



Memo

Date: Monday, July 06, 2020

Project: Heber Valley EIS

To: UDOT

From: HDR

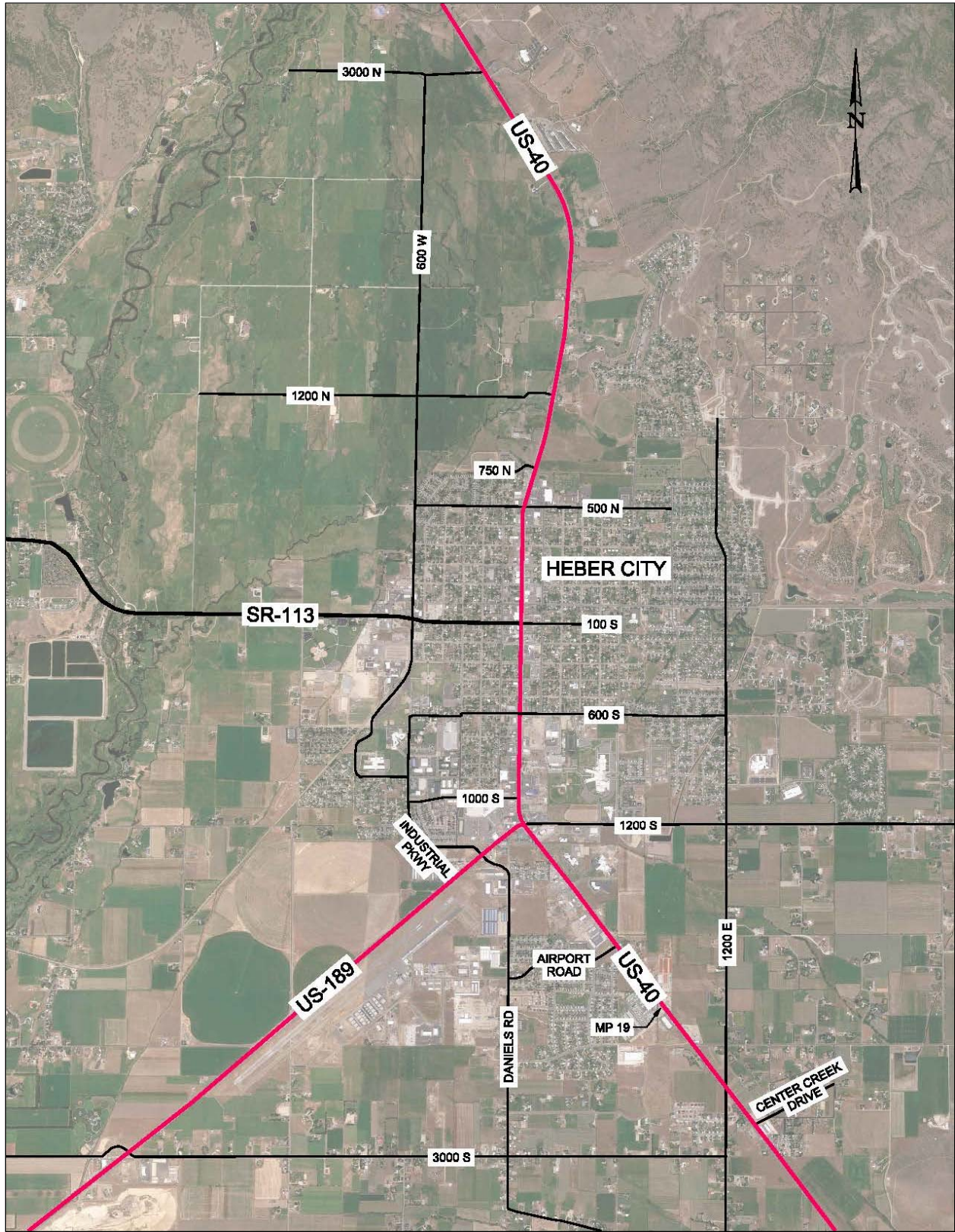
Subject: Existing Roadway Conditions for U.S. 40 and U.S. 189

Introduction

The purpose of this memorandum is to assess the existing conditions of U.S. Highway 40 (U.S. 40) and U.S. Highway 189 (U.S. 189) in Wasatch County for the Heber Valley Environmental Impact Statement (EIS). The area of the assessment begins about 2 miles south of the intersection of U.S. 40 and U.S. 189 along both U.S. highways and ends about 1 mile north of the town of Heber along U.S. 40 at 3000 North. See Figure 1 for the project location.

U.S. 40 and U.S. 189 are classified as principal arterials. From the south, they run independently until converging at 1200 South. This southern segment is primarily rural with sparse industrial and commercial development. The Main Street segment begins north of 1200 South and has commercial development on both sides of the roadway, with closely spaced signalized intersections. The northern segment begins north of 500 North and runs to approximately 3000 North, and is predominantly rural with sparse residences.

Figure 1. Project Location





Pavement Widths and Speed Limits

Tables 1 and 2 summarize the existing speed limits and pavement widths for each highway.

Table 1. Speed Limits (in mph)

Location		Speed Limit
U.S. 40	Center Creek Dr to milepost 19	60
	Milepost 19 to 1500 S	50
	1500 S to 1000 S	40
	1000 S to 750 N	35
	750 N to 3000 N	55
U.S. 189	3000 S to Industrial Pkwy	60
	Industrial Pkwy to 1200 S	45

Table 2. Pavement Widths (in feet)

Location		SB Shoulder	SB Lane	SB Lane	TWLTL	NB Lane	NB Lane	NB Shoulder	Total Pavement
U.S. 40	Center Creek Dr to 1500 S	7 ^a	12		11 ^a	12		5 ^a	47 ^a
	1500 S to 1200 S	7 ^a	12		12	12		9	52
	1200 S to 500 N ^b	12	12	12	12	12	12	12	84
	500 N to 750 N	9	12	12	13	12	12	11	81
	750 N to 3000 N	13	12	12	13 ^a	12	12	13	87
U.S. 189	3000 S to Industrial Pkwy	9	11 ^a	11 ^a	11 ^a	11 ^a	11 ^a	8	73 ^a
	Industrial Pkwy to 1200 S	9	12	12	12	12	12	9	78

NB – northbound; SB – southbound; TWLTL – two-way left-turn lane

^a Existing segment does not meet current design standards.

^b On-street parking is currently allowed in this segment.

The total pavement width along U.S. 40 from Center Creek Drive to 1200 South varies, and the value shown above in Table 2 is an average. The width of the southbound shoulder is primarily 7 feet but in some areas fluctuates from 4 to 19 feet. For comparison of the total pavement widths that would be required, Table 3 summarizes UDOT’s recommended travel lane and shoulder widths for principal arterials.

Table 3. UDOT Geometric Design for Principal Arterials (in feet)

Speed (mph)	Shoulder ^a	Travel Lane	TWLTL	Travel Lane	Total Pavement (3-Lane)	Total Pavement (5-Lane)
> 45	8	12	14	12	54	78
≤ 45	8	12	12	12	52	76

TWLTL – – two-way left-turn lane

^a The shoulder width should be 12 feet when truck traffic is more than 250 directional design-hour volume (determined by a traffic study) or when on-street parking is allowed (as it is currently from 1200 S to 500 N).



The existing segment of U.S. 40 from Center Creek Drive to 1500 South does not meet the recommended shoulder or two-way left-turn Lane (TWLTL) widths. Further, the total pavement width is 7 feet short of the necessary 54 feet. From 1500 South to 1200 South, the southbound shoulder is 1 foot short, but the total pavement width is sufficient to accommodate all necessary dimensions. The existing design of U.S. 189 does not have sufficient width to accommodate a 60-mph speed limit. Although the shoulder widths are adequate, the required lane width of 12 feet and the TWLTL width of 14 feet are not met.

Horizontal and Vertical Alignments

The approximate grades on U.S. 40 are -1.8% from Center Creek Drive to Gateway Drive, -0.9% from Gateway Drive to 100 North, and 1.0% from 100 North to 3000 North. The grade on U.S. 189 is relatively flat and provides good visibility. The horizontal alignments of the two highways are primarily straight. Existing curve conditions are shown in Tables 4 and 5.

Table 4. U.S. 40 Existing Curve Information (in feet)

Approximate Location	Existing Radius	Minimum Radius
Airport Rd	10,000	833
1500 S	5,000	
1200 S	1,000	485
500 N	500	340
North of 700 N	5,000	1,060
Lloyd Ln	3,500	
North of Coyote Ln	2,900	

Table 5. U.S. 189 Existing Curve Information (in feet)

Approximate Location	Existing Radius	Minimum Radius
North of 3000 S	5,000	1,330
North of Daniel Rd	500	643
U.S. 40	500	

Intersection sight triangles at unsignalized intersections were not checked for this memo.

Pavement Conditions

U.S. 189's pavement condition is good, and the shoulders are lined with rumble strips. U.S. 40's pavement condition ranges from fair to good south of 1200 South. There are visible patches of new pavement that might have been added after utility work. The existing pavement markings are visible and appear to be in good condition. The pavement conditions and pavement markings for the Main Street and northern segments are good.

Power Lines, Parking, Pedestrian Facilities, Driveways, and Intersections

In the rural areas north and south of the Main Street segment, power lines run parallel to the street and are located outside the clear zone. In the segments defined for this memo, power lines cross over the street 13 times. The Main Street segment does not have many parallel-running overhead power lines, but power lines do cross the street at two locations.

In the Main Street segment, the shoulder is used for parallel parking. Crosswalks are placed at intersections and at mid-block between 300 South and 200 South.

About 143 driveways access U.S. 40 and about 16 driveways access U.S. 189 along the studied corridor. There are 27 signalized or unsignalized intersections with named streets on U.S. 40 and 7 on U.S. 189. Sidewalks exist in most places through the urban area and are present in isolated segments in the rural areas in the north and south segments.