



OCTOBER 2024

INNOVATIVE INTERSECTIONS DESIGN AIDS

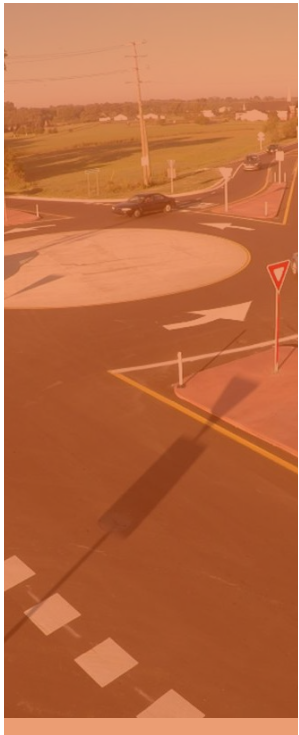
*Roundabout
Sign Strings*

OVERVIEW

As an extension of TxDOT's Roadway Design Manual Chapter 14, this aid provides designers with guidance for signing and marking on various types of roundabout approaches.

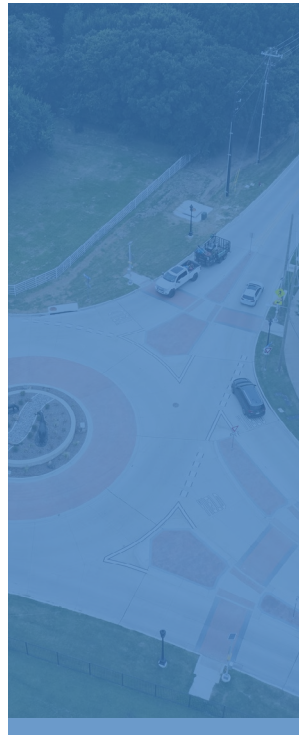
Roundabout signs and markings are some of the best ways to alert an approaching driver to the upcoming condition. Some roundabouts require more advance warning based on size, speed, or complexity. These traffic control devices, when applied correctly, provide the information needed for drivers to make informed decisions at the intersection. When considering sign placement on approaches, designers must recognize that inconsistent or unrecognized conditions can extend decision time, adding risk to the driving task. Designers should consider the most important information for the driver and present necessary signage for users to become aware of a condition with enough time to react appropriately. This should be done without creating a driving task overload.

TABLE OF CONTENTS



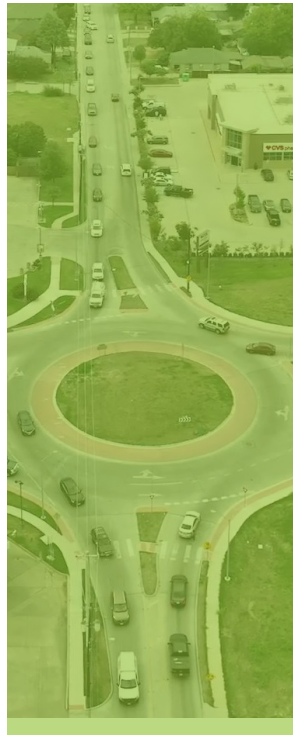
**MINI
ROUNDBABOUTS**

02



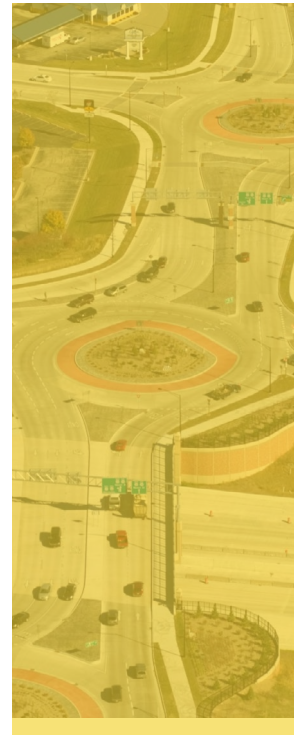
**SINGLE LANE
ROUNDBABOUTS**

02



**MULTILANE
ROUNDBABOUTS**

03



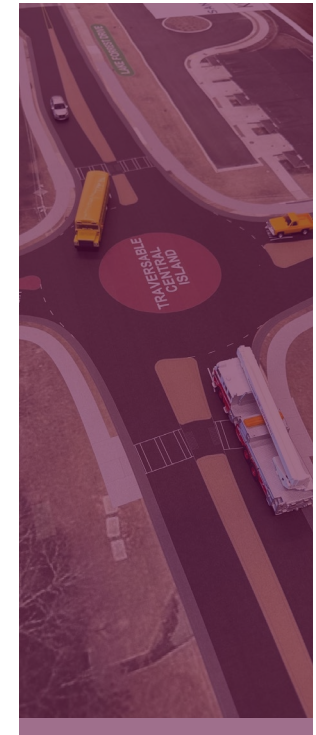
**INTERCHANGES
AND OVERHEAD
SIGNAGE**

03



**LETTER
HEIGHTS**

05



REFERENCES

08

FIGURES

Figure 1 – Mini Roundabout Signing and Marking

Figure 2 – Low Speed Single Lane Roundabout Signing and Marking

Figure 3 – High Speed Single Lane Roundabout Signing and Marking

Figure 4 – Low Speed Multilane Roundabout Signing and Marking

Figure 5 – High Speed Multilane Roundabout Signing and Marking

Figure 6 – Interchange Signing Example

Figure 7 – Overhead Cantilever Signs at Multilane Roundabouts

Figure 8 – Overhead Sign Bridge at Multilane Roundabouts



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ROUNABOUT SIGN STRINGS

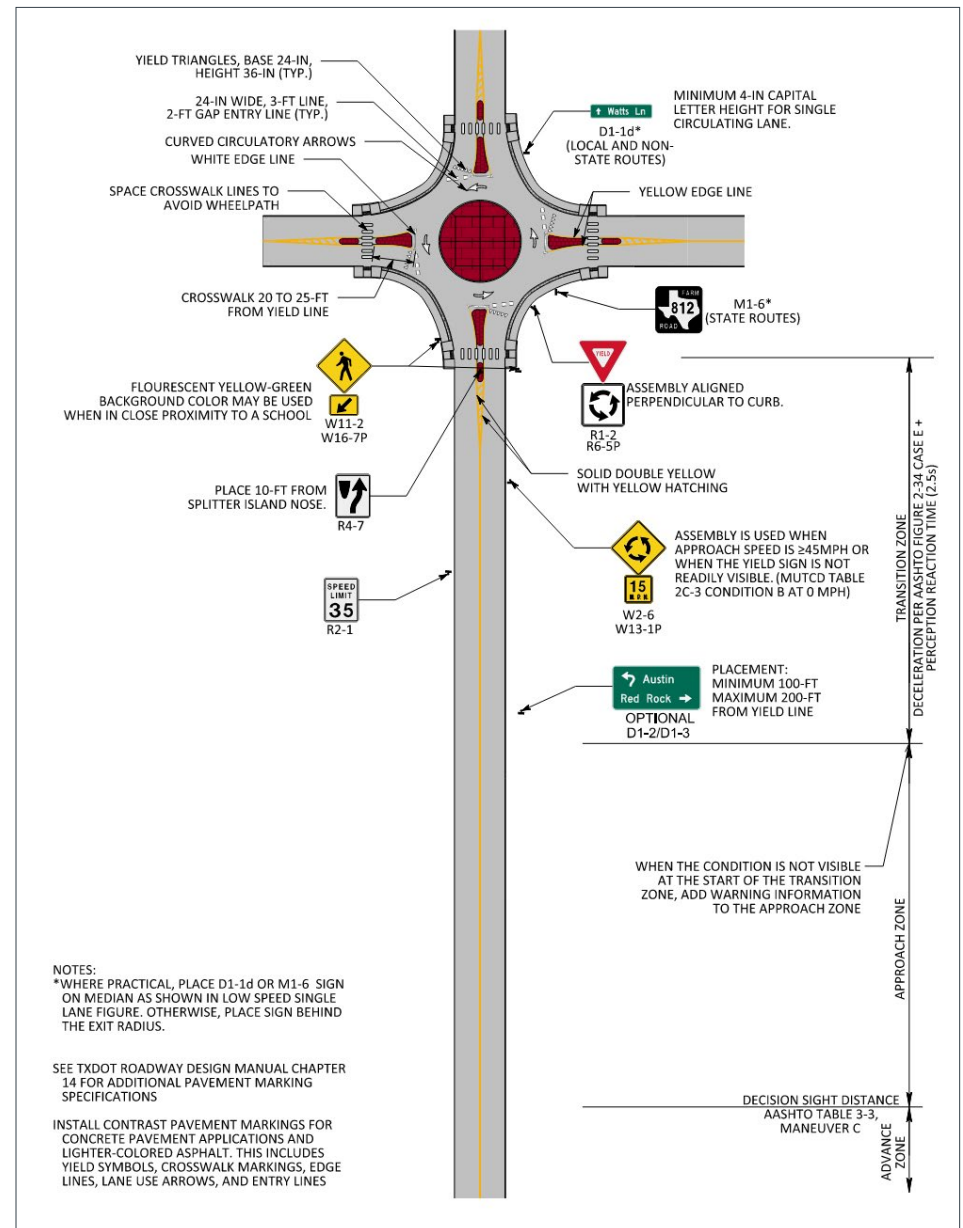
MINI ROUNDABOUTS

Mini roundabouts do not have landscaped central islands, making them more difficult for drivers to identify as they approach the intersection. Mini roundabouts should provide enough advance warning, so drivers can anticipate the intersection and respond appropriately.

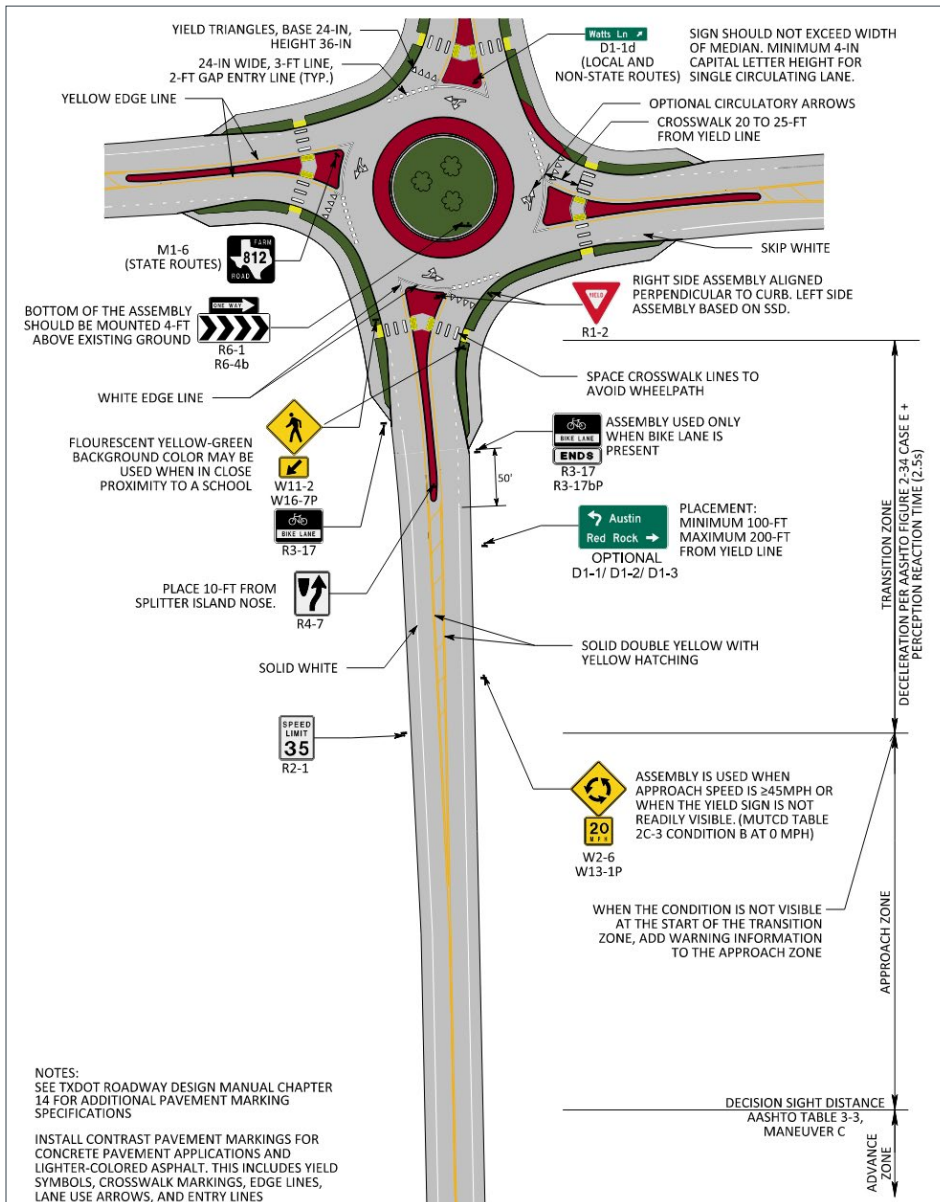
Mini roundabouts often have narrow, traversable, or flush splitter islands, making sign placement along the splitter island impractical or impossible. Where narrow, traversable, or flush splitter islands are present, signs should not be placed on the splitter island. Instead, yield and directional signs should be placed behind the curb or sidewalk as shown in **Figure 1**. R4-1 signs may be omitted from flush or traversable splitter islands. W13-1P sign speeds should be posted based on the roundabout circulating speed (R2) with a maximum speed of 15mph.

SINGLE LANE ROUNDABOUTS

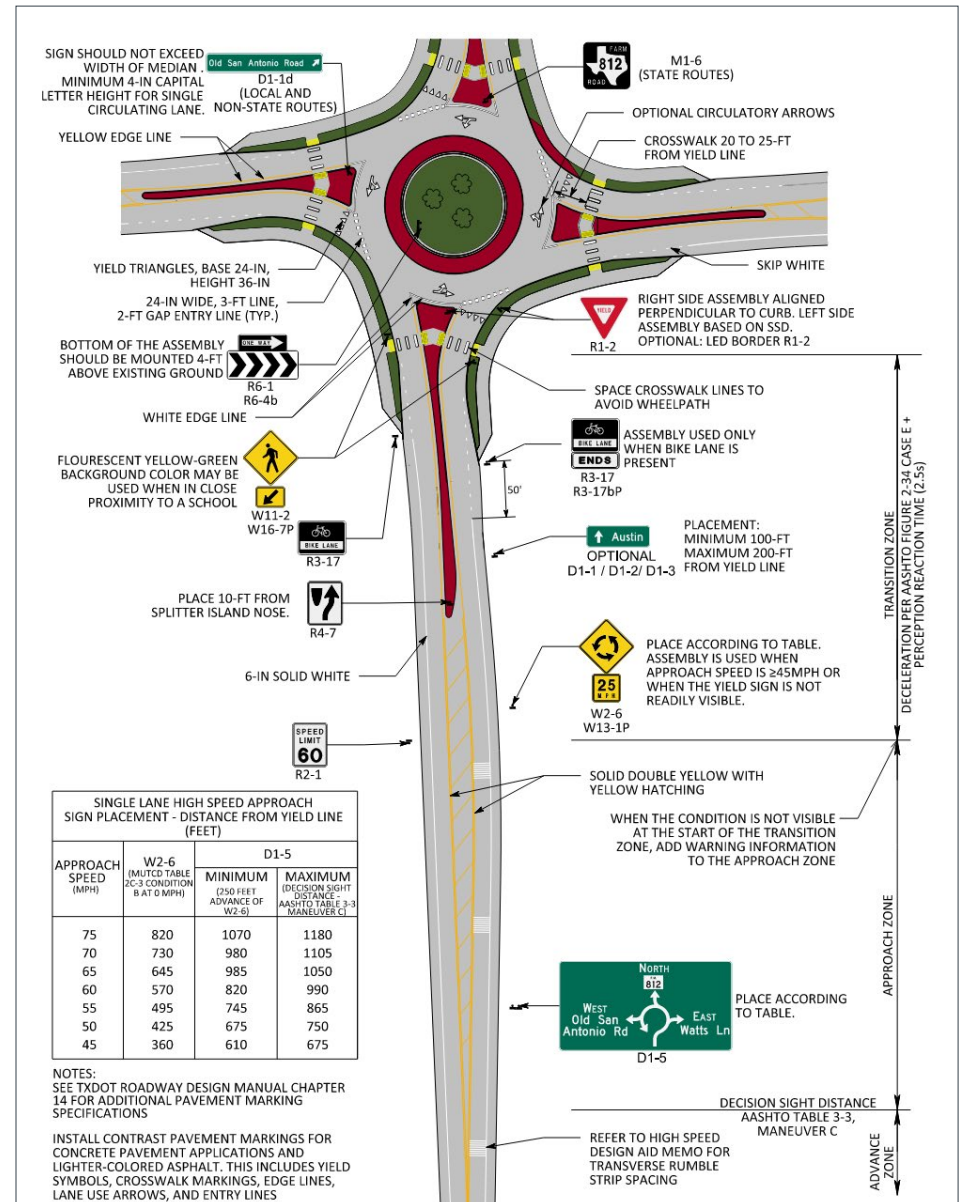
Single lane approaches require less decision making through the advance zone and approach zone than multilane approaches. The signing and marking of a single lane approach mainly presents destination information for the upcoming intersection and any additional advance warning needed for the condition. See **Figure 2** and **Figure 3** for example sign strings for low speed and high speed single lane roundabouts. W13-1P sign speeds should be posted based on the roundabout circulating speed (R2) with a maximum speed of 25mph.



» **FIGURE 1** – Mini Roundabout Signing and Marking



» FIGURE 2 – Low Speed Single Lane Roundabout Signing and Marking



» FIGURE 3 – High Speed Single Lane Roundabout Signing and Marking

MULTILANE ROUNDABOUTS

Multilane approaches require drivers to make multiple decisions through the advance and transition zones. The signing and marking of a multilane approach presents lane choices and destination information for the upcoming intersection. See **Figure 4** and **Figure 5** for example sign strings for low speed and high-speed multilane roundabouts. W13-1P sign speeds should be posted based on the roundabout circulating speed (R2) with a maximum speed of 25mph. Overhead signs are recommended on all multilane approaches. Overhead signs alert drivers of the upcoming decision and allow enough time for drivers to respond. **Figure 7** and **Figure 8** provide recommended overhead signage for multilane roundabout approaches.

INTERCHANGES AND OVERHEAD SIGNAGE

Multilane roundabouts at interchanges require overhead signage to present multiple decisions and destinations to the driver as quickly as possible. **Figure 6** provides an example of a roundabout interchange with overhead signs. Standard multilane signing and marking as shown in **Figure 4** and **Figure 5** should be used at interchanges with the addition of overhead signs.

Figure 7 provides two options for overhead sign assembly using cantilever structures. Option A may only be used for two lane approaches and should be considered at low speed multilane approaches. Option B may be considered for higher speed approaches or where additional guidance is required. **Figure 8** provides two options for overhead sign assembly using sign bridge structures. Option A may be used where enough space is provided within the median to accommodate the structure support. Option B may be used where smaller medians are present or where signs are needed on both sides of the median, warranting a structure spanning the entirety of the roadway cross section.

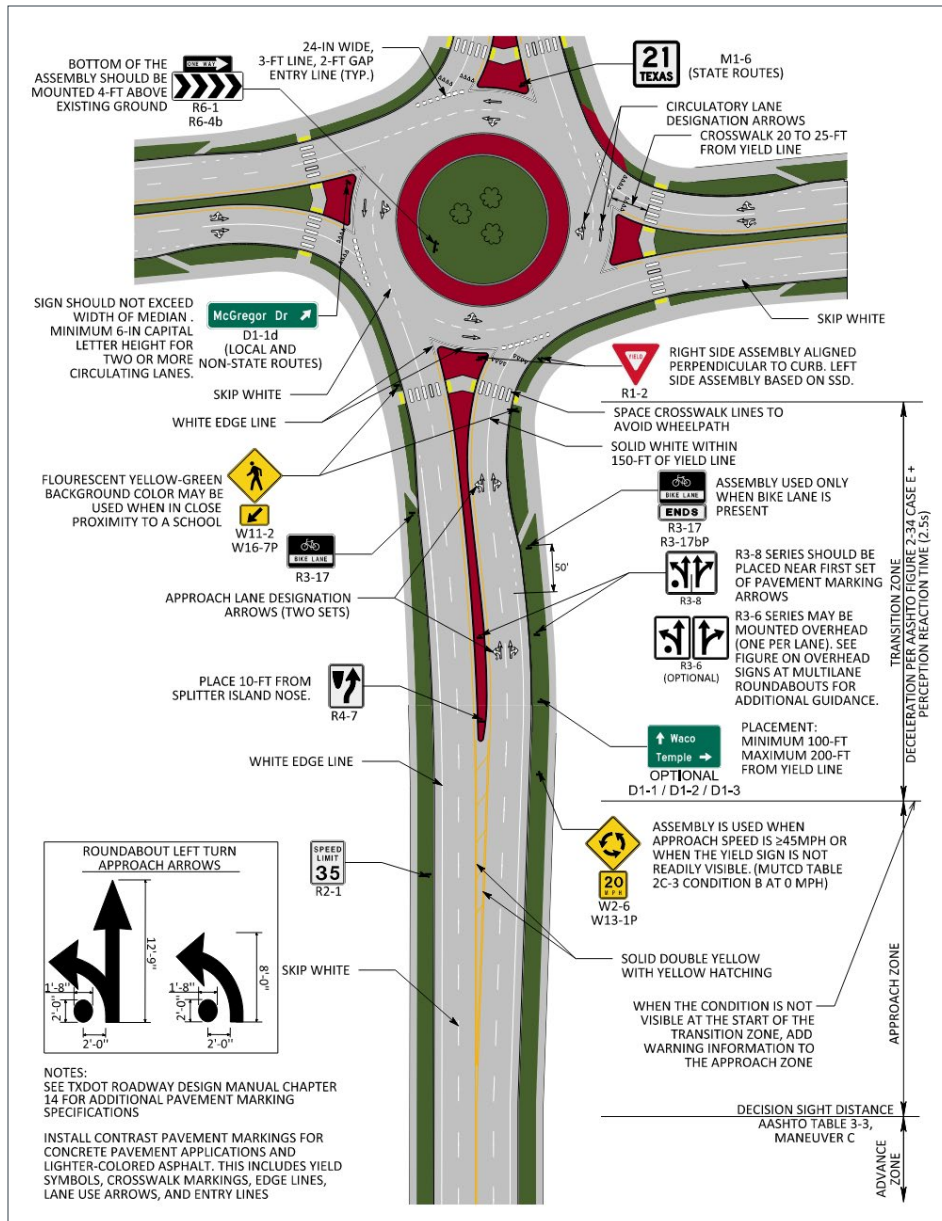
LETTER HEIGHTS

Directional signs on roundabout approaches should be designed to provide the maximum visibility for drivers at the posted speed. Table 1 was derived from Table 2D-2 in the TMUTCD and provides minimum capital letter height for destinations on post-mounted and overhead intersection signs.

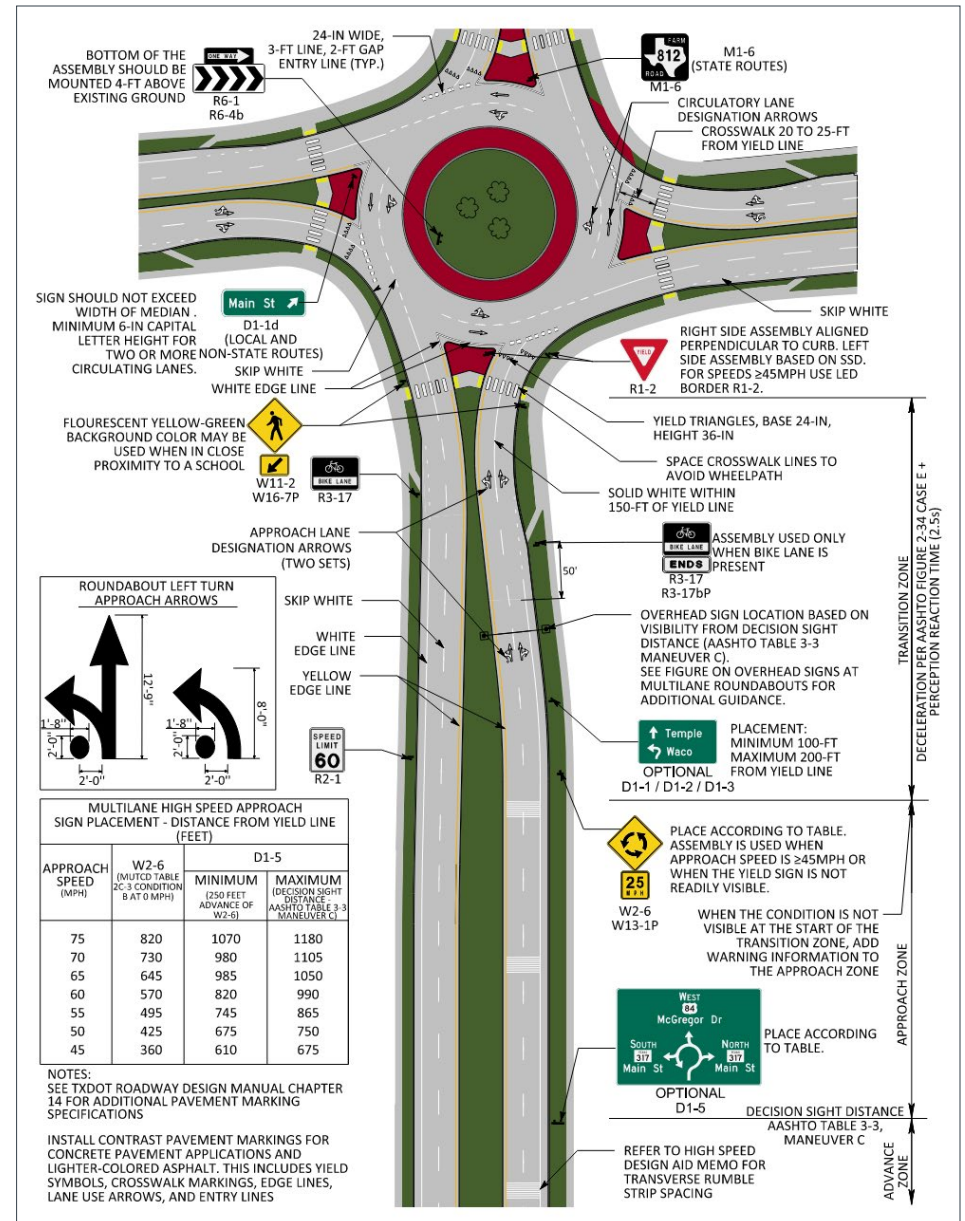
Minimum Capital Letter Height for Destinations and Road Names (inches)			
Posted Approach Speed (mph)	Single Lane Roundabouts	Multilane Roundabouts	
	Post-Mounted Signs	Post-Mounted Signs	Overhead Signs
25	6	8	6
30	8	10.67	6
35	8	10.67	10.67
40	8	10.67	10.67
45	10.67	13.33	10.67
50	10.67	13.33	10.67
55	10.67	13.33	13.33 – 16
60+	10.67	13.33	13.33 – 16

TABLE 1 - Minimum Capital Letter Height for Destinations and Road Names on Intersection Advance Guide Signs

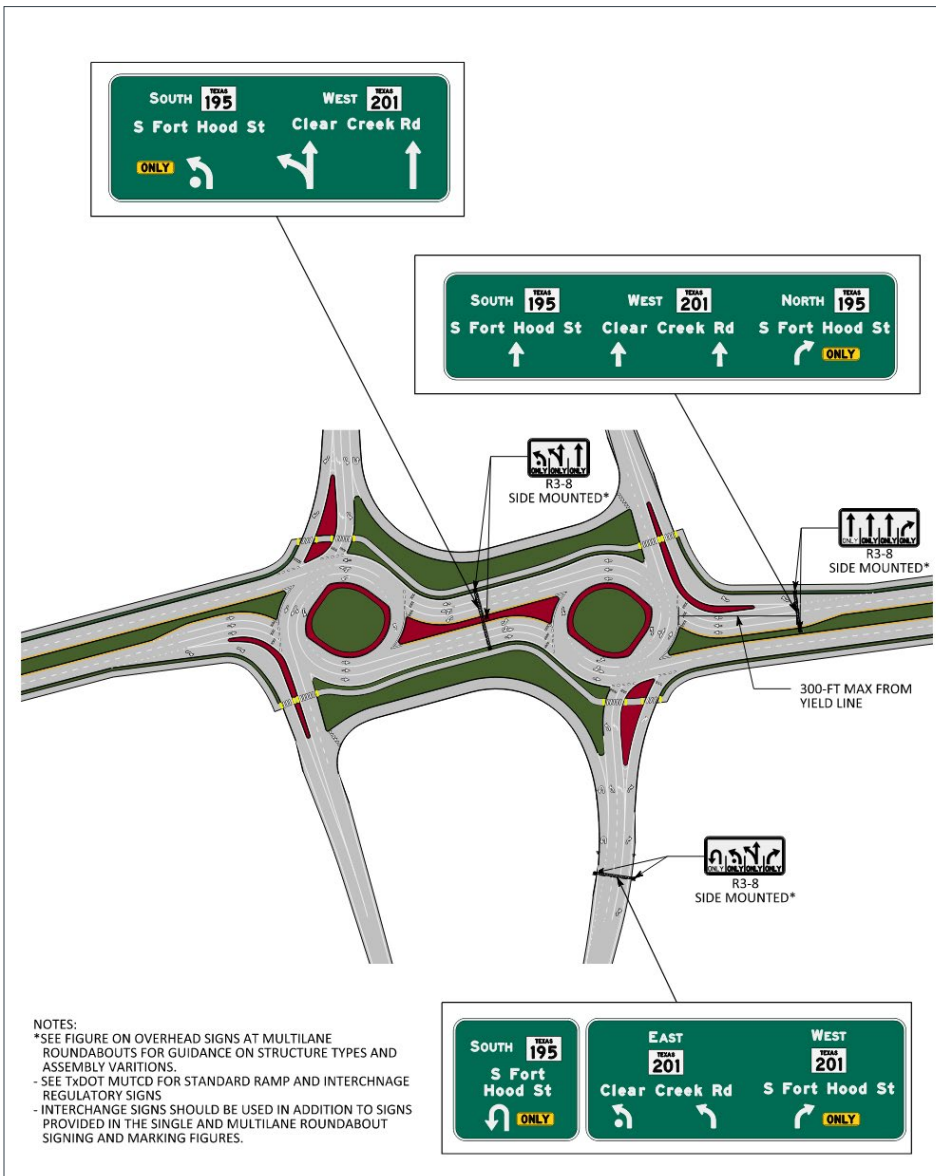
D1-1d signs posted on roundabout exits do not have letter heights determined by the posted approach speeds. Instead, the minimum capital letter size should be based on the circulating speed of the roundabout. Typically, roundabouts have maximum circulating speeds less than 25mph for single lane and less than 30mph for multilane. Capital letter heights for D1-1d signs are determined using Table 2D-2 in the TMUTCD, which provides minimum capital letter heights for street names on post-mounted destination signs. Single lane roundabouts with circulating speeds below 25mph should provide D1-1d signs with minimum capital letter heights of 4-inches. Multilane roundabouts with circulating speeds below 30mph should provide D1-1d signs with minimum capital letter heights of 6-inches.



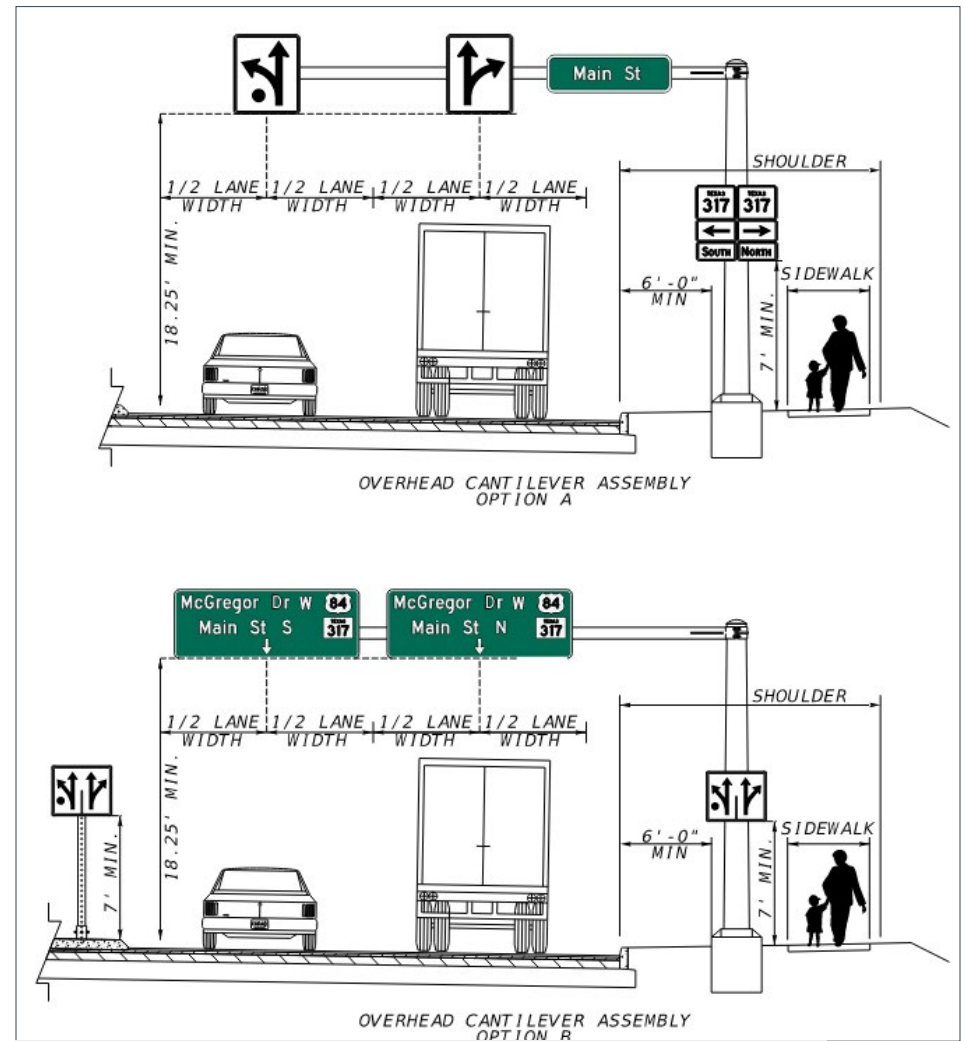
» **FIGURE 4 – Low Speed Multilane Roundabout Signing and Marking**



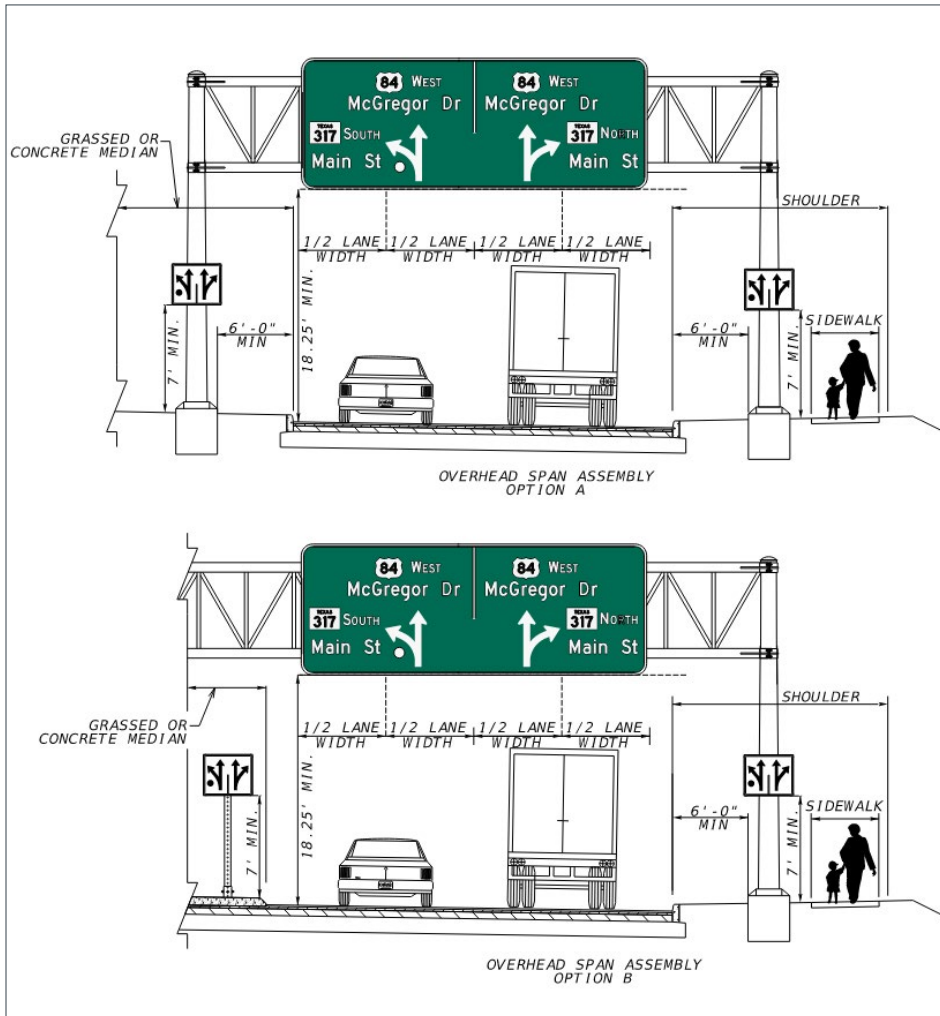
» **FIGURE 5 – High Speed Multilane Roundabout Signing and Marking**



» **FIGURE 6** – Interchange Signing Example



» **FIGURE 7** – Overhead Cantilever Signs at Multilane Roundabouts



» **FIGURE 8** – Overhead Sign Bridge at Multilane Roundabouts





REFERENCES

- 1 NCHRP Research Report 1043: Guide for Roundabouts. National Cooperative Highway Research Program, Transportation Research Board, National Academics of Sciences, Engineering, and Medicine, Washington DC., 2023.
- 2 Roundabout Design Guide. Georgia Department of Transportation. Revision 2.3, 2023.
- 3 Texas Manual on Uniform Traffic Control Devices Revision 2. Texas Department of Transportation, 2014.