

NOTICE

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Department of Public Works

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Design Manual Updates – Updated Road Sections

Updated Road Cross-Section requirements have been developed that replace Standard Details P-1 through P-9 in Section 6 of the “Standard Details for Construction” of the County Design Manual, effective August 24, 2020.



Christopher Phipps
Director



Christopher J. Phipps, P.E., Director

MEMORANDUM

TO: Anne Arundel County Design Manual Users

FROM: David C. Braun, P.E., Acting Deputy Director, Bureau of Engineering,
Department of Public Works

SUBJECT: Design Manual Updates – Updated Road Sections

DATE: July 31, 2020

Attached are updated Road Cross-Section requirements that replace Standard Details P-1 through P-9 in Section 6 of the “Standard Details for Construction” of the County Design Manual, effective August 24, 2020. Representatives of The Department of Public Works, Office of Transportation, Office of Planning and Zoning, Department of Inspections and Permits, Fire Marshal’s Office, and the Department of Aging & Disabilities have been meeting over the last two years to develop these updated Typical Sections for all county roads and classifications. Review meetings have also been held with MBIA and the Anne Arundel County Bicycle Advisory Commission to review and discuss various drafts of the proposed changes, and receive comments and questions. The results of these efforts are provided in the attached updated standards.

Key issues related to these updates are:

1. A matrix has been developed outlining the required improvements for each road classification, including various forms of bicycle and pedestrian improvements.
2. Rather than specific pavement and right-of-way widths, each of the identified improvements would be constructed for all new and improved roads based on the specific conditions as outlined, with the total pavement and right-of-way width based on the required improvements for each road classification.
3. The ultimate right-of-way is required to be dedicated to provide for all required facilities along each road, even in the event some of the identified improvements are not required to be constructed at that time.
4. These requirements do not apply to private roads. The Department of Inspections & Permits will be publishing separate guidance for those facilities.

DCB

Attachment

C:\Users\David\Documents\AACo\DM Road Standard Update memo 7-23-20.docx

STANDARD CROSS-SECTION REQUIREMENTS

July 1, 2020

Facility	Road Classification	Principal Arterial - Closed	Principal Arterial - Open	Minor Arterial - Closed	Minor Arterial - Open	Collector - Closed	Collector - Open	Local - Closed	Local - Open
A. Slope (outside R/W line)		C1	C1	C1	C1	C1	C1	C1	C1
B. Stormwater Conveyance		C2	C2	C2	Y; 9' min	C2	Y; 9' min	C2	Y; 9' min
C. Street Trees/Buffer (see C14)		5' min	5' min	5' min	5' min	5' min	5' min	5' min	5' min
D. Sidewalk		5' min	C3; 5' min	5' min	C3; 5' min	5' min	C3; 5' min	5' min	C3; 5' min
E. Shared Use Path		C4; 10' min	C4; 10' min	C4; 10' min	C4; 10' min	C4; 10' min	C4; 10' min	N	N
F. Utility Strip		C5; 4' min	C5; 4' min	C5; 4' min	C5; 4' min	C5; 4' min	C5; 4' min	C5; 4' min	C5; 4' min
G. Curb/Gutter		2'	N	2'	N	2'	N	2'	N
H. Shoulder (see C15)		12' min	10' min	8' min	8' min	N	N	N	N
I. Parking Lane		N	N	N	N	C6; 7'	C6; 8'	C6; 7'	C6; 8'
J. Dedicated Bicycle Facilities		C7; 6-10'	C7; 6-10'	C7; 6-10'	C7; 6-10'	C9; 4-6'	C9; 4-6'	N	N
K. Right Turn Lane		C10; 10' min	C10; 10' min	C10; 10' min	C10; 10' min	C10; 10' min	C10; 10' min	N	N
L. Through Lane		C11; 11-12'	C11; 11-12'	C11; 10-12'	C11; 10-12'	C11; 10-11'	C11; 10-11'	10'	10'
M. Left Turn Lane		C12; 10' min	C12; 10' min	C12; 10' min	C12; 10' min	C12; 10' min	C12; 10' min	N	N
N. Median		C13; 16' min	C13; 16' min	C13; 6' min	C13; 6' min	C13; 6' min	C13; 6' min	N	N

C - Conditional; see notes below

Y - Required

N - Not Required

C1: Slope to tie-in right-of-way(r/w) grade to existing grade, or retaining wall, MUST be located outside the public r/w; 2:1 max slope.

C2: Stormwater conveyance consists of roadside ditching. If provided, width shall be based on Design Manual requirements to handle design flow volume. Stormwater management facilities shall not be located in the public right-of-way unless approved by the DPW Bureau of Highways.

R/W width shall be adjusted as necessary for facility to be completely in public r/w, and no utility structures located between top of banks of facility.

C3: Sidewalk required on all roads unless 25-year ADT < 400, AND average lot size is over 30,000 sf, AND

entrance to development is not within 1.5 miles of any pedestrian generator when measured along the public right-of-way.

C4: Shared Use Paths shall be installed when required by the Office of Transportation, in lieu of sidewalk on that side, in accordance with adopted master plans, corridor studies, extension of existing paths, or other multimodal impact that may be identified.

C5: Utility Strip to be located between curb and sidewalk shall include Signage, Fire Hydrants, Street Lighting. Private utilities (i.e. BGE, Verizon, CATV) shall be located under the sidewalk.

C6: Parking lane shall be required on all roads where average lot width is less than 80 feet as follows:

For lot widths between 30'-80', parking lane required on one side of road

If lot widths ≤30' and rear alley access provided, parking lane required on both sides of road

If lot widths ≤30' and no rear access, no on-street parking shall be provided. Instead, additional parking shall be provided in accordance with the requirements of the County Code (17-6-604(e)) when on-street parking is prohibited.

C7: The appropriate facilities will be determined by the Office of Transportation in accordance with current Federal, State, and Local standards, and may include separated bike lanes (characterized by a vertical barrier) of a width appropriate for the speed and volumes, shared use paths, or buffered bike lanes.

C9: Provide a striped and marked bicycle lane in accordance with the following:

Posted speed ≤35 mph - 4'

Posted speed >35 mph and ≤45 mph with ≤8% trucks - 5'

Posted speed >35 mph and ≤45 mph with >8% trucks - 6'

Posted speed >45 mph - 6'

If adjacent to parking or a physical barrier such as a guardrail or curb with no gutter pan, provide a 6' marked bicycle lane.

C10: Right Turn Lane required if volume warrants met - see Exhibit C10. R/W shall be widened as necessary for facilities to be completely in public r/w.

Full width pavement is required along the total length of the lane. The taper is to be established via pavement markings.

C11: Lane width based on speed and volume - see Exhibit C11.

C12: Left Turn lane required if volume warrants met - see Exhibit C12(a-c). R/W shall be widened as necessary for facilities to be completely in public r/w.

Full width pavement is required along the total length of the lane. The taper is to be established via pavement markings.

C13: If median is provided, minimum width provided shall be based on the ultimate road design for its classification, the characteristics of the area, and meet all ADA and other regulatory requirements.

C14: If credit for street trees is provided through existing trees preserved immediately abutting the right of way, 5' grass buffer must still be provided.

C15: Requirement for shoulder on multi-lane arterials shall be determined by the County during development plan review.

NOTES:

1. Unless otherwise shown/prescribed in an adopted plan, authorized corridor study, or active/completed CIP design, the above typical section requirements shall apply to the design of all public roads, including State roads subject to SHA approval of an Access Permit.

2. The right-of-way of any proposed road, or road impacted by required frontage improvements, shall be adjusted as necessary so that all required elements are within the delineated right-of-way.

STANDARD CROSS-SECTION REQUIREMENTS

EXHIBIT C10

RIGHT TURN LANE REQUIREMENTS

Collectors and Arterials

Right turn lanes are required under the following conditions:

1. If road DDHV < 400, and right turn DHV>60.
2. If road DDHV \geq 400, and right turn DHV>30.

DDHV = Directional Design Hour Volume – peak hour volume in direction of travel of right-turns

DHV = Design Hour Volume – peak hour right turn volume

NOTE: Right turn lanes in designated Town Centers and other urban areas are subject to review to consider the impact to pedestrians and signal timings.

When required based on the above information, right turn lanes shall be provided as follows:

<u>Design Speed</u>	<u>Taper Length (ft)</u>	<u>Deceleration Length (ft)</u>	<u>Total Length (ft)</u>
30	80	170	250
35	100	250	350
40	150	275	425
45	150	340	490
50	150	410	560
55	150	485	635

STANDARD CROSS-SECTION REQUIREMENTS

EXHIBIT C11

MINIMUM THROUGH LANE WIDTH

Collectors

1. If road ADT <400, then:
 - a. If Design Speed \leq 50 mph, lane width = 10'
 - b. If Design Speed >50 mph, lane width = 11'

2. If road ADT > 400 and <1500, then:
 - a. If Design Speed \leq 30 mph, lane width = 10'
 - b. If Design Speed >30 mph, lane width = 11'

3. If road ADT > 1500, then lane width = 11'

Arterials

1. If road ADT <1500, then:
 - a. If Design Speed \leq 30 mph, lane width = 10'
 - b. If Design Speed >30 mph, lane width = 11'

2. If road ADT > 1500 and <2000, then:
 - a. If Design Speed \leq 50 mph, lane width = 11'
 - b. If Design Speed >50 mph, lane width = 12'

3. If road ADT > 2000, then lane width = 12'

Note: ADT for the purposes of determining the through lane width shall be calculated by adding any traffic from the proposed development under review to the existing traffic.

STANDARD CROSS-SECTION REQUIREMENTS

EXHIBIT C12

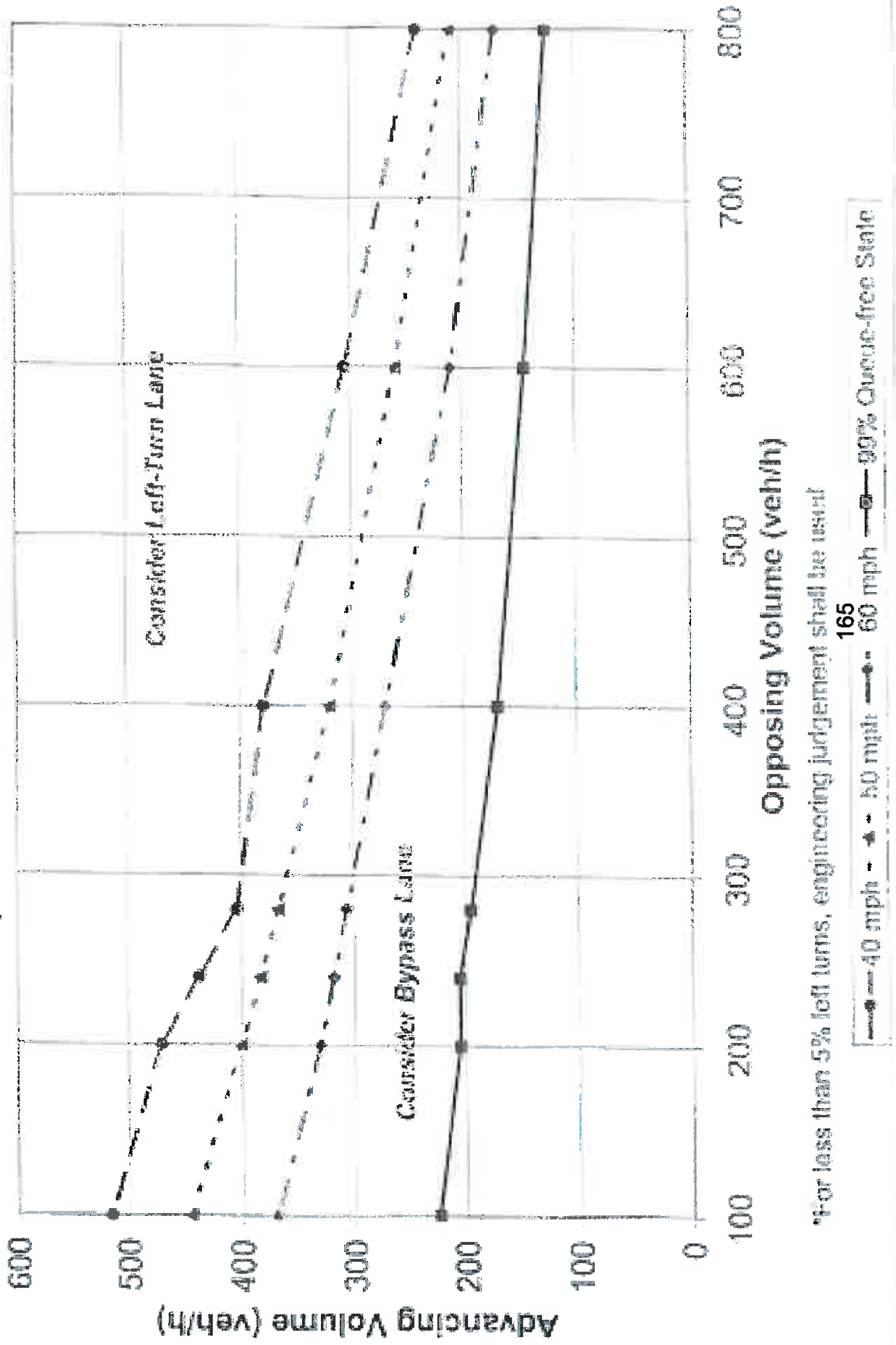
LEFT TURN LANE REQUIREMENTS

Collectors and Arterials

When required based on Exhibits 12a-c, left turn lanes shall be provided as follows:

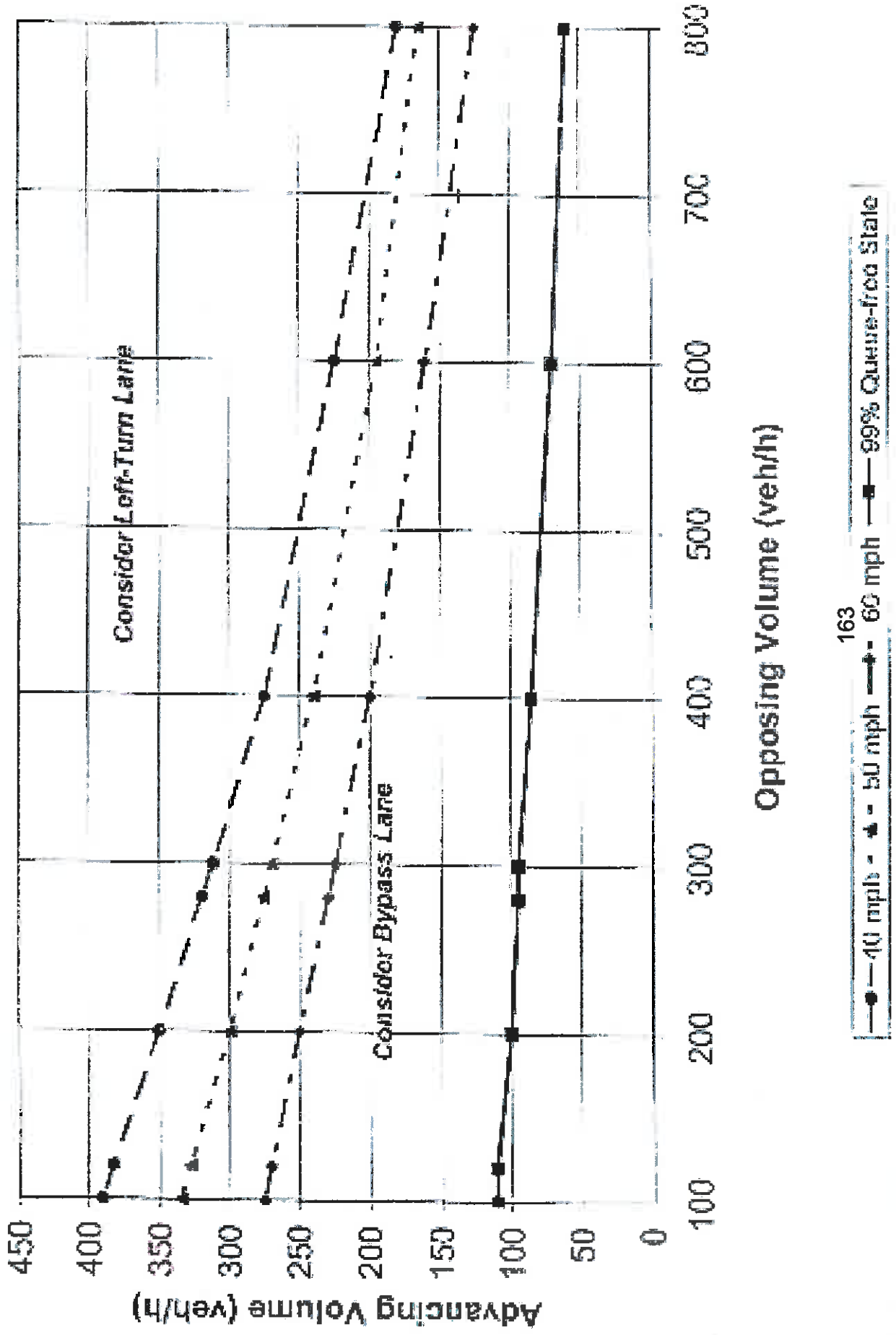
<u>Design Speed</u>	<u>Taper Length (ft)</u>	<u>Deceleration Length (ft)</u>	<u>Total Length (ft)</u>
30	80	170	250
35	100	250	350
40	150	275	425
45	150	340	490
50	150	410	560
55	150	485	635

Guidelines For Installation of Shoulder Bypass/Left-Turn Lanes (5%* - 10% Left-Turning Traffic)



*For less than 5% left turns, engineering judgement shall be used

Guidelines For Installation of Shoulder Bypass/Left-Turn Lanes (10% - 20% Left-Turning Traffic)



Guidelines For Installation of Shoulder Bypass/Left-Turn Lanes (20% - 30% Left-Turning Traffic)

