

PAVEMENT MARKINGS
STANDARDS
2004

CITY OF CHARLOTTE
DEPARTMENT OF TRANSPORTATION

INTRODUCTION:

THE CHARLOTTE DEPARTMENT OF TRANSPORTATION DESIGNS AND INSTALLS PAVEMENT MARKINGS IN ACCORDANCE WITH MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND THE TRAFFIC CONTROL DEVICES HANDBOOK (TCDH).

PURPOSE:

SINCE THE MUTCD AND THE TCDH ALLOW FOR SOME FLEXIBILITY IN THE WAY CERTAIN MARKINGS CAN BE DONE, THE PURPOSE OF THIS DOCUMENT IS TO STANDARDIZE PAVEMENT MARKING APPLICATIONS WITHIN THE CITY OF CHARLOTTE. THIS DOCUMENT SHOULD SERVE AS A REFERENCE FOR THE INSTALLATION AND MAINTENANCE OF PAVEMENT MARKINGS IN CHARLOTTE.

DEFINITIONS:

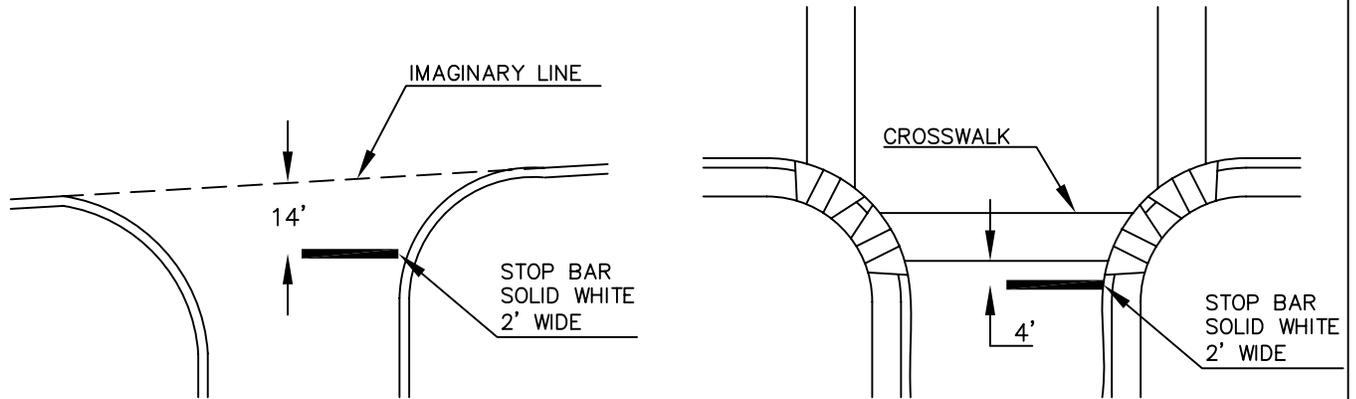
INTERSECTION: THE CROSSING OF TWO OF MORE STREETS AT GRADE.

BAY TURN LANE: TURN LANE DESIGNED NOT TO ENTRAP THROUGH TRAFFIC. SUCH A LANE IS PROVIDED PHYSICAL CONSTRICTION OR PAVEMENT MARKINGS TO KEEP THROUGH TRAFFIC FROM ACCIDENTALLY ENTERING IT. A BAY TURN LANE THAT EXTENDS BETWEEN TWO INTERSECTIONS SHALL BE CONSIDERED A DROP TURN LANE.

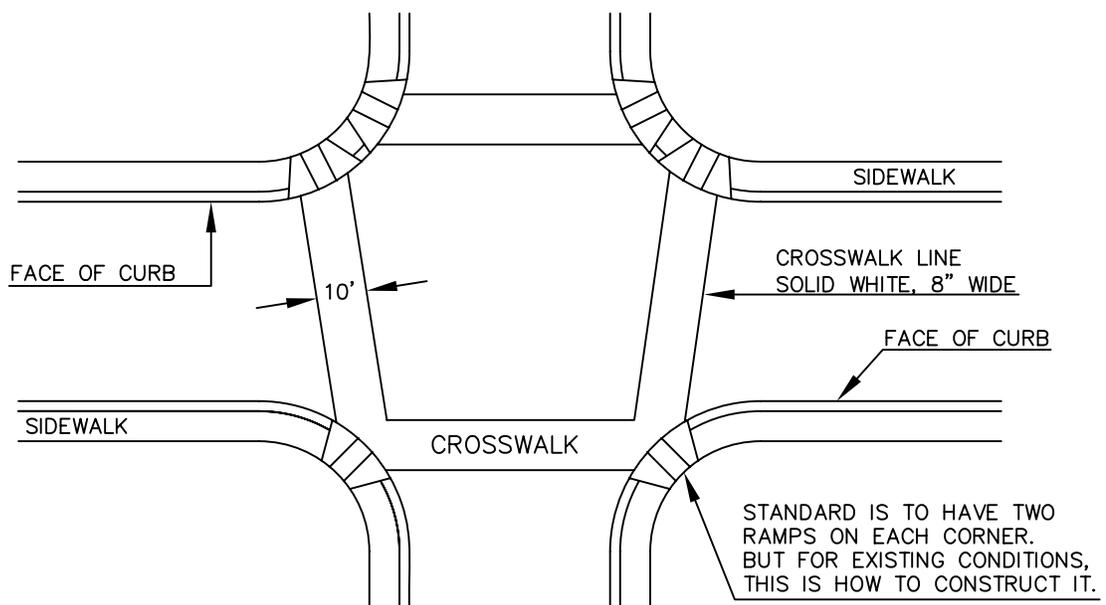
DROP TURN LANE: THROUGH LANE THAT BECOMES A MANDATORY TURN LANE AT AN INTERSECTION. THROUGH TRAFFIC IN SUCH A LANE CAN BE TRAPPED IF NOT WARNED BY SIGNS AND MARKINGS. THE THROUGH TRAFFIC MUST INTENTIONALLY MANEUVER OUT OF SUCH LANE OR BE REQUIRED TO TURN. A BAY TURN LANE THAT EXTENDS BETWEEN TWO INTERSECTIONS SHALL BE CONSIDERED A DROP TURN LANE.

PAVEMENT MARKINGS GUIDELINE:

STOP BARS: A STOP BAR SHALL BE SOLID WHITE AND 24" IN WIDTH. WHEN INSTALLED, A STOP BAR SHOULD BE PLACED A MINIMUM OF 14' FROM THE EDGE OF THE CROSSING ROAD. IF CROSSWALKS ARE PRESENT, THE STOP BAR SHALL BE A MINIMUM OF 4' IN ADVANCE OF THE NEAREST CROSSWALK LINE. A STOP BAR SHOULD BE INSTALLED PERPENDICULAR TO THE LEG OF THE INTERSECTION IT IS BEING INSTALLED ON.

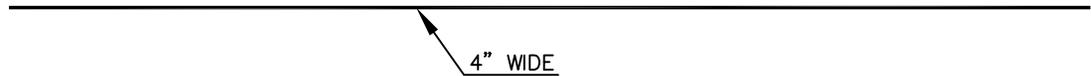


CROSS WALK: CROSSWALKS SHOULD PROVIDE DIRECT AND UNOBSTRUCTED CONNECTION BETWEEN ACCESSIBLE RAMPS. CROSSWALK LINES SHALL BE SOLID WHITE AND 8" IN WIDTH. THE CROSSWALK WIDTH SHOULD BE 10' WIDE UNLESS OTHERWISE SPECIFIED ON THE PLAN. THE CROSSWALK WIDTH SHALL NOT BE LESS THAN 6'. CROSSWALK LINES NEAREST TO THE CENTER OF THE INTERSECTION ALONG A SPECIFIC STREET SHOULD, WHENEVER POSSIBLE, EXTEND FROM FACE OF CURB TO FACE OF CURB ACROSS THE INTERSECTING ROAD.



EDGE LINES:

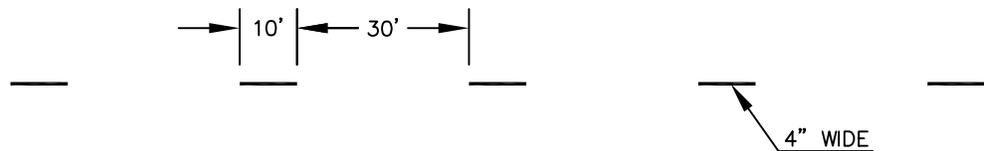
EDGE LINES SHALL BE 4" WIDE. SOLID WHITE EDGE LINES SHALL BE INSTALLED TO THE RIGHT OF MOTORIST TRAVELING IN THE EXTREME RIGHT LANE WHEN CONCRETE CURB AND GUTTER ARE NOT PRESENT OR WHEN CONCRETE CURB IS PRESENT BUT GUTTER IS EITHER FILLED IN WITH ASPHALT OR NOT PRESENT. SOLID YELLOW EDGE LINES SHALL BE INSTALLED ON ALL DIVIDED ROADS AND ONE WAY STREETS TO THE LEFT OF MOTORISTS TRAVELING IN THE EXTREME LEFT LANE (EVEN IF CONCRETE CURB AND GUTTER IS PRESENT). EDGE LINE SHALL BE BROKEN FOR INTERSECTIONS AND STREET-TYPE ENTRANCE DRIVEWAYS (TYPES III AND IV, CHARLOTTE LAND DEVELOPMENT STANDARDS 10.28 AND 10.25F, RESPECTIVELY). EDGE LINES SHALL NOT BE BROKEN FOR DROP CURB CONCRETE RAMP DRIVEWAYS (TYPES I AND II, CHARLOTTE LAND DEVELOPMENT STANDARDS 10.24 - 10.27).



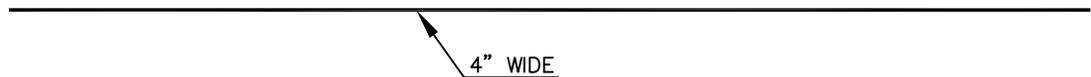
LANE LINES:

LANE LINES SHALL BE WHITE AND 4" WIDE. LANE LINES CAN BE SKIP OR SOLID AND SHALL BE INSTALLED TO SEPARATE LANES OR TRAFFIC TRAVELING IN THE SAME DIRECTION.

SKIP LANE LINES: SKIP LANE LINES SHALL BE INSTALLED TO SEPARATE THROUGH LANES TRAVELING IN THE SAME DIRECTION. EACH SKIP LINE SHALL BE 10' IN LENGTH PLACED AT 30' INTERVALS.



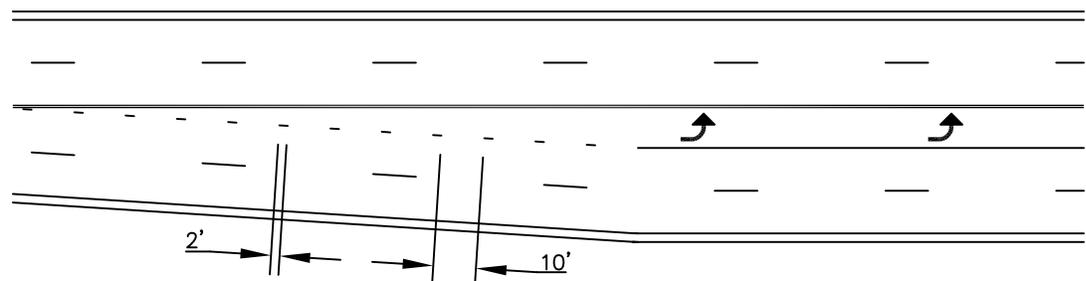
SOLID LANE LINES: SOLID LANE LINES SHALL BE INSTALLED TO SEPARATE DUAL TURN LANES AS WELL AS THROUGH LANES FROM TURN LANES THAT ARE TRAVELING IN THE SAME DIRECTION.



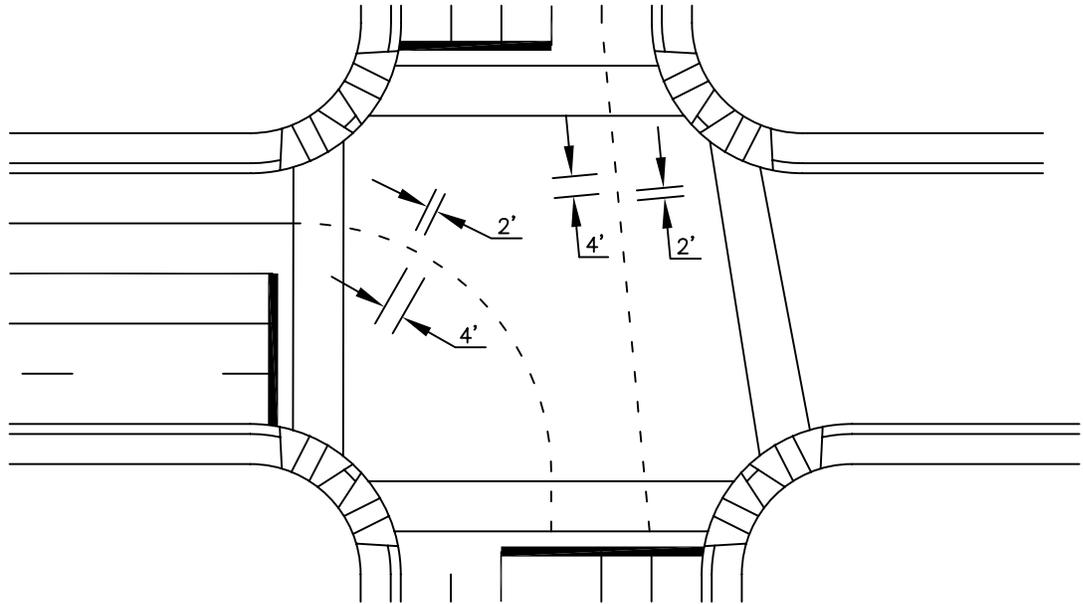
MINI-SKIP LINES:
(DASHED LINES)

MINI-SKIP LINES SHALL BE WHITE, 2' LONG, AND 4" WIDE.

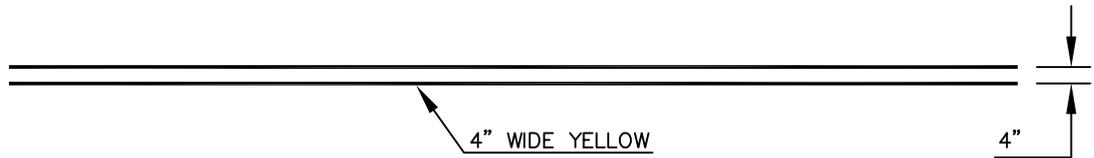
MINI-SKIP LINE AS TAPERS: MINI-SKIP LINES SHALL BE SEPARATED BY 10' GAPS WHEN USED TO TAPER THROUGH TRAFFIC AWAY FROM TURN LANES.



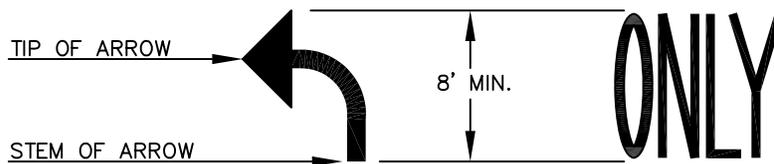
MINI-SKIP LINE THROUGH INTERSECTION: MINI-SKIP LINES SHALL BE SEPARATED BY 4' GAPS WHEN USED THROUGH AN INTERSECTION, i.e. FOR DUAL TURNS OR TO DELINEATE AN OFFSET.



CENTER LINES: CENTER LINES SHALL BE A DOUBLE YELLOW LINE. A DOUBLE YELLOW LINE SHALL CONSIST OF TWO SOLID 4" SIDE YELLOW LINES PLACED 4" APART. WHEN WARRANTED, CENTER LINES SHALL BE USED TO SEPARATE TRAFFIC TRAVELING IN OPPOSITE DIRECTIONS WHERE A MEDIAN ISLAND IS NOT PRESENT.

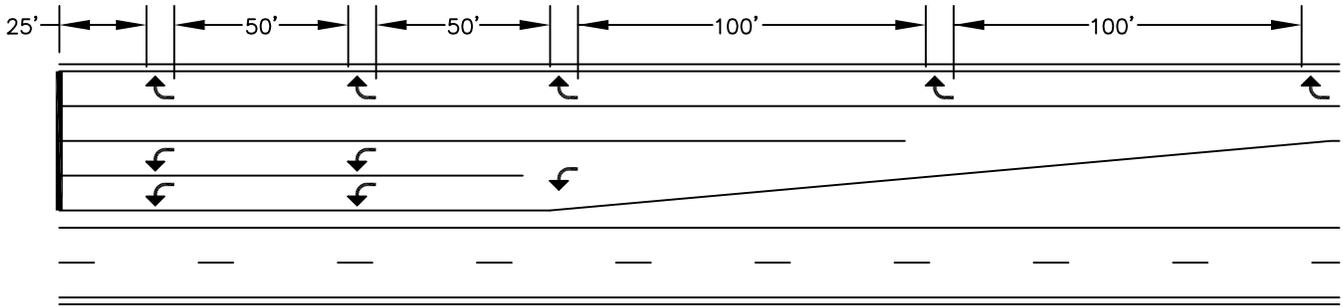


TURN ARROWS AND "ONLY" LEGENDS: TURNS ARROWS AND "ONLY" LEGENDS SHALL BE WHITE. ALTHOUGH ALL TURN LANES MUST HAVE ARROWS IN THEM, SOME MUST ALSO HAVE "ONLY" LEGENDS. THE LOCATIONS OF ARROWS AND "ONLY" LEGENDS AND THE USE OF THE "ONLY" LEGEND SHALL DEPEND ON WHETHER THE TURN LANE IS CONSIDERED A "BAY TURN LANE" OF A "DROP TURN LANE" (SEE DEFINITIONS SECTION).



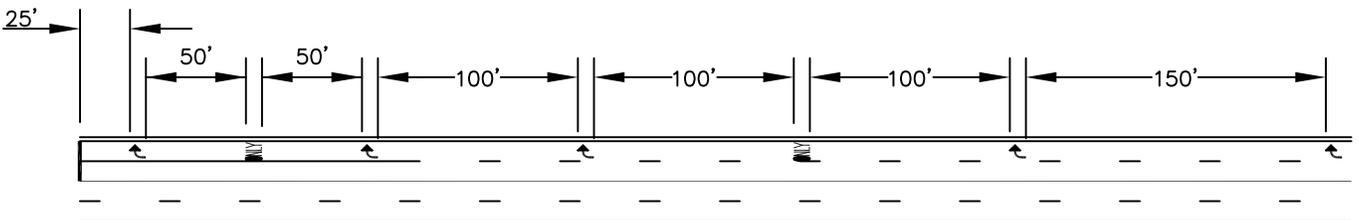
BAY TURN LANES: BAY TURN LANES SHALL HAVE ARROWS BUT NOT "ONLY" LEGENDS. THE NUMBER OF ARROWS TO BE INSTALLED IN A BAY TURN LANE SHALL DEPEND ON THE LENGTH OF THE TURN LANE. THE SPACING BETWEEN THE ARROWS IN A BAY TURN LANE SHALL BE AS FOLLOWS:

- * TIP OF 1ST ARROW AT 25' FROM STOP BAR OR EXIT POINT OF THE TURN LANE
- * TIP OF 2ND ARROW AT 50' FROM THE STEM OF THE 1ST ARROW
- * TIP OF 3RD ARROW AT 50' FROM THE STEM OF THE 2ND ARROW
- * TIP OF 4TH ARROW AT 100' FROM THE STEM OF THE 3RD ARROW
- * TIP OF 5TH ARROW AT 100' FROM THE STEM OF THE 4TH ARROW
- * TIP OF 6TH ARROW AT 100' FROM THE STEM OF THE 5TH ARROW
- * TIP OF 7TH ARROW AT 150' FROM THE STEM OF THE 6TH ARROW
- * TIP OF 8TH ARROW AT 150' FROM THE STEM OF THE 7TH ARROW

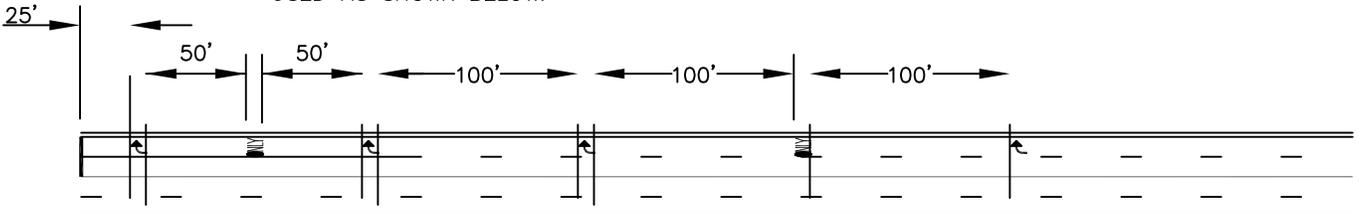


DROP TURN LANES: DROP TURN LANES SHALL HAVE ARROWS AND "ONLY" LEGENDS. THE NUMBER AND LOCATION OF THE ARROWS AND THE "ONLY" LEGENDS SHALL DEPEND ON THE POSTED SPEED LIMIT EXCEPT WHERE THE DROP TURN LANE IS ON THE STEM OF A T - INTERSECTION.

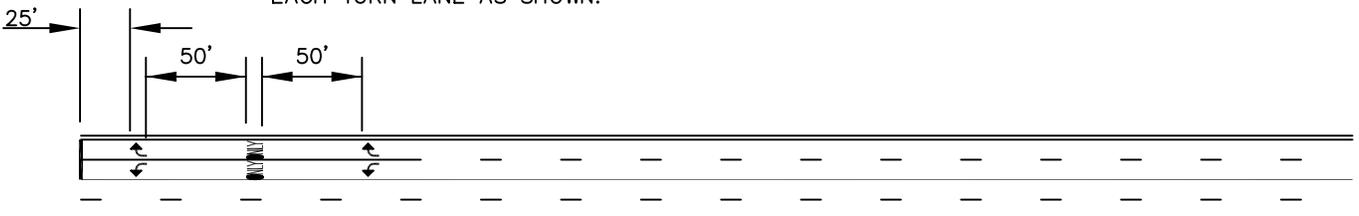
- FOR POSTED SPEED OF 40 MPH OR MORE, 5 ARROWS AND 2 "ONLY" LEGENDS SHALL BE USED AS SHOWN BELOW:



- FOR POSTED SPEED OF 35 MPH OR MORE, 4 ARROWS AND 2 "ONLY" LEGENDS SHALL BE USED AS SHOWN BELOW:

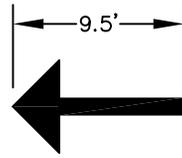


- FOR STEM OF A T - INTERSECTION, 2 ARROWS AND 1 "ONLY" LEGEND SHALL BE USED IN EACH TURN LANE AS SHOWN:



STRAIGHT ARROWS:

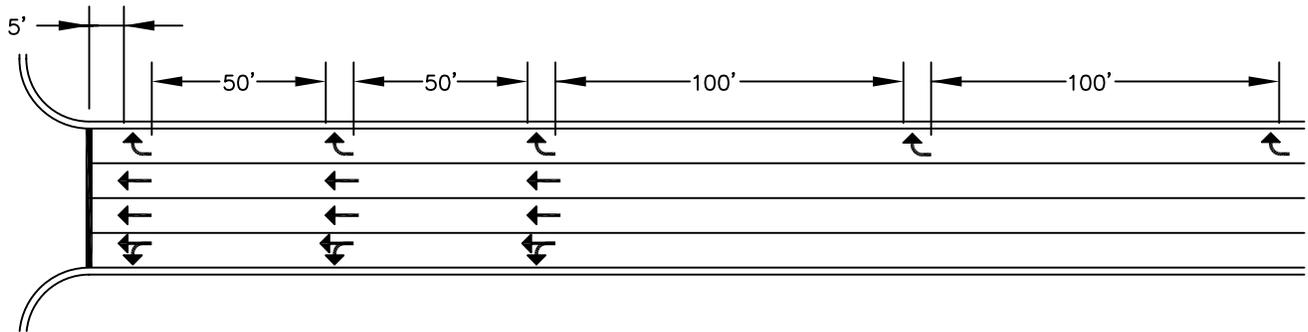
STRAIGHT ARROWS SHALL BE WHITE. THE ONLY STANDARD APPLICATION REGARDING STRAIGHT ARROWS IS IN THE THROUGH LANES OF ONE-WAY STREETS THAT ARE SIGNALIZED.



A SET OF 3 STRAIGHT ARROWS SHALL BE USED IN EACH THROUGH LANE SPACED AS FOLLOWS:

- TIP OF ST. ARROW AT 5' FROM STOP BAR
- TIP OF 2ND ARROW AT 50' FROM THE STEM OF THE 1ST ARROW
- TIP OF 3RD ARROW AT 50' FROM THE STEM OF THE 2ND ARROW

WHERE STRAIGHT ARROWS ARE USED, ARROWS SHOULD BE PLACED IN EACH LANE. COMBINATION STRAIGHT/TURN ARROWS SHOULD BE USED APPROPRIATELY.

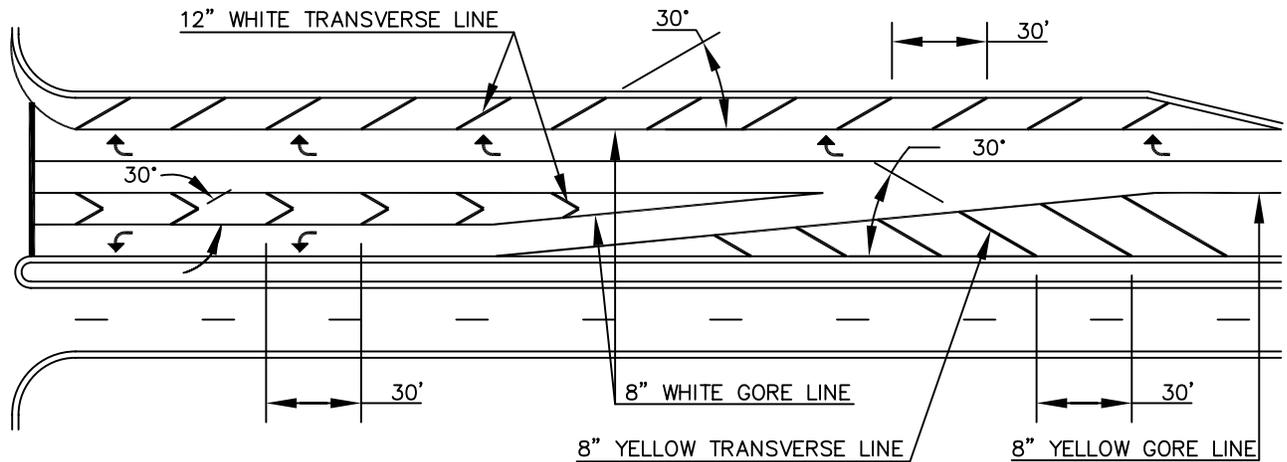


GORE LINES:

GORE LINES SHALL BE SOLID 8" WIDE LINES. A GORE LINE SHALL BE WHITE WHEN PLACED TO FORM A CHANNELIZATION ISLAND SEPARATING TRAFFIC TRAVELING IN THE SAME DIRECTION. A GORE LINE SHALL BE WHITE WHEN PLACED TO RIGHT OF MOTORISTS TRAVELING IN THE EXTREME RIGHT LANE, AND SHALL BE YELLOW WHEN PLACED TO THE LEFT OF MOTORISTS TRAVELING IN THE EXTREME LEFT LANE.

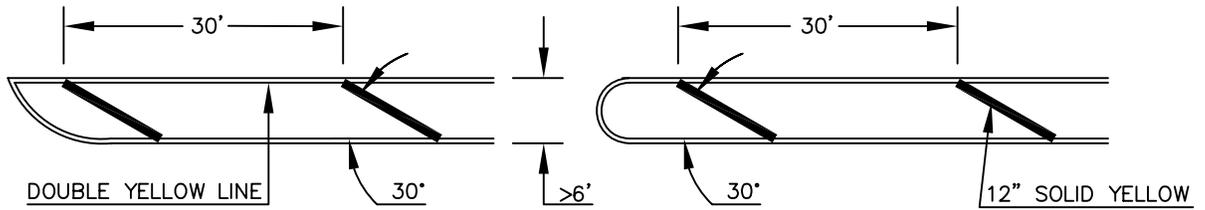
TRANSVERSE LINES:

TRANSVERSE (HATCH) LINES SHALL BE SOLID 12" WIDE LINES. TRANSVERSE LINES SHALL BE YELLOW WHEN PLACED TO THE LEFT OF MOTORISTS TRAVELING IN THE EXTREME LEFT LANE. TRANSVERSE LINES SHALL BE WHITE WHEN PLACED TO THE RIGHT OF MOTORISTS TRAVELING IN THE EXTREME RIGHT, AND WHEN PLACED IN CHANNELIZATION ISLANDS SEPARATING TRAFFIC TRAVELING IN THE SAME DIRECTION. TRANSVERSE LINES SHOULD BE ANGLED 30° TO THE APPROACHING TRAFFIC. THE DIRECTION OF THE ANGLE SHOULD BE SUCH THAT THE TRAFFIC FOLLOWING THE TRANSVERSE LINES IS DIRECTED BACK INTO THE TRAVEL LANE.



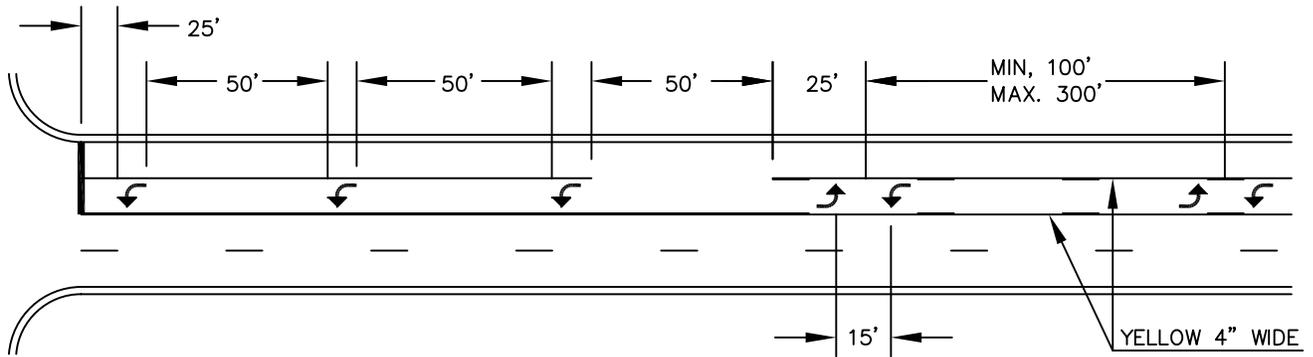
MEDIAN ISLANDS:

TWO DOUBLE YELLOW LINES SHALL BE USED TO FORM A MARKED MEDIAN ISLAND THAT SEPARATES TRAFFIC TRAVELING IN OPPOSITE DIRECTIONS. FOR ISLANDS WITH A WIDTH THAT IS GREATER THAN OR EQUAL TO 6', TWO SOLID YELLOW TRANSVERSE LINES, 12" WIDE, SHOULD WHENEVER POSSIBLE BE INSTALLED AT THE NOSE OF THE ISLAND AS SHOWN BELOW:



TWO WAY LEFT TURN LANES:

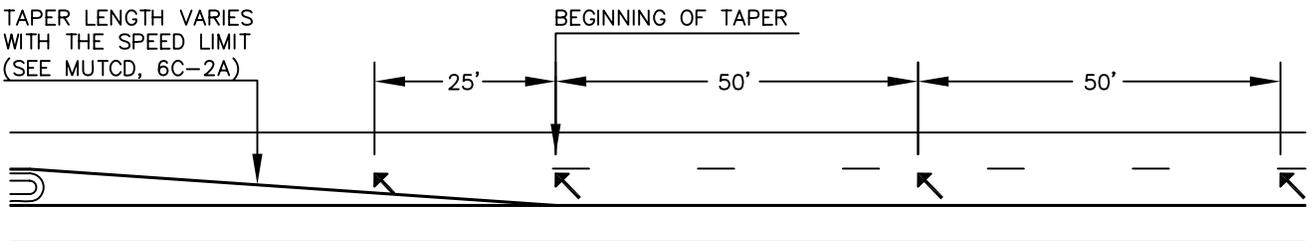
TWO WAY LEFT TURN LANES (TWLTL), COMMONLY REFERRED TO AS CENTER TURN LANES, SHALL BE MARKED USING A COMBINATION OF A YELLOW SKIP LINE AND A SOLID YELLOW LINE ON EACH EDGE OF THE LANE. THE SOLID LINE AND THE SKIP LINE ARE PLACED 4" APART WITH THE SKIP LINE ON THE INSIDE OF THE LANE. WHERE THE TWLTL IS TERMINATED BY AN EXCLUSIVE TURN LANE, THERE SHALL BE A 50' LONG GAP BETWEEN THE SOLID SKIP YELLOW LINE OF THE TWLTL AND THE WHITE LANE LINE OF THE EXCLUSIVE TURN LANE. WHITE ARROWS SHALL BE INSTALLED IN THE LANE AS SHOWN BELOW.



MERGE LANE ARROWS:

STRAIGHT WHITE ARROWS AT 45° ANGLE TO THE LANE LINE SHALL BE INSTALLED IN THE THROUGH LANE THAT IS MERGED INTO AN ADJACENT THROUGH LANE AS SHOWN BELOW:

TAPER LENGTH VARIES WITH THE SPEED LIMIT (SEE MUTCD, 6C-2A)



RAISED MARKERS:

WHEN USED, RAISED PAVEMENT MARKERS SHALL BE INSTALLED IN ACCORDANCE WITH STANDARDS 1250.01, 1251.01 AND 1253.01 OF THE NORTH CAROLINA ROADWAY STANDARDS DRAWINGS.