BALZER & ASSOCIATES
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Shenandoah Valley

October 1, 2024

Carolyn Howard
Town of Blacksburg
400 South Main Street
Blacksburg, VA 24073

RE: Clay Street Apartment PRD Request

Dear Carolyn,

Included in this letter is the trip generation and turn lane warrant analysis and for the Clay Street and project entrance intersection.

If you have any additional questions or comments, please feel free to contact me.

Sincerely,
BALZER AND ASSOCIATES, INC.

Steven M. Semones
Executive Vice President

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CLAY STREET & PROJECT ENTRANCE – RIGHT TURN LANE WARRANT

Known Data: 2022 Virginia Department of Transportation Published Annual Average Daily Traffic Report
Clay Street from Bus. 460 to ECL of Blacksburg
2,511 ADT / K Factor 0.122 / Directional Factor 0.63
No reductions taken.

Assumed Data:

- 42 Total Units and 72 Total bedrooms.
- ITE Code 220 Multi Family Housing (Low Rise).
- ADT: T=6.74(42) + 75.31 = 345 ADT / Directional Distribution 50% in, 50% out
- A 10% annual increase in ADT has been added to the 2022 ADT up to the build out year of 2026. Thus, the ADT used for Clay Street shall be 3,675. This provides an extremely conservative approach for the analysis.

AM Proposed Traffic

Per ITE Manual, Total AM Peak Trips generated = 36 Trips (9 in and 27 out)

AM Peak Hour Analysis:

- 6 Vehicles per Hour Turning Right from Clay Street onto Project road

- Approach Volume = 166 VPH + 6 VPH = 172 VPH

- Right Turn Lane Requirement, as per *VDOT Road Design Manual, Appendix F:*

None Warranted (please see Attachments).

PM Proposed Traffic

Per ITE Manual, Total PM Peak Trips generated = 38 trips (24 in and 14 out)

PM Peak Hour Analysis:

- 15 Vehicles per Hour Turning Right from Clay Street onto Project road

- Approach Volume = 282 VPH + 15 VPH = 297 VPH

- Right Turn Lane Requirement, as per *VDOT Road Design Manual, Appendix F:*

None Warranted (please see Attachments).

Envisioning Tomorrow, Designing Today

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CLAY STREET & PROJECT ENTRANCE

– LEFT TURN LANE WARRANT

Known Data: 2022 Virginia Department of Transportation Published Annual Average Daily Traffic Report
Clay Street from Bus. 460 to ECL of Blacksburg
2,511 ADT / K Factor 0.122 / Directional Factor 0.63
No reductions taken.

Assumed Data:

- 42 Total Units and 72 Total bedrooms.
- ITE Code 220 Multi Family Housing (Low Rise).
- ADT: T=6.74(42) + 75.31 = 345 ADT / Directional Distribution 50% in, 50% out
- A 10% annual increase in ADT has been added to the 2022 ADT up to the build out year of 2026. Thus, the ADT used for Clay Street shall be 3,675. This provides an extremely conservative approach for the analysis.

AM Proposed Traffic

Per ITE Manual, Total AM Peak Trips generated = 36 Trips (9 in and 27 out)

AM Peak Hour Analysis:

- 3 (1.0%) Vehicles per Hour Turning Left from Clay Street

- Advancing Volume = 282 VPH + 3 VPH = 285 VPH

- Opposing Volume = 172 VPH

- Left Turn Lane Requirement, as per *VDOT Road Design Manual, Appendix E:*

None Warranted (please see Attachments).

PM Proposed Traffic

Per ITE Manual, Total PM Peak Trips generated = 38 trips (24 in and 14 out)

PM Peak Hour Analysis:

- 9 (5.1%) Vehicles per Hour Turning Left from Clay Street

- Advancing Volume = 166 VPH + 9 VPH = 175 VPH

- Opposing Volume = 297 VPH

- Left Turn Lane Requirement, as per *VDOT Road Design Manual, Appendix E:*

None Warranted (please see Attachments).

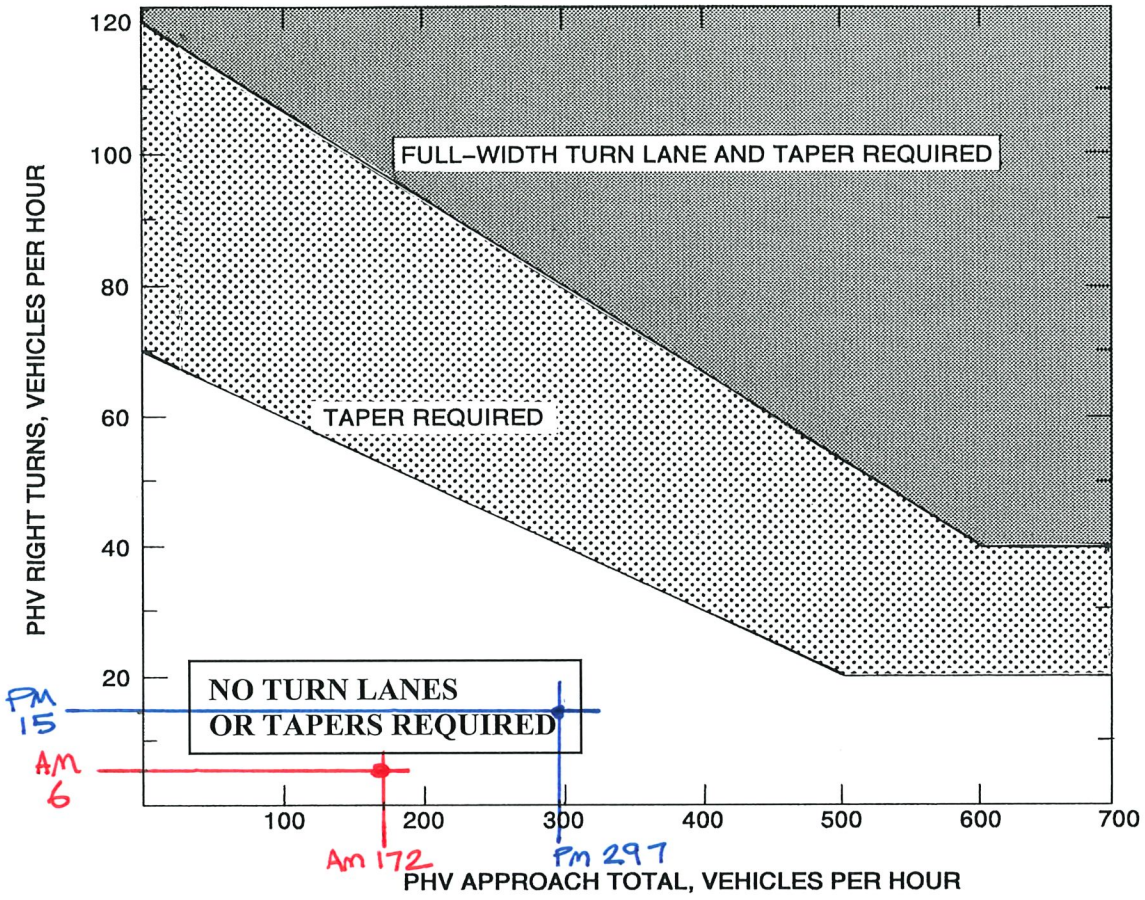

FIGURE 3-26 WARRANTS FOR RIGHT TURN TREATMENT (2-LANE HIGHWAY)

Appropriate Radius required at all Intersections and Entrances (Commercial or Private).

LEGEND

PHV - Peak Hour Volume (also Design Hourly Volume equivalent)

Adjustment for Right Turns

For posted speeds at or under 45 mph, PHV right turns > 40, and

PHV total < 300.

Adjusted right turns = PHV Right Turns - 20

If PHV is not known use formula: PHV = ADT x K x D

K = the percent of AADT occurring in the peak hour

D = the percent of traffic in the peak direction of flow

Note: An average of 11% for K x D will suffice.

When right turn facilities are warranted, see Figure 3-1 for design criteria.*

* Rev. 1/15

WARRANT FOR LEFT-TURN STORAGE LANES ON TWO-LANE HIGHWAY

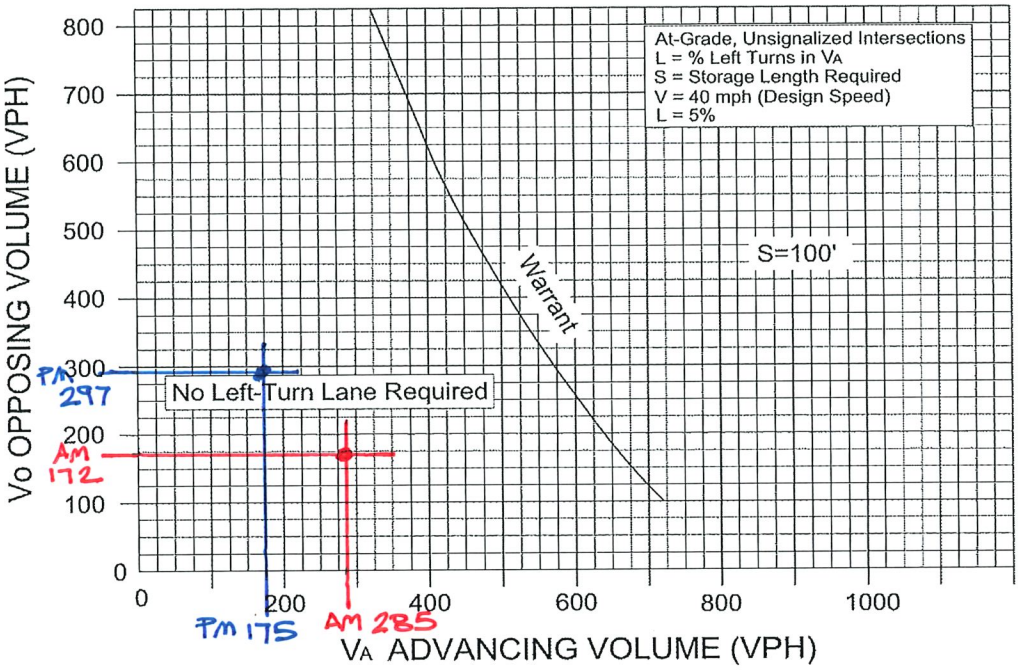

FIGURE 3-4 WARRANT FOR LEFT TURN STORAGE LANES ON TWO LANE HIGHWAY

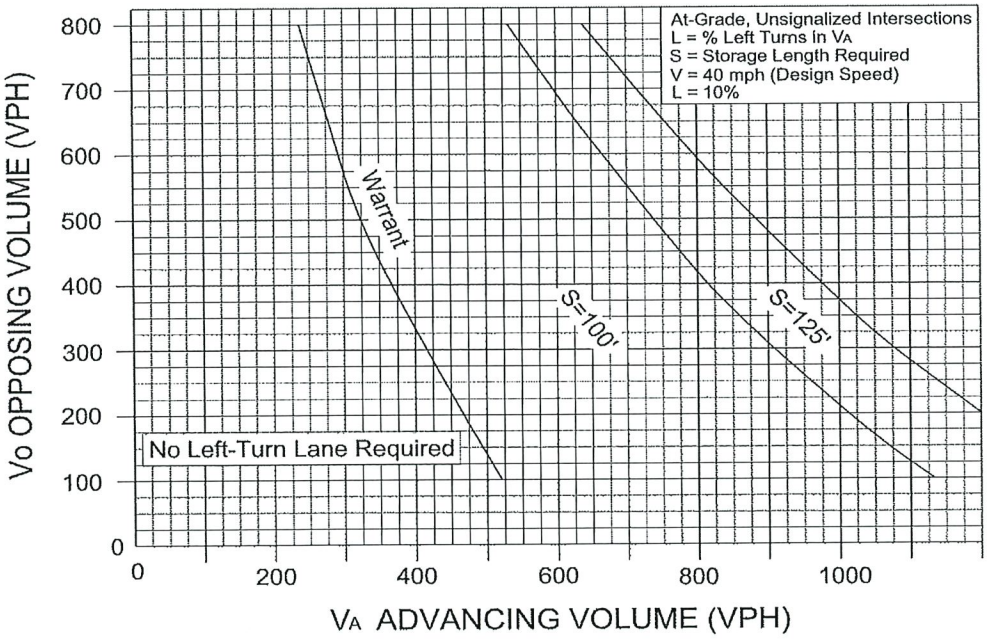

FIGURE 3-5 WARRANT FOR LEFT TURN STORAGE LANES ON TWO LANE HIGHWAY