

DATE: October 4, 2024

SUBJECT: Design Alternatives for Low Volume Driveway Highway Occupancy Permits

TO: District Executives

FROM: Daniel Farley, P.E., Director *Daniel Farley*
Bureau of Operations

The purpose of this Strike-off-Letter (SOL) is to provide the HOP applicant with alternative designs for low volume driveways to accommodate combination trucks, buses, and single-unit trucks using flush corrugated concrete aprons for certain scenarios. In addition to the existing Low Volume Driveway design standards found in Chapter 2.8, page 48 of Publication 282: Highway Occupancy Permit Operations Manual, the Alternative Low Volume Driveway design standards will include:

Two driveway design variations using flush corrugated concrete aprons:

- Driveways serving less than 5 combination trucks, buses, or single-unit trucks per day.
- Driveways serving 5 or more combination trucks, buses, or single-unit trucks per day.

This update was discussed at early 2024 monthly statewide HOP Managers meetings (attended by Engineering Districts, Central Office, and Office of Chief Counsel personnel). The updates provided also went through the clearance transmittal process and comments received were addressed.

The above alternative designs are effective immediately and will be incorporated into the next update of Publication 282 in the following sections, which are also attached:

- Chapter 2.5 – Page 48.
- Chapter 2.5 – Page 48A.
- Chapter 2.5 – Page 48B.
- Appendix C1 (HOP Project Application Checklists, pg. C1-10) checklist item:
 - (20) Ensure corrugated concrete is used where applicable (Pub. 282, Ch. 2.5).

Should you have any questions or require additional information, please contact Michael Dzurko, Manager, HOP Program, at 717.783.6080.

Attachment

4943/MD/acp

cc: Eliza Erickson, OTO Coordinator, Governor's Office
Brent Sailhamer, Executive Director, ACEC/PA
Thomas Macchione, P.E., Director, Traffic Engineering and Operations, PTC
Alicia Nolan, Division Administrator, FHWA
Assistant District Executives-Construction
Assistant District Executives-Design
Assistant District Executives-Maintenance
Francis Hanney, Assistant District Executive-Operations, District 6
District Planning and Program Managers
District Traffic Engineers
District HOP Managers
Karen Cummings, Senior Assistant Counsel, OCC
Daryl St. Clair, P.E., Special Assistant, Highway Administration
Shane Rice, Director, Policy Office
Teresa Wagner, Director, Legislative Affairs
Christine Spangler, P.E., Director, BODD
Brent L. Trivelpiece, P.E., Director, BOCM
Kristin Langer, P.E., Director, BOB
Christa Newmaster, Director, BOM
Daniel Farley, P.E., Director, BOO
Mark Kopko, P.E., Director, Strategic Development and Implementation Office
Andrew Firment, Chief, Operations and Performance Division, BOM
Douglas Tomlinson, P.E., Chief, Highway Safety and Traffic Operations Division, BOO
Robert Pento, P.E., Chief, Traffic Engineering and Permits Section, BOO
Michael Dzurko, Manager, HOP Unit, BOO
Christopher Metka, Municipal Research and Outreach Manager, CPDM
CN Read File
JAE Read File

Low Volume Driveways

A typical low volume driveway will provide access to small offices or single entity retail that has occasional driveway use during hours of operation. Some small and medium sized apartment complexes also fit into this category.

A curb radius design is preferred for this type of driveway. Radii and distances provided in the diagram below are recommended values and design vehicle turning movements should be used to verify their applicability. Americans with Disabilities Act (ADA) compliance is required.

Some low volume driveways require occasional access to larger vehicles that cannot be accommodated within the design parameters in the diagram below. Refer to the alternate low volume driveway design details on page 48A and 48B when the parameters below cannot be met due to the turning radius of a combination truck, bus, or single-unit truck.

Design Details

Typical Installations

Driveway Without Curb

Letter	Single Unit Trucks & Passenger Cars				Buses & Combination Trucks			
	<45 MPH		≥45 MPH		<45 MPH		≥45 MPH	
	Min	Max	Min	Max	Min	Max	Min	Max
A	10'R	15'R	15'R	25'R	35'R	50'R	45'R	55'R
B (One Way)	10'	20'	12'	20'	12'	20'	12'	20'
B (Two Way)	20'	24'	20'	24'	22'	24'	22'	24'

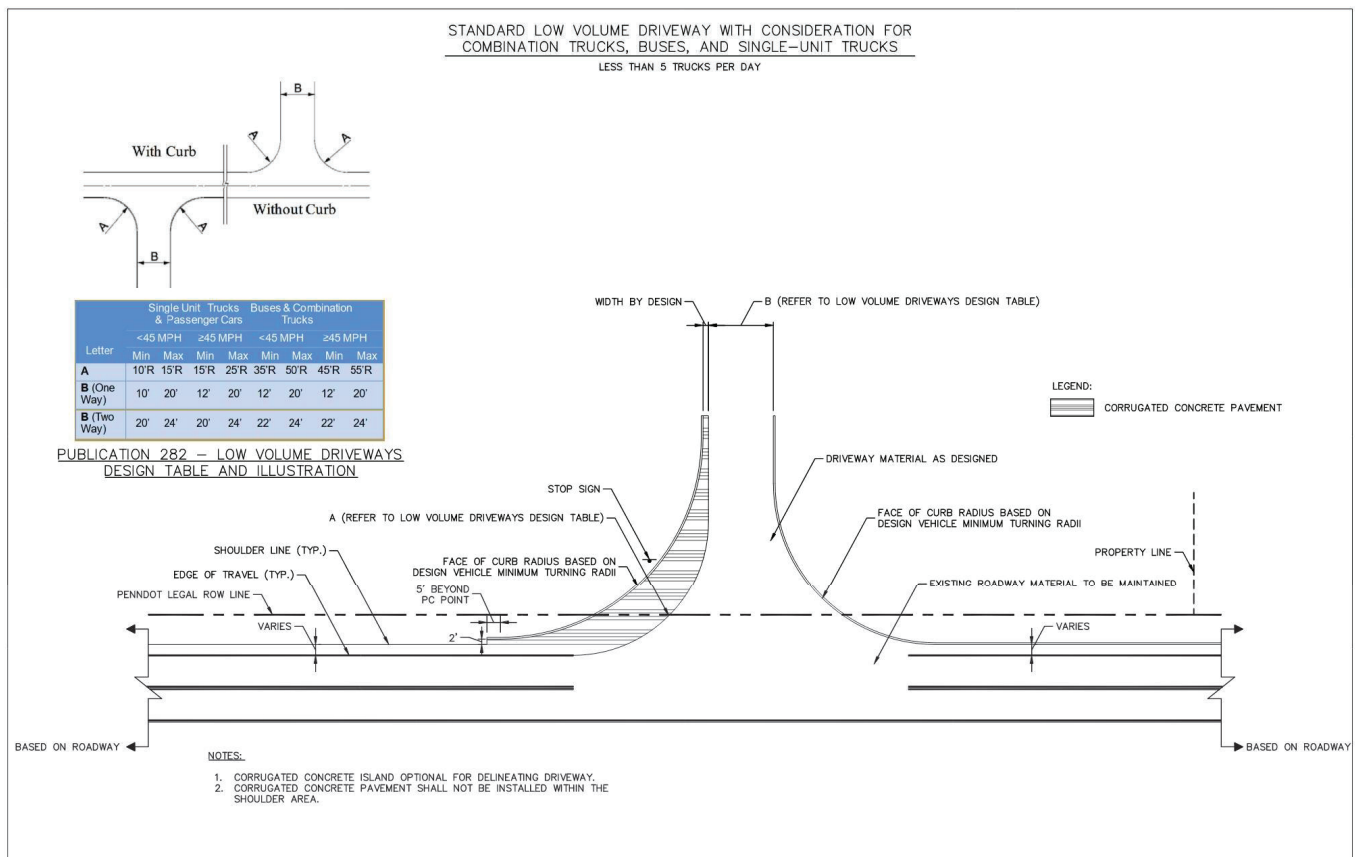
Driveway With Curb

**Alternate Low Volume Driveway with Consideration for
Combination Trucks, Buses, and Single-Unit Trucks**

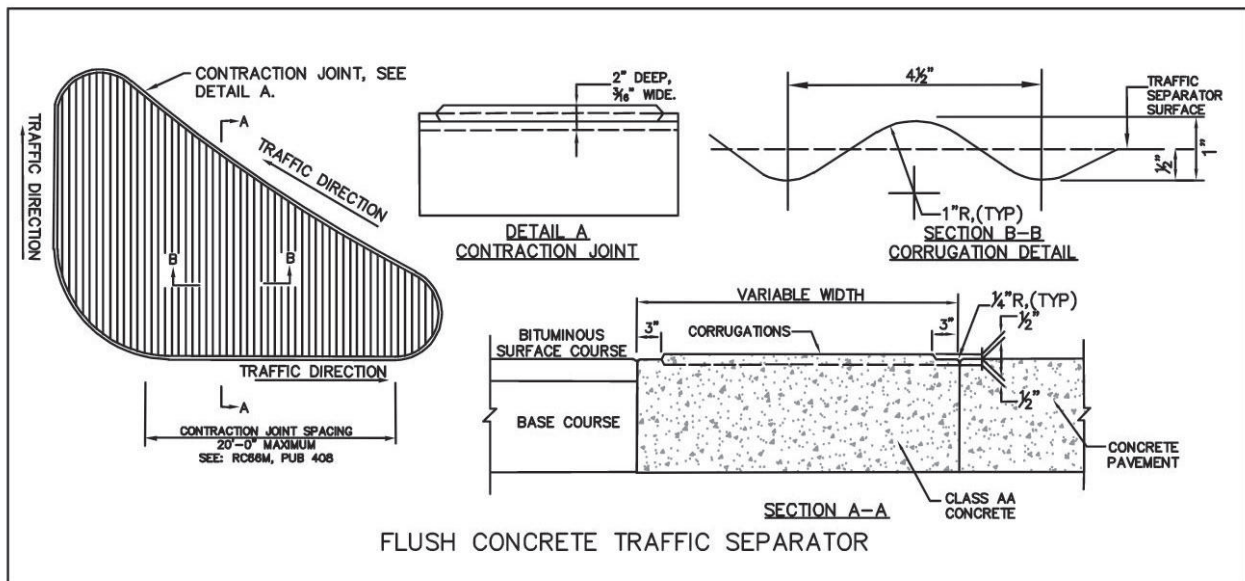
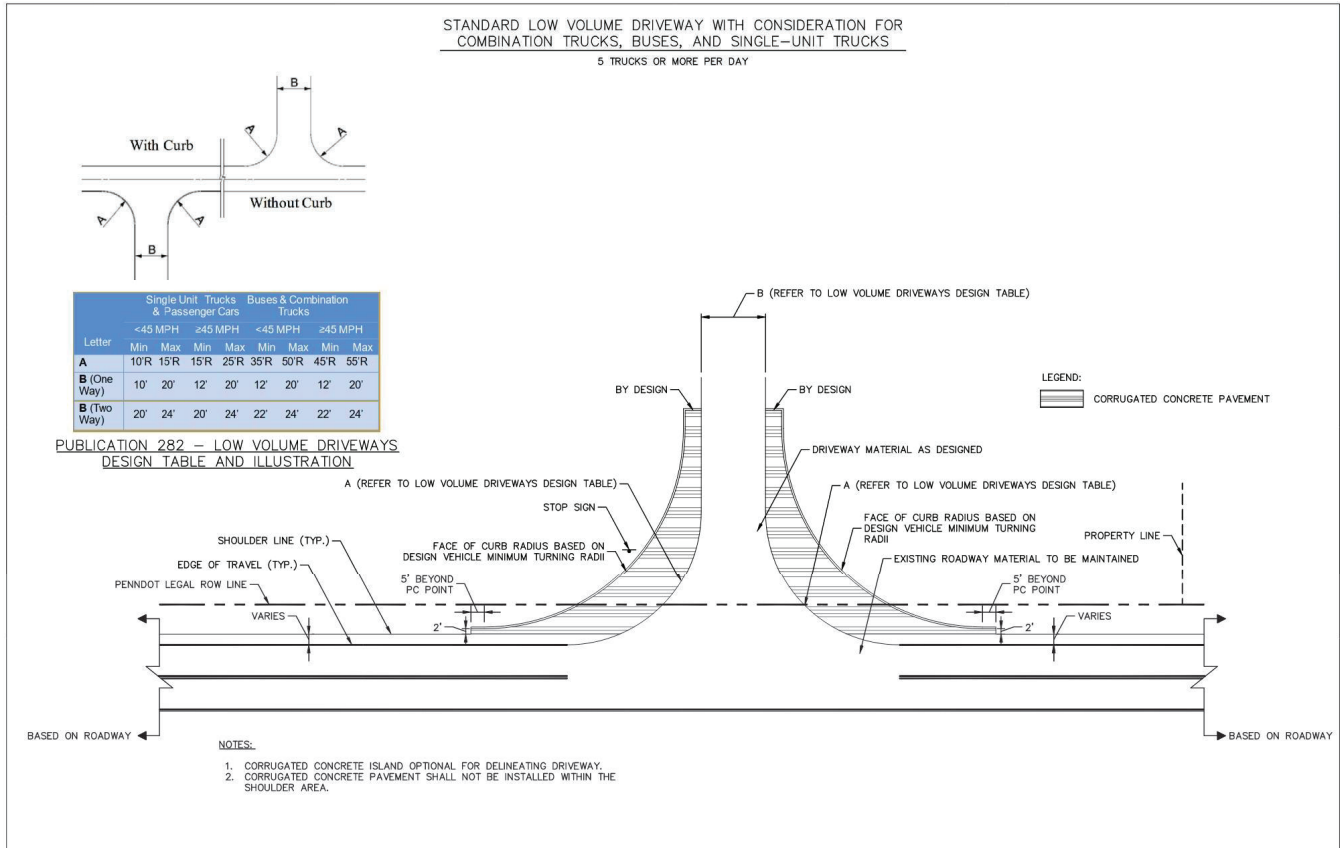
Refer to the alternate low volume driveway designs below when larger occasional vehicles do not meet the standard low volume driveway design parameters. An example of this would be a land use that traditionally services passenger vehicle traffic but also receives daily deliveries from combination vehicle(s). It is the responsibility of the applicant to understand the land use's day-to-day impacts.

Flush corrugated concrete pavement can be used for delineating driveways used by both passenger cars and heavy vehicles, to help prevent encroachment onto opposing lanes. The flush corrugated concrete pavement design is shown on page 48B. If the flush corrugated concrete pavement overlaps a pedestrian crossing an appropriate cut-through must be provided for ADA compliance. Flush corrugated concrete pavement shall not be installed within the shoulder area.

The design preference is flush corrugated concrete pavement; however, roundabout truck apron curb may be considered in certain situations, per Publication 72M, RC-65M. When roundabout truck apron curb is used, it should be dyed, stained, or painted to avoid being mistaken for sidewalk. If a pedestrian crossing is required, flush corrugated concrete pavement shall be used in place of roundabout truck apron curb.



**Alternate Low Volume Driveway with Consideration for
 Combination Trucks, Buses, and Single-Unit Trucks**



Section 3 – Driveway/Access Configuration (Continued)

C N S

- (10) Ensure local road width and radius returns in accordance with **Pub. 13M**
- (11) Ensure returns offset meet (at minimum) 3R criteria (**Pub. 13M, Ch. 1.2**)
- (12) Ensure radius returns extend full quadrant (**Pub. 282, Ch. 2.4**)
- (13) Ensure driveway is designed to discourage wrong way movements (**67 Pa. Code §441.8(a)(2)**)
- (14) Ensure radius return design is sufficient for trucks/large vehicles/anticipated traffic (minimum of 5') (**67 Pa. Code §441.9 & Pub. 282, Ch. 2**)
- (15) Ensure 14' min. lane width if channelization island (**Pub. 282, Ch. 2**)
- (16) Ensure driveway throat length min. (*check all that apply*):
 - (a) 50' for low volume driveways (**Pub. 574 IB.1**)
 - (b) 120' for medium volume driveways (**Pub. 574 IB.1**)
 - (c) 150' for high volume driveways (**Pub. 574 IB.1**)
- (17) Identify and dimension PC/PT/PCC break points (**Pub. 14M, Ch. 2**)
- (18) Provide spot elevations along radii at 10' intervals (**Pub. 13M, Ch. 7**)
- (19) Ensure driveway design accommodates bike and peds. (**Pub. 13M, Ch. 7, Pub. 13, Ch.14**)
- (20) Ensure corrugated concrete is used where applicable (**Pub. 282, Ch. 2.5**)

Section 4 – Driveway/Access Profile

C N S

- (1) Maintain State Route travel lane and shoulder cross slope when designing/constructing the driveway (**67 Pa. Code §441.8(i)(4) & Fig. 1**)
- (2) Ensure difference between cross slope of roadway shoulder and grade of driveway does not exceed 8% (**67 Pa. Code §441.8(i)(5)**)
- (3) Ensure maximum grade of driveway within the right of way does not exceed \pm (5% to 8%) for low, medium, or high volume driveways (**67 Pa. Code §441.8 Fig. 1**)
- (4) Show vertical curvature – AASHTO criteria (PVI Station, Elevation, VC, MO, SSD/HLSD, PVC, PVT) (**Pub. 14M, Ch. 2.6**)

Section 5 – Sight Distance for Driveway

C N S

- (1) Ensure safe sight distance (SSD) minimums from **Tables 1-6 in 67 Pa. Code §441.8(h)(1-2)** using the posted speeds unless operating speeds vary more than 10 mph from the posted speed
- (2) Provide justification for sight distance values that are less than the SSD values in **Tables 1-6 of 67 Pa. Code §441.8(h)(2)(iv)**
- (3) Ensure driveway location meets min. safe stopping sight distance (SSSD) value computed from the formula (**67 Pa. Code §441.8(h)(2)(iv)**)