clemow associates LLC

Christopher M Clemow

Digital Signed by Christopher M Clemow
DN: C=US, E=cclemow@clemow-associates.com, O=Clemow & Associates, LLC, CN=Christopher M Clemow
Date: 2025.04.09 09:03:34 -07:00

REGISTERED PROFESSIONAL ENGINEER
18300 PE
OREGON
Jan. 16, 1996
CHRISTOPHER M CLEMOW
RENEWS 31 DECEMBER 2025

TRANSPORTATION IMPACT ANALYSIS

To
City of Hermiston

For
Punkin Center Residential Development

Prepared
April 7, 2025

C&A Project Number
20241205.00

2237 NW Torrey Pines Drive, Bend, Oregon 97703 | 541-579-8315 | cclemow@clemow-associates.com

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

I. EXECUTIVE SUMMARY

The following summarizes the analysis and findings contained in this Transportation Impact Analysis (TIA).

1. The subject property is proposed to be annexed into the City of Hermiston and zoned *Medium-High Density Residential* (R-3) consistent with the Hermiston Comprehensive Plan. The proposed specific development includes 76 apartments, which are consistent with the current zoning.

2. The proposed land use actions are consistent with the Hermiston TSP assumptions and do not significantly affect an existing or planned transportation facility. As such, the Transportation Planning Rule (TPR) criteria outlined in Oregon Administrative Rule (OAR) 660-012-0060 are satisfied without additional analysis.

3. The property currently has access to the public roadway system via a 40-foot-wide access easement along the east side of the property, identified as NE 7th Street. However, this is not a public roadway and will not be designated as one. As such, it is assumed that future property/development access will be direct to E Punkin Center Road, further west.

4. The observed crash rates at the study intersections are less than the 1.0 CMEV threshold and the 90th percentile of the reference population. As such, the intersections are considered relatively safe, and no further evaluation of safety deficiencies is necessary.

5. The proposed 76-unit apartment development generates 512 daily, 30 AM peak hour, and 39 PM peak hour trips.

6. All study intersections are anticipated to operate within agency mobility targets, and all approach movements are anticipated to have adequate queue storage in all analysis scenarios. Overall, no mitigation is necessary to provide adequate operations or queue storage for the proposed development.

7. It is further noted that the east- and westbound left-turn lanes at the US 395/Punkin Center Road intersection are nearing storage capacity, and additional striped storage may need to be considered in the future.

II. INTRODUCTION

Property Description and Proposed Land Use Actions

The subject 3.50-acre property is at 2455 NE 7th Street, Hermiston, Oregon, and is described as tax lot 100 on Umatilla County Assessor's Map 4N2802BA. The property currently has access to the public roadway system via a 40-foot-wide access easement along the east side of the property, identified as NE 7th Street. However, this is not a public roadway and will not be designated as one. As such, it is assumed that future property/development access will be direct to E Punkin Center Road, further west. The study area is illustrated in Figure 1 in Appendix A.

The property is proposed to be annexed into the City of Hermiston and zoned *Medium-High Density Residential* (R-3) consistent with the Hermiston Comprehensive Plan. The proposed specific development includes 76 apartments, which are consistent with the current zoning. The Design Layout is attached in Appendix A.

Transportation Analysis Description

The proposed zoning is consistent with the existing Comprehensive Plan map designation, the amendment does not change the Comprehensive Plan, and the proposed zoning is consistent with the Hermiston Transportation System Plan (TSP). As such, the proposed land use actions are consistent with the Hermiston TSP assumptions and do not significantly affect an existing or planned transportation facility. As such, the Transportation Planning Rule (TPR) criteria outlined in Oregon Administrative Rule (OAR) 660-012-0060 are satisfied without additional analysis.

The proposed land use actions do include a specific development application. As such, a transportation impact analysis (TIA) is necessary to address the criteria identified in the following:

- City of Hermiston Municipal Code requirements outlined in Chapters 156.09 and 157.150, and
- Oregon Department of Transportation (ODOT) TIS requirements.

Study Area

Based on the development trip generation and distribution described later in this analysis, as well as correspondence with City of Hermiston staff, the following project area intersections and development access are evaluated and illustrated in Figure 2 in Appendix A.

- US 395 / Punkin Center Road
- E Punkin Center Road / NE 4th Street
- E Punkin Center Road / Site Access
- E Punkin Center Road / NE 8th Street
- E Punkin Center Road / NE 10th Street

Analysis Scenarios

The proposed 76-unit apartment development is anticipated to be constructed in two phases and fully occupied by 2028. As such, analysis scenarios include:

- 2025 Existing Conditions
- 2028 Pre-Development Conditions
- 2028 Post-Development Conditions

III. EXISTING CONDITIONS

Existing Site Conditions

The subject 3.50-acre property is at 2455 NE 7th Street, Hermiston, Oregon. The property currently has access to the public roadway system via a 40-foot-wide access easement along the east side of the property, identified as NE 7th Street. However, this access is not a public roadway, nor will it be designated as one. As such, it is assumed that future property/development access will be direct to E Punkin Center Road, further west.

Roadway Facilities

The following table summarizes existing roadway classifications and characteristics in the study area.

TABLE 1 – EXISTING ROADWAY CHARACTERISTICS

Roadway	Functional Classification	Lanes	Posted Speed (MPH)	Sidewalks	Bicycle Lanes	On-Street Parking
US 395	Urban Major Arterial – Hermiston Statewide Highway - ODOT	5	45	Partial	No	No
Punkin Center Road	Urban Major Collector	2	45	No	No	No
NE 4th Street	Urban Minor Arterial	2	35	No	Yes	No
Sagebrush Road	Local	2	Not Posted	No	No	No
NE 5th Street	Local	2	25	East Side	No	Yes
NE 8th Street	Local	2	25	Yes	No	Yes
Alpine Drive	Local	2	Not Posted	No	No	No
Bode Lane	Local	2	Not Posted	No	No	No
NE 10th Street	Urban Major Collector	2	45	No	No	No

Safety Analysis

When evaluating roadway and intersection safety, consideration is given to the number and types of crashes occurring and the number of vehicles traveling on a roadway segment or entering the intersection. This leads to the concept known as the "crash rate." Specific to intersections, it is typically expressed in terms of the number of crashes occurring per one million vehicles entering the intersection (CMEV). A critical crash rate analysis is then performed by comparing the subject intersection to the published statewide 90th percentile intersection crash rates at comparable/reference intersections. Crash rates close to or exceeding 1.0 CMEV or the 90th percentile rates require further analysis.

Crash data for the study area intersections were obtained from the Oregon Department of Transportation (ODOT) for five years from January 1, 2019 through December 31, 2023. The following table presents the study intersection crash rates and critical crash analysis. All crash data and crash rate calculations are provided in Appendix B.

TABLE 2 – INTERSECTION CRASH RATES

Intersection	2019	2020	2021	2022	2023	Total	Crash Rate (crashes/mev)	Reference Population		Over or Under Crash Rate?
								Description [1]	90th%ile Crash Rate	
US 395 / Punkin Center Road	3	2	4	6	3	18	0.457	Urban 4SG	0.860	Under
Punkin Center Road / NE 4th Street	1	0	1	2	2	6	0.519	Rural 4ST	1.080	Under
Punkin Center Road / NE 8th Street	1	0	0	0	0	1	0.122	Rural 3ST	0.475	Under
Punkin Center Road / NE 10th Street	0	0	0	0	0	0	0.000	Rural 3ST	0.475	Under

[1] 3ST is defined as a three-leg minor stop-control intersection, 4ST is a four-leg minor stop-control intersection, and 4SG is a four-leg signalized intersection.

The observed crash rates at the study intersections are less than the 1.0 CMEV threshold and the 90th percentile of the reference population. As such, the intersections are considered relatively safe, and no further evaluation of safety deficiencies is necessary.

Existing Traffic Counts

Existing traffic counts were obtained on February 27, 2025, during the AM and PM peak hours. Existing (base) traffic counts are included in Appendix C and are illustrated in Figures 2 and 3 in Appendix A.

Seasonal Adjustment and 30th Highest Hour Volumes

Seasonal adjustments account for the variation in traffic volumes during the year. As required for intersections under ODOT jurisdiction, the February 2025 traffic counts were adjusted to the 30th highest hour volume (30HV) consistent with procedures identified in the ODOT Analysis Procedures Manual (APM) Version 2, Chapter 5.5.1 – On-Site Automatic Traffic Recorder (ATR) Method. This method is used when an ATR is within or near the project area.

In the study area, ATR 30-019 – Stanfield is located on US395; Umatilla-Stanfield Highway NO. 54; 0.12 miles NW of Feedville Road (NW Stanfield). Using this ATR data, a seasonal adjustment of 1.06 was applied to the February 27, 2025 Base traffic counts to obtain 2025 30HV volumes. Seasonal adjustment assumptions are included in Appendix C, and 2025 30HV volumes are illustrated in Figures 2 and 3 in Appendix A.

IV. DEVELOPMENT TRIP GENERATION

The subject property is currently undeveloped. The proposed specific development includes 76 apartments.

Trip generation for the proposed development is estimated using the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 11th Edition, and practices from the ITE *Trip Generation Handbook*, 3rd Edition, and is presented in the following table.

TABLE 3 – DEVELOPMENT TRIP GENERATION

Land Use	ITE Code	Size	Daily Trips	AM Peak Hour			PM Peak Hour		
				Enter	Exit	Total	Enter	Exit	Total
Multifamily Housing (Low-Rise)[1]	220	76 DU	512	7	23	30	24	15	39

[1] Trip generation is estimated using the *Average Rate* per recommended practice in the ITE *Trip Generation Handbook*, 3rd Edition.

As identified in the table above, the proposed 76-unit apartment development generates 512 daily, 30 AM peak hour, and 39 PM peak hour trips.

V. DEVELOPMENT YEAR CONDITIONS

Background Growth

Based on a review of the Hermiston Transportation System Plan (TSP) and discussions with City staff, background traffic growth for the study area is assumed to be 1.5% per year on all roadways.

Development Year Traffic Volumes

The proposed 76-unit apartment development is anticipated to be constructed in two phases and fully occupied by 2028.

Accordingly, the 2025 30HV volumes were adjusted to the 2028 development year using a 1.5% annual compounded growth rate. Detailed background growth rate calculations are included in Appendix C and are illustrated in Figures 4 and 5 in Appendix A.

Trip Distribution and Traffic Assignment

Development trip generation, as identified in the previous section of this TIA, was distributed onto the roadway system based on existing intersection volumes, surrounding land uses, and engineering judgment. The resulting trip distribution and development traffic assignment are illustrated in Figures 4 and 5 in Appendix A.

VI. INTERSECTION ANALYSIS

Analysis Scope

The following project area intersections and development accesses are evaluated:

- US 395 / Punkin Center Road
- E Punkin Center Road / NE 4th Street
- E Punkin Center Road / Site Access
- E Punkin Center Road / NE 8th Street
- E Punkin Center Road / NE 10th Street

Analysis Description

Existing intersection AM and PM peak hour factors (PHFs) are used for all intersections in all analysis scenarios.

Intersection operation characteristics are generally defined by two key metrics: the volume-to-capacity (V/C) ratio and the level-of-service (LOS). At signalized intersections, the v/c ratio is a measurement of an intersection's ability to accommodate critical movements, while LOS is based on the average control delay per vehicle for the entire intersection. At unsignalized intersections, the v/c ratio and LOS are calculated for intersection approach movements yielding right-of-way.

The City of Hermiston mobility standard for signalized and unsignalized intersections is LOS D or better.

Table 6 of Policy 1F in the *Oregon Highway Plan* (OHP), as updated through January 2023, provides ODOT mobility targets for state roadways. In the study area, US 395 is classified as a *Freight Route on a Statewide Highway*, inside the urban growth boundary of a non-metropolitan planning organization (MPO).

At the Punkin Center Road intersection, US 395 has a posted speed of 45 MPH, and the intersection mobility target is a v/c ratio $\leq$ 0.80.

Intersection Operations Analysis

Unsignalized intersection operations analyses were performed using the Transportation Research Board's *Highway Capacity Manual* 6th Edition methodologies using Trafficware's *Synchro* software (Version 11). Signalized intersection operations analyses were performed per the Transportation Research Board's *Highway Capacity Manual* 6th Edition, 2000, and 2010 methodologies using Trafficware's Synchro software (Version 11) and practices outlined in the ODOT Analysis Procedures Manual V2 necessary to calculate the intersection v/c ratio.

The proposed 76-unit apartment development is anticipated to be constructed in two phases and fully occupied by 2028. As such, analysis scenarios include:

- 2025 Existing Conditions
- 2028 Pre-Development Conditions
- 2028 Post-Development Conditions

The following table summarizes the analysis results of weekday AM and PM peak hour operations. Data output sheets from all operations calculations are attached in Appendix D.

TABLE 4 – INTERSECTION OPERATIONS ANALYSIS

Intersection	Critical Movement Lane Group	Mobility Target	AM Peak Hour			PM Peak Hour		
			2025 Existing	2028 Pre-Development	2028 Post-Development	2025 Existing	2028 Pre-Development	2028 Post-Development
US 395 / Punkin Center Road	Intersection	v/c ≤ 0.80	0.31	0.35	0.35	0.53	0.59	0.60
E Punkin Center Road / NE 4th Street / Sagebrush Road	NB L	LOS D	B	B	B	C	C	C
	NB T/R		B	B	B	B	B	B
	SB L/T/R		B	B	B	B	C	C
E Punkin Center Road / Site Access	NB L/R	LOS D	—	—	B	—	—	B
E Punkin Center Road / NE 8th Street	NB L/R	LOS D	B	B	B	B	B	B
E Punkin Center Road / NE 10th Street	NB L/R	LOS D	B	B	B	B	B	B

Operations Analysis Discussion

As identified in the table above, all study intersections are anticipated to operate within agency mobility targets in all analysis scenarios. Overall, no mitigation is necessary to provide adequate operations for the proposed development.

Intersection Queuing Analysis

Queuing analysis was performed to evaluate queue storage adequacy. 95th percentile queues were estimated using Trafficware's *SimTraffic* software (Version 11) and ODOT *Analysis Procedure Manual* methodologies. Available storage is rounded to the nearest five feet, and queue demand is rounded to the nearest 25 feet, which corresponds to the average length of a queued vehicle.

The following table summarizes the analysis results of weekday AM and PM peak hour queuing. Data output sheets from all queuing calculations are contained in Appendix D.

TABLE 5 – INTERSECTION QUEUING ANALYSIS

Intersection	Critical Movement Lane Group	Queue Storage Available (Feet) [1]	AM Peak Hour			PM Peak Hour		
			2025 Existing	2028 Pre-Development	2028 Post-Development	2025 Existing	2028 Pre-Development	2028 Post-Development
US 395 / Punkin Center Road	NB L	225+	50	50	50	50	50	50
	NB T/R	1,000+	100	100	100	175	200	200
	SB L	250+	50	50	50	125	150	150
	SB T/R	1,000+	100	100	100	125	150	150
	EB L	85	50	75	75	50	75	75
	EB T/R	1,000	50	50	50	100	75	100
	WB L	90	75	75	75	75	75	75
	WB T/R	1,000	100	100	100	100	125	150
E Punkin Center Road / NE 4th Street / Sagebrush Road	NB L	75	50	50	50	50	75	75
	NB T/R	1,000+	50	50	50	75	50	50
	SB L/T/R	1,000+	50	50	50	50	50	50
	EB L/T/R	1,000	25	25	25	25	25	25
	WB L/T/R	500	25	25	25	25	50	25
E Punkin Center Road / Site Access	NB L/R	75	—	—	50	—	—	50
	WB L/T	350	—	—	25	—	—	25
E Punkin Center Road / NE 8th Street	NB L/R	1,000+	50	50	50	50	50	50
	WB L/T0	750	25	25	25	25	25	25
E Punkin Center Road / NE 10th Street	NB L/R	1,000+	75	75	75	75	75	75
	WB L/T	900	25	50	25	25	25	25

[1] Available queue storage is measured to the nearest upstream intersection for continuous lanes between intersections and to the end of full-width storage for turn lanes.

Queuing Analysis Discussion

As identified in the table above, all study intersection approach movements are anticipated to have adequate queue storage in all analysis scenarios to accommodate the 95th percentile vehicle queues. It is further noted that the east- and westbound left-turn lanes at the US 395/Punkin Center Road intersection are nearing storage capacity, and additional striped storage may need to be considered in the future. Overall, no mitigation is necessary to provide adequate queue storage for the proposed development.

VII. CONCLUSION

The following summary and recommendations are based on materials contained in this analysis.

1. The subject 3.50-acre property is at 2455 NE 7th Street, Hermiston, Oregon, and is described as tax lot 100 on Umatilla County Assessor's Map 4N2802BA. The property currently has access to the public roadway system via a 40-foot-wide access easement along the east side of the property, identified as NE 7th Street.

2. The property is proposed to be annexed into the City of Hermiston and zoned *Medium-High Density Residential* (R-3) consistent with the Hermiston Comprehensive Plan. The proposed specific development includes 76 apartments, which are consistent with the current zoning.

3. The proposed land use actions are consistent with the Hermiston TSP assumptions and do not significantly affect an existing or planned transportation facility. As such, the Transportation Planning Rule (TPR) criteria outlined in Oregon Administrative Rule (OAR) 660-012-0060 are satisfied without additional analysis.

4. The 40-foot-wide access easement along the east side of the property, identified as NE 7th Street, is not a public roadway and will not be designated as one. As such, it is assumed that future property/development access will be direct to E Punkin Center Road, further west.

5. The observed crash rates at the study intersections are less than the 1.0 CMEV threshold and the 90th percentile of the reference population. As such, the intersections are considered relatively safe, and no further evaluation of safety deficiencies is necessary.

6. The proposed 76-unit apartment development generates 512 daily, 30 AM peak hour, and 39 PM peak hour trips.

7. All study intersections are anticipated to operate within agency mobility targets in all analysis scenarios. Overall, no mitigation is necessary to provide adequate operations for the proposed development.

8. All study intersection approach movements are anticipated to have adequate queue storage in all analysis scenarios to accommodate the 95th percentile vehicle queues. It is further noted that the east- and westbound left-turn lanes at the US 395/Punkin Center Road intersection are nearing storage capacity, and additional striped storage may need to be considered in the future. Overall, no mitigation is necessary to provide adequate queue storage for the proposed development.