MEMORANDUM

Date: October 23, 2024

To: Flagship Homes

From: Hales Engineering

Subject: Weber County Westbridge Meadows Sensitivity Analysis

UT23-2599

Introduction

The purpose of this memo is to determine the anticipated roadway sizing required to accommodate the proposed project at various stages of development. The proposed Westbridge Meadows development is located south of 900 South between the Weber River and 7500 West. A vicinity map of the proposed project is provided in Figure 1. Four main roadway connections were assumed to carry the majority of project traffic, including 1200 South, 1800 South, 2550 South, and the future West Weber Corridor.

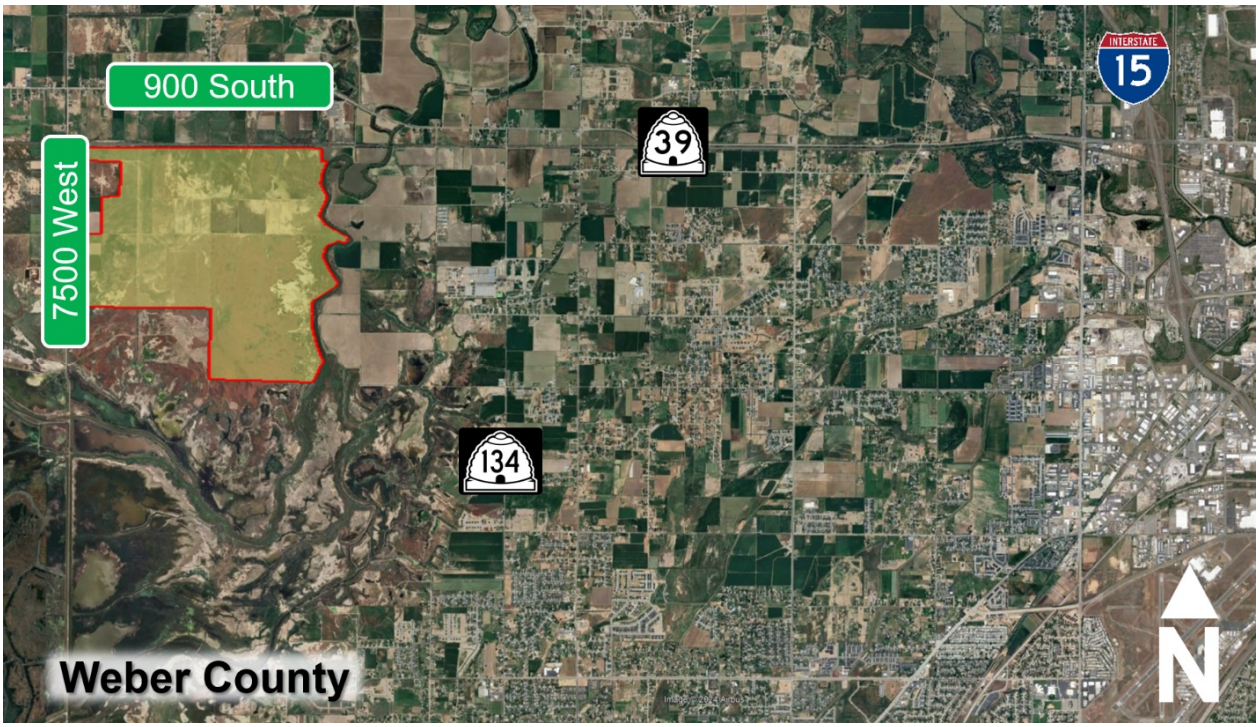


Figure 1: Vicinity map showing the project location in Weber County, Utah

Project Description

The development will consist of a mix of residential and commercial land uses. A concept plan for the proposed development is provided in Appendix A. The conceptual high-end land use intensity at full buildout of the development has been identified in Table 1. This includes approximately 13,159 residential units and 1,256,000 square feet of commercial at full build.

Table 1: Project Land Uses

Land Use	Intensity
Single-family detached housing	6,433 Units
Multi-family housing	6,726 Units
Commercial / Retail	1,256,000 sq. ft.

Traffic Counts

Weekday morning (7:00 to 9:00 a.m.) and evening (4:00 to 6:00 p.m.) peak period traffic counts were performed at the following intersections:

- 7500 West / 900 South
- S.R. 134 (4700 west) / 1150 South
- 1800 South / S.R. 134 (4700 west)
- 2550 South / S.R. 134 (4700 west)

The counts were performed on Thursday, September 7, 2023 and Thursday, February 8, 2024. The morning peak hour was determined to be between 7:00 and 8:00 a.m., and the evening peak hour was determined to be between 4:30 and 5:30 p.m.

Trip Generation and Distribution

Trip generation for the development was calculated using trip generation rates published in the Institute of Transportation Engineers (ITE), *Trip Generation*, 11th Edition, 2021. Due to the mixed use of residential and commercial, trip reductions for internal capture and multi-modal use were estimated using Environmental Protection Agency (EPA) mixed-use development methodologies. Based on this methodology, the trip reductions anticipated at build-out are 15% for internal capture, 1% for walking, 1% for biking, and 3% for transit use. The following new trip generation expected at full-build is 120,447 daily trips, including 6,928 trips in the morning peak hour and 11,547 trips in the evening peak hour.

These trips were distributed to the existing and future proposed connections based on the percentage of traffic anticipated to use each connection. These percentages were estimated using travel demand modeling software, which takes into account the proximity of nearby employment and easiest travel paths to major freeways.

These assigned trips were added to the existing volumes on the major connector roads to determine the approximate timeline when roadway capacities will be reached. No future background growth was taken into account in the analysis.

Sensitivity Analysis

A sensitivity analysis was performed to identify the approximate land use intensities that can be constructed before triggering the need for new roadway connections or roadway widening. The proportion of commercial to residential was kept approximately equal for each stage of the sensitivity analysis.

The capacities used as trigger points for improvements were an average daily traffic (ADT) of 15,000 vehicles per day (vpd) for a 3-lane cross-section and 35,000 vpd for a 5-lane cross-section. It was assumed that all roadway connections would remain as a 3-lane cross-section until the 1800 South and 2550 South connections are completed. These trigger points are summarized in Table 2. Since future background growth was not accounted for in the sensitivity analysis, these trigger points are rough approximations and may be impacted by other developments in the area.

Table 2: Roadway Improvement Trigger Points

Phase[1]	Assumption	Residential	Commercial	Constraint
1	Existing Conditions	800 Units	50,000 sq. ft.	1200 South reaches capacity for 3-lane cross-section
2	Construct 2550 South connection (3 lanes)	1,900 Units	150,000 sq. ft.	1200 South remains at capacity for 3-lane cross-section
3	Construct 1800 South connection (3 lanes)	2,800 Units	300,000 sq. ft.	1200 South remains at capacity for 3-lane cross-section
4	Widen 1200 South to 5-lane cross-section	3,700 Units	400,000 sq. ft.	2550 South reaches capacity for 3-lane cross-section
5	Widen 2550 South to 5-lane cross-section	4,300 Units	450,000 sq. ft.	1800 South reaches capacity for 3-lane cross-section
6	Widen 1800 South to 5-lane cross-section	9,500 Units	850,000 sq. ft.	2550 South reaches capacity for 5-lane cross-section
7 (Full Build)	Construct West Weber Corridor	13,159 Units	1,256,000 sq. ft.	n/a

1. Future background growth was not accounted for in the sensitivity analysis and timing of the phases may be impacted by other developments in the area

Full Build Scenario

The full build scenario assigned all anticipated 13,159 residential units and 1,256,000 square feet of commercial to all four proposed major connections. With this trip distribution, the recommended

roadway widths are shown in Table 3. In this scenario, West Weber Corridor was assumed to be a limited-access arterial roadway instead of a freeway.

As previously noted, these projected ADT's and recommended cross-sections are based on existing traffic volumes and anticipated project traffic only. Future background growth from surrounding developments was not included and may increase the need for further roadway widening or may accelerate the timeline for roadway improvements.

Table 3: Full Build Roadway Widths

Roadway Connection	Cross-section	Projected ADT
1200 South	5 lanes	24,000 veh/day
1800 South	5 lanes	22,000 veh/day
2550 South	5 lanes	25,000 veh/day
West Weber Corridor	7 lanes	62,000 veh/day

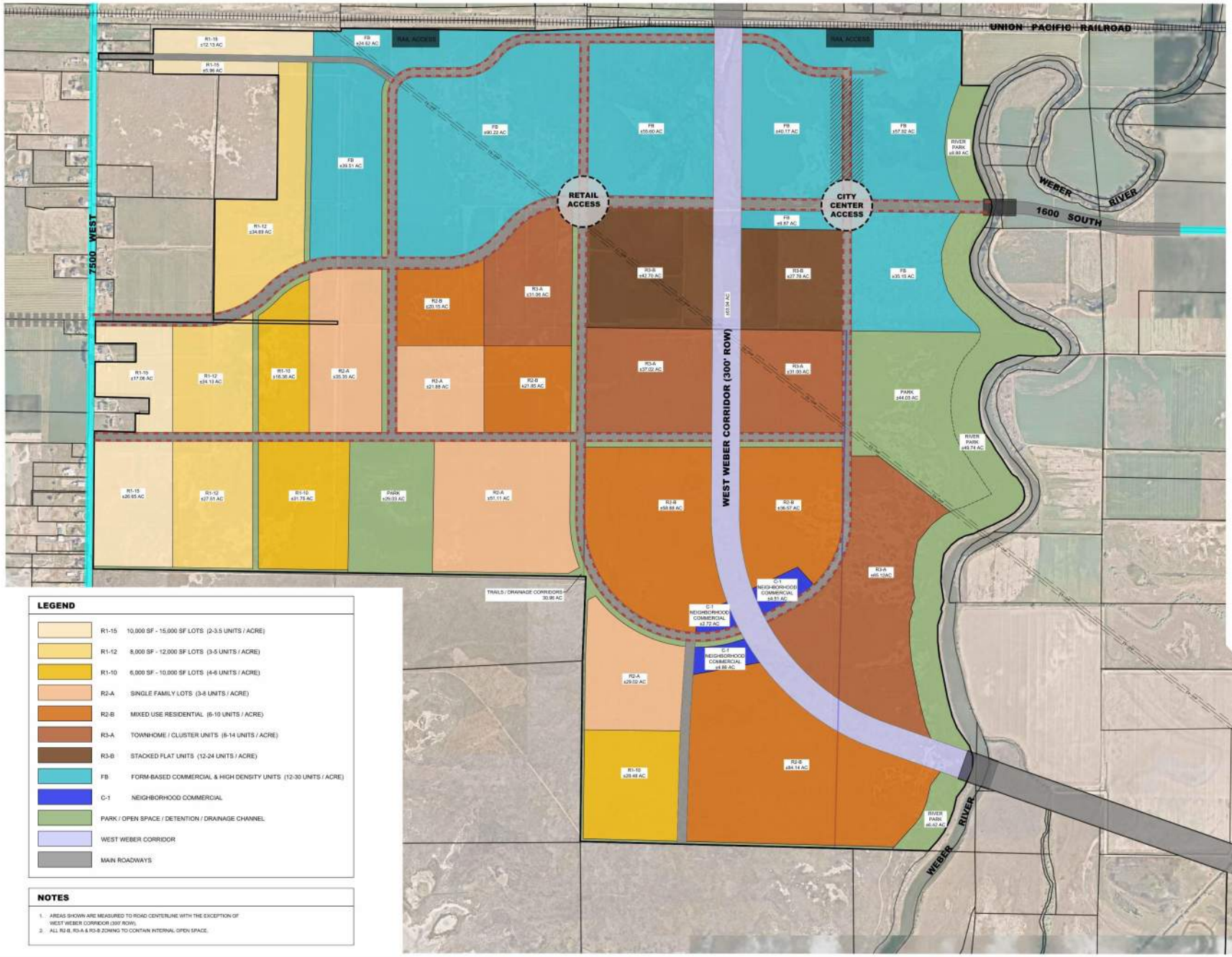
If you have any questions regarding this memorandum, please contact us at 801.766.4343.

HALES ENGINEERING
innovative transportation solutions

APPENDIX A

Concept Plan

1220 North 500 West, Ste. 202 Lehi, UT 84043 p 801.766.4343
www.halesengineering.com



LEGEND

R1-15	10,000 SF - 15,000 SF LOTS (2-3.5 UNITS / ACRE)
R1-12	8,000 SF - 12,000 SF LOTS (3-5 UNITS / ACRE)
R1-10	6,000 SF - 10,000 SF LOTS (4-6 UNITS / ACRE)
R2-A	SINGLE FAMILY LOTS (3-8 UNITS / ACRE)
R2-B	MIXED USE RESIDENTIAL (6-10 UNITS / ACRE)
R3-A	TOWNHOME / CLUSTER UNITS (8-14 UNITS / ACRE)
R3-B	STACKED FLAT UNITS (12-24 UNITS / ACRE)
FB	FORM-BASED COMMERCIAL & HIGH DENSITY UNITS (12-30 UNITS / ACRE)
C-1	NEIGHBORHOOD COMMERCIAL
	PARK / OPEN SPACE / DETENTION / DRAINAGE CHANNEL
	WEST WEBER CORRIDOR
	MAIN ROADWAYS

NOTES

1. AREAS SHOWN ARE MEASURED TO ROAD CENTERLINE WITH THE EXCEPTION OF WEST WEBER CORRIDOR (300' ROW).
2. ALL R2-B, R3-A & R3-B ZONING TO CONTAIN INTERNAL OPEN SPACE.

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WESTBRIDGE

WEBER COUNTY, UTAH

EXHIBIT 3 - PRODUCT TYPE MAP

REVISIONS
1 -
2 -

LEI PROJECT #: 2022-0003
DRAWN BY: TJP
DESIGNED BY: NKW
SCALE: 1"=450'
DATE: 4/23/2024

SHEET
EXHIBIT 3