<table>
<thead>
<tr>
<th>Standard Plan Number</th>
<th>Number of Sheets</th>
<th>Title</th>
<th>FHWA Approval Date or Special Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAVE-900-F</td>
<td>8</td>
<td>Pavement Arrow and Message Details</td>
<td>08/23/2017</td>
</tr>
<tr>
<td>PAVE-905-D</td>
<td>2</td>
<td>Longitudinal Line Types and Placement</td>
<td>08/23/2017</td>
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<tr>
<td>PAVE-911-A</td>
<td>1</td>
<td>Aerial Speed Surveillance Markings</td>
<td>Special Detail</td>
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<td>PAVE-925-D</td>
<td>8</td>
<td>Freeway and Ramp Pavement Markings</td>
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<td>Partial Cloverleaf Terminal Markings</td>
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<td>PAVE-930-C</td>
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<td>Pavement Markings for Non-Signalized Intersections</td>
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<td>PAVE-935-D</td>
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<td>Left Turn Lane Markings</td>
<td>08/23/2017</td>
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<td>PAVE-940-C</td>
<td>5</td>
<td>Right Turn Lane and Island Pavement Markings</td>
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<td>PAVE-945-C</td>
<td>3</td>
<td>Intersection, Stop Bar, and Crosswalk Markings</td>
<td>08/23/2017</td>
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<td>PAVE-951-B</td>
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<td>Roundabout Markings</td>
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<td>PAVE-955-B</td>
<td>2</td>
<td>On-Street Parking Zone Markings</td>
<td>01/20/2012</td>
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<td>PAVE-956-C</td>
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<td>Parking Area Pavement Markings</td>
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<td>PAVE-957-A</td>
<td>1</td>
<td>Back-in Angle Parking</td>
<td>08/12/2015</td>
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<td>PAVE-960-B</td>
<td>2</td>
<td>School Markings</td>
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<td>PAVE-961-B</td>
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<td>Shared Lane Marking</td>
<td>08/12/2015</td>
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<td>PAVE-962-A</td>
<td>6</td>
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<td>PAVE-965-D</td>
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<td>Railroad Grade Crossing Pavement Markings</td>
<td>08/23/2017</td>
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<tr>
<td>PAVE-970-B</td>
<td>1</td>
<td>2-Lane to 4-Lane Transition Pavement Markings</td>
<td>01/20/2012</td>
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<tr>
<td>PAVE-971-A</td>
<td>1</td>
<td>Lane Reduction Pavement Markings</td>
<td>08/12/2015</td>
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<tr>
<td>PAVE-985-D</td>
<td>2</td>
<td>Cross-Over Pavement Markings</td>
<td>08/23/2017</td>
</tr>
</tbody>
</table>
NOTES:
1. All letters are 16 inches wide unless noted otherwise.
2. All gaps between letters are 4 inches unless noted otherwise.
3. Rectangular area containing legend indicates template for liquid applied materials.
4. When placed on a shared-use path, reduce all vertical dimensions (except 2" liquid template gaps) by half.
5. 2" gaps shown are for liquid templates only and are not allowed in tape applications.
NOTES: 1. All letters are 16 inches wide unless noted otherwise.
2. All gaps between letters are 4 inches unless noted otherwise.
3. Rectangular area containing legend indicates template for liquid applied materials.
4. When placed on a shared-use path, reduce all vertical dimensions (except 2" liquid template gaps) by half.
5. 2" gaps shown are for liquid templates only and are not allowed in tape applications.

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN

08/23/17 F.H.W.A. APPROVAL
01/22/17 PLAN DATE
PAVE-900-F SHEET 2 OF 8

NOTE: THE ORIGINAL STAINED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.
NOTES: 1. All letters are 16 inches wide unless noted otherwise.

2. All gaps between letters are 4 inches unless noted otherwise.

3. Rectangular area containing legend indicates template for liquid applied materials.

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5. 2" gaps shown are for liquid templates only and are not allowed in tape applications.

LEGEND DETAILS

NOT TO SCALE
NOTES: 1. All letters are 16 inches wide unless noted otherwise.

2. All gaps between letters are 4 inches unless noted otherwise.

3. Rectangular area containing legend indicates template for liquid applied materials.

4. When placed on a shared-use path, reduce all vertical dimensions (except 2" liquid template gaps) by half.

5. 2" gaps shown are for liquid templates only and are not allowed in tape applications.

LEGEND DETAILS

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN

08/23/17
F.H.W.A. APPROVAL

PLAN DATE
PAVE-900-F

01/22/17
SHEET
4 OF 8

NOTE: THE ORIGINAL STENED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.
NOTE: 1. Templates for liquid applied materials on this sheet do not allow gaps.

2. When placed on a shared-use path, reduce all dimensions by half.

3. Existing arrow markings may be oriented differently than the shown overlay arrow. Align the head and stem pieces of the overlay arrow to fit the existing arrow orientation as practical.

4. The overlay arrow is an elongated version of the arrows placed prior to 2014, and as such will extend beyond the footprint of the existing arrows. This is the intent of the overlay shape and it should not be trimmed to match existing.

THRU RIGHT/LEFT TURN ARROW
FOR SECOND MARKING APPLICATIONS (OVERLAYS) ONLY
EFFECTIVE BEGINNING 2014 CONSTRUCTION SEASON

LEFT TURN ARROW
(RIGHT TURN ARROW TO BE REVERSE)
FOR SECOND MARKING APPLICATIONS (OVERLAYS) ONLY
EFFECTIVE BEGINNING 2014 CONSTRUCTION SEASON

THRU RIGHT/LEFT TURN ARROW
FOR NEW APPLICATIONS (NEW PAVEMENT SURFACE
OR AFTER GRINDING OFF OLD MARKINGS)
EFFECTIVE BEGINNING 2014 CONSTRUCTION SEASON

PAVEMENT ARROW DETAILS

NOT TO SCALE
NOTE: 

1. Templates for liquid applied materials on this sheet do not allow gaps.

2. When placed on a shared-use path, reduce all dimensions by half.

THRU ARROW

DEDICATED LANE SYMBOL

MERGE LEFT ARROW
(MERGE RIGHT ARROW TO BE REVERSE)

WRONG WAY ARROW

PAVEMENT ARROW/SYMBOL DETAILS

NOT TO SCALE
NOTES:

1. Templates for liquid applied materials on this sheet do not allow gaps.

2. Smaller (bike lane/path) bicycle symbol is to be used in bike lanes (including bike lanes on roadways), and on paths/trails.

3. The larger (road) bicycle symbol is intended to be used in conjunction with the "XING" legend in vehicle travel lanes in advance of a bike path/trail crossing the roadway.

---

**SPECIAL MARKING REMOVAL AREAS**

<table>
<thead>
<tr>
<th>LEGEND</th>
<th>AREA (SFT)</th>
<th>SYMBOL</th>
<th>AREA (SFT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHEAD</td>
<td>67</td>
<td>ACCESSIBLE</td>
<td>12</td>
</tr>
<tr>
<td>BIKE</td>
<td>43</td>
<td>BICYCLE (ROAD)</td>
<td>24</td>
</tr>
<tr>
<td>BUS</td>
<td>43</td>
<td>BICYCLE (LANE/PATH)</td>
<td>16</td>
</tr>
<tr>
<td>LANE</td>
<td>53</td>
<td>DEDICATED LANE (HOV)</td>
<td>11</td>
</tr>
<tr>
<td>LEFT</td>
<td>59</td>
<td>DIRECT. ARROW (BIKE)</td>
<td>9</td>
</tr>
<tr>
<td>MERGE</td>
<td>67</td>
<td>LEFT, RIGHT ARROW</td>
<td>29</td>
</tr>
<tr>
<td>NO</td>
<td>27</td>
<td>LT ROUNDABOUT ARROW</td>
<td>18</td>
</tr>
<tr>
<td>ONLY</td>
<td>56</td>
<td>LT, RT, THRU ARROW</td>
<td>41</td>
</tr>
<tr>
<td>PED</td>
<td>40</td>
<td>MERGE ARROW</td>
<td>42</td>
</tr>
<tr>
<td>RIGHT</td>
<td>59</td>
<td>RAILROAD</td>
<td>64</td>
</tr>
<tr>
<td>SCHOOL</td>
<td>77</td>
<td>RAILROAD—ALTERNATE</td>
<td>75</td>
</tr>
<tr>
<td>STOP</td>
<td>56</td>
<td>RT, LT ROUNDABOUT ARROW</td>
<td>23</td>
</tr>
<tr>
<td>TRAIL</td>
<td>62</td>
<td>RT, THRU, LT ROUNDABOUT ARROW</td>
<td>29</td>
</tr>
<tr>
<td>TURN</td>
<td>59</td>
<td>SHARROW</td>
<td>21</td>
</tr>
<tr>
<td>XING</td>
<td>53</td>
<td>THRU ARROW</td>
<td>12</td>
</tr>
<tr>
<td>YIELD</td>
<td>59</td>
<td>THRU, LT ROUNDABOUT ARROW</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td></td>
<td>THRU, LT TURN ARROW</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td></td>
<td>THRU, RT TURN ARROW</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TURN ARROW, LT OR RT</td>
<td>16</td>
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<tr>
<td></td>
<td></td>
<td>TURN ARROW, LT OR RT (BIKE)</td>
<td>5</td>
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<tr>
<td></td>
<td></td>
<td>WRONG WAY ARROW</td>
<td>35</td>
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NOT TO SCALE
TYPICAL SPACING OF ARROW AND PAVEMENT MESSAGES

<table>
<thead>
<tr>
<th>POSTED SPEED (MPH)</th>
<th>DISTANCE &quot;D&quot; (FT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 AND BELOW</td>
<td>32</td>
</tr>
<tr>
<td>30-35</td>
<td>48</td>
</tr>
<tr>
<td>40-45</td>
<td>64</td>
</tr>
<tr>
<td>50 AND ABOVE</td>
<td>80</td>
</tr>
</tbody>
</table>

NOTES:
1. All special markings (arrow, message and symbol) shall be white.
2. When arrow and pavement message are used together, the arrow should be located downstream of the pavement message and separated from the pavement message by a distance of "D" (measured from the top of the message to the base of the arrow) as shown above.
3. When a series of pavement messages are used, they should be separated by a distance of "D" related to the posted speed, as shown in the table above. All symbols and legends shall be positioned in the center of the lane.
TYPES OF PERMANENT LONGITUDINAL LINES

BROKEN WHITE LANE LINE
\[ \frac{37}{4} \text{-} 6" \text{ (typ.)} \]
\[ \frac{12}{4} \text{-} 6" \text{ (typ.)} \]

SOLID WHITE LANE LINE
\[ \frac{4}{4} \]

BROKEN YELLOW CENTERLINE
\[ \frac{37}{4} \text{-} 6" \text{ (typ.)} \]
\[ \frac{12}{4} \text{-} 6" \text{ (typ.)} \]

SOLID WHITE EDGE LINE
\[ \frac{6}{6} \]

SOLID YELLOW EDGE LINE
\[ \frac{6}{6} \]

SOLID WHITE CHANNELIZING LINE
\[ \frac{6, 8, \text{ or } 12}{6, 8, \text{ or } 12} \]

WHITE OR YELLOW DOTTED LINE (TURNING GUIDE LINES, LANE LINE EXTENSIONS)
\[ \frac{4}{4} \text{ (typ.)} \]
\[ \frac{2}{2} \text{ (typ.)} \]
\[ \frac{4}{4} \text{ or } 6" \]

WHITE DOTTED LINE (LANE DROP, LANE DROP EXIT AND WEAVER LINES)
\[ \frac{20}{20} \text{ (typ.)} \]
\[ \frac{5}{5} \text{ (typ.)} \]
\[ \frac{8}{8} \text{ or } 12" \]

WHITE DOTTED LINE (PARALLEL AND TAPERED EXITS AND ENTRANCES)
\[ \frac{20}{20} \text{ (typ.)} \]
\[ \frac{5}{5} \text{ (typ.)} \]
\[ \frac{6}{6} \]

WHITE DASHED LINE (ROUNDABOUT LANE LINES)
\[ \frac{6}{6} \text{ (typ.)} \]
\[ \frac{12}{12} \text{ (typ.)} \]
\[ \frac{4}{4} \]

LINE PATTERNS

TWO - LANE PASSING PROHIBITED (YELLOW)
\[ \frac{4}{4} \]
\[ \frac{4}{4} \]
\[ \frac{4}{4} \]

DOUBLE SOLID YELLOW (OR WHITE)
\[ \frac{4}{4} \]
\[ \frac{4}{4} \]
\[ \frac{8}{8} \]
BASIC COLOR RULE: WHITE LINES SEPARATE FLOW OF TRAFFIC IN THE SAME DIRECTION, YELLOW LINES SEPARATE FLOW OF TRAFFIC IN THE OPPOSITE DIRECTION.

NOTE:

1. On all divided highways, lane lines shall be offset 2 inches from pavement construction joints toward the median side.

2. On 2-lane, 2-way north - south roadways, a broken yellow centerline shall be offset 2 inches to the left of pavement construction joints when facing northward. Double solid yellow or solid and broken yellow centerline may straddle the construction joint.

3. On 2-lane, 2-way east - west roadways, a broken yellow centerline shall be offset 2 inches to the left of pavement construction joints when facing eastward. Double solid yellow or solid and broken yellow centerlines may straddle the construction joint.

4. When a centerline construction joint does not correspond to the geometric centerline of the roadway for roadway segments over 1/2 mile, place the centerline in the location that will provide lanes of equal width unless directed otherwise by the Engineer.

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN

NOTE: THE ORIGINAL STamped COPY IS KEpt ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.
DIRECTION OF TRAFFIC →

4" BROKEN WHITE LANE LINE (SKIP LINE)

12'–6" (TYP.)  37'–6" (TYP.)

6'–0" (TYP.)  44'–0" (TYP.)

4" BLACK SHADOW MARKING

LAYOUT

DIRECTION OF TRAFFIC →

12'–6" BROKEN WHITE LANE LINE (SKIPS)

6'–0" BLACK SHADOW MARKING

DETAILS

BLACK “SHADOW” PAVEMENT MARKINGS FOR LANE LINES

Notes:
1. Black “shadow” marking tape is required for contrast when using white wet reflective tape for broken lane lines on new concrete pavement.
2. Headless liquid black “shadow” markings are required for contrast when using liquid materials for broken lane lines on new concrete pavement, and may be used to retrofit existing liquid or tape lane lines as directed by the Engineer.
3. Where used, black “shadow” markings shall be placed downstream of and abutting each 4" white lane line skip marking.
4. For non-retrofit installations, if the white lane line marking is recessed then the black “shadow” marking should also be recessed.

NOT TO SCALE
DIRECTION OF TRAFFIC →

8" or 12" DOTTED WHITE DROP LANE MARKING (SKIP LINE)

5'-0" (TYP.)

2'-0" (TYP.)

20'-0" (TYP.)

23'-0" (TYP.)

8" or 12"

8" OR 12" BLACK SHADOW MARKING

LAYOUT

DIRECTION OF TRAFFIC →

5'-0" DOTTED WHITE LANE DROP LINE (SKIPS)

2'-0" BLACK SHADOW MARKING

DETAILS

BLACK "SHADOW" PAVEMENT MARKINGS FOR DROP LANES

Notes:
1. See PAVE-925 and PAVE-940 for lane drop marking information.
2. Black "shadow" marking tape is required for contrast when using white wet reflective tape for broken lane lines on new concrete pavement.
3. Beadless liquid black "shadow" markings are required for contrast when using liquid materials for broken lane lines on new concrete pavement, and may be used to retrofit existing liquid or tape lane lines as directed by the Engineer.
4. Where used, black "shadow" markings shall be placed downstream of and abutting each 8" or 12" while lane drop skip marking.
5. The width of the "shadow" marking shall match the width of the white skip marking.
6. For non-retrofit installations, if the white lane line marking is recessed then the black "shadow" marking should also be recessed.
AERIAL SPEED SURVEILLANCE MARKINGS

Notes:
1. The longitudinal spacing of the markings shall be as recommended by the requesting police agency.
2. Where the paved shoulder is less than 4 feet, the markings may extend onto the thru lanes.
3. Markings shall be non-reflectorized white.
FREeway AND SERVICE ROAD CONNECTIONS

REFER TO NOTES ON SHEET 2.
NOTES:
1. For long weaving lanes (greater than 900 ft) where a RIGHT LANE MUST EXIT sign is normally used, pavement marking should conform to the lane-drop exit treatment shown on this sheet.
NOTE: For Details A, B, C, D and E see Sheets 4 and 5.

ENTRANCE AND EXIT RAMPS

SEE DETAIL E

6" WHITE EDGE LINE

SEE DETAIL E

4" WHITE BROKEN LINE

6" WHITE DOTTED LINE (5' MARK, 20' GAP)

6" WHITE EDGE LINE

6" YELLOW EDGE LINE

12" SOLID WHITE GORE MARKING (TYP) (SEE DETAIL ON SHEET 7)

LOOP RAMP
DETAIL D - TAPERED DECELERATION LANE

DETAIL E - TAPERED ACCELERATION LANE WITH ADDED LANE
NOTES:
1. On freeway-to-freeway ramps where the broken ramp lane line extends onto mainline as a broken line, the broken lane lines shall be the standard 4" width. On all other ramps, the broken lane line should instead be 6" width for ease of constructability.

2. If the mandatory exit lane is a drop lane, the dotted line in advance of the solid channelizing line shall be 12" width (see Sheet 2). If the mandatory exit lane is a developed lane, the dotted line shall be 6" width (see Sheet 4).

MULTILANE EXIT
SINGLE LANE EXIT RAMP TERMINAL

NOTES:
1. Wrong way arrows are optional, EXCEPT when any exit ramp parallels and is adjacent to an entrance ramp at the crossroad terminal (in the same quadrant), regardless of distance between the two ramps.
2. Double-headed arrows may be required where a service road or city street is located opposite a ramp terminal.
3. Include a dotted turning guide line for all double turn movements.
GORE MARKING DETAIL

EXIT RAMP SHOWN
SINGLE LANE PARALLEL EXIT/ENTRANCE RAMP DETAILS

Notes:

1. For additional placement information, see PAVE-900, PAVE-905, PAVE-925, PAVE-940, and R-127.

2. Installation of the wrong way arrow is required. Installation of the stop bar is required at signalized intersections. All other features are optional and shall be installed at the direction of the Engineer.

3. When individual reflectors are used, they shall be placed at 10' maximum spacing. If a proprietary delineation system is used, install per the Manufacturer’s recommendations and as directed by the Engineer.
MULTILANE PARALLEL EXIT/ENTRANCE
RAMP DETAILS

Notes:

1. For additional placement information, see PAVE-900, PAVE-905, PAVE-925, PAVE-940, and R-127.

2. Installation of the wrong way and lane use arrows are required. Installation of the stop bar is required at signalized intersections. All other features are optional and shall be installed at the direction of the Engineer.

3. When individual reflectors are used, they shall be placed at 10′ maximum spacing. If a proprietary delineation system is used, install per the Manufacturer’s recommendations and as directed by the Engineer.
INTERSECTION WITH RIGHT TURN TAPER

INTERSECTION WITH RIGHT TURN LANE

Notes:
1. Paint intersection tapers greater than 50 ft in length.
2. Arrow markings should be installed according to PAVE-900, PAVE-935 and PAVE-940, if applicable.
"T" INTERSECTION WITH PASSING FLARE

"T" INTERSECTION WITH MANDATORY LEFT TURN LANE

Notes:

1. Paint intersection tapers greater than 50 ft in length.

2. Arrow markings should be installed according to PAVE-900, PAVE-935 and PAVE-940, if applicable.
FULL INTERSECTION WITH PASSING FLARE

FULL INTERSECTION WITH MANDATORY LEFT TURN LANE

Notes:

1. Paint intersection tapers greater than 50 ft in length.

2. Arrow markings should be installed according to PAVE-900, PAVE-935 and PAVE-940, if applicable.
FULL INTERSECTION WITH FAR SIDE LANE DROP

FULL INTERSECTION WITH PARTIAL FLARE WITH DEVELOPED CENTER LEFT-TURN LANE (MAJOR CROSS STREET)

NOTE:
1. Arrow markings should be installed according to PAVE-900, PAVE-935 and PAVE-940, if applicable.

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN

NOTE: THE ORIGINAL SIGNED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.
FULL INTERSECTION PARTIAL FLARE WITH DEVELOPED CENTER LEFT-TURN LANE - CONVENTIONAL MARKINGS
(MINOR CROSS STREET)

FULL INTERSECTION PARTIAL FLARE WITH DEVELOPED CENTER LEFT-TURN LANE - ALTERNATE MARKING
(MINOR CROSS STREET)

NOTE:
1. Arrow markings should be installed according to PAVE-900, PAVE-935 and PAVE-940, if applicable.
Residential Driveways and/or Minor Commercial Driveway

6" Solid White Edge Line (Optional in Curbed Areas)

4" Solid Yellow and 4" Broken Yellow

4" Broken White Lane Line

Major Commercial Driveway

Minor Stop Controlled Intersection

Striping Through Minor (Stop Controlled) Intersections and Driveways

6" Solid White Edge Line (Optional in Curbed Areas)

4" Double Solid Yellow Line

6" Solid White Edge Line (Optional in Curbed Areas)

4" Double Solid Yellow Line

6" Solid White Edge Line (Optional in Curbed Areas)

4" Solid Yellow and 4" Broken Yellow

4" Solid Yellow and 4" Broken Yellow

Gapping Intersections at Minor (Stop Controlled) Streets

NOTE: THE ORIGINAL SIGNED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.
STOP BAR DETAIL
(TRUNKLINE TO TRUNKLINE "T" INTERSECTION)

Notes:

1. The width of stop bars shall be 24 in.

2. Stop bars should be placed between 4 ft and 30 ft from the nearest edge of the intersecting roadway.

3. To minimize vehicle exposure time, stop bars should be located as near the intersecting roadway as practical.
RIGHT AND LEFT TURN LANES ON THE SAME APPROACH

Note:
1. Arrow markings should be installed according to the layouts shown on PAVE-900, PAVE-935 and PAVE-940, if applicable.

POSTED SPEED (MPH) | T (FT)
-------------------|------
≤ 35               | 75   
40                 | 100  
45                 | 130  
50                 | 180  
55                 | 225  

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN

NOTE: THE ORIGINAL SIGNED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.
LEFT TURN STORAGE LANE(S) MARKING DETAILS

FOR STOP CONTROLLED OR SIGNALIZED INTERSECTIONS

350' OR LESS

LIMITS OF TURN ARROW PLACEMENT

100' SPACING

LANE USE ARROW

24" WHITE STOP BAR

FULL WIDTH POINT

4" DOUBLE YELLOW

75' MIN.
TAPER VARIES

DESIRED
25'

4" SOLID WHITE

LEFT TURN ARROW PLACEMENT FOR STORAGE LENGTHS 350 FT OR LESS

GREATER THAN 350'

LIMITS OF TURN ARROW PLACEMENT

100' MIN. SPACING

LANE USE ARROW

24" WHITE STOP BAR

FULL WIDTH POINT

4" DOUBLE YELLOW

75' MIN.
TAPER VARIES

DESIRED
25'

4" SOLID WHITE

LEFT TURN ARROW PLACEMENT FOR STORAGE LENGTHS GREATER THAN 350 FT

NOTES:

1. Where the storage length is greater than 350 ft. use a minimum of three arrows. Place additional arrows as directed by the Engineer. Arrows should be evenly spaced throughout the available length with a minimum spacing of 100 ft.

2. Arrows shall be used in exclusive turn lanes at signalized intersections. When used, they shall be located as shown.

3. A 4 inch yellow left turn edge line may be used adjacent to raised curbs or medians in a left turn lane.
DOUBLE LEFT TURN STORAGE LANES MARKING DETAILS

FOR "D" VALUES SEE PAVE-900 SHEET 8

FOR STOP CONTROLLED OR SIGNALIZED INTERSECTIONS

GREATER THAN 200'

TAPE VARIES
4" DOUBLE YELLOW

75' MIN.

8" DOTTED WHITE

8' "D" 8'

8" SOLID WHITE

25'

FULL WIDTH POINT

LANE USE ARROW (TYP)

4" SOLID WHITE

24" WHITE STOP BAR

THROUGH LANE BECOMES EXCLUSIVE LEFT TURN LANE

FULL WIDTH POINT

24" WHITE STOP BAR

LIMTS OF LANE USE ARROW PLACEMENT

100' SPACING

4" DOUBLE YELLOW

75' MIN.

TAPE VARIES

DESIRED

25'

4" BORKEN WHITE

4" SOLID WHITE

10'-9" 100'-0" 10'-9" 25'

THROUGH LANE BECOMES OPTIONAL LEFT TURN LANE

FULL WIDTH POINT

24" WHITE STOP BAR

LIMTS OF LANE USE ARROW PLACEMENT

100' SPACING

4" DOUBLE YELLOW

75' MIN.

TAPE VARIES

DESIRED

25'

4" SOLID WHITE

4" SOLID WHITE

10'-9" 100'-0" 10'-9" 25'

NOTES:
1. Where at least one through lane becomes an exclusive turn lane, arrow and legend markings shall be used. Otherwise, omit the legend markings.
2. For double left turn lanes 280 ft or less, omit the second set of arrow-legend pairs and/or combination arrows in each lane.
3. When two or more arrow/legend sets are used and spacing between sets is less than "D", the Engineer may choose to reduce the distance between the arrow and legend.
4. Include a dotted turning guideline for all double turn movements.

DUAL DEVELOPED LEFT TURN LANES

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN

NOTE: THE ORIGINAL STORRED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.
LIMITED LENGTH LEFT TURN LANES
FOR SIGNALIZED INTERSECTIONS

≤ 280'
75'
MIN.
VARIES

24" WHITE STOP BAR
4" SOLID WHITE

6" SOLID WHITE EDGE LINE
4" BROKEN WHITE
4" DOUBLE YELLOW
4" BROKEN WHITE
6" SOLID WHITE EDGE LINE

LANE USE ARROW
LOCATE ARROW(S) PER LAYOUT ON SHEET 1

355 FT OR LESS OF FULL WIDTH CENTER LANE FOR LEFT TURNS

> THAN 280'
75'
MIN.
VARIES *

24" WHITE STOP BAR
4" SOLID WHITE

6" SOLID WHITE EDGE LINE
4" BROKEN WHITE
4" DOUBLE YELLOW
4" SOLID YELLOW AND 4" BROKEN YELLOW
4" BROKEN WHITE
6" SOLID WHITE EDGE LINE

LANE USE ARROW (TYP)
LOCATE ARROWS PER LAYOUT ON SHEET 1

FOR FULL WIDTH CENTER LEFT TURN LANES GREATER THAN 355 FT

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN
08/23/17 01/22/17 PAVE-935-D SHEET 3 OF 5
NOTE: THE ORIGINAL SIGNED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.
LEFT TURN LANE TREATMENTS BETWEEN URBAN SIGNALIZED INTERSECTIONS

WHERE DISTANCE BETWEEN ADJACENT INTERSECTIONS IS 600 FT OR LESS

WHERE DISTANCE BETWEEN ADJACENT INTERSECTIONS IS GREATER THAN 600 FT

* LENGTH DETERMINED BY TRAFFIC COUNT ANALYSIS

NOT TO SCALE
TWO-WAY LEFT-TURN LANE MARKINGS

24" WHITE STOP BAR
75' MIN.
4" SOLID YELLOW AND 4" BROKEN YELLOW

4" SOLID WHITE AND 4" DOUBLE YELLOW

LANE USE ARROW (SEE DETAILS ON SHEET 1)
VARIIES, LENGTH DETERMINED
BY TRAFFIC COUNT ANALYSIS

SINGLE-DIRECTION LEFT TURN CHANNELIZATION

6" SOLID WHITE EDGE LINE
(OPTIONAL IN CURBED AREAS)

↔

4" SOLID YELLOW AND 4" BROKEN YELLOW

6" SOLID WHITE EDGE LINE
(OPTIONAL IN CURBED AREAS)

CONVENTIONAL MARKINGS AT STOP CONTROLLED INTERSECTIONS

6" SOLID WHITE EDGE LINE
(OPTIONAL IN CURBED AREAS)

↔

4" SOLID YELLOW AND 4" BROKEN YELLOW

8' 25'

6" SOLID WHITE EDGE LINE
(OPTIONAL IN CURBED AREAS)

25' 8'

LANE USE ARROW (TYP. OPTIONAL)

ALTERNATE MARKINGS AT STOP CONTROLLED INTERSECTIONS

6" SOLID WHITE EDGE LINE
(OPTIONAL IN CURBED AREAS)
RIGHT TURN LANE DROP AND ISLAND DETAILS

(ALSO APPLIES TO ONE WAY LEFT TURN LANE DROPS)
RIGHT TURN LANE WITH CHANNELIZING ISLAND

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN

08/23/17

01/22/17

PAVE-940-C

SHEET 2 OF 5

NOTE: THE ORIGINAL SIGNED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.
24" WHITE STOP BAR

6" SOLID WHITE EDGE LINE

4" DOUBLE YELLOW

SEE PAVE-900 AND PAVE-935 FOR ARROW LAYOUT, IF APPLICABLE.

6" SOLID WHITE EDGE LINE

4" SOLID WHITE LANE LINE
(LENGTH DETERMINED BY TRAFFIC COUNT ANALYSIS)

25'

25' DESIRED

4" WHITE BROKEN LINE

CURB OR ROAD EDGE

4" DOUBLE YELLOW CENTER LINE.
(OR SINGLE 6" YELLOW EDGE LINE IF DIVIDED ROADWAY.
OPTIONAL IN CURBED AREAS.)

RIGHT TURN LANE

NOT TO SCALE
CHANNELIZING ISLANDS
(TRAFFIC FLOWS IN SAME DIRECTION)

FOR "Y" VALUES SEE PAVE-945 SHEET 1
OPTION A

OPTION B

OPTION C

RAISED CHANNELIZING ISLAND PAINTING

NOTE:

1. See Sheet 4 of 5 and PAVE-945 for transverse marking details.
12" YELLOW ANGLED TRANSVERSE MARKINGS (OPTIONAL). SEE DETAIL "A" BELOW. USE SHOULD BE BASED ON RECOMMENDATION OF THE ENGINEER.

SEE PAVE-900 AND PAVE-935

DOUBLE 4" YELLOW (TYP.)
4" SOLID WHITE (TYP.)
4" BROKEN WHITE (TYP.)
6" WHITE CROSSWALK (TYP.)
24" STOP BAR (TYP.)

POSTED SPEED LIMIT
(MPH)

<table>
<thead>
<tr>
<th>&quot;Y&quot;</th>
<th>FT</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 OR LESS</td>
<td>10</td>
</tr>
<tr>
<td>35-40</td>
<td>20</td>
</tr>
<tr>
<td>45</td>
<td>30</td>
</tr>
<tr>
<td>50 OR MORE</td>
<td>40</td>
</tr>
</tbody>
</table>

DETAIL "A" ANGLED TRANSVERSE MARKING
SIGNALIZED OR STOP SIGN CONTROLLED INTERSECTION

NOTES:
1. Stop Bars should be located 40-150 ft from the signal head. Optional stop bars, if used at stop controlled intersections, should be 4-30 ft from the edge of the intersecting roadway. Exact location to be determined by the Engineer.

2. Standard crosswalk is two 6 inch white transverse lines. Special emphasis crosswalk is 12 inch white longitudinal lines.

3. Install special emphasis crosswalks at mid-block crossings, established school crossings (as defined by the MMUTCD), where crossing uncontrolled traffic at an intersection or ramp, or when directed by the Engineer. See Sheet 3 for detail of special emphasis crosswalk markings.

4. Width of crosswalk should equal width of the adjacent sidewalk, but shall not be less than 6 ft (measured inside the lines).

5. 12 inch transverse lines can be used in place of 6 inch transverse lines at the Engineer’s discretion.

6. When practical, crosswalk location should avoid conflict with drainage inlets.

7. Turning guide lines should be placed to direct the driver into the closest through lane. Include a dotted turning guide line for all double turn movements.
NOT TO SCALE

**MID-BLOCK MULTI-LANE NON-SIGNALIZED**

**MID-BLOCK TWO LANE NON-SIGNALIZED**

**MID-BLOCK MULTI-LANE SIGNALIZED**

**ACCESSIBLE RAMP**

- 24" SOLID WHITE (TYP.)
- 12" SOLID WHITE (TYP.)
- EQUAL WIDTH OF ADJACENT SIDEWALK (6' MIN)

**DETAIL OF SPECIAL EMPHASIS CROSSWALK MARKING**

**SKewed CROSSINGS**

NOTES:
1. Install special emphasis crosswalk markings parallel to traffic flow.

**DETAIL OF YIELD TRIANGLE FOR YIELD LINE**

NOTES:
1. Install four triangles per lane.
2. Adjust spacing (between 3 to 12 inches) as necessary.
ONE-LANE ROUNDABOUT

NOTES:

1. Lane use arrows shall be placed on approaches with more than one lane. Use roundabout (fishhook style) arrows for approach arrows that include a left turn movement, and standard arrows for all other applications. See Sheet 3 for roundabout arrow details.

2. Use ONLY legend when the right turn lane becomes a mandatory turn lane; omit for developed lanes. See PAVE-900 for layout.

3. If there is no crosswalk on a multilane approach, place the lane use arrows 25′ in advance of the yield line (or, if present, the yield legend).

4. If the channelizing solid lane line extends beyond the first lane use arrows, install additional sets of arrows/legends in accordance with PAVE-935.

NOT TO SCALE
TWO-LANE ROUNDBOUT

NOTES:

1. Lane use arrows shall be placed on approaches with more than one lane. Use roundabout (fishhook style) arrows for approach arrows that include a left turn movement, and standard arrows for all other applications. See Sheet 3 for roundabout arrow details.

2. If there is no crosswalk on a multilane approach, place the lane use arrows 25' in advance of the yield line (or, if present, the yield legend).

3. If the channelizing (solid) lane line extends beyond the first lane use arrows, install additional sets of arrows/legends in accordance with PAVE-935.

NOT TO SCALE
NOTE: Templates for liquid applied materials on this sheet do not allow gaps.

6'-6"
4'-4"
2'-0"
1'-8"
8"
1'-4"
1'-2"
1'-0"
8'-0"
6'-8"
10"

COMPONENT KEY

THE LABELLED AREAS ABOVE CORRESPOND TO THE PORTIONS NEEDED FOR EACH TYPE OF ROUNDABOUT TRAFFIC ARROW.

ALL ROUNDABOUT ARROWS REQUIRE THE "COMMON", "C", AND "L" AREAS. ARROWS INCLUDING A THRU MOVEMENT ADDITIONALLY REQUIRE THE "T" AREA. ARROWS INCLUDING A RIGHT TURN MOVEMENT REQUIRE THE "R" AREA.

CENTER THE ARROW ON THE LANE.

ROUNDABOUT ARROW DETAILS

LEFT ROUNDABOUT ARROW
RIGHT & LEFT ROUNDABOUT ARROW
THRU & LEFT ROUNDABOUT ARROW
RIGHT & THRU & LEFT ROUNDABOUT ARROW

Grid = 4"

NOT TO SCALE
TYPE I

4" WHITE "X" (TYP.), (OPTIONAL)

NO PARKING ZONE, YELLOW CURB (OPTIONAL)

20' MIN.

8'

Z

TYPE II

ALL SPACES

22' MIN., 26' MAX.

EACH

NO PARKING ZONE, YELLOW CURB (OPTIONAL)

20' Z

Z

TYPE III

12" EXTENSION (TYP.)
ENABLS DRIVERS TO SEE LIMITS OF STALL

ALL SPACES

22' MIN. 26' MAX.

20'
ACCESSIBLE MARKINGS

<table>
<thead>
<tr>
<th>INTERSECTION TYPE</th>
<th>&quot;Z&quot; (FT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO TRAFFIC CONTROL NO CROSSWALK</td>
<td>15</td>
</tr>
<tr>
<td>NO TRAFFIC CONTROL WITH CROSSWALK</td>
<td>20</td>
</tr>
<tr>
<td>TRAFFIC CONTROL PRESENT</td>
<td>30</td>
</tr>
</tbody>
</table>

See Section 257.674 of the Michigan Vehicle Code for more information.

NOTES:
1. All parking zone markings shall be 4 inch white. 4 inch blue may supplement the white zone marking for an accessible stall.
2. For mid-block driveway, clearance from parking stall to the curb cut shall be 20 ft minimum.
3. The use of a yellow (or other color) painted curb to denote a no parking zone is optional, and shall only be used to supplement standard signs.
4. On-street parking for state trunk lines through municipalities shall be one of the three types illustrated.
5. Type II on-street parking zone markings shown this sheet, Type I or III may also be used.
NOTES:

1. Specifically designated 12 ft wide accessible parking stalls (14 ft for accessible trucks stalls) will be located as close as possible to walkways and entrances. The number of such to the total number of stalls (car and truck) is: 1 for every 25. The accessible parking stalls should include at least 1 accessible van stall for every 6 accessible stalls, with a minimum of 1. See sheet 3 for details and the Michigan Vehicle Code and local ordinances for more information on accessible requirements.

2. To calculate the number of truck stalls (T): \[ T = \frac{\text{Length of truck parking area minus 86 ft 8 inches (end oss) minus allowances needed for accessible stalls}}{28 \text{ ft}} \]

3. To calculate the number of car stalls (C): \[ C = \frac{\text{Length of car parking area minus 13 ft 10 inches (end oss) minus allowances needed for accessible stalls}}{12 \text{ ft 7 inches}} \]

4. The typical parking stalls are striped with single lines with center to center spacing of 10 ft (12 ft for accessible stalls and 14 ft for trucks).
### TYPICAL PARK AND RIDE LOT LAYOUT

**NOTES:**
1. Refer to the Road Design Manual for typical parking lot dimensions.
2. Shown for typical stall striping information only.
3. All stall lines are single white lines. White lines may be supplemented with blue in accessible stalls.
4. 1 van accessible stall required for every 6 accessible stalls with a minimum of 1.
5. Buffers adjacent to a van accessible stall must be 8 ft wide. Buffers adjacent to other accessible stalls may be 5 ft width. Two accessible stalls may share a buffer.

See Sheet 5 for accessible pavement marking symbols.

<table>
<thead>
<tr>
<th>Total Parking in Lot</th>
<th>Required Minimum Number of Accessible Spaces</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 25</td>
<td>1</td>
</tr>
<tr>
<td>26 to 50</td>
<td>2</td>
</tr>
<tr>
<td>51 to 75</td>
<td>3</td>
</tr>
<tr>
<td>76 to 100</td>
<td>4</td>
</tr>
<tr>
<td>101 to 150</td>
<td>5</td>
</tr>
<tr>
<td>151 to 200</td>
<td>6</td>
</tr>
<tr>
<td>201 to 300</td>
<td>7</td>
</tr>
<tr>
<td>301 to 400</td>
<td>8</td>
</tr>
<tr>
<td>401 to 500</td>
<td>9</td>
</tr>
<tr>
<td>501 to 1000</td>
<td>2 percent of total</td>
</tr>
<tr>
<td>1001 and over</td>
<td>10, plus 1 for each 100 over 1000</td>
</tr>
</tbody>
</table>
TYPICAL ACCESSIBLE PAVEMENT MARKINGS FOR CAR STALL

TYPICAL PAVEMENT MARKINGS FOR CAR STALL

ACCESSIBLE PAVEMENT MARKING SYMBOL SHALL BE LOCATED BETWEEN THE CAR STALL STRIPING AS SHOWN. FOR DETAIL OF ACCESSIBLE PAVEMENT MARKING SYMBOL SEE SHEET 5.
TYPICAL CAR PARKING STALL ARRANGEMENT

NOTES:

1. All stall lines are single white lines.
2. White lines may be supplemented with blue in accessible stalls.
3. See sheet 5 for detail of accessible pavement marking symbol.
4. For curb cuts see typical detail on plan sheets.
5. Buffer adjacent to a van accessible stall must be 8 ft wide. Buffer adjacent to other accessible stalls may be 5 ft width. Two accessible stalls may share a buffer.

TYPICAL PAVEMENT MARKINGS FOR TRUCK STALL

NOT TO SCALE
### Intersection Type

<table>
<thead>
<tr>
<th>Number of Control</th>
<th>Number of Crosswalk</th>
<th>Z (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO TRAFFIC CONTROL NO CROSSWALK</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>NO TRAFFIC CONTROL WITH CROSSWALK</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>TRAFFIC CONTROL PRESENT</td>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>

See Section 257.674 of the Michigan Vehicle Code for more information.

<table>
<thead>
<tr>
<th>A (Angle)</th>
<th>B (From F/C)</th>
<th>C (Along Curb)</th>
<th>D (Buffer)</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>20'-7&quot;</td>
<td>11'-7&quot; STD</td>
<td>11'-11&quot;</td>
</tr>
<tr>
<td>45</td>
<td>19'-10&quot;</td>
<td>14'-2&quot; STD</td>
<td>19'-10&quot;</td>
</tr>
<tr>
<td>30</td>
<td>17'-8&quot;</td>
<td>20'-0&quot; STD</td>
<td>30'-7&quot;</td>
</tr>
</tbody>
</table>

### Parking Details

Notes:

1. See PAVE-956 for accessible pavement marking symbol.
2. Two accessible parking stalls may share a buffer.
3. For mid-block driveway, clearance from parking stall to the curb cut shall be 20 ft minimum.
4. All parking zone markings shall be 4 inch white. 4 inch blue may supplement the white zone marking for an accessible stall.
5. The use of a yellow (or other color) pointed curb to denote a no parking zone is optional, and shall only be used to supplement standard signs.
6. Align buffer area crosshatching parallel to stall markings in the end buffer zones, and perpendicular to stall markings for accessible stall buffers.

---

*NOT TO SCALE*

**Department Director**
Kirk T. Steudel

**Michigan Department of Transportation**
Bureau of Highway Development Standard Plan for

**Back-in Angle Parking**

**Approved By:**
- Director, Bureau of Field Services
- Director, Bureau of Highway Development
MID-BLOCK SIGNALIZED SCHOOL CROSSING

- 4" WHITE BROKEN LINE (TYP.)
- SPECIAL EMPHASIS CROSSWALK
- 24" WHITE STOP BAR (TYP.) (TO BE LOCATED 40-150' FROM THE SIGNAL HEAD)

MID-BLOCK NON-SIGNALIZED SCHOOL CROSSING

- 4" DOUBLE YELLOW (TYP.)
- 4" YELLOW BROKEN LINE (TYP.) (SEE NOTE 3, SHEET 2)

MID-BLOCK MULTI-LANE NON-SIGNALIZED SCHOOL CROSSING

- 4" DOUBLE YELLOW (TYP.)
- SPECIAL EMPHASIS CROSSWALK

DEPARTMENT OF TRANSPORTATION
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT
STANDARD PLAN FOR
SCHOOL MARKINGS

APPROVED BY:
Kirk T. Steudle
DIRECTOR, BUREAU OF HIGHWAY DEVELOPMENT

DATE
01/20/12
OTHER
F.R.M.A. APPROVAL
PAVE-960-B
01/20/12
1 OF 2 SHEET
NOTES:

1. Place 9 ft 8 inch SCHOOL marking for each lane. Omit legend in left turn or exclusive right turn lanes.

2. Pavement marking should not extend over into opposing lane.

3. Pavement lane line markings (passing, no passing zone) per existing markings or as directed by the Engineer.

4. Refer to PAVE-945 for stop bar, crosswalk and yield line marking details.
SHARED LANE WITH ON-STREET PARALLEL PARKING

NOTES:
1. Refer to the Shared Lane Marking Guideline for appropriate use of marking.
2. When used, space shared lane marking at intervals no greater than 250 ft.
3. Refer to PAVE-955 for on-street parking zone marking details.
DETAIL OF SHARED LANE (SHARROW) MARKING
NOTES:

1. See PAVE-900 for symbol details.
NOTES:

1. See PAVE-900 for symbol details.
NOTES:

1. See PAVE-900 for symbol details.
2. Where bike lanes are adjacent to on-street parking, recommend utilizing Type I or Type II stall markings to provide continuous delineation. See PAVE-955 for details.

NOT TO SCALE
NOTES:

1. Solid green bike lane markings may be used in the bike box and the incoming section of bike lane.
2. Where the bike box is across multiple lanes, pedestrian countdown signals must be present on that approach.
3. Turns on red are prohibited from approaches where bike boxes are present.

NOT TO SCALE
MULTI-USE PATHWAY MARKINGS

1. Place broken yellow centerline markings for a minimum of 110 feet before and after the obstruction.
2. Increase W by 1 foot for raised obstructions.

NOTES:

1. Passing and no passing centerline markings may be used where paths are sufficient width to designate multiple lanes, but are not required.
2. Obstruction markings should be used at any location where an object cannot be eliminated from the path, including but not limited to drains, grates, bollards, and poles.

NOT TO SCALE
24" WHITE STOP BAR PERPENDICULAR TO ROADWAY CENTERLINE AND A MINIMUM OF 15 FEET FROM NEAREST RAIL MEASURED ALONG ROADWAY CENTERLINE OR EDGE OF PAVEMENT WHICHEVER IS THE SHORTER DISTANCE (TYP.)

RAILROAD GRADE CROSSING DEVICE (TYP.)

SUPPLEMENTAL RAILROAD GRADE CROSSING PAVEMENT MARKING MAY BE PLACED WHEN AN INTERSECTION FALLS BETWEEN THE TRACKS AND THE ADVANCED MARKING, WITH AT LEAST 100' BETWEEN THE TRACKS AND THE INTERSECTION SPRING POINT. (OPTIONAL)

RAILROAD GRADE CROSSING PAVEMENT MARKING (TYP.), (SEE DETAIL SHEET 4)

RAILROAD CROSSING AT TWO LANE ROADWAY
(OBTUSE TRACK/ROADWAY ANGLE SHOWN)
RAILROAD CROSSING AT MULTI LANE ROADWAY

(ACUTE TRACK/ROADWAY ANGLE SHOWN)
RAILROAD CROSSING AT SHARED-USE PATH

(Acute track/roadway angle shown)

NOT TO SCALE
CONVENTIONAL MARKINGS

ALTERNATE MARKINGS

NOTES:

1. This document shows active grade crossing devices on two lane and multi-lane roadways. If passive grade crossing devices (crossbucks) are present, the stop bar should be located at the crossbuck, but no closer than 15 feet from the nearest rail.

2. "R X R" pavement markings can be omitted for exclusive right turn lane locations. "R X R" pavement markings are optional for center lane left turn only lanes.

3. The alternate pavement markings may be specified at any grade crossing, but their use is particularly advantageous on roadways subjected to high traffic volumes, since they are designed to minimize the amount of markings applied in the wheel tracks, thereby extending marking life. Identical types of markings shall be installed on both roadway approaches.

4. The 24 inch transverse markings immediately above and below the "R X R" marking will be paid for separately.

5. See part 8 of the MMUCD for criteria regarding the placement of solid yellow, no passing zone markings.

6. When placed on a shared-use path, reduce all vertical dimensions (except for stop bars) by half.

7. STOP or YIELD signs are only to be used at passive crossings.

NOTE TO SCALE
D = ADVANCE WARNING DISTANCE
(REFER TO TABLE 2C-4 OF MMUTCD FOR D VALUES)

FOR "Z" VALUES SEE PAVE-945 SHEET 1

### PAVEMENT WIDTH REDUCTION CROSS-HATCH SPACING

<table>
<thead>
<tr>
<th>POSTED SPEED LIMIT (MPH)</th>
<th>&quot;Z&quot; (FT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 OR LESS</td>
<td>10</td>
</tr>
<tr>
<td>30</td>
<td>20</td>
</tr>
<tr>
<td>35</td>
<td>20</td>
</tr>
<tr>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>45</td>
<td>40</td>
</tr>
<tr>
<td>50</td>
<td>60</td>
</tr>
<tr>
<td>55</td>
<td>60</td>
</tr>
</tbody>
</table>
NOTES:

1. Merge arrows are required when the speed limit is 45 mph or greater. Where the speed limit is 40 mph or less, merge arrows are optional.

2. The MERGE legend may be used to supplement, but not replace, the arrows. See PAVE-900 for spacing.

3. The Engineer may choose to place merge arrows in long acceleration lanes.

4. When the merging lane is an interior lane on a multilane roadway, omit delineators.
**MEDIAN CROSS-OVER**

1. For "AUTHORIZED VEHICLES ONLY" crossovers, continue 6 inch yellow edgeline completely through crossover.

**DIRECTIONAL CROSS-OVER**

1. install arrow(s) as shown in PAVE-900 and PAVE-935. Unit arrow(s) if the lane is not full width in advance of the island or the channelizing marking is less than 75 ft in length.
DIRECTIONAL CROSS-OVER WITH LANE DROP

DIRECTIONAL CROSS-OVER WITH DUAL LANES

NOTES:

1. See PAVE-910 and PAVE-935 for location of special markings.
2. "ONLY" legends are not required when all crossover lanes are developed. If at least one crossover lane is a drop lane, then "ONLY" legends are required in addition to the arrows.
3. Include a dotted turning guideline for all double turn movements.
4. Evaluate traffic conditions when more than two receiving lanes are present to determine which lane the turning guide line should lead to (radius considerations, lanes dropping, etc.).

NOT TO SCALE