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SECTION 200.00 – PAVEMENT MARKINGS

All pavement markings shall conform to the current [Manual on Uniform Traffic Control Devices](#), as adopted by the State.

SECTION 201.00 – GENERAL PRACTICE

201.01 Pavement Marking Placement.

1. Centerlines

Place yellow centerline pavement markings on all paved State highways.

Establish and mark no-passing zones on all paved State highways (see [Section 201.02](#)).

2. Skip lines

Place white skip line(s) between lanes of traffic traveling in the same direction on all multilane routes.

3. Edge lines

Edge lines shall be placed on all paved State highways 20 feet or greater in width and an ADT of 6,000 vehicles per day or greater. (See table in [Section 202.02](#)).

Curbs in unlighted areas should be painted and retroreflectorized or have edge pavement markings (see [Section 202.02](#)).

Curbed areas with continuous lighting generally do not need edge lines when the travel lane is parallel to the curb. However, edge lines should be maintained through and 300 feet beyond all transitions, changes in width of road, and locations where the traveled way is not parallel to the edge of the road.

Refer to [Administrative Policy A-05-07](#) for maintenance service levels of pavement markings.

201.02 No-Passing Zones (See [3B MUTCD](#)). When establishing no-passing zones, apply both horizontal and vertical sight distance criteria and other engineering criteria to indicate where passing must be restricted because of the inadequate sight distance or other special conditions. Use a 3.5 feet eye height with 3.5 feet object height above the pavement to establish the zones.

[Figure 201.02-01](#) illustrates the application and guides for marking the no-passing zones.

Use the following as additional criteria:

- If the zone of sight restriction is less than 100 feet, do not mark a no passing zone unless the intersection conditions under [Section 201.03](#) apply.
- For all zones where sight restriction is 100 feet or greater, provide a minimum 250 foot no passing zone, except for:

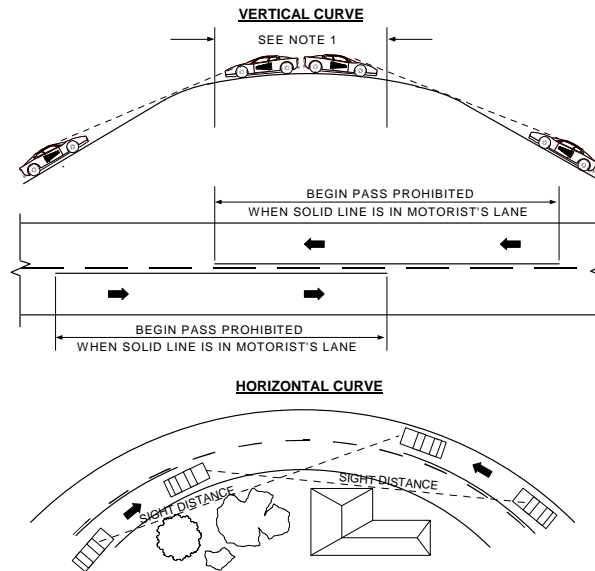
- Approaches to stops and railroad grade crossings.
- School zones or other pedestrian crossings. (No passing zones should be based on an engineering study of the location.)
- Problem intersections, raised medians and other problem sites. Use the chart at the bottom of [Figure 201.02-01](#) as a guide for minimum zone lengths. A minimum length of 350 feet is recommended for any areas having a speed limit of 20 MPH. In all cases, use engineering judgment as the basis for your final decision.
- Adjacent no-passing zones shall be connected as follows:

Speed Limit Is	Minimum Distance Between Zones In feet	Desirable Distance Between Zones In feet
	*	**
25 MPH	400	500
30 MPH	400	550
35 MPH	400	600
40 MPH	400	700
45 MPH	400	800
50 MPH	450	900
55 MPH	500	1,000
60 MPH	550	1,100
65 MPH	600	1,200

* Less than this distance, adjacent zones should be connected.

** Distance between tabular values, connection of adjacent zones shall be based upon field conditions and engineering judgment.

Figure 201.02-01 Typical No Passing Zones



STANDARDS FOR MARKING NO-PASSING ZONES	
Posted Speed (MPH)	Minimum Passing Sight Distance in ft
25	500
30	550
35	600
40	700
45	800
50	900
55	1000
60	1100
65	1200

NOTES:

1. Height of eye and height of object are both 3.5' above pavement.
2. No-passing zones in opposite directions may or may not overlap, depending on alignment.

The NO-PASSING pennant sign (W14-3; [Section 163.02](#)) and the DO NOT PASS and PASS WITH CARE signs (R4-1 and R4-2; [Section 163.03](#)) may be used where additional emphasis is needed.

201.03 No-Passing Zones at Intersections. [Idaho Code, Section 49-635\(l\)\(b\)](#), requires that a vehicle shall not drive to the left of center of a highway when approaching within 100 feet of or traversing any intersection or railroad grade crossing unless otherwise indicated by traffic control devices. This provision establishes the following passing restrictions relative to pavement markings at intersections:

- If there is no roadway centerline markings, passing through an intersection is prohibited.
- If the roadway centerline marking is “skip” pavement marking only, passing through an intersection is permitted.

- If the roadway centerline marking includes a “no-passing” barrier line, passing through an intersection is prohibited.

The following guidelines shall be used to provide centerline pavement marking at intersections:

- Normal roadway pavement marking should provide a “skip” centerline through minor intersections (such as single-dwelling driveways, field approaches, turnouts, and alleys).
- Place centerline markings with a “no-passing” barrier line at least 100 feet in advance of intersections in each direction where passing is prohibited (such as major intersections).
- Place centerline markings with a “no-passing” barrier line on all paved highway approaches to at-grade railroad crossings, both urban and rural (see [MUTCD](#)).

SECTION 202.00 – TYPICAL MARKINGS

202.01 Skip Lane Lines and Centerlines. A skip lane line and centerline on State highways shall be a 4-inch wide line consisting of the following segment and gap lengths:

	<u>Segment</u>	<u>Gap</u>	
Speed Limit (Rural) 40 MPH or more	12'-0"	38'-0"	
Speed Limit (Urban) 35 MPH or less	8'-0"	17'-0"	

(See [MUTCD 3B-05](#))

202.02 Edge Lines. Where the interstate or other divided highways have a continuous raised median that is used for separation of opposing traffic and the median curb is less than 13.5 feet from the right edge of the adjacent lane, paint the curb (retroreflectorized). If the median curb is at least 13.5 feet, but not greater than 15 feet from the right edge of the adjacent lane, place the edge line on the pavement about 18 inches from the face of the curb or paint the curb (retroreflectorized), but not both (see [Section 202.08](#)). Where the curb is over 15 feet from the right edge of the adjacent lane, place the left edge line 12 feet from the right edge line of the adjacent lane. For runaway truck ramps, paint the right edge line continuous through the ramp entrance.

When raised curb is used at intersection for channelization or to form a traffic island for definition of a turn bay, pedestrian refuge, or protection of signal poles, use [Section 202.08](#), Raised Channelization Markings for guidance.

Place edge lines on freeways or other divided highways as indicated on [Standard Drawings I-22-A](#) and [I-22-B](#). The left edge line on PCC pavements with asphalt shoulders can be placed on the AC shoulder to provide 12 feet lane widths since trucks in the left lane do not generally apply the sustained edge loadings as they do in the right lane.

Continue edge lines beyond the end of any taper or transition for at least 300 feet to help define the roadway path.

Edge lines should be continuous when approaching bridge structures and should not be broken for approaches in the near vicinity of the bridge. They should also be applied continuously across all bridges, if possible.

Place edge lines for narrow bridges as shown in [Figures 167.01-01](#), [167.02-01](#), and [167.03-01](#).

On all highways where the median is paved flush with the traffic lanes, use the double yellow line for the left edge line, except when there is a two-way turn lane.

The following table is recommended for edge pavement marking two-lane, two-way highways:

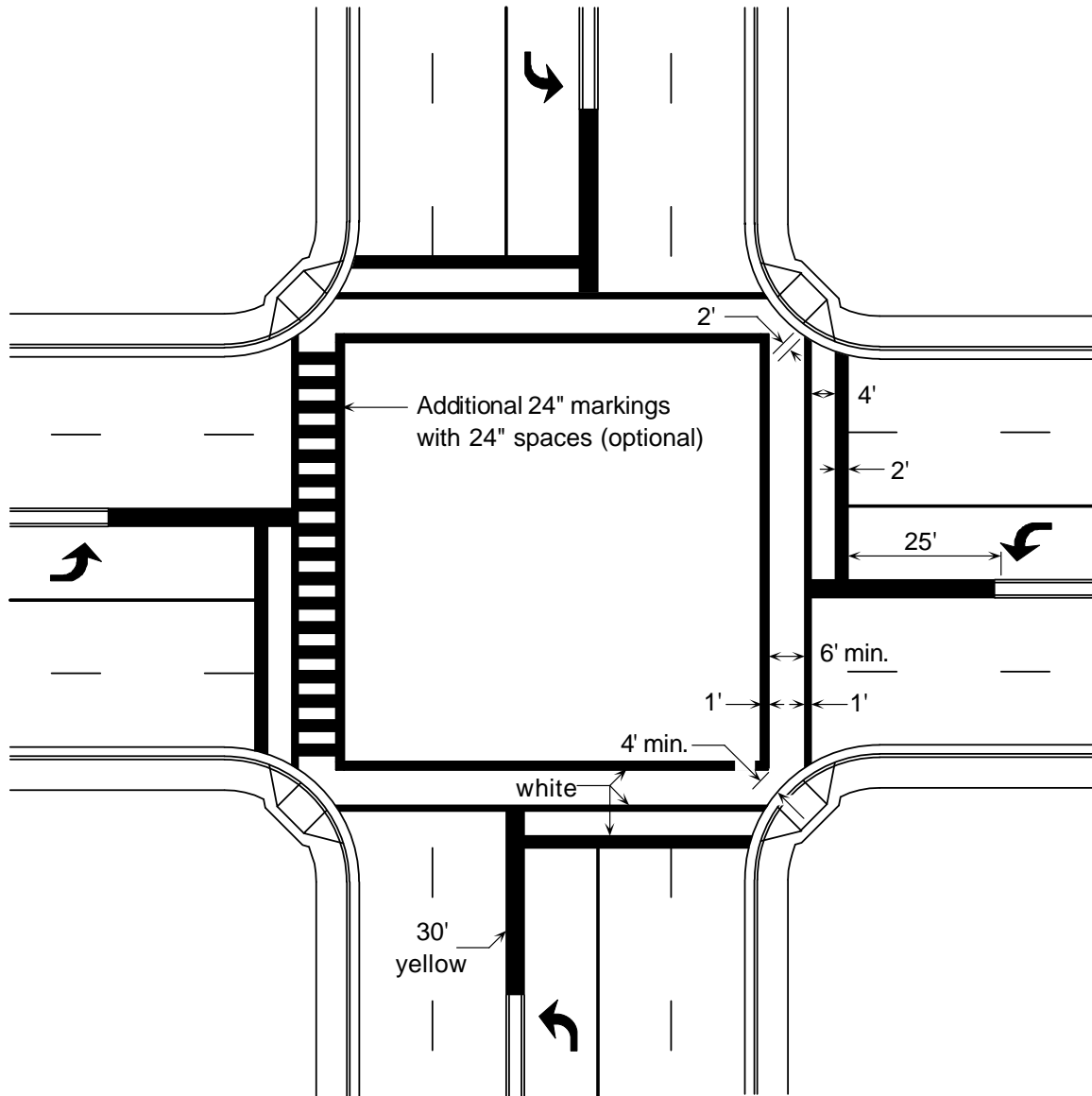
Section Width Feet	Distance from CL to Edge Line in Feet	
20	9.5	NOTE: Sections less than 20 feet in surface width should not normally have edge lines.
22	10.5	
24	11.5	
26 and wider	12	

202.03 Extension Through Intersections. Use a dotted or solid line to delineate the turning path through an intersection with multiple turn moves. Place it so the motorist's normal turning maneuver will be smooth and not encroach over the line. See [MUTCD 3B](#). Use a 2 foot line and a 4 foot gap for this broken line. Use the solid line with high volume turns (+200 vph). Lay out the line with cones or other markers and test drive prior to the permanent installation.

202.04 Crosswalk Lines. Marked crosswalks shall always have transverse lines not less than 12 inches in width. Additional longitudinal markings, 24 inches in width and spaced 24 inches apart, may be used to supplement the transverse lines where additional target value is desirable. See [Figure 202.04-01](#) for typical crosswalk markings and application for curb cuts.

Where a painted median exists, the crosswalks should be carried across the median.

Figure 202.04-01 Typical Crosswalk Markings



202.05 Two-Way Left-Turn Lanes. Two-way left-turn lanes are recommended for use in areas with businesses along the highway generating numerous left turns. The width of the lane should not exceed 14 feet or be less than 10 feet. Place left-turn symbol pavement arrows in the two-way left-turn lane at an appropriate spacing of 300 feet is suggested with ADT above 10,000 VPD; 500 feet if ADT is less than 10,000 VPD. Always use the arrows together as a pair spaced from 8-16 feet apart, depending on prevailing speed ([Figure 202.06-01](#)). Establishment of two-way left-turn lanes is subject to approval by the Highway Operations and Safety Engineer.

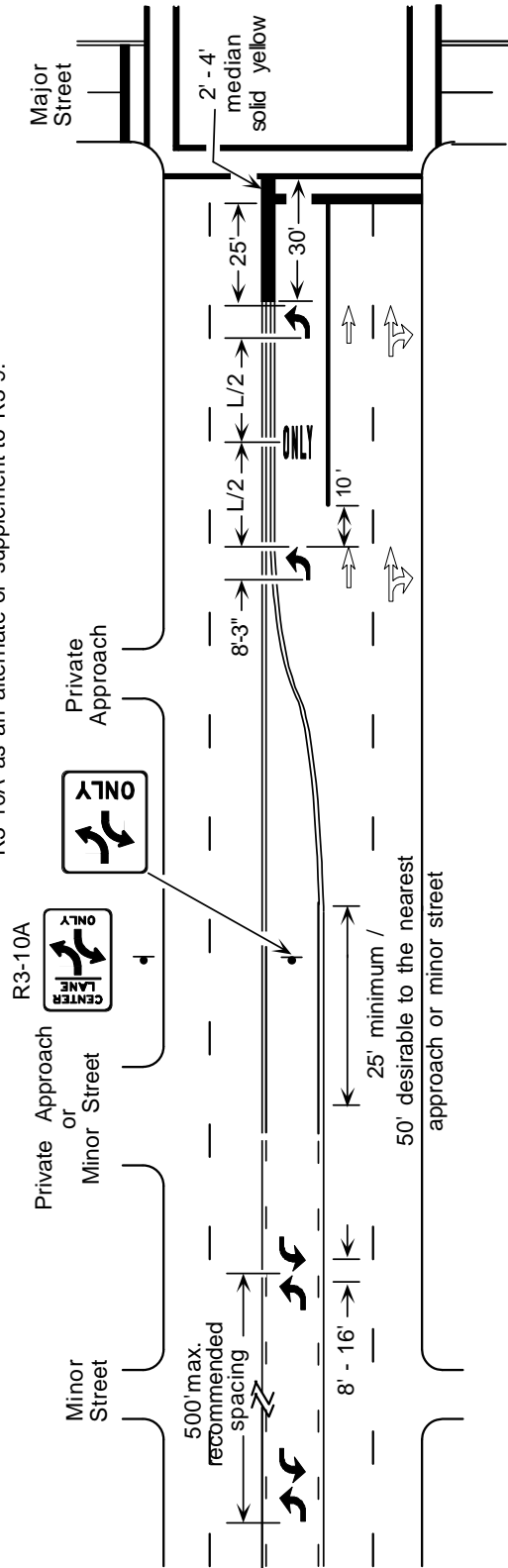
Keep the number of painted left-turn bays within two-way left-turn lanes to a minimum. Painted channelization for intersections within the limits of two-way left-turn lanes should be as shown in [Figure 202.05-01](#) or [202.05-01A](#) or [Standard Drawing I-21-A](#).

At high volume signalized intersections, the double yellow reverse curve pavement marking may be eliminated as shown in [Figure 202.05-02](#) and [202.05-02A](#). Median pavement marking treatment is dependent on the width of the two-way left-turn lane.

Figure 202.05-01 Painted Pavement Markings

PAINTED CHANNELIZATION

Mount R3-9 sign overhead and over the two-way turn lane, whenever possible. Use post-mounted R3-10A as an alternate or supplement to R3-9.



NOTES:

1. Pavement Markings in the through lanes are optional and should be installed only if justified.
2. Two way left turn lanes should be continuous through "T" intersections, but may be broken for 4-way intersections.
3. See Standard Drwg. I-21 for pavement marking details.

Figure 202.05-01A Raised Channelization Pavement Markings

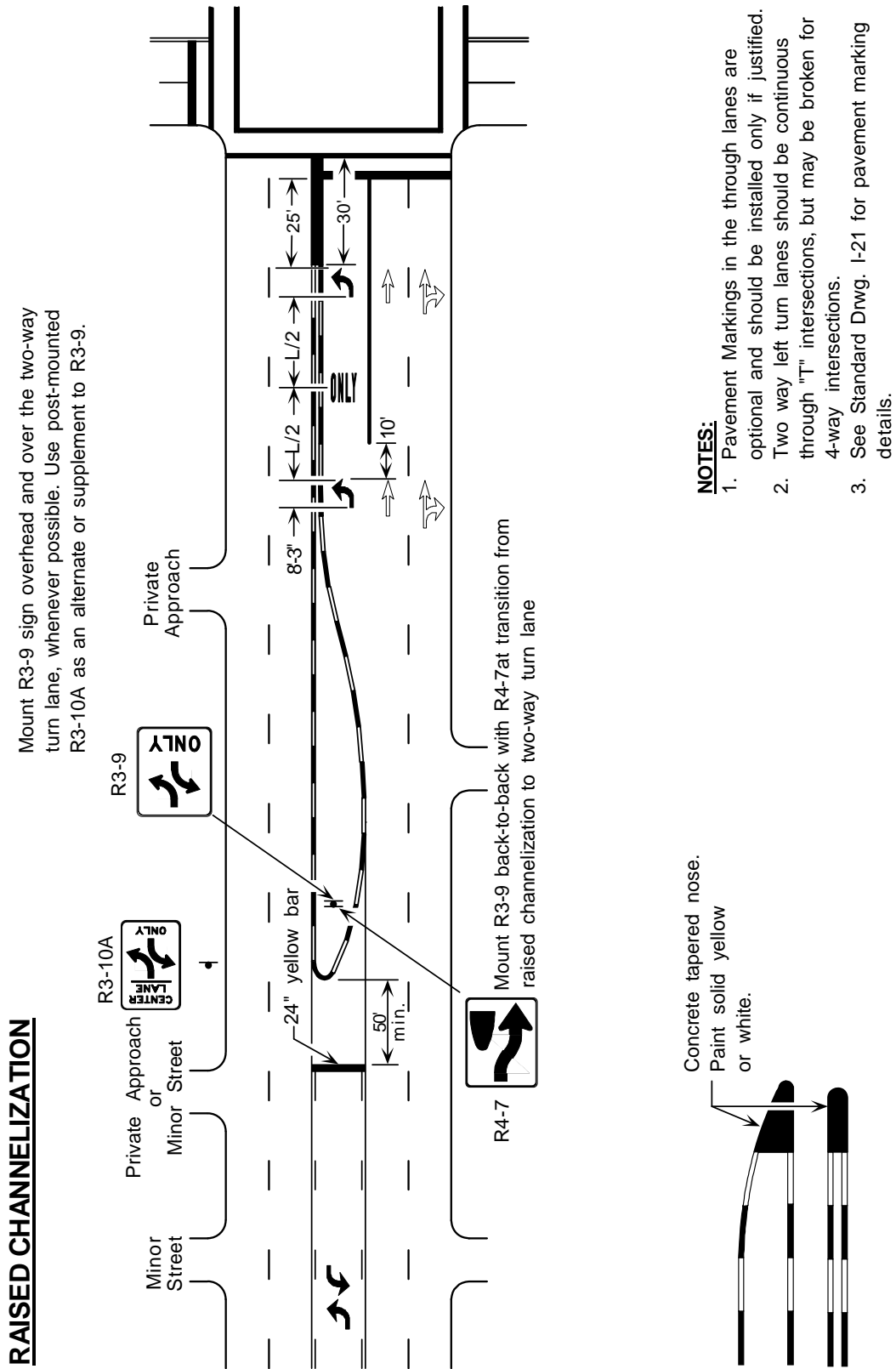
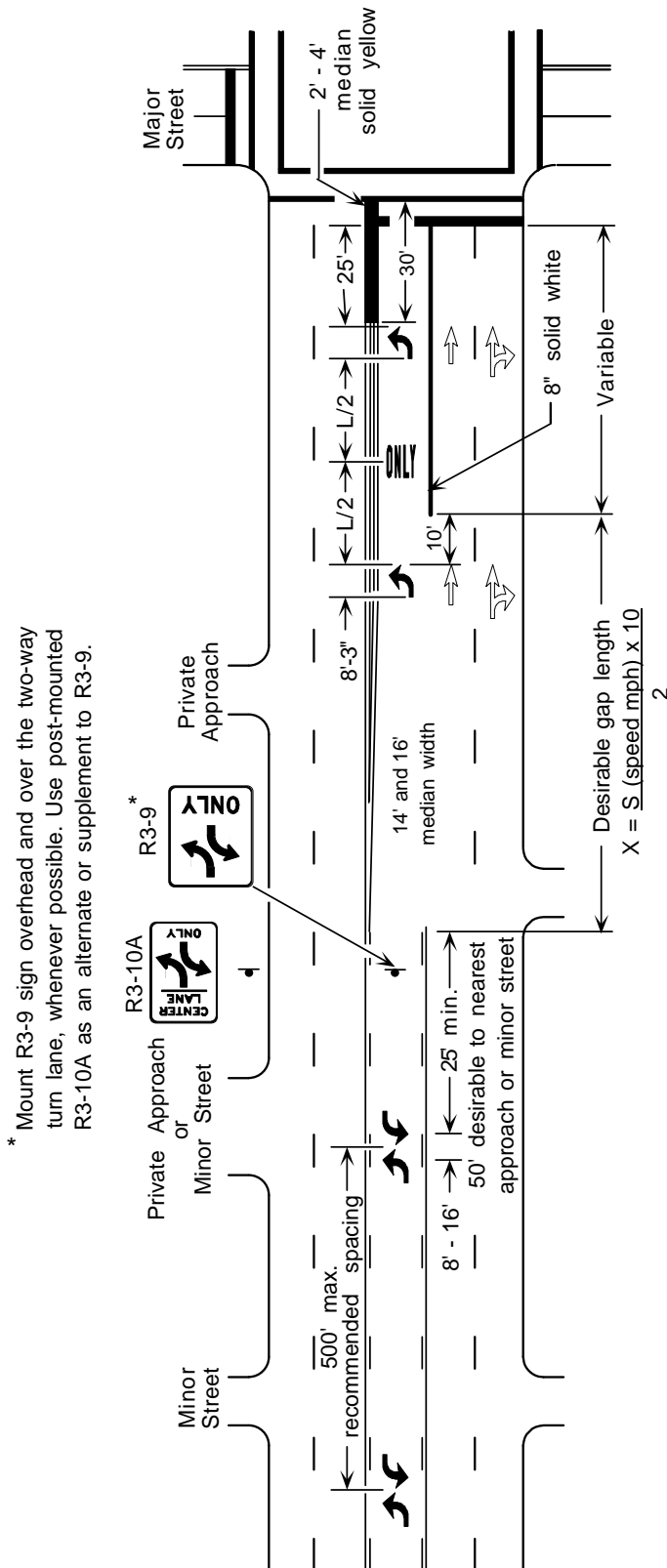


Figure 202.05-02A Painted Pavement Markings At High Volume Signalized Intersections w/ 2'-4' Painted Median



* Mount R3-9 sign overhead and over the two-way turn lane, whenever possible. Use post-mounted R3-10A as an alternate or supplement to R3-9.

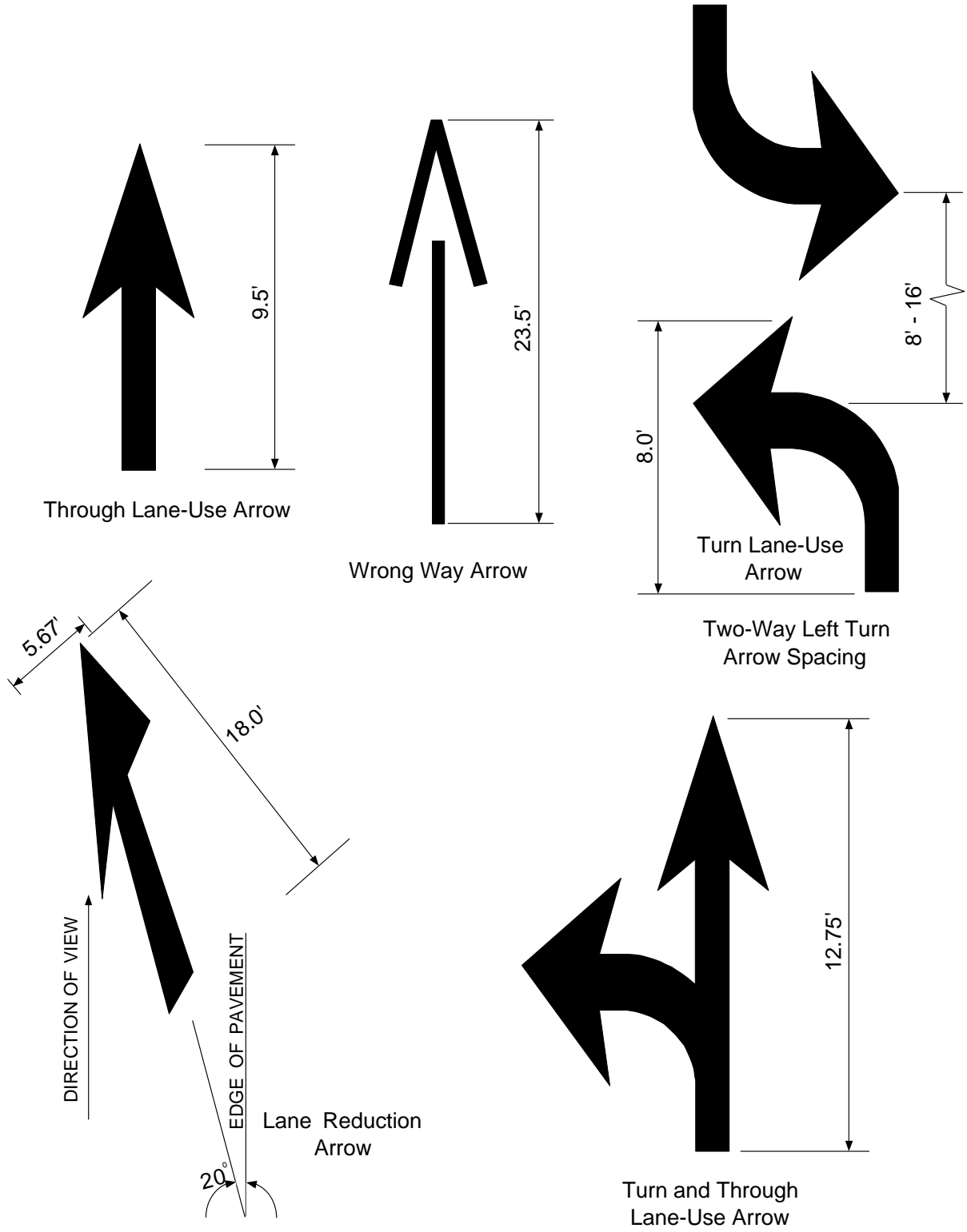
NOTES:

1. Pavement Markings in the through lanes are optional and should be installed only if justified.
2. Two way left turn lanes should be continuous through "T" intersections, but may be broken for 4-way intersections.
3. Elimination of double yellow reverse curve may be used at the end of two-way left turn lanes at high volume signalized intersections.
4. See Standard Drwg. I-21 for pavement marking details.

202.06 Lane-Use Control Arrows. Lane-use control arrow pavement markings may be used at an intersection to supplement lane-use control signs. The arrows may be used to convey either guidance or mandatory turns. Where there is a mandatory turn, such as the right lane turning right, the pavement arrow shall be accompanied by standard signs for the mandatory turn and a pavement word marking “ONLY”. If pavement arrows indicate two directions of movement, i.e., straight and right or straight and left, the signs and “ONLY” message are not needed. A channelized left-turn lane, as illustrated in [Figure 202.05-01](#) and [202.05-02](#), is a mandatory left turn, but it does not require an installed mandatory sign and the “ONLY” pavement legend is not needed since the channelized left-turn lane is designed to prevent motorist entrapment. Where normally through lanes are restricted to a turn maneuver with a lane control sign, then pavement turn arrows with the “ONLY” legend should be used. A special right-turn lane that is obvious for that purpose may use right-turn arrows without the “ONLY” message.

Additional lane-use control arrow markings may also be placed at a sufficient distance in advance of the intersection or preceding a taper at the end of a passing lane. This allows motorists to select the appropriate lane in advance of the intersection. The markings shall be of the same design as those at the intersection. (See [Figure 202.06-01](#))

Figure 202.06-01 Typical Pavement Arrow Markings



202.07 Pavement Word Markings (Warning). Pavement word markings (warning) may be used at a location that provides safe stopping sight distance for the motorists. These markings are supplemental to standard warning signs for which they apply.

202.08 Raised Channelization Markings. Channelization curbs and curbs forming traffic islands may be painted a solid retroreflectorized color. Their color shall be yellow or white, depending on the direction(s) of travel they separate ([MUTCD 3B](#)). Lane markings should taper into the islands and not be used parallel to painted curbs or islands except for transitions (see [Figure 202.05-01A](#)).

Rigid raised pavement markers to delineate the left edge of an adjacent travel lane on channelization curbs may replace paint where conditions exist that make painting the curb impractical. Rigid raised pavement markers shall be approved for use and placed at a recommended spacing of $n/4$, where “n” is the skip cycle dimension for the roadway adjacent to the raised channelization curb.

202.09 Painted Channelization Markings. [Standard Drawing I-21-A](#) illustrates typical painted channelization for various widths of medians. The channelization should first be laid out with cones or other markers and test driven prior to the permanent installation of the markings. Normal width dotted extension of right hand lane edge lines are optional on all turn lanes for when used in acceleration/deceleration lane tapers. If used, the markings shall be applied in a 3ft. stripe-9ft. gap pattern.

Diagonal or chevron markings should NOT be placed as a standard practice because of the questionable benefits and high exposure of paint crews to traffic. Exceptions should be limited to those locations where the additional emphasis is clearly needed and then only for those widths of 10 feet or more. Painted areas which restrict usage of a particular lane may be used but should follow design guidelines in the MUTCD. An example would be the restriction of one lane of a dual left turn lane until sometime in the future when traffic volumes warranted opening the second lane.

The following figures are meant to be used as a guide, but by no means do they address all pavement marking scenarios that may be encountered on the State Highway System. The District Traffic Engineer should be consulted when questions arise about configurations that require modification to the following figures.

See [Figure 202.09-01, Left Turn Lane – Full Offset and Acceleration Lane](#), for the Idaho standard treatment of left-turn bays with full-offset when a fourth lane is used as an acceleration lane away from an intersection. This will require that the left-turn bay not be centered on the roadway centerline, but instead have its left edge aligned with the roadway centerline. The acceleration lane leading away from the intersection is eventually dropped which creates a tapered roadway section as shown in the figure. Allowances are made for both signalized and unsignalized intersections.

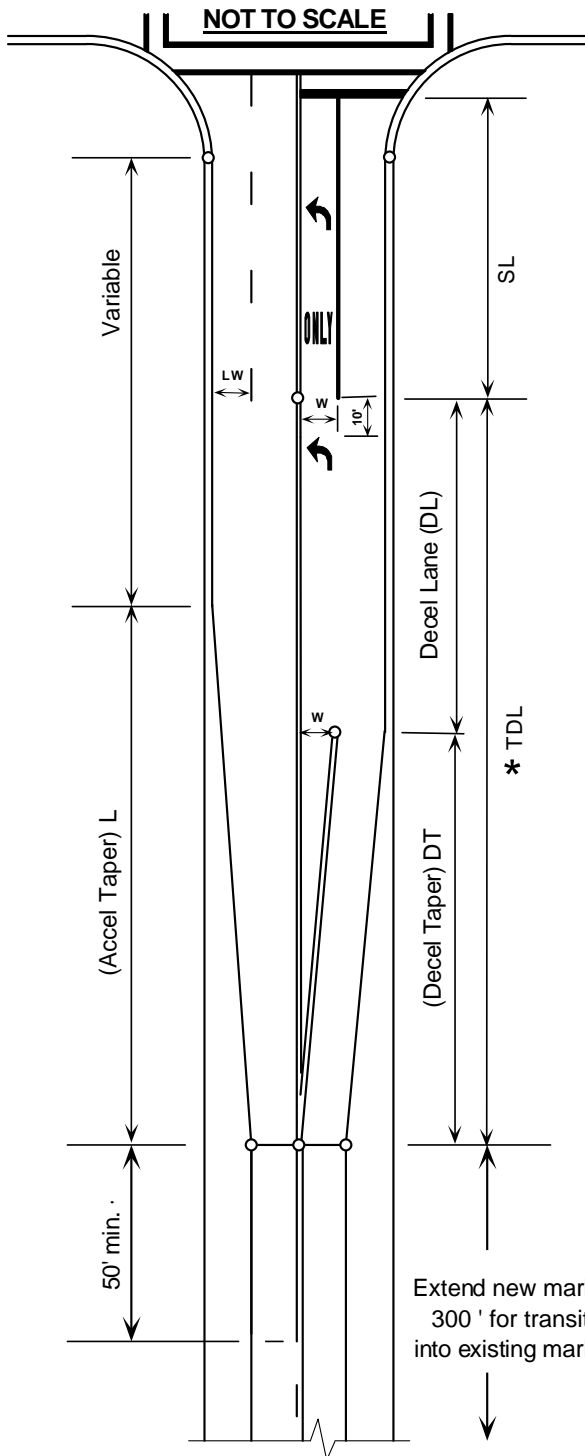
See [Figure 202.09-02, Left Turn Lane – Full Offset](#), for the Idaho standard treatment of left-turn bays with full-offset from centerline. This will require that the left-turn bay not be centered on the roadway centerline, but instead have its left edge aligned with the roadway centerline. Allowances are made for both signalized and unsignalized intersections.

See [Figure 202.09-03, Left Turn Lane – Split Offset](#), for the Idaho standard treatment of left-turn bays when the turn lane is centered on the roadway. This will require split-offsets to both sides of centerline. The figure may be varied depending on the offset to each side of the roadway centerline. Allowances are made for both signalized and unsignalized intersections.

See [Figure 202.09-04, Dual Left Turn Lane](#), for the Idaho standard treatment of dual left-turn bays when the turn lanes are centered on a painted left turn median. The offsets will vary from centerline depending on the lane usage and lane widths which will require the figure to be varied. Pavement markings that restrict the use of a left turn bay will be required when the roadway is built to accommodate dual left turns but only one left turn lane is placed in service, waiting for a future date to activate the second left turn lane. If this scenario is enacted the most extreme left turn lane is to be the one placed in service first. The second left turn lane should be painted with solid yellow 8” diagonal stripes which start at the separation between the two left turn lanes and angle forward with the direction of travel, similar to those used in a median island. Allowances are made for signalized intersections ONLY. Tapers and lane widths will depend on lane configuration leading into the signalized intersection and the available right of way widths. Adjustments to the final design may be required by the Traffic Engineer.

See [Figure 202.09-05, Right Turn Lane](#), for the Idaho standard treatment of right-turn bays. Allowances are made for both signalized and unsignalized intersections. Use of the No-passing Barrier shall be determined by the Traffic Engineer.

Figure 202.09-01 Left Turn Lane – Full Offset and Acceleration Lane



STORAGE LENGTH

UNSIGNALIZED

$$SL = \frac{5V}{6}, 50' \text{ min.}$$

SIGNALIZED

$$SL = \frac{50V}{N}, 100' \text{ min.}$$

- SL = Storage length in feet
- V = Estimated left-turn volume during design peak hour in vehicles per hour
- N = Number of signal cycles per hour in design peak hour

- PS = Posted speed in MPH
- W = Lane Offset in Feet
- LW = Lane Width
- L = Accel Taper Length in Feet
- DT = Decel Taper Length in Feet
- TR = Decel Taper Rate (8:1 min to 15:1 Max)
- TDL = Total Decel Length in Feet

ACCEL TAPER LENGTH (L)

$$L = PS \times LW$$

DECAL TAPER LENGTH (DT)

- Greater than or equal to 45mph TR x W
- Less than or equal to 40mph $\frac{\text{Single Lane} = 100' \text{ min.}}{\text{Dual Lane} = 150' \text{ min.}}$

DECAL LANE LENGTH (DL)

$$DL = \frac{PS \times 10}{2}$$

***TOTAL DECAL LENGTH (DT + DL)**

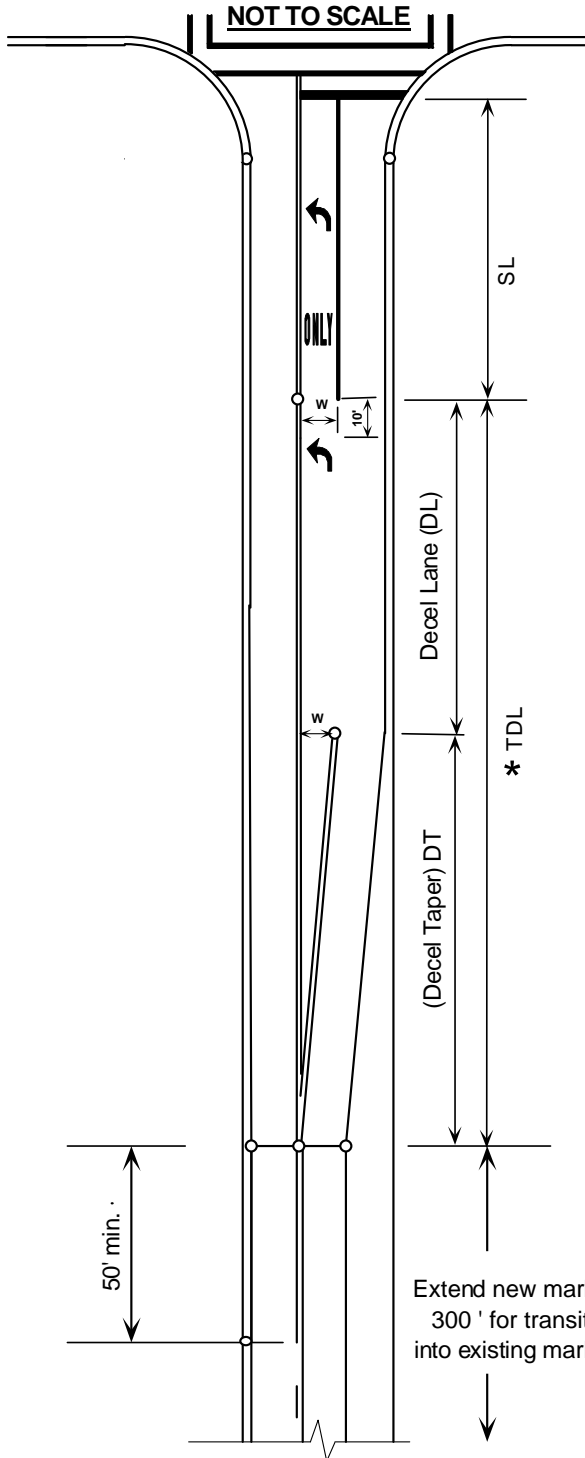
The following lengths are desirable to achieve a comfortable deceleration.

Speed	Length
30mph	170ft
40mph	275ft
45mph	340ft
50mph	410ft
55mph	485ft

Use Speed in chart 10mph less than actual Posted Speed to compare calculated length with Total Decal Length needed. This assumes a 10mph deceleration in the Through Lane prior to entering the Decal Lane.

Extend new markings 300' for transition into existing markings

Figure 202.09-02 Left Turn Lane – Full Offset



STORAGE LENGTH

UNSIGNALIZED

$$SL = \frac{5V}{6}, 50' \text{ min.}$$

SIGNALIZED

$$SL = \frac{50V}{N}, 100' \text{ min.}$$

- SL = Storage length in feet
- V = Estimated left-turn volume during design peak hour in vehicles per hour
- N = Number of signal cycles per hour in design peak hour

- PS = Posted speed in MPH
- W = Lane Offset in Feet
- LW = Lane Width
- L = Accel Taper Length in Feet
- DT = Decel Taper Length in Feet
- TR = Decel Taper Rate (8:1 min to 15:1 Max)
- TDL = Total Decel Length in Feet

ACCEL TAPER LENGTH (L)

$$L = PS \times LW$$

DECAL TAPER LENGTH (DT)

- Greater than or equal to 45mph $TR \times W$
- Less than or equal to 40mph $\text{Single Lane} = 100' \text{ min.}$
 $\text{Dual Lane} = 150' \text{ min.}$

DECAL LANE LENGTH (DL)

$$DL = \frac{PS \times 10}{2}$$

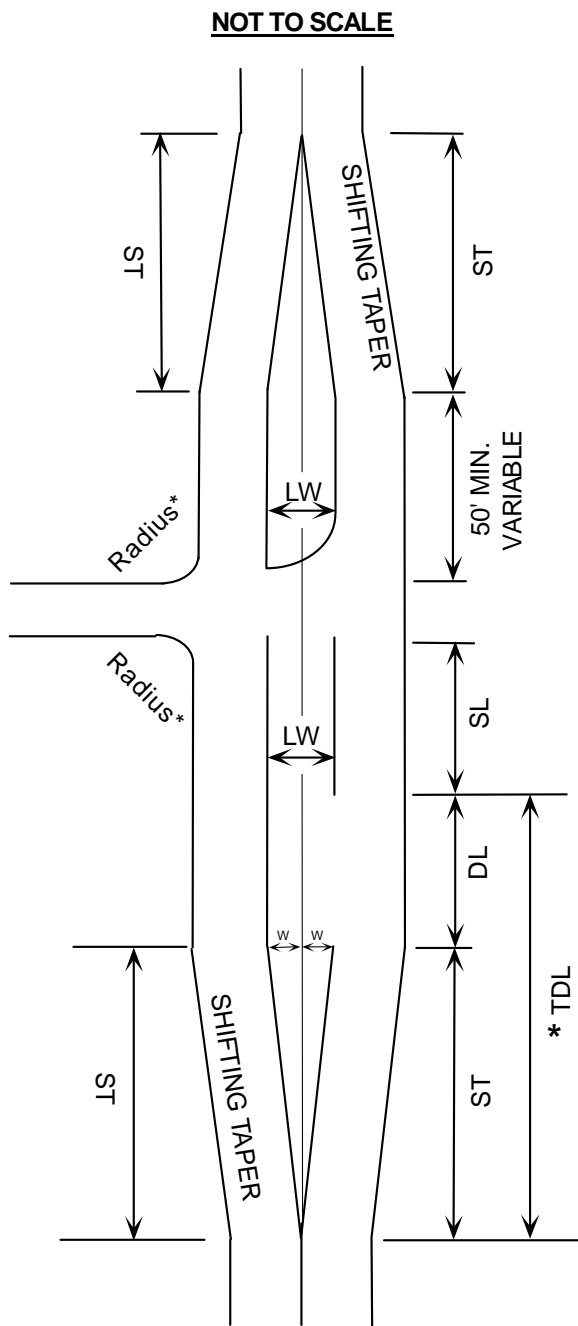
***TOTAL DECAL LENGTH (DT + DL)**

The following lengths are desirable to achieve a comfortable deceleration.

Speed	Length
30mph	170ft
40mph	275ft
45mph	340ft
50mph	410ft
55mph	485ft

Use Speed in chart 10mph less than actual Posted Speed to compare calculated length with Total Decal Length needed. This assumes a 10mph deceleration in the Through Lane prior to entering the Decal Lane.

Figure 202.09-03 Left Turn Lane – Split Offset



NOTE:

This typical plan may have to be modified to meet site specific requirements for safety and operation.

- * Minimum 20 ft. radius required for car traffic.
- * Minimum 40 ft. radius required for truck traffic.

STORAGE LENGTH

UNSIGNALIZED

$$SL = \frac{5V}{6}, 50' \text{ min.}$$

SIGNALIZED

$$SL = \frac{50V}{N}, 100' \text{ min.}$$

- SL = Storage length in feet
- V = Estimated left-turn volume during design peak hour in vehicles per hour
- N = Number of signal cycles per hour in design peak hour

- PS = Posted speed in MPH
- W = Lane Offset in Feet
- LW = Lane Width
- ST = Shifting Taper Length in Feet
- TR = Decel Taper Rate (8:1 min to 15:1 Max)
- TDL = Total Decel Length in Feet

SHIFTING TAPER LENGTH

$$ST = \frac{PS \times W}{2}$$

DECEL TAPER LENGTH (DT)

- Greater than or equal to 45mph $TR \times W$
- Less than or equal to 40mph $\frac{\text{Single Lane} = 100' \text{ min.}}{\text{Dual Lane} = 150' \text{ min.}}$

DECEL LANE LENGTH (DL)

$$DL = \frac{PS \times 10}{2}$$

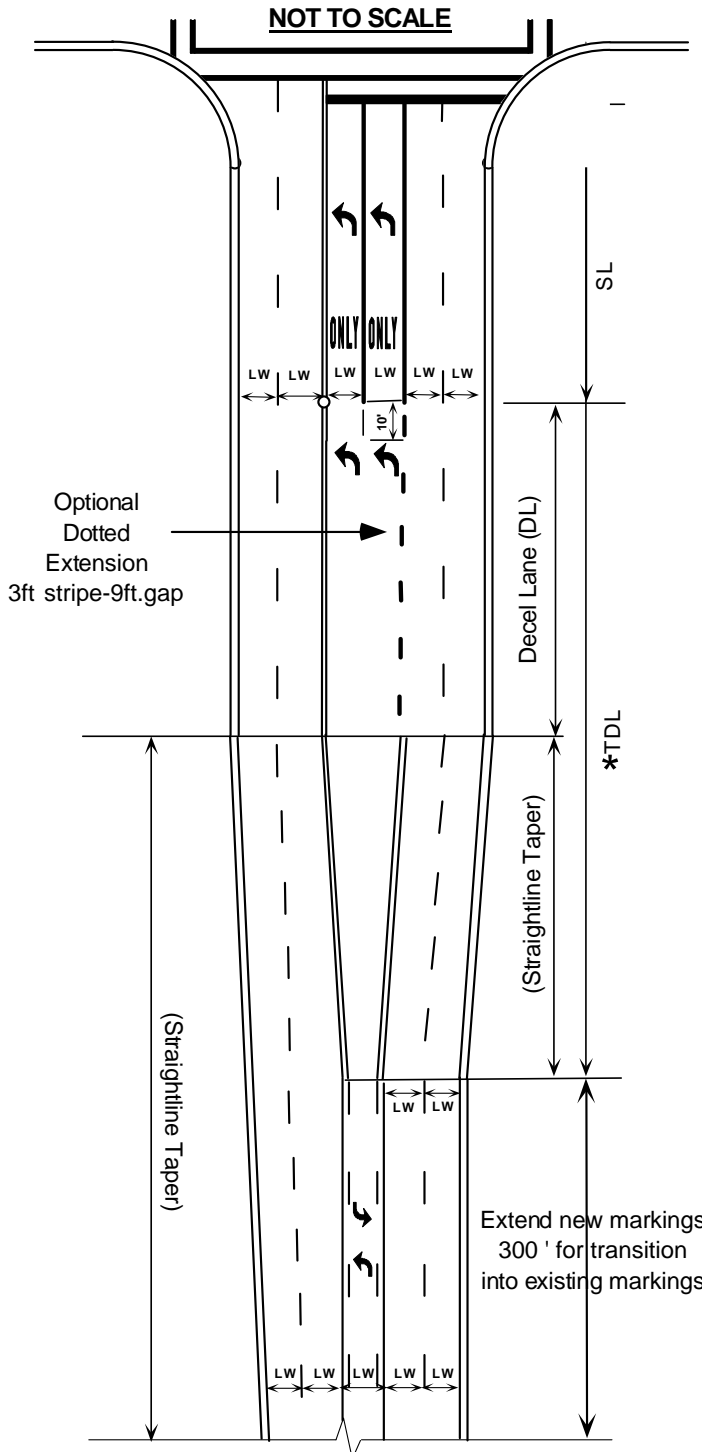
*** TOTAL DECEL LENGTH (ST + DL)**

The following lengths are desirable to achieve a comfortable deceleration.

Speed	Length
30mph	170ft
40mph	275ft
45mph	340ft
50mph	410ft
55mph	485ft

Use Speed in chart 10mph less than actual Posted Speed to compare calculated length with Total Decel Length needed. This assumes a 10mph deceleration in the Through Lane prior to entering the Decel Lane.

Figure 202.09-04 Dual Left Turn Lane



STORAGE LENGTH

UNSIGNALIZED

$$SL = \frac{5V}{6}, 50' \text{ min.}$$

SIGNALIZED

$$SL = \frac{50V}{N}, 100' \text{ min.}$$

- SL = Storage length in feet
- V = Estimated left-turn volume during design peak hour in vehicles per hour
- N = Number of signal cycles per hour in design peak hour

- PS = Posted speed in MPH
- W = Lane Offset in Feet
- LW = Lane Width
- L = Accel Taper Length in Feet
- DT = Decel Taper Length in Feet
- TR = Decel Taper Rate (8:1 min to 15:1 Max)
- TDL = Total Decel Length in Feet

ACCEL TAPER LENGTH (L)

$$L = PS \times LW$$

DECAL TAPER LENGTH (DT)

- Greater than or equal to 45mph $TR \times W$
- Less than or equal to 40mph $\frac{\text{Single Lane} = 100' \text{ min.}}{\text{Dual Lane} = 150' \text{ min.}}$

DECAL LANE LENGTH (DL)

$$DL = \frac{PS \times 10}{2}$$

***TOTAL DECAL LENGTH (DT + DL)**

The following lengths are desirable to achieve a comfortable deceleration.

Speed	Length
30mph	170ft
40mph	275ft
45mph	340ft
50mph	410ft
55mph	485ft

Use Speed in chart 10mph less than actual Posted Speed to compare calculated length with Total Decal Length needed. This assumes a 10mph deceleration in the Through Lane prior to entering the Decal Lane.

Tapers and Lane Widths may be adjusted by the Traffic Engineer based on field verification of existing lane configuration and available RW width.

Figure 202.09-05 Right Turn Lane

DECEL LANE LENGTH (DL)

If the intersection is non-signalized use the table below to determine decel lane length (DL).

If the intersection is signalized the dimension (DL) is required to be a minimum of 100ft. Decel length exclusive of taper should then use the estimated right-turn volume during the peak hour in vehicles per hour to determine required length.

***TOTAL DECEL LENGTH (DT + DL)**

The following lengths are desirable to achieve a comfortable deceleration.

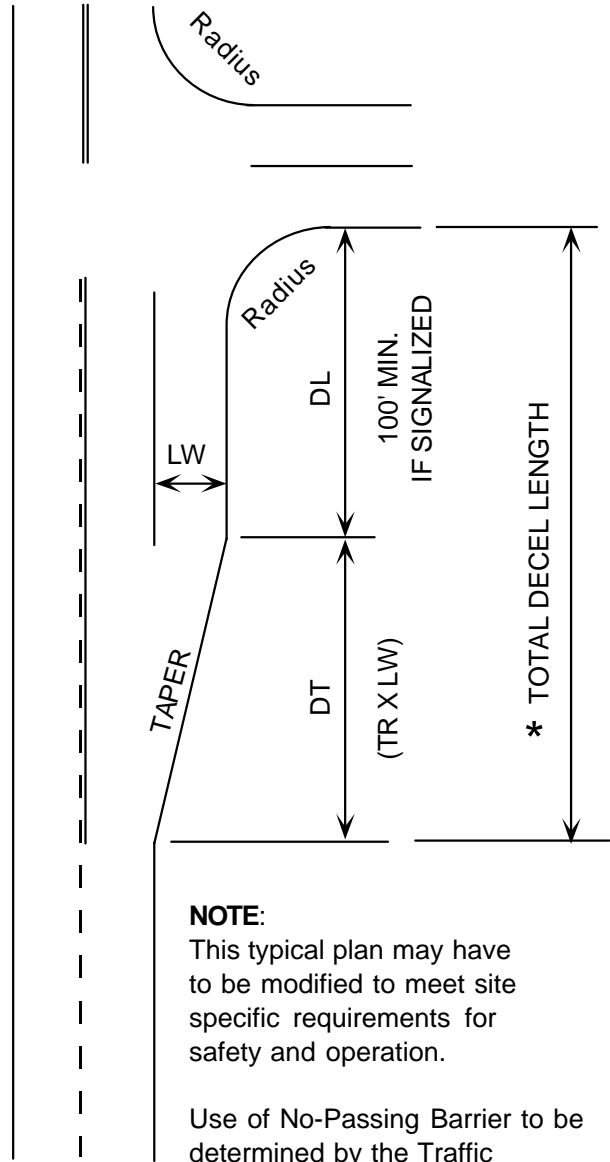
Speed	Length
30mph	170ft
40mph	275ft
45mph	340ft
50mph	410ft
55mph	485ft

Use Speed in chart 10mph less than actual Posted Speed to determine Total Decel Length needed. This assumes a 10mph deceleration in the Through Lane prior to entering the Decel Lane.

RADIUS

Minimum 20' radius required for car traffic.
Minimum 40' radius required for truck traffic.

- DL = Decel Lane Length in feet
- DT = Decel Taper Length in feet (TR X LW)
- PS = Posted Speed or 85th percentile
- TR = Taper Rate (8:1 min to 15:1 max)
- LW = Lane Width in feet



NOT TO SCALE

202.10 Standard Entrance And Exit Ramp Markings. See [Standard Drawings I-22-A](#) and [I-22-B](#).

When it has been determined by the Department that cattle guards are needed on an interstate ramp, pavement markings shall be placed in accordance with [Standard Drawing F-1-C](#), Painted Cattle Guard.

202.11 Passing Lane And Uphill Climbing Lane Markings. [Figure 202.11-01](#) illustrates typical markings and typical signing when no passing is allowed for opposing traffic. This should be considered whenever Average Daily Traffic (AADT) volumes exceed 3,000 vehicles. [Figure 202.11-02](#) illustrates typical pavement markings and typical signing when passing is allowed for opposing traffic. Whenever passing is allowed the R4-15 “Yield Center Lane To Opposing Traffic” sign is required. See [Figure 202.11-03](#) and [Section 163.04](#) for signing details.

Figure 202.11-01 Passing Lane Signing And Pavement Markings

PASSING LANE & UPHILL CLIMBING LANE
SIGNING AND PAVEMENT MARKINGS

NO PASSING ALLOWED FOR OPPOSING TRAFFIC

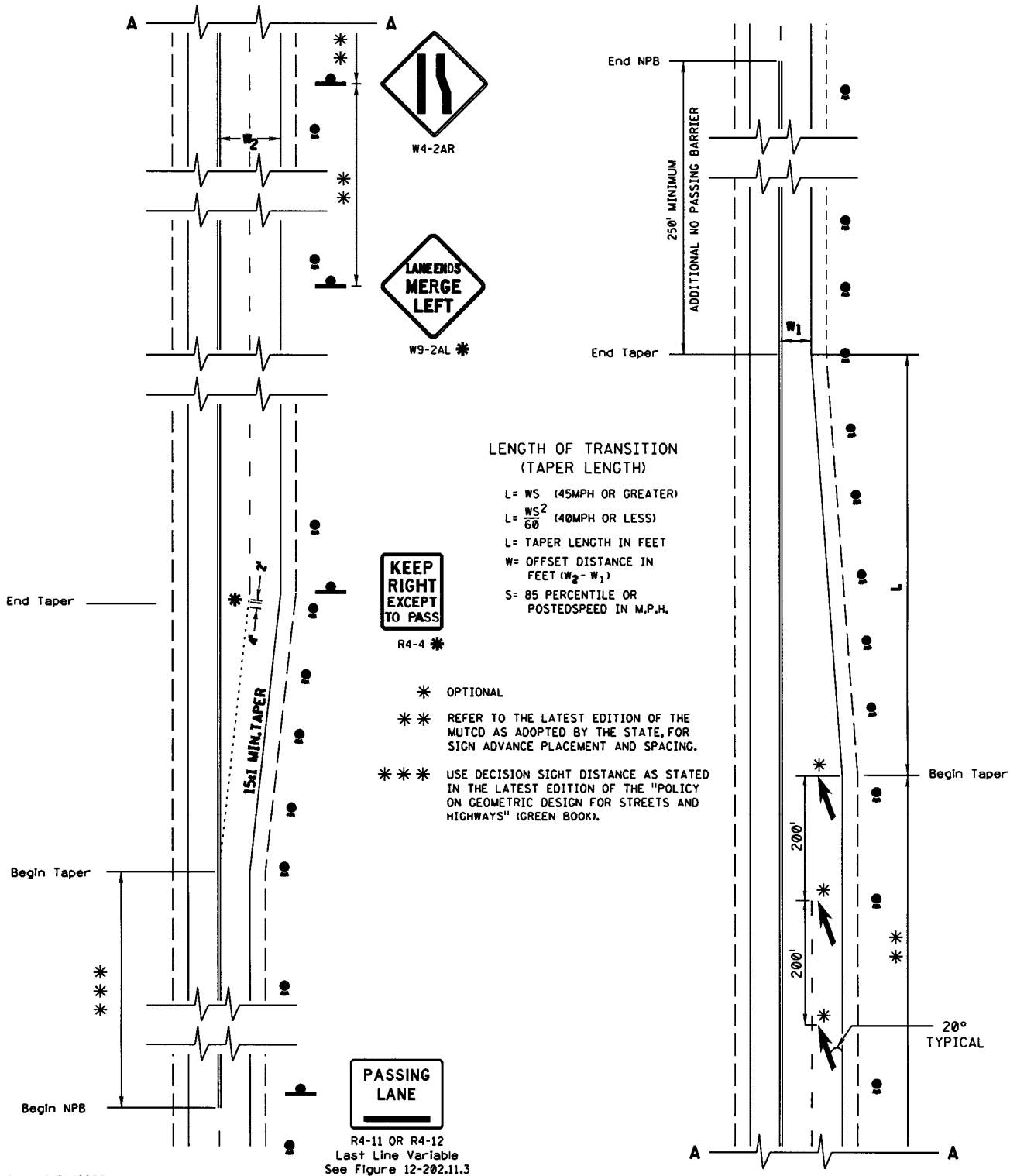
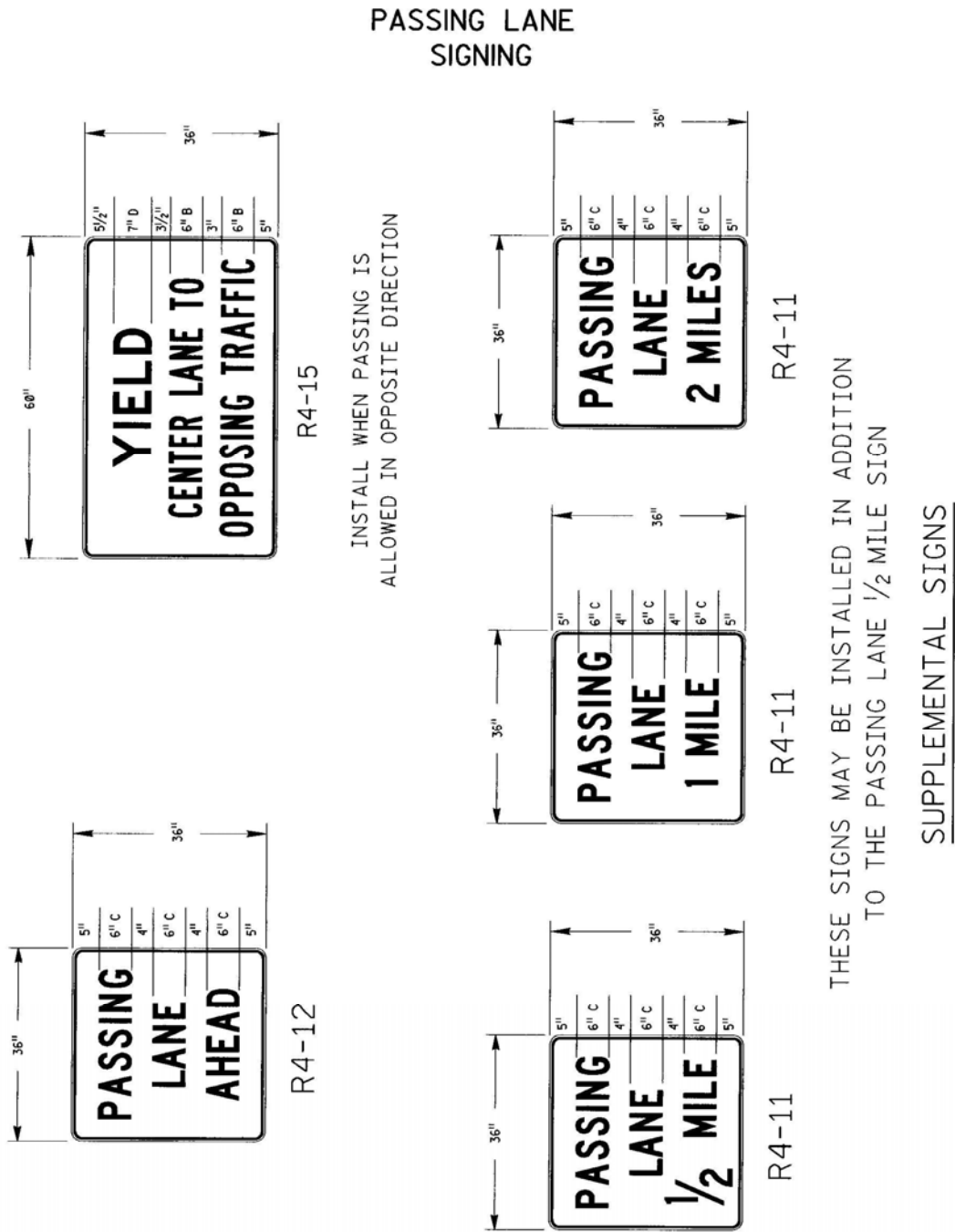
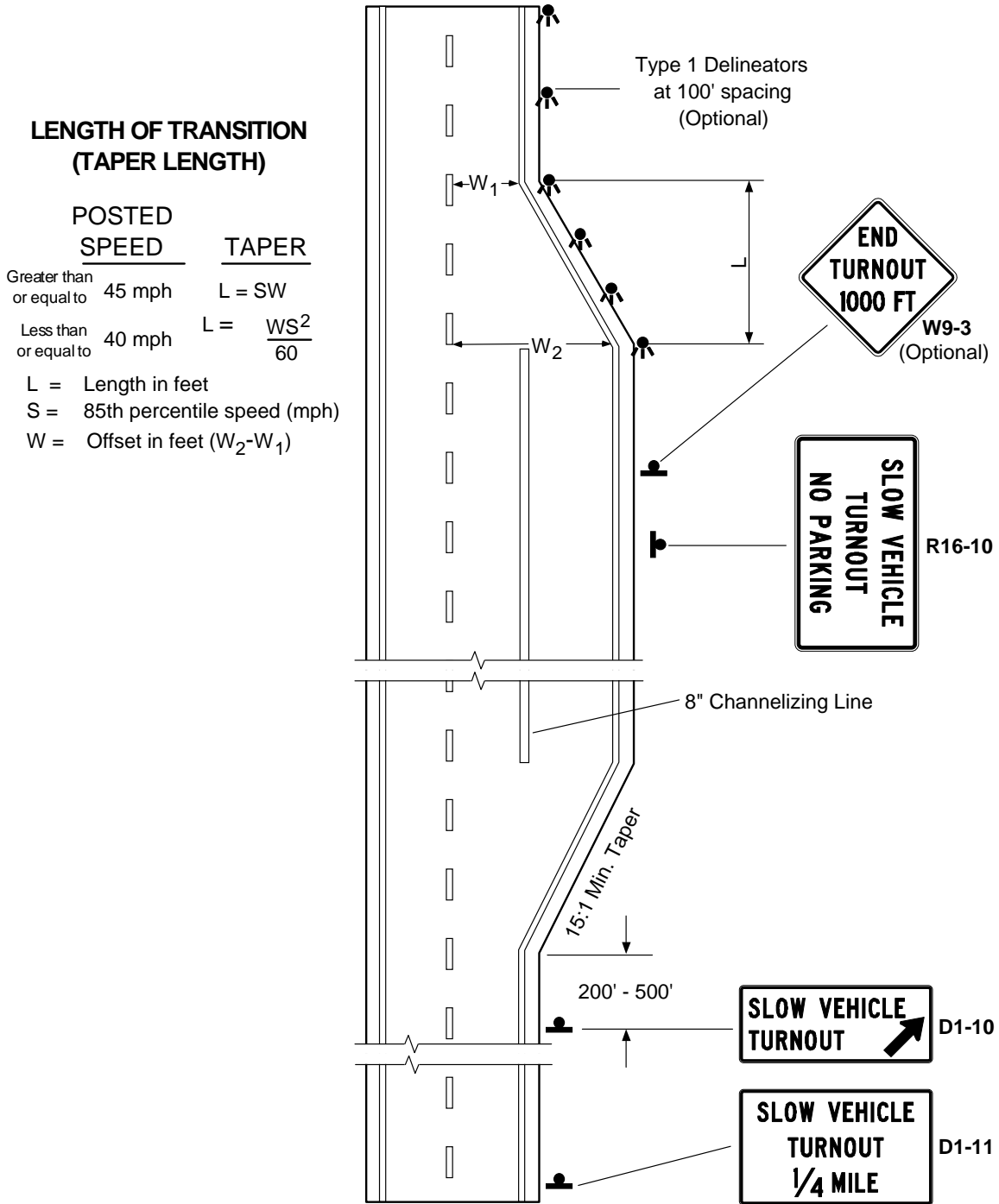


Figure 202.11-03 Passing Lane Signing



202.12 Slow Moving Vehicle Turnouts. Mark vehicle turnouts with a 8-inch solid white line between the through lane and the turnout. Do not extend the line through the entry and exit areas. An edge line may be used within the turnout area to help delineate the edge of the widened section. See [Figure 202.12-01](#) for typical marking.

Figure 202.12-01 Slow Moving Vehicle Turnout Signing And Pavement Markings

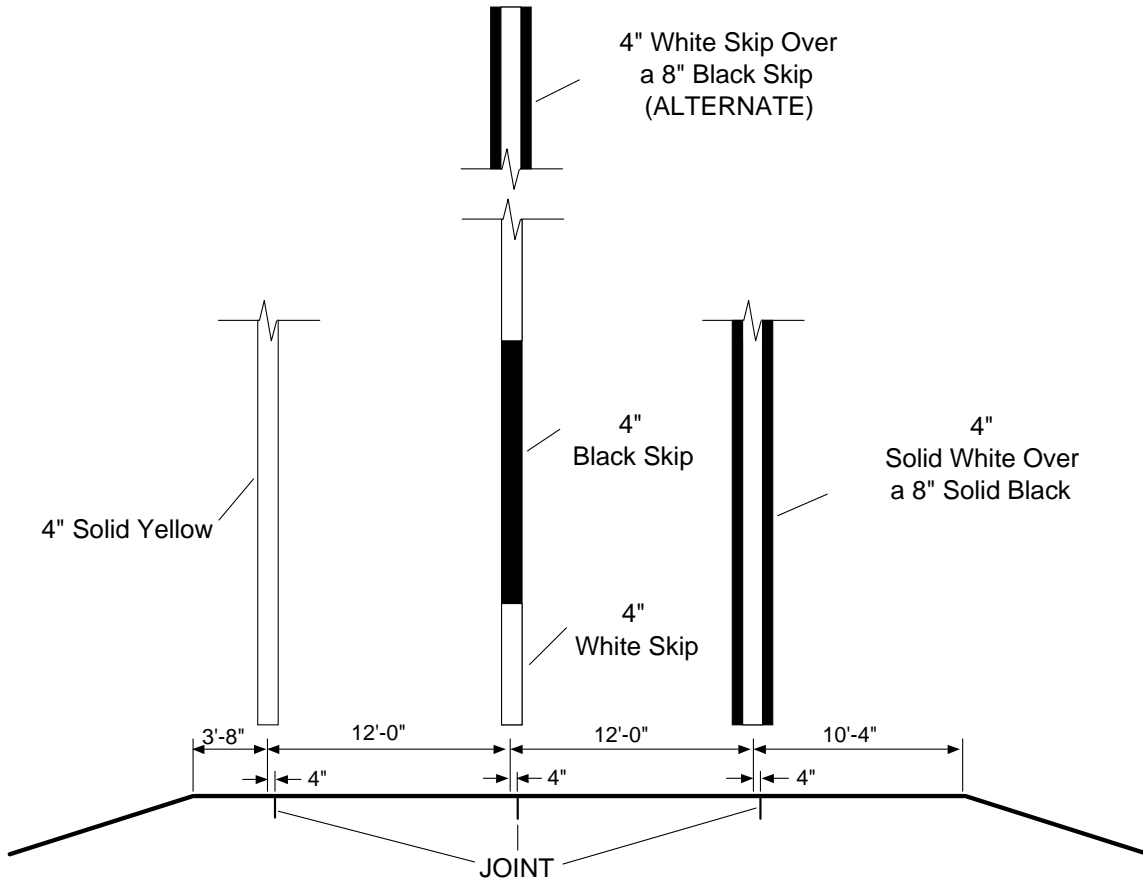


202.13 Bicycle Lanes. Mark bicycle lanes with a 8-inch solid white line to separate the cyclists from an adjacent traffic through lane. Use a 4-inch solid white line to separate a bicycle lane from a curbed parking lane, where parking stalls are painted or where all-day parking is prevalent.

202.14 Stop Bars. Locate stop bars at signalized intersections a minimum of 40 feet from a standard signal head. For programmed signal heads, locate the stop bars a minimum of 50 feet from the signal head. Stop bar location relative to a marked crosswalk is shown in [Figure 202.04-01](#).

202.15 Pavement Markings On Concrete Surfaces. Concrete roadways, because of the whiteness of the surface, may require the use of a black base line with white markings to outline the standard markings as illustrated in [Figure 202.15-01](#). DO NOT place the stripe on the pavement joint. Offset the lane and edge line stripes left of the joint. Refer to [Section 202.00](#) for further information.

Figure 202.15-01 Typical Pavement Markings On Concrete Surface



Pavement markings may be done as shown above if the concrete surface is too light in color.

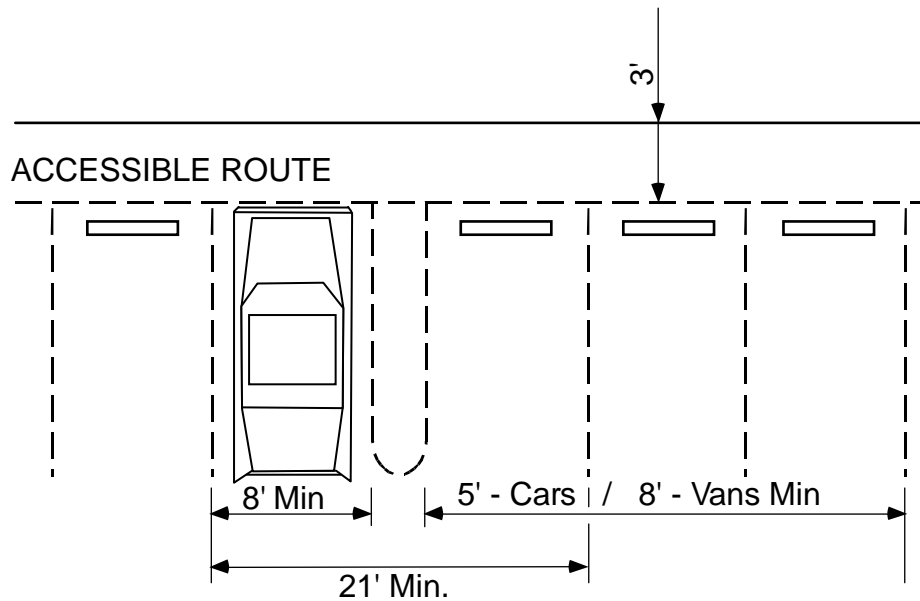
1. A 4" black skip pavement marking will be painted between the 4" white skip pavement marking, or as an alternate, the 4" skip pavement marking can be painted over a 8" black pavement marking.
2. A 8" black shoulder pavement marking will be painted and a 4" white pavement marking will be painted over the black.

202.16 Disabled Parking. [Section 49-213 of the Idaho Code](#) covers signing and markings for persons with disabilities. Where disabled parking is allowed on the State highway system, the use of diagonal parking is the preferred method. Placement of parking spaces for the disabled parallel to the travel lanes is discouraged and should be used only when all other alternatives have been exhausted.

Parking spaces should be provided for the disabled in rest areas that have spaces marked.

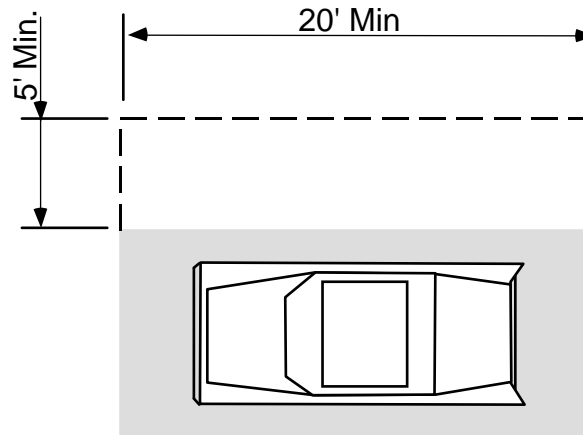
Use the following design criteria as a guide:

- Accessible parking spaces should be on level ground and located closest to the accessible entrance. If sloped pavement or other existing conditions prevent its location closest to the entrance, then the closest level area should be selected.



Dimensions of Parking Spaces

- The access aisle shall be a minimum of 60 inches wide for cars or a minimum of 8 feet wide for vans. The accessible route connected to the access aisle at the front of the parking spaces shall be a minimum of 3 feet.
- Provide one space for each 35 stalls or fraction thereof.



Access Aisle at Passenger Loading Zones

- All parking spaces for the disabled must be installed adjacent to accessible ramps for persons with disabilities to prevent the individual from entering the travel lanes to reach the sidewalk. The minimum access aisle width required at a passenger loading zone is 20 feet.
- Mark all parking spaces for the disabled with OSHA approved blue paint:
 - For parallel parking spaces use blue paint on the curb adjacent to the space; or if the curb is not present, paint a 6-inch minimum bar on the pavement where the curb would be if it existed.
 - For angle parking of 45 to 90 degrees, use the blue paint on the curb in front of the stall; or if curb is not present, paint a 6-inch minimum bar on the pavement where the curb would be if it existed.

In the law there is no mandatory requirement for the disabled symbol on the pavement, but it is felt that the symbol does help reserve the space for the disabled.

Signing shall consist of the R7-11 and R7-13 signs. See [Section 161.08](#).

202.17 Work Zone Pavement Markings. Work zone pavement markings are considered interim pavement markings (such as temporary tape, temporary raised pavement markings, etc.) if they guide traffic for a period less than 14 days. Temporary pavement markings are those that are allowed to remain in place until the earliest date when it is practical and possible to install pavement markings that meet the [MUTCD Part 3](#) standards for permanent pavement markings. Temporary pavement markings should not be in place for more than 14 days unless justified by an engineering study. See [MUTCD Section 6F.72](#) for temporary pavement marking requirements. For additional pavement marking guidelines see [Section 602.00](#), Construction Projects.

Markings in place for a period beyond 14 days shall be either permanent markings or traffic paint markings conforming to the [MUTCD Part 3](#).

The requirements for interim and permanent markings shall be as follows:

202.17.01 Interim Pavement Markings on Federal-Aid Projects

- a. Placement: Install interim markings on same day as surfacing where centerline and lane definition is important.
- b. Length and Cycle: Use a 2-foot line on the same cycle length as permanent markings. A 2 foot stripe placed at half cycle spacing may be used on roadways with severe curvature.
- c. Barrier Lines: No-passing zones may be identified with signs at the beginning and end of the no-passing zones in lieu of markings. However, no-passing barrier lines shall be marked within 14 days on low volume roads and within 3 days on high volume roads.
- d. Edge Lines - Edge lines are not required unless specified in the project plans. Raised pavement markers used for edge lines shall be spaced at $N/8$ where “N” is the cycle length for broken centerline markings.
- e. Raised Markers: Rigid raised pavement markers may be used with three retroreflective markers spaced at 2 foot intervals representing a 4 foot short-term line. Two retroreflective markers at 2 feet intervals will be used for a 2 foot line. Continuous retroreflective markers spaced at one-eighth of cycle length may be substituted for solid lines. Cycle lengths are normally 50 feet in speed zones 40 m.p.h. or greater and 25 feet in speed zones 35 m.p.h. or less.
- f. Seal Coats: Flexible plastic tabs may be used on seal coats for vehicle guidance on the roadway. Flexible raised pavement markers may be installed at the same cycle length as permanent marking locations if the roadway is to be permanently painted prior to being opened to traffic. Flexible raised pavement markings shall be placed in accordance with the latest edition of the [MUTCD](#), as adopted by the State, when the roadway is to be opened to use by traffic prior to placement of permanent pavement markings. Additional flexible tabs should be used to mark the beginning and end of no-passing zones. Half cycle lengths shall be used on roadways with severe curvature. Markers within a turn bay or painted median shall be placed at no more than 26.25 feet intervals including all angle points. However, any vehicle passing through the seal coated section shall be prohibited from passing by signing until brooming is completed and permanent pavement markings are installed.

202.17.02 Permanent Pavement Markings on Federal-Aid Projects

- a. Placement: Permanent markings shall be in place on new alignment before the new alignment is opened to traffic. Permanent markings shall be installed on permanent pavement surfaces within 14 days of paving completion.

- b. **Work Suspension:** Permanent pavement markings shall be installed on temporary pavements and interim pavement lifts open to traffic where the project work is suspended for the winter or other extended time periods of 14 or more days' duration.
- c. **Barrier Lines:** Centerlines on all two-lane, two-way operations on one roadway of a normally divided highway shall meet the requirements of [Section 602.00](#) – Construction Projects.

202.17.03 State-Funded Projects and Maintenance Work

The State of Idaho will comply with all federal pavement marking requirements identified above.

SECTION 203.00 – MATERIALS

203.01 Paint Markings. Currently retroreflectorized paint is the most economical method to provide pavement markings and should be used on all roadways with low and moderate traffic volumes.

Most roadways require retracing of the painted markings at least once a year. Roadways with very low volumes may be able to go two years. Retroreflectivity normally becomes very dull after two years on low volume roads although daytime line visibility may be adequate.

See [Figure 203.03-01](#) for estimated square feet for each type of pavement legend marking arrows or words that is to be used for estimating quantities on contract construction projects.

203.02 Extruded Or Hot Sprayed Thermoplastic Markings. Extruded or hot sprayed applied thermoplastic markings may be justified for roadways with very high traffic volumes. High initial installation costs preclude its use on low volume roadways. In areas of considerable snowfall, the abrasive action of sanding and extensive snowplowing will reduce the useful life of the thermoplastic considerably and under these conditions painted traffic lines should be considered.

Extruded or hot applied thermoplastic when applied in mild climate regions and under normal conditions should give up to five years of useful service life.

When thermoplastic markings are used on concrete surfaces they should not be placed on the expansion joints but be installed adjacent to the joints.


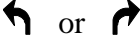
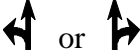



203.03 Preformed Thermoplastic Markings. Preformed thermoplastic markings have the same estimated service life as hot applied thermoplastic under similar conditions. Preformed thermoplastic is normally used in areas of high traffic volumes that require relatively small quantities of thermoplastic markings.

Preformed thermoplastic can be installed by either the inlaid or overlaid method. Use the inlaid method in new roadway surfaces where it can be easily rolled with the final roller embedding it flush with the finished roadway surface. Use the overlaid method on existing roadway surfaces. After rolling, it will protrude slightly above the finished roadway surface.

When preformed thermoplastic is used on concrete surfaces, it should not be placed on the expansion joints but may be installed adjacent to the joints.

See [Figure 203.03-01](#) for estimated square feet for each type of pavement legend marking arrows or words that is to be used for estimating quantities on contract construction projects.

Figure 203.03-01 Pavement Marking Dimensions

Legend	Size in Feet (width x height)	Approximated ft ²
	3'-8" x 9'-6"	12.92
	6'-7" x 8'-0"	14.60
	8'-0" x 12'-9"	28.23
	5'-6" x 18'-6"	39.50
	6'-0" x 9'-0"	20.42
 ONLY	8'-0"	22.20
SCHOOL (1 Lane)	8'-0"	32.63
SCHOOL (2 Lanes)	10'-0"	80.92
STOP	8'-0"	21.31
STOP AHEAD	8'-0"	51.95
SIGNAL AHEAD	8'-0"	61.94
SCHOOL XING	8'-0"	54.39
PED XING	8'-0"	40.63
HOV LANES ONLY	13'-0"	14.56
R X R	8'-0" x 20'-0", 6'-0" R	64.58 (Does not include STOP bars)
BIKE	4'-0"	11.10
US	8'-0"	11.32
SH	8'-0"	11.77
I	8'-0"	2.66
0	8'-0"	6.20
1	8'-0"	2.66
2	8'-0"	5.10
3	8'-0"	5.20
4	8'-0"	4.70
5	8'-0"	6.10
6	8'-0"	5.60
7	8'-0"	4.00
8	8'-0"	7.00
9	8'-0"	5.60

203.04 Pavement Marking Removal. Removal of painted pavement markings, plastic pavement marking tape, thermoplastic pavement markings, and raised pavement markings shall be with a method that completely removes old marking material and leaves minimal pavement scars or surface texture differences that could be confused with pavement markings regardless of road conditions or time of day. Painting over existing pavement markings with any obliteration product is an unacceptable method of pavement marking removal. The prerequisite for determining the best method of pavement marking removal is that treatment which has the least negative effect on the roadway surface.

SECTION 204.00 – RIGID RAISED PAVEMENT MARKERS

204.01 General. Rigid Raised pavement markers (RPM's), not to be confused with seal coat tabs, may be used in lieu of or to supplement standard painted or thermoplastic markings. This type of marker provides a greater amount of night wet-weather visibility than any other system. However, they do have a high initial installation cost and maintenance costs. One disadvantage is that studded tires cause severe wear and breakage of both the ceramic and plastic markers. Raised Pavement Markers must be snowplowable if the markers are subjected to snowplowing operations.

Raised pavement markers may consist of ceramic markers, either plain or retroreflectorized, plastic retroreflectorized markers, or retroreflectorized snowplowable markers. Retroreflectorized markers are required if used to substitute for painted markings. See [Figure 204.01-01](#) for typical marker sizes and types.

When raised pavement markers are used on concrete surfaces, they should be installed adjacent to the joints, but markers may be used on any roadway where justified by engineering judgement or by an engineering study.

RPMs are to be used for three general applications:

1. As vehicle positioning guides with other longitudinal markings;
2. As supplemental devices to other markings; and
3. As substitute devices for pavement markings.

RPMs are used to provide increased guidance and enhanced delineation of the roadway and as a general rule, their placement is based on the restrictive nature of the pavement marking line and whether they are being placed in a tangent or curved section and whether the markers are being used to substitute for or supplement painted pavement markings.

The color of raised pavement markers under both daylight and nighttime conditions shall conform to the color of the marking for which they serve as a positioning guide, or for which they supplement or substitute.

The side of a raised pavement marker that is visible to traffic proceeding in the wrong direction may be red and a single blue raised pavement marker may be placed right or left of centerline of a roadway to help emergency personnel locate fire hydrants.

Retroreflective raised pavement markers may be used in the roadway immediately adjacent to curbed approach ends of raised medians and curbs of islands, or on top of such curbs if approved by the District Traffic Engineer. **If used, internally illuminated raised pavement markers must be approved by the District Traffic Engineer and shall be steadily illuminated and not be flashed.**

Non-retroreflective raised pavement markers should not be used alone, without supplemental retroreflective or internally illuminated markers, as a substitute for other types of pavement markings.

Directional configurations should be used to maximize correct information and to minimize confusing information provided to the road user. Directional configurations also should be used to avoid confusion resulting from visibility of markers that do not apply to the road user.

RPM Spacing

An RPM spacing value of N is equal to one skip cycle (one line segment plus one gap). Use the following skip cycles for the State Highway System:

- For posted speeds of 40mph or less the skip cycle shall be 25-foot (8ft. line and 17ft. gap).
- For posted speeds of 45mph or greater the skip cycle shall be 50-foot (12ft. line and 38ft. gap).

For additional emphasis, retroreflective raised pavement markers may be spaced closer than shown when determined by engineering judgment or engineering study.

The use of retroreflective RPMs supplementing longitudinal line markings should comply with the following:

A. Lateral Positioning

1. When supplementing double line markings, pairs of raised pavement markers placed laterally in line with the two lines should be used.
2. When supplementing wide line markings, pairs of raised pavement markers placed on the supplemented line, laterally adjacent to each other should be used.

B. Longitudinal Spacing

1. When supplementing solid line markings, raised pavement markers at a spacing no greater than N should be used, except that when supplementing channelizing lines or edge line markings, a spacing of no greater than $N/2$ should be used.
2. When supplementing broken line markings, a spacing no greater than $3N$ should be used. However, when supplementing broken line markings identifying reversible lanes, a spacing of no greater than N should be used.

3. When supplementing dotted lane line markings, a spacing appropriate for the application should be used.
4. When supplementing longitudinal line extension markings through at-grade intersections, one raised pavement marker for each short line segment should be used.
5. When supplementing line extensions through freeway interchanges, a spacing of no greater than N should be used.

On freeways and expressways, the RPM spacing may be increased to 3N for relatively straight and level roadway segments where engineering judgment indicates that such spacing will provide adequate delineation under wet night conditions.

Raised pavement markers should not supplement right-hand edge lines unless an engineering study or engineering judgment indicates the benefits of enhanced delineation of a curve or other location would outweigh possible impacts on bicycles using the shoulder, and the spacing of raised pavement markers on the right-hand edge is close enough to avoid misinterpretation as a broken line during wet night conditions.

Raised pavement markers also may be used to supplement other markings such as channelizing islands, gore areas, approaches to obstructions, or wrong-way arrows.

To improve the visibility of horizontal curves, center lines may be supplemented with retroreflective raised pavement markers for the entire curved section as well as for a distance in advance of the curve that approximates 5 seconds of travel time based on the posted speed for the roadway section.

The use of retroreflective raised pavement markers substituting for longitudinal line markings should comply with the following:

Retroreflective or internally illuminated raised pavement markers, or non-retroreflective raised pavement markers supplemented by retroreflective or internally illuminated markers may be substituted for markings of other types.

If used, the pattern of the raised pavement markers should simulate the pattern of the markings for which they substitute.

If raised pavement markers are used to substitute for broken line markings, a group of three to five markers equally spaced at a distance no greater than $N/8$ shall be used. If N is other than 40 feet, the markers shall be equally spaced over the line segment length (at $1/2$ points for three markers, at $1/3$ points for four markers, and at $1/4$ points for five markers). At least one retroreflective or internally illuminated marker per group shall be used or a retroreflective or internally illuminated marker shall be installed midway in each gap between successive groups of non-retroreflective markers.

When raised pavement markers substitute for solid line markings, the markers shall be equally spaced at no greater than $N/4$, with retroreflective or internally illuminated units at a spacing no greater than $N/2$.

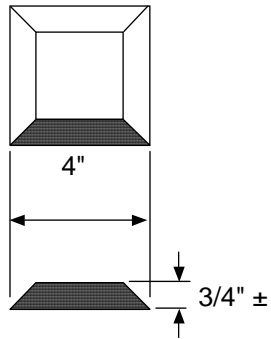
Raised pavement markers should not substitute for right-hand edge line markings unless an engineering study or engineering judgment indicates the benefits of enhanced delineation of a curve or other location would outweigh possible impacts on bicycles using the shoulder, and the spacing of raised pavement markers on the right-hand edge line is close enough to avoid misinterpretation as a broken line during wet night conditions.

When raised pavement markers substitute for dotted lines, they shall be spaced at no greater than $N/4$, with not less than one raised pavement marker per dotted line segment. At least one raised marker every N shall be retroreflective.

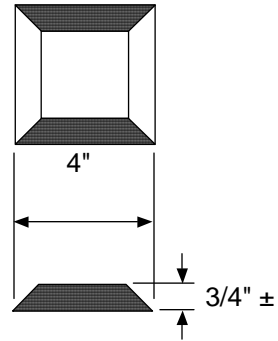
When substituting for wide lines, raised pavement markers may be placed laterally adjacent to each other to simulate the width of the line.

See [Figure 204.01-02](#) for illustration of the configuration and pattern for the use of RPMs.

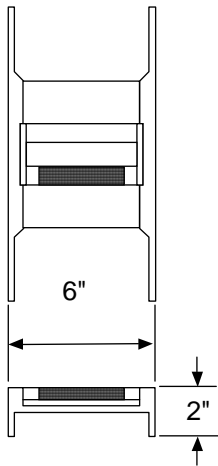
Figure 204.01-01 Typical Raised Pavement Markers



TYPE "2"
(REFLECTORIZED-ONE SIDE)



TYPE "3"
(REFLECTORIZED-TWO SIDES)

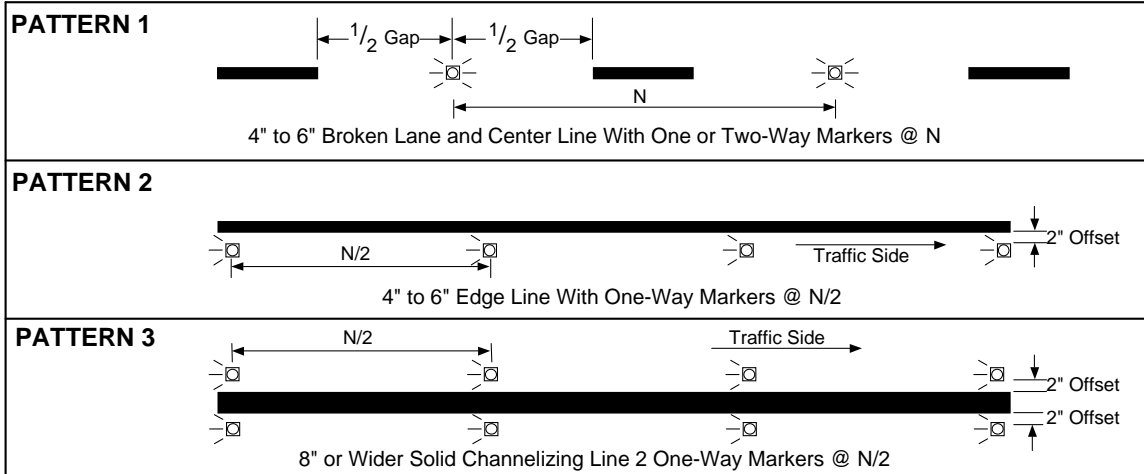


TYPE "6"
(REFLECTORIZED-ONE SIDE)
SNOW-PLOWABLE

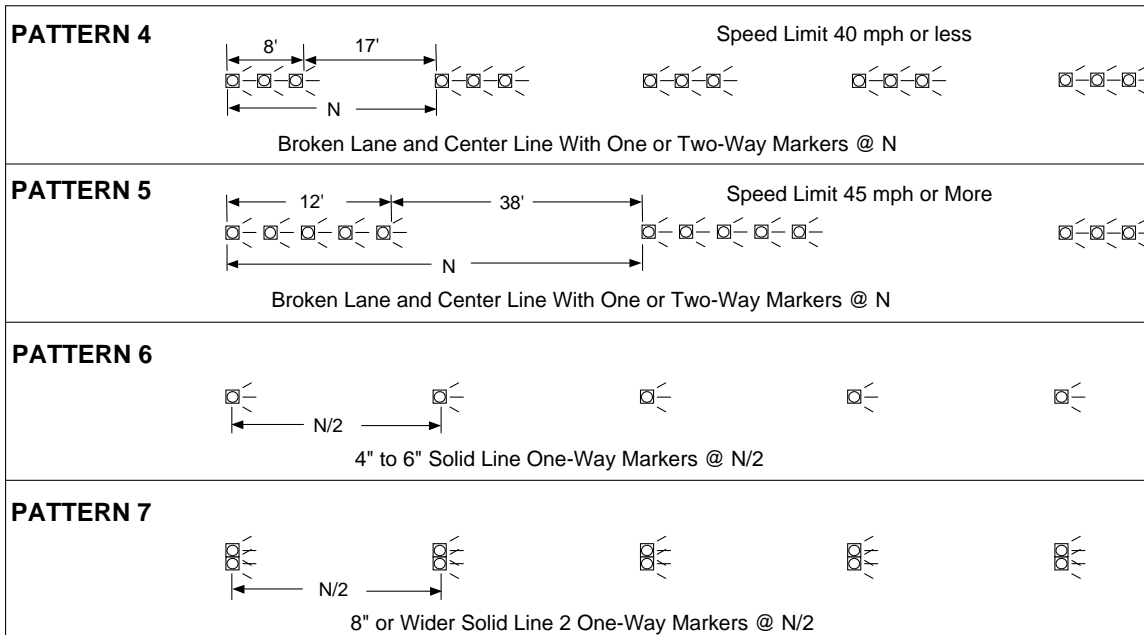
A, AS SHOWN
B, TWO-WAY

Figure 204.01-02 Raised Pavement Markings (R.P.M.) Patterns – N.T.S




R.P.M. USED TO SUPPLEMENT PAINTED MARKINGS



R.P.M. USED TO SUBSTITUTE FOR PAINTED MARKINGS



SYMBOLS

-  White or Yellow Paint
-  One-Way Reflective White or Yellow R.P.M.
-  Two-Way Reflective White or Yellow R.P.M.

N = Skip Cycle for Posted Speed of Roadway Segment