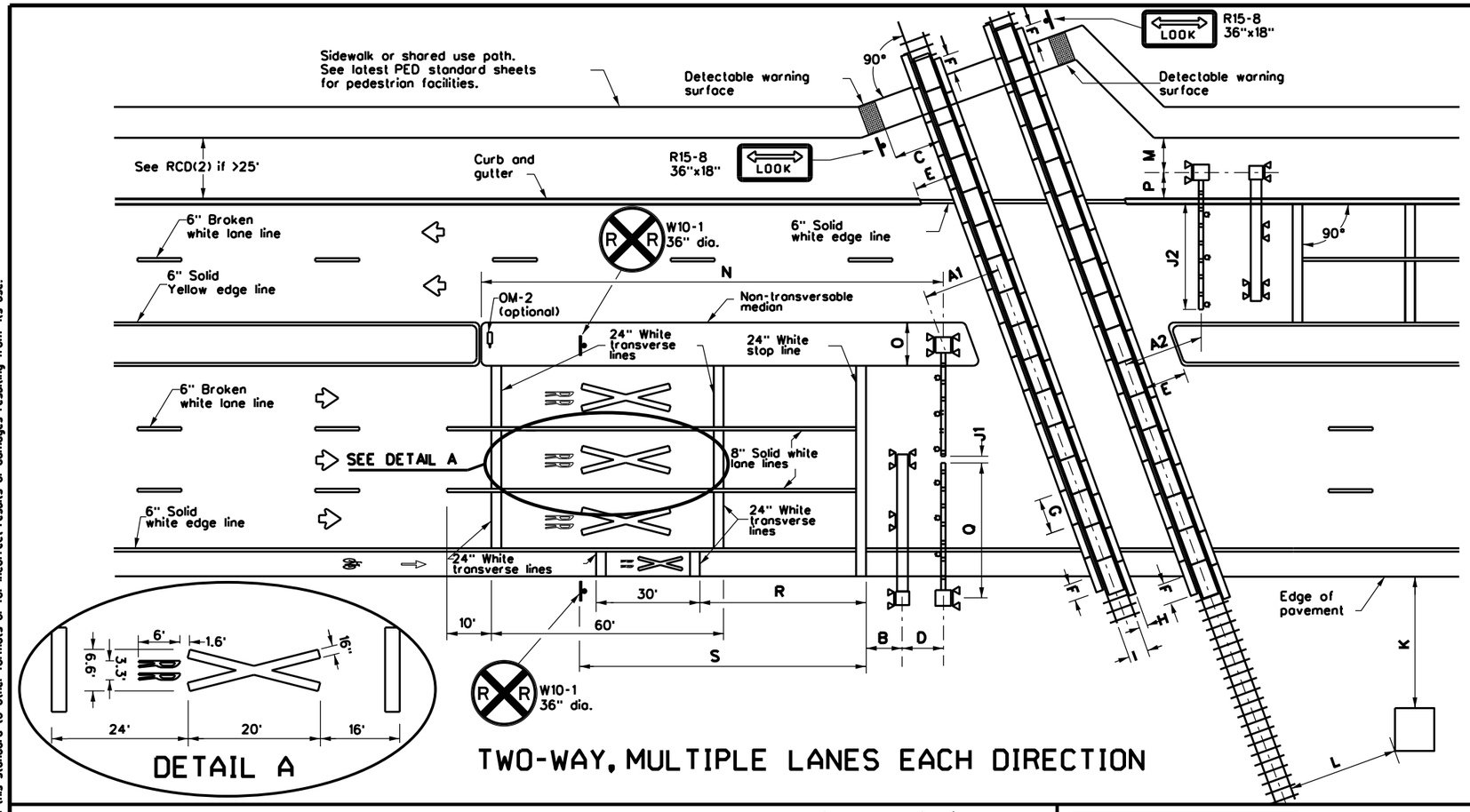


DETAIL A

TWO-WAY, MULTIPLE LANES EACH DIRECTION

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.

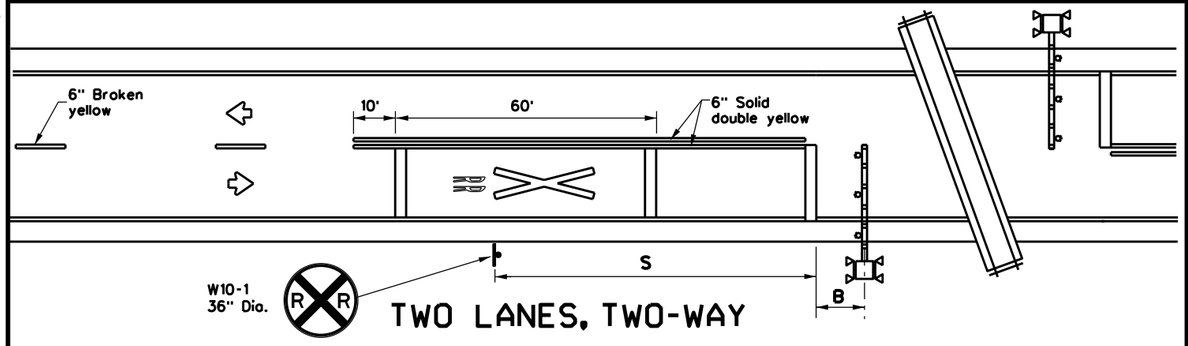
O: Width of median for RR gate assembly: 8'-6" minimum, 10' typical when using median gates. NOTE: Center of gate mast minimum 4'-3" from face of curb.

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.



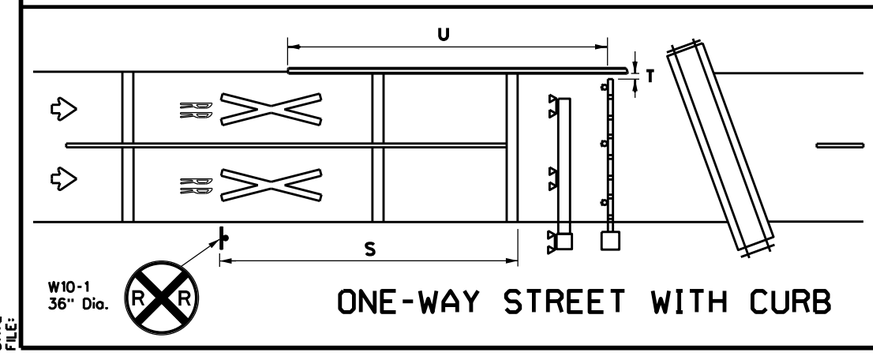
TWO LANES, TWO-WAY

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.

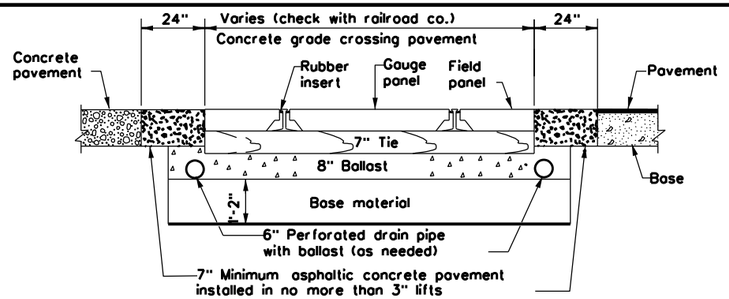


ONE-WAY STREET WITH CURB

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.



CROSSING SURFACE CROSS SECTION

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
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11-22	PAR	HUNT, ETC.		97

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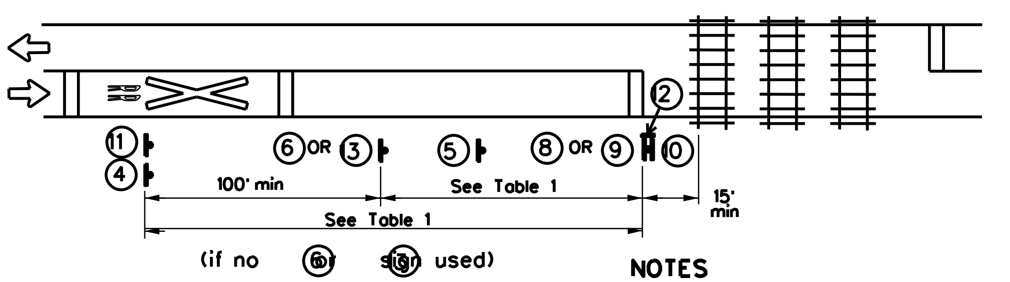
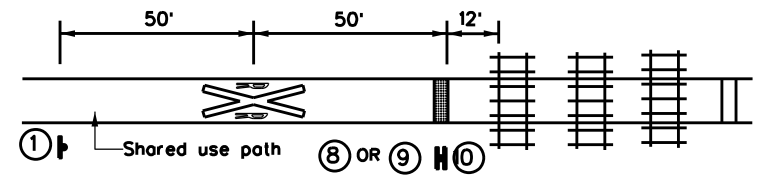
PASSIVE CROSSING



NOTES

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

PATHWAY CROSSING



NOTES

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

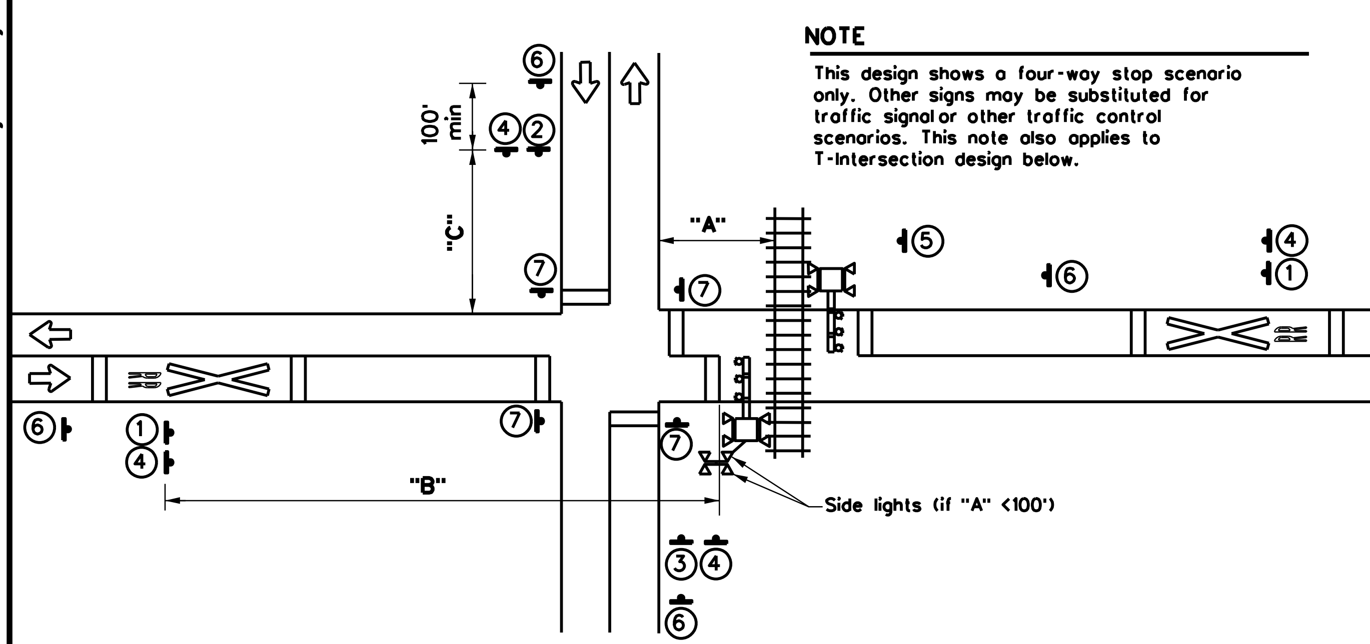
TABLE 1

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

GENERAL NOTES

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

GRADE CROSSING NEAR A PARALLEL STREET

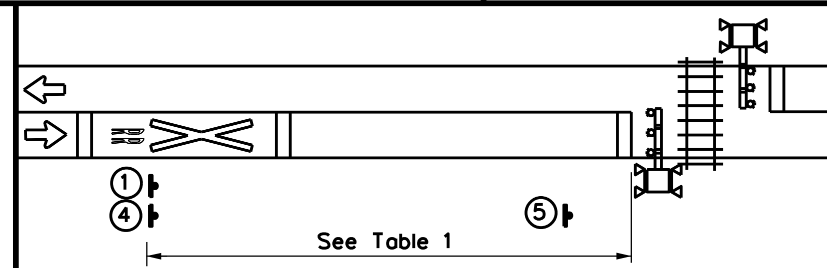


NOTE

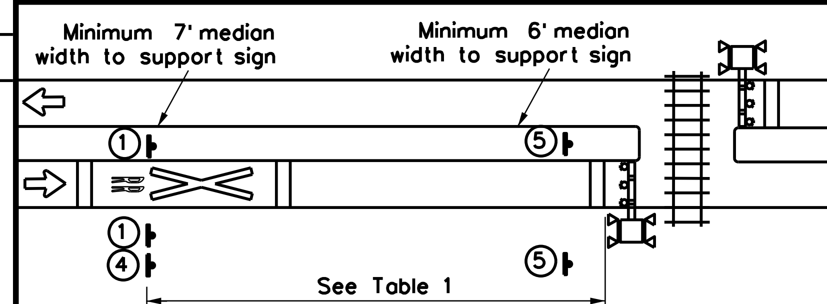
This design shows a four-way stop scenario only. Other signs may be substituted for traffic signal or other traffic control scenarios. This note also applies to T-Intersection design below.

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

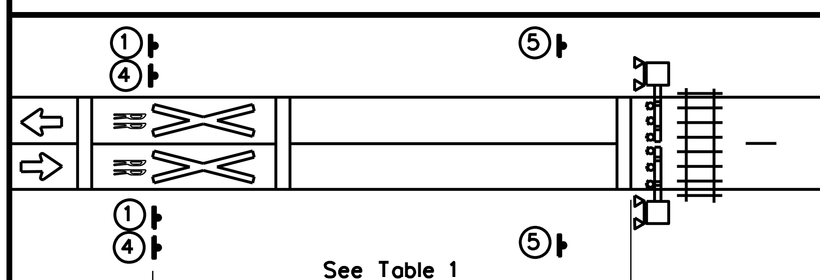
TWO-WAY



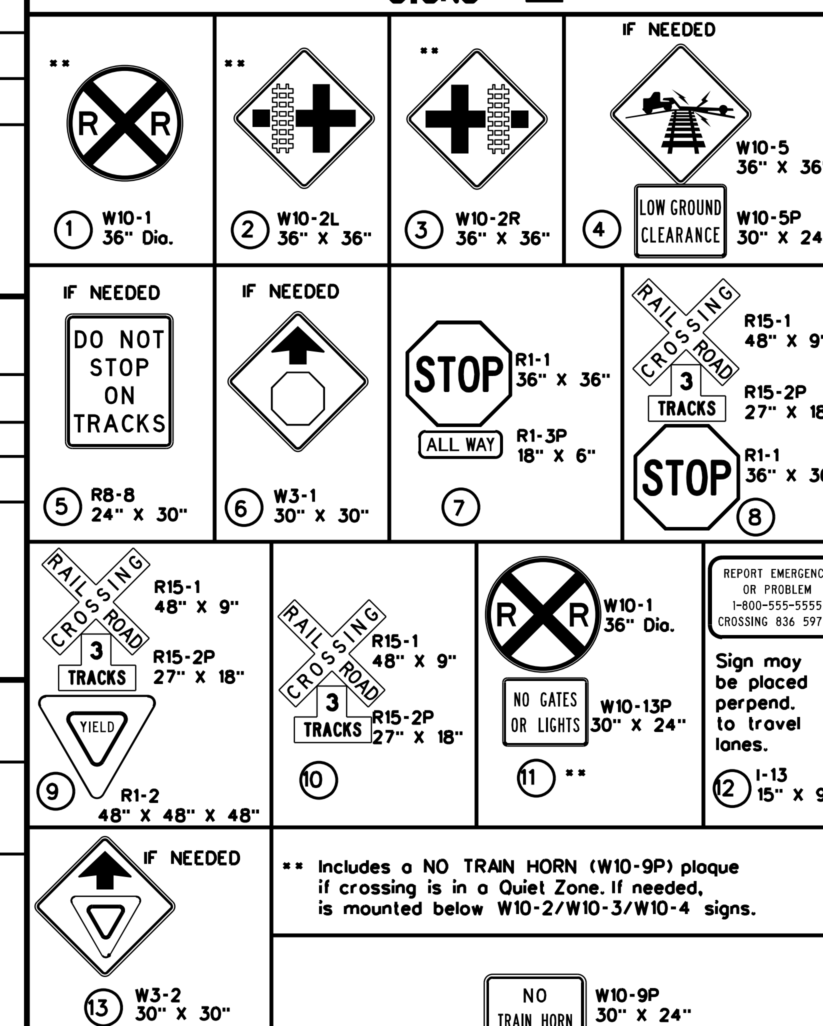
TWO-WAY WITH MEDIAN



ONE-WAY



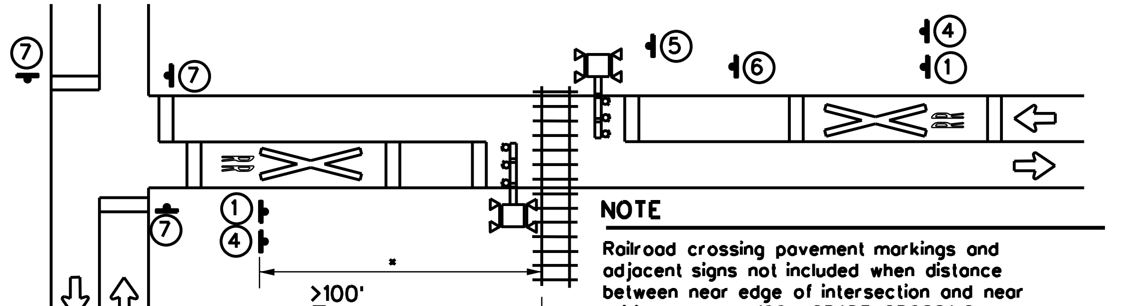
SIGNS



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

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

T-INTERSECTION

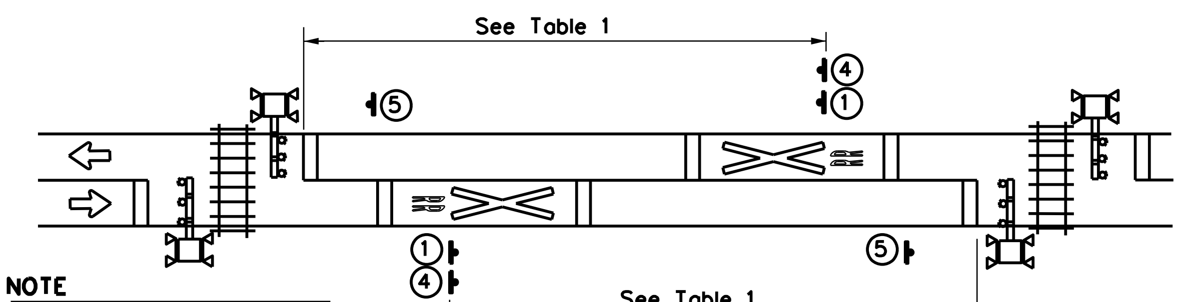


* Use Table 1 if sufficient space exists.

NOTE

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

TWO ADJACENT CROSSINGS



NOTE

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

Texas Department of Transportation — Traffic Safety Division Standard

RAILROAD CROSSING DETAILS SIGNING & STRIPING

RCD(2)-22

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	DIST		COUNTY	SHEET NO.
	PAR		HUNT, ETC.	98

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DATE:
FILE:

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DATE:
FILE:

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.

[X] 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):

[X] 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.

[X] 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.

[X] No Action Required [ ] Required Action

Action No.

1. 1.

2.

3.

4.

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

[X] No Action Required [ ] Required Action

Action No.

1.

2.

3.

4.

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

LIST OF ABBREVIATIONS

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

VI. HAZARDOUS MATERIALS OR CONTAMINATION ISSUES

General (applies to all projects):

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

Obtain and keep on-site Material Safety Data Sheets (MSDS) for all hazardous products used on the project, which may include, but are not limited to the following categories: Points, 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 [X] 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 [X] 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:

[X] No Action Required [ ] Required Action

Action No.

1.

2.

3.

VII. OTHER ENVIRONMENTAL ISSUES

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

[X] 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: bzm	DW: bzm	CK: AR	
©TxDOT: February 2015	CONT	SECT	JOB	HIGHWAY	
REVISIONS	0009	13	192.ETC.	IH 30.ETC.	
12-12-2011 (DS)	DIST	COUNTY		SHEET NO.	
05-07-14 ADDED NOTE SECTION IV.	PAR	HUNT.ETC.		99	
01-23-2015 SECTION I CHANGED ITEM 1122 TO ITEM 506, ADDED GRASSY SWALES.					