

Draft Alternatives Development and Screening Report

**Heber Valley Corridor
Environmental Impact Statement**

Lead agency:
Utah Department of Transportation

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Acronyms and Abbreviations

ac	acres
CFR	Code of Federal Regulations
EIS	Environmental Impact Statement
FAQ	frequently asked questions
FHWA	Federal Highway Administration
ft	feet
GIS	geographic information systems
hub	intersection of U.S. 40 and U.S. 189 on the south side of Heber City
lf	linear feet
LOS	level of service
MAG	Mountainland Association of Governments
MOU	Memorandum of Agreement
mph	miles per hour
NA	not applicable
NEPA	National Environmental Policy Act
NOI	Notice of Intent
S.R.	state route
Section 4(f)	Section 4(f) of the Department of Transportation Act of 1966
Section 404	Section 404 of the Clean Water Act
SWG	Stakeholder Working Group
U.S.	United States
U.S. 189	U.S. Highway 189
U.S. 40	U.S. Highway 40
UDOT	Utah Department of Transportation
USACE	United States Army Corps of Engineers
USC	United States Code
USDOT	United States Department of Transportation
WOTUS	waters of the United States

1.0 Executive Summary

This report summarizes and presents the results of the alternatives development and screening process for the Environmental Impact Statement (EIS) for the Heber Valley Corridor Project. The study area for the transportation needs assessment used for the Heber Valley Corridor EIS is focused on U.S. Highway 40 (U.S. 40) from its intersection with State Route (S.R.) 32 to its junction with U.S. Highway 189 (U.S. 189) in Heber City. It also includes U.S. 40 to the southeast and U.S. 189 to the southwest.

The alternatives development and screening process described in this report provided critical information about how well each of the project alternatives would satisfy the purpose of the project and whether it is reasonable and practicable. The criteria used in the screening analysis resulted in measures that allowed the Utah Department of Transportation (UDOT) to systematically and objectively identify reasonable alternatives and screen out unreasonable alternatives. The screening criteria are summarized in Section 3.0, *Alternatives Development and Screening Process*. The entire alternatives development and screening process took place over several months and considered agency and public input.

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being or have been, carried out by UDOT pursuant to 23 United States Code (USC) Section 327 and a Memorandum of Understanding dated May 26, 2022, and executed by the Federal Highway Administration (FHWA) and UDOT.

What is the purpose of this report?

This report summarizes and presents the results of the alternatives development and screening process for the EIS for the Heber Valley Corridor Project.

1.1 Alternatives Considered but Not Carried Forward

UDOT developed 23 alternatives for evaluation in screening based on previous studies, public and agency input during scoping, and local and regional land use and transportation plans. Of the 23 alternatives reviewed, 18 did not pass screening. These 18 alternatives failed because they were not reasonable and practicable, they did not support local or regional traffic mobility, they did not support Heber City’s vision for its historic town center, or the impacts to key resources were too great compared to other similar alternatives. The 18 alternatives that did not pass screening are listed in Table 1-1.

Table 1-1. Alternatives That Did Not Pass Screening

Alternative			Preliminary Screening	Level 1 Screening	Level 2 Screening	Passed Screening?
U.S. 40 Improvements	—	Transit alternative	Fail	NA	NA	No
	40A	Widen U.S. 40	Pass	Fail	NA	No
	40B	Improve U.S. 40 – roundabouts	Pass	Fail	NA	No
	40C	Improve U.S. 40 – intersection improvements	Pass	Fail	NA	No
	40D	Improve U.S. 40 – tunneling or bridging	Fail	NA	NA	No
	40E	Reversible lanes	Pass	Fail	NA	No
	40F	One-way couplet	Pass	Fail	NA	No
	40G	One-way couplet on 100 West and 100 East	Pass	Fail	NA	No
East Bypasses	EA	East bypass – limited access and grade-separated interchanges	Pass	Fail	NA	No
	EB	East bypass – parkway and at-grade intersections	Pass	Fail	NA	No
	EC	East bypass – arterial route and at-grade intersections	Pass	Fail	NA	No
West Bypasses	WA2	West bypass – limited access and grade-separated interchanges and realign U.S. 189	Pass	Fail	NA	No
	WA3	West bypass – limited access and grade-separated interchanges with northern extension	Pass	Pass	Fail	No
	WC1	West bypass – arterial route and at-grade intersections	Pass	Fail	NA	No
	WC2	West bypass – arterial route and at-grade intersections and realign U.S. 189	Pass	Fail	NA	No
	WD1	West bypass – parkway and turbo roundabouts	Pass	Fail	NA	No
	WD2	West bypass – parkway and turbo roundabouts with connection at 1300 South	Pass	Fail	NA	No
	WS	West bypass with southern extension – arterial route and at-grade intersections	Pass	Fail	NA	No

1.2 Alternatives Advanced for Further Evaluation in the Draft EIS

Five alternatives (WA1, WB1, WB2, WB3, and WB4) passed screening and will be studied in detail in the Draft EIS (Table 1-2). All five alternatives that passed screening were western bypass alternatives. These western bypass alternatives vary in their connection to U.S. 40 and U.S. 189 and vary in intersection type and functionality of the road (grade-separated interchanges [WA1] versus signalized at-grade intersections [WB1, WB2, WB3, and WB4]).

The alternatives that passed the screening process will be further developed to support detailed analysis in the EIS. The engineering refinement phase will include additional design work to provide details such as horizontal and vertical alignments, right-of-way needs, intersection design, pedestrian and bicycle accommodations, access design, and potential drainage designs including stormwater management. Access design will include road, driveway, or parking lot revisions for properties intersected by an alternative. All five alternatives will be designed to a similar level of detail.

Table 1-2. Alternatives That Passed Screening and Will Be Studied in Detail

Alternative		Preliminary Screening	Level 1 Screening	Level 2 Screening	Passed Screening?	
West Bypasses	WA1	West bypass – limited access and grade-separated interchanges	Pass	Pass	Pass	Yes
	WB1	West bypass – parkway and at-grade intersections	Pass	Pass	Pass	Yes
	WB2	West bypass – parkway and at-grade intersections and realign U.S. 189	Pass	Pass	Pass	Yes
	WB3	West bypass – parkway and at-grade intersections with northern extension	Pass	Pass	Pass	Yes
	WB4	West bypass – parkway and at-grade intersections with northern extension and realigned U.S. 189	Pass	Pass	Pass	Yes

2.0 Introduction

2.1 Report Purpose and Background Information

The purpose of this report is to describe the alternatives development and screening process that was used for the Heber Valley Corridor Environmental Impact Statement (EIS). The Utah Department of Transportation (UDOT) is preparing the EIS to evaluate transportation solutions to improve mobility through the Heber Valley and the operation of U.S. Highway 40 (U.S. 40). Improvements are needed to address congestion and delay and to accommodate current and projected travel demand in 2050. The process consisted of the following five basic phases:

1. Developing conceptual alternatives
 - a. Public and agency input was sought on conceptual alternatives during scoping; see Section 3.2.2, *Scoping* for a summary
2. Conducting a preliminary evaluation of conceptual alternatives
3. Applying first-level (Level 1) screening criteria and identifying and refining alternatives that pass the first-level screening
4. Refining alternatives that pass Level 1 screening for Level 2 screening
5. Applying second-level (Level 2) screening criteria and identifying alternatives that will be analyzed in detail in the EIS

The alternatives development and screening process described in this report provides critical information about how well each alternative satisfies the project’s purpose and whether it is reasonable under the National Environmental Policy Act (NEPA), practicable under the Clean Water Act, and feasible and prudent under Section 4(f) of the Department of Transportation Act of 1966. For more information regarding the regulations considered in this screening process, see Section 2.3, *Reasons Why an Alternative Might Be Eliminated during the Screening Process*.

The Federal Highway Administration (FHWA) has assigned its responsibilities under NEPA and other federal environmental laws to UDOT for highway projects in Utah, pursuant to 23 United States Code Section 327, in a Memorandum of Understanding (MOU) dated May 26, 2022. In accordance with its responsibilities, UDOT is carrying out the environmental review process for the Heber Valley Corridor Project in lieu of FHWA and serves as the lead

What is travel demand?

Travel demand is the expected number of transportation trips in an area. Travel demand can be met by various modes of travel, such as automobile, bus, carpooling, walking, and cycling.

What is a reasonable alternative?

Reasonable alternatives include those that are practical or feasible from the technical and economic standpoints and using common sense.

What is a practicable alternative?

Practicable means the action is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

What is a feasible and prudent alternative?

A feasible and prudent avoidance alternative avoids using Section 4(f) property and does not cause other severe problems of a magnitude that substantially outweighs the importance of protecting the Section 4(f) property. An alternative is not feasible if it cannot be built as a matter of sound engineering judgment.

agency in the NEPA process. The assignment of NEPA responsibilities to UDOT does not change the roles and responsibilities of any other federal agency whose review or approval is required for the project.

2.2 Screening Process Overview

UDOT conducted a three-level (Preliminary, Level 1, and Level 2) screening evaluation of alternatives suggested by stakeholders and in previous studies (Figure 2-1). Agency and public inputs (scoping) occurred during the *Develop Conceptual Alternatives* phase shown in the figure.

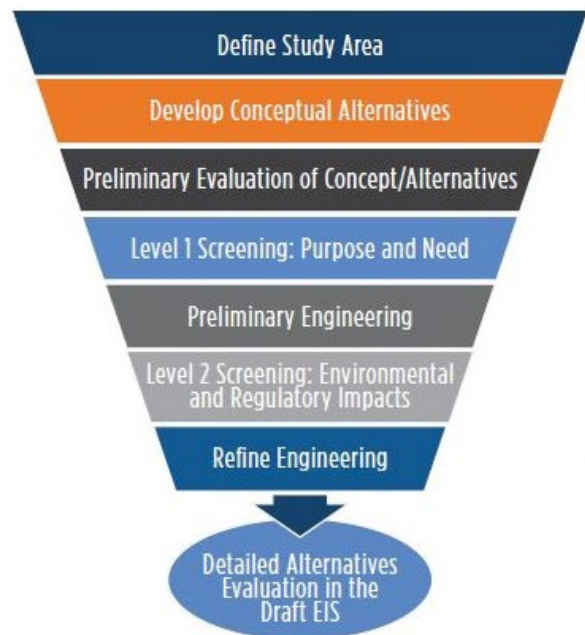
A summary of the public and agency input received during the formal comment period held during the scoping phase is provided in Section 3.2.2, *Scoping*. The release of this report initiates another formal request for public and agency input.

As shown in Figure 2-1, the project’s purpose and needs are the foundation of the alternatives screening process. After UDOT developed the conceptual alternatives, it began the screening process with a preliminary evaluation of conceptual alternatives to determine whether they had fatal flaws. Alternatives with fatal flaws—for example, alternatives that are not technically feasible—were determined to not be reasonable. If an alternative did not have fatal flaws, it was further developed so that Level 1 screening could be conducted.

Level 1 screening was based on the project’s purpose. The project purpose is to substantially improve regional and local mobility on U.S. 40 through 2050, provide opportunities for nonmotorized transportation, and allow Heber City to meet their vision for the historic town center. The alternatives that passed Level 1 screening were determined to satisfy the project’s purpose and were then further refined and evaluated with Level 2 screening criteria to determine their expected impacts to key resources. Alternatives that do not satisfy the project’s purpose or that have unacceptable impacts were determined to not be reasonable.

The alternatives development and screening process is designed to be dynamic throughout the EIS process. If a new alternative or refinement of an alternative is developed or arises later in the EIS process, it will be considered using the same screening considerations and criteria as the other alternatives, as described in this report.

Figure 2-1. Screening Process Overview



2.3 Reasons Why an Alternative Might Be Eliminated during the Screening Process

This section describes the laws and guidance used to determine whether an alternative might be eliminated during the screening process.

2.3.1 Council on Environmental Quality Regulations and Guidance

NEPA's implementing regulations define *reasonable alternatives* as those that meet the project's purpose and need and that are technically and economically feasible. According to these regulations and the Council on Environmental Quality, there are three primary reasons why an alternative might be determined to be not reasonable and thus eliminated from further consideration.

1. The alternative does not satisfy the purpose of the project (this is evaluated in the Level 1 screening for the Heber Valley Corridor Project).
2. The alternative is determined to be not practical or feasible from a technical and/or economic standpoint and using common sense (this is evaluated in the preliminary evaluation for the Heber Valley Corridor Project).
 - a. Improve U.S. 40 – tunneling or bridging (40D) was eliminated in preliminary screening for not being practical.
3. The alternative substantially duplicates another alternative; that is, it is otherwise reasonable but offers little or no advantage for satisfying the project's purpose, and it has impacts and/or costs that are similar to or greater than those of other, similar alternatives (this is evaluated in the Level 2 screening for the Heber Valley Corridor Project).
 - a. West bypass – limited access and grade-separated interchanges with northern extension (WA3) was eliminated in Level 2 screening for high impacts to key resources compared to similar alternatives.

2.3.2 Clean Water Act Requirements

Because the area of analysis for the Heber Valley Corridor Project might include federally regulated wetlands or other waters of the United States, UDOT considered the Clean Water Act *Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material* (40 Code of Federal Regulations [CFR] Part 230) and Executive Order 11990, *Protection of Wetlands*, during the alternatives development phase. The U.S. Army Corps of Engineers is responsible for determining compliance with the Section 404(b)(1) Guidelines and may permit only the least environmentally damaging practicable alternative.

The Section 404(b)(1) Guidelines state that “no discharge of dredged or fill material [to Section 404–regulated waters] shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences” [40 CFR Section 230.10(a)]. This section of the Guidelines further states that:

1. For the purpose of this requirement, practicable alternatives include but are not limited to:
 - i. Activities which do not involve a discharge of dredged or fill material into the waters of the United States or ocean waters;
 - ii. Discharges of dredged or fill material at other locations in waters of the United States or ocean waters[.]
2. An alternative is practicable if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes. If it is otherwise a practicable alternative, an area not presently owned by the applicant which could reasonably be obtained, utilized, expanded, or managed in order to fulfill the basic purpose of the proposed activity may be considered.
3. Where the activity associated with a discharge which is proposed for a special aquatic site (as defined in Subpart E [of the Guidelines]) does not require access or proximity to or siting within the special aquatic site in question to fulfill its basic purpose (i.e., is not “water dependent”), practicable alternatives that do not involve special aquatic sites are presumed to be available, unless clearly demonstrated otherwise. In addition, where a discharge is proposed for a special aquatic site, all practicable alternatives to the proposed discharge which do not involve a discharge into a special aquatic site are presumed to have less adverse impact on the aquatic ecosystem, unless clearly demonstrated otherwise.

UDOT considered the Section 404(b)(1) Guidelines during two aspects of the screening process. First, during preliminary evaluation, UDOT determined which alternatives would be practicable. One alternative (40D) was eliminated as not practicable because of the limitation of available technology, logistics, and high costs. Second, during Level 2 screening, UDOT evaluated alternatives considering potential wetland impacts and also refined alternative alignments to try to avoid and minimize impacts to wetlands and other waters. One alternative was eliminated during Level 2 screening because it would have more-severe impacts to potential waters of the United States than other alternatives and offered little to no operational advantages compared to other alternatives that would have fewer wetland impacts. To achieve final compliance with the Section 404(b)(1) Guidelines, UDOT will need to demonstrate, through an evaluation of alternatives considered during screening and those evaluated in detail in the EIS, that the alternative selected in the project’s Record of Decision is the least environmentally damaging practicable alternative.

2.3.3 Section 4(f) Requirements

Section 4(f) of the Department of Transportation Act of 1966 (49 USC Section 303) applies to publicly owned parks, recreation areas, and wildlife and waterfowl refuges and publicly or privately owned significant historic properties. The requirements of Section 4(f) apply only to agencies within the U.S. Department of Transportation (USDOT)—for example, FHWA. Pursuant to 23 USC Section 327 and the NEPA Assignment Memorandum of Understanding between FHWA and UDOT dated May 26, 2022, UDOT is responsible for meeting Section 4(f) requirements for FHWA.

Section 4(f) prohibits USDOT agencies (and in this case UDOT) from approving the use of any Section 4(f) land for a transportation project except as follows:

- First, the USDOT agency can approve the use of a Section 4(f) property only if it makes a determination that (1) there is no prudent and feasible alternative that would avoid the use of the Section 4(f) property *and* (2) the project includes all possible planning to minimize harm to that property; or
- Second, if there is no feasible and prudent avoidance alternative and all remaining alternatives have Section 4(f) uses, the approved alternative would cause least overall harm in light of Section 4(f)'s preservation purpose; or
- Third, the USDOT agency can approve the use of Section 4(f) property by making a *de minimis* impact determination for the use of that property.

What is a *de minimis* impact?

For publicly owned public parks, recreation areas, and wildlife and waterfowl refuges, a *de minimis* impact is one that would not adversely affect the activities, features, or attributes of the property.

For historic sites, a finding of *de minimis* impact means FHWA has determined that the project would have “no adverse effect” on the historic property.

UDOT considered the Section 4(f) requirements during two aspects of the screening process. First, during preliminary evaluation, UDOT determined that some concepts (for example, building a tunnel under Main Street) would not be prudent and/or feasible. Second, during Level 2 screening, UDOT evaluated alternatives considering potential use of Section 4(f) properties and refined alternative alignments to try to avoid and minimize impacts to those properties. No alternatives were eliminated during Level 2 screening because of the severity of Section 4(f) uses that would be required. To achieve compliance with the Section 4(f) regulations, UDOT will need to demonstrate through an evaluation of alternatives remaining after screening that either (1) the alternative selected would have a *de minimis* use of Section 4(f) resources or (2) there is no feasible and prudent alternative that would avoid the use of Section 4(f) resources, and the project alternative selected demonstrates the least overall harm and includes all possible planning to minimize harm to Section 4(f) resources.

2.4 Summary of the Project’s Purpose and Need

The primary criterion for determining whether an alternative is reasonable, feasible and prudent, and practicable is whether it meets the purpose of and needs for the project. For the Heber Valley Corridor Project, UDOT’s purpose is to improve both regional and local mobility on U.S. 40 from State Route (S.R.) 32 to U.S. 189 and provide opportunities for nonmotorized transportation while allowing Heber City to meet their vision for the historic town center.

The evaluation of transportation needs in the Heber Valley is focused on U.S. 40 because it is the only principal arterial in the valley that conveys regional traffic through the length of the valley. U.S. 40 presents challenges for local and regional mobility today and in the future. The transportation needs are related primarily to traffic during peak periods, which is forecasted to get worse with increasing population and economic activity. The following deficiencies have been identified in the study area:

What is the PM peak hour?

The PM peak hour is the 1-hour period afternoon (PM) during which there is the greatest number of vehicles on the road system.

- The character and function of U.S. 40 change from a 65-miles-per-hour (mph), limited-access freeway north of town to a 35-mph Main Street in Heber City with signalized intersections. Vehicle throughput (the number of vehicles per day) on U.S. 40 is traded for increased access within Heber’s historic core, resulting in congestion and delay.
- U.S. 40 is currently operating at failing conditions (level of service F) from 100 North to 100 South during the PM peak hour, and these conditions will continue to get worse through 2050.
- Signalized intersections on U.S. 40 are currently operating at acceptable conditions, but many are expected to operate at failing conditions during the PM peak hour by 2050 if no improvements are made.
- Southbound travel time on U.S. 40 from S.R. 32 to U.S. 189 during the PM peak hour will double by 2050 if no improvements are made.
- Queue lengths (vehicles backed up waiting to get through an intersection) during the PM peak hour will increase and spill back to other intersections and onto U.S. 40 north of town where the posted speed is 55 mph, resulting in safety concerns.
- There is limited designated infrastructure and lack of connectivity with existing infrastructure for nonmotorized transportation in the Heber Valley. This lack of accommodations creates a low-comfort experience for all but the most confident pedestrians and bicyclists.

In addition, Heber City’s general plan, *Heber City Envision 2050* (Heber City 2020), identifies the following deficiencies:

- Increased traffic on Main Street has disrupted the traditional feel with increased noise and pedestrian safety concerns.

See the *Purpose and Need Technical Report* (UDOT 2021) for more information regarding the project purpose and need (available on the project website at hebervalleyeis.udot.utah.gov).

UDOT developed criteria to measure each alternative’s ability to satisfy the project’s purpose. If an alternative would not satisfy the project’s purpose, it is proposed to be eliminated from further consideration. See Section 3.3.2, *Level 1 Screening*, for a description of the purpose criteria used in Level 1 screening.

3.0 Alternatives Development and Screening Process

3.1 Definition of Study Area Phase

The first step was to define the project’s study area. UDOT defined the study area as the area that encompasses the problems identified in the purpose and need statement and within which a proposed alternative would be expected to meet the project’s purpose. Travel demand modeling was used to determine the effectiveness of proposed alternatives on U.S. 40 and the geographic extent of effective alternative alignments. That is, it was also used to determine how far away an alternative could be from U.S. 40 and still meet the project’s purpose to relieve local and regional travel demand.

Traffic modeling found that if a proposed alternative is too far from U.S. 40, it would not benefit regional and local mobility because it would not draw enough traffic off U.S. 40 (drivers would avoid out-of-direction travel and excessive travel times). To reduce congestion on U.S. 40, an alternative needs to be within about 1 mile east or west of the U.S. 40 mainline. Based on modeling results, UDOT also determined that this location is important for moving local traffic, which is the dominant traffic type using U.S. 40 (about 50% of traffic on Main Street in 2019 is local traffic).

Regional traffic and through-traffic are 20% and 30%, respectively, of the traffic on Main Street; however, both types of traffic are sensitive to out-of-direction travel. Modeling determined that drivers would continue to use U.S. 40 if an alternative route is too far away. To reduce freight traffic on the Main Street segment of U.S. 40 (a project purpose to meet Heber City’s Vision), an alternative must also be located nearby and provide convenient connections to U.S. 40 and U.S. 189 to serve freight traffic. Figure 3-1 shows the study area in which alternatives would benefit both local and regional traffic (as determined by travel demand modeling).

What types of traffic are present on Main Street?

Local traffic is traffic that starts and ends within the Heber Valley. This traffic type was 50% of the traffic on Main Street in 2019.

Regional traffic is traffic that starts or ends in the Heber Valley, typically long-distance commuters or visitors. This traffic type was 20% of traffic in 2019.

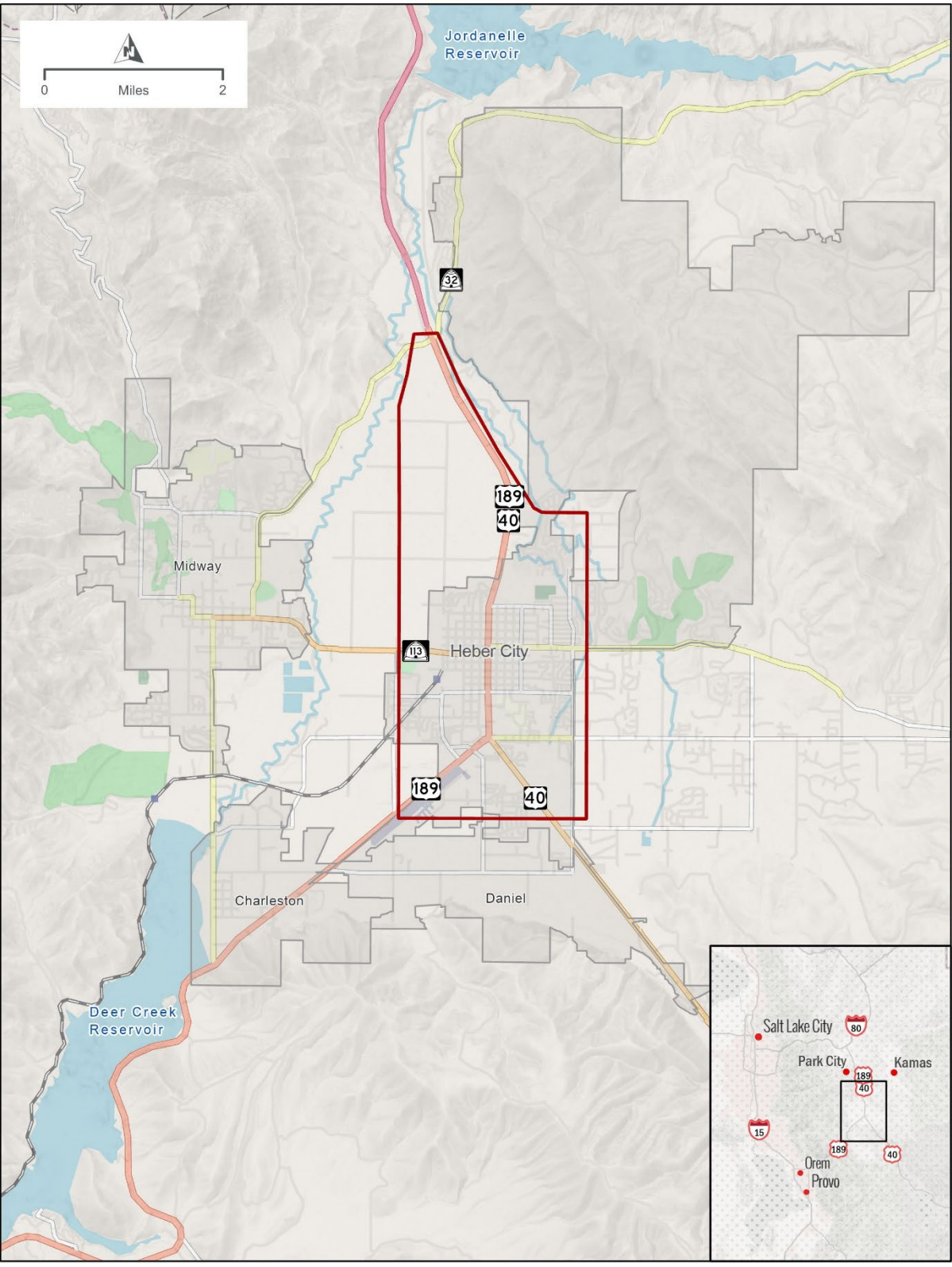
Through-traffic is traffic that travels through the Heber Valley, originating and ending at locations outside the valley. This traffic type was 30% of traffic in 2019.

3.2 Development of Preliminary Alternatives

The next phase in the alternatives development and screening process was identifying a list of preliminary alternatives. To be considered a preliminary alternative, an alternative had to be applicable to the study area defined above and had to present a type of solution that could meet the project’s purpose and identified transportation needs.

UDOT developed the preliminary alternatives based on previous planning studies and through the EIS scoping and outreach processes. The preliminary alternatives were developed with input from existing transportation plans, the public, local municipal governments, and resource agencies. The input was collected during the EIS public scoping periods (an early scoping period from August 26 to October 3, 2020, and a formal scoping period from April 30 to June 14, 2021) and in stakeholder interviews.

Figure 3-1. Needs Assessment Study Area



3.2.1 Previous Studies and Plans

UDOT identified potential alternatives from the following previous transportation plans and studies:

- *Heber City Downtown Study* (Downtown Redevelopment Services, no date)
- *Heber City Envision 2050* (Heber City 2020)
- *Transportation Plan 2017* (Heber City 2017)
- *Wasatch County General Plan 2001–2016* (Wasatch County 2010)
- *Heber City Highway Bypass Study* (PEC, no date)
- *Heber Valley Parkway Planning Study*, conducted for UDOT, Mountainland Association of Governments (MAG), Heber City, and Wasatch County (Avenue Consultants 2019)
- *2019–2050 Wasatch Regional Transportation Plan* (MAG 2019)
- *2019–2050 Statewide Rural Long-range Transportation Plan* (UDOT 2019a)

3.2.2 Scoping

NEPA scoping is a formal EIS outreach and coordination process to determine the scope of issues to be addressed and to identify significant issues related to the proposed action. UDOT used the scoping process to identify and review the purpose of and need for the project and alternatives to consider in the EIS. UDOT used several methods to involve agencies and the public during the development of alternatives, including meetings, open houses, a project website, and newsletters to advertise and allow reviews of project materials.

Early Scoping

UDOT conducted an early scoping process to solicit public and agency input to develop the project purpose and need statement, identify a preliminary range of alternatives, and identify potentially significant environmental issues. The [Early Scoping Summary Report](#) summarizes public and agency input and identifies the alternatives that were suggested during the early scoping process from August 26 to October 3, 2020.

What is scoping?

NEPA scoping is a formal EIS outreach and coordination process to determine the scope of issues to be addressed and to identify significant issues related to the proposed action. UDOT conducted an early scoping process in 2020, prior to initiating the EIS. Another formal scoping process was conducted when UDOT published the notice of intent to prepare an EIS in May 2021.

Scoping and Notice of Intent

The *Scoping Summary Report* summarizes public and agency input gathered during the formal scoping period, which lasted 45 days from April 30 to June 14, 2021. The Notice of Intent (NOI) was published during the formal scoping period on May 11, 2021. The NOI and formal scoping presented the following preliminary alternatives for comment:

- No action
- Improvements to U.S. 40 such as adding lanes and intersection improvements
- Improvements to existing roads other than U.S. 40
- A one-way-couplet system
- A new bypass west of U.S. 40
- A new bypass east of U.S. 40
- Transportation System Management (TSM)
- Transit

As discussed in the *Scoping Summary Report*, during the EIS scoping processes in 2020 and 2021, UDOT received close to 400 comments, and some comments suggested additional concepts and potential alternatives for UDOT to consider in the EIS. These comments addressed alternative locations, alternative configurations, travel modes, safety, construction costs, construction methods, and logical termini (the logical endpoints for the improvements to U.S. 40). Where applicable, UDOT incorporated the scoping comments to develop and refine a range of preliminary alternatives. The additional concepts for alternatives suggested during scoping included the following:

- Improvements on U.S. 40, including:
 - Intersection improvements such as wider intersections and roundabouts
 - Tunnel under U.S. 40 within the Heber City limits
 - Bridge over U.S. 40 within the Heber City limits
- New locations for a new bypass west of U.S. 40
- New locations for a new bypass east of U.S. 40

Initial Alternative Concepts

From the basic concepts identified during scoping, UDOT developed the ideas into 17 distinct alternative concepts and published them for public review and input. These 17 alternative concepts are described in Table 3-1 and shown in Figure 3-2 through Figure 3-4. To allow objective screening, all of the proposed alternative concepts were developed to an equal level of detail. UDOT solicited input on the 17 initial alternative concepts at meetings and during the public comment period, which ran from October 5 to November 4, 2021. See Appendix B, *Notifications of Alternatives Meetings and Comment Period*, for the notifications for the public meeting, and Appendix C, *Virtual Open House Meeting Materials*, and Appendix D, *In-person Open House Meeting Materials*, for the supporting materials displayed at the public meetings that describe the 17 alternative concepts.

Table 3-1. Initial Alternative Concepts Presented during the Public Comment Period

Alternative		Description
—	Transit alternative	The Wasatch County Transit Study (MAG 2020) identified a combination of local services in the Heber Valley connecting Heber City, Midway, and Charleston; a Park City commuter route from Heber City; a Wasatch County to Utah County commuter route from Heber City to the Vineyard FrontRunner Station in Orem; and vanpool services from Heber City to Orem and Park City, starting with dial-a-ride service in Midway and Heber City.
Improvements on U.S. 40 (Figure 3-2)		
40A	Widen U.S. 40	Concept proposes widening U.S. 40 from five lanes to seven lanes from 500 North to U.S. 189.
40B	Improve U.S. 40 – roundabouts	Concept proposes replacing the existing signalized intersections with roundabouts at 500 North, Center Street, 100 South, 600 South, and 1200 South, with no additional lanes added to U.S. 40.
40C	Improve U.S. 40 – intersection improvements	Concept proposes realigning S.R. 113 to line up with Center Street (to align major east-west movements) and adding turn lanes to signalized intersections, with no additional lanes added to U.S. 40. The traffic signal for 100 South would be removed with this concept.
40D	Improve U.S. 40 – tunneling or bridging	Concept proposes constructing a bridge over or a tunnel under U.S. 40 from 500 North to 1200 South.
40E	Reversible lanes	Concept proposes converting the center turn lane to a reversible lane from 500 North to U.S. 189, with no additional lanes added to U.S. 40. The center lane would be used for northbound traffic during the morning and southbound traffic during the afternoon.
40F	One-way couplet	Concept proposes splitting U.S. 40 into two roads between 500 North and 1000 South. Main Street would be for northbound travel, and 100 West would be for southbound travel.
East Bypasses (Figure 3-3)		
EA	East bypass – limited access and grade-separated interchanges	Concept proposes a highway-type facility offset from 1200 East (Mill Road) with three interchanges: Center Street and the north and south connections to U.S. 40. Speed limit would be 65 mph.
EB	East bypass – parkway and at grade intersections	Concept proposes a parkway-type facility offset from 1200 East (Mill Road) with seven intersections at key locations. Speed limit would be 55 mph.
EC	East bypass – arterial route and at grade intersections	Concept proposes an arterial-type facility on 1200 East (Mill Road) with intersections at all cross streets (12 total). Speed limit would be 45 mph.
West Bypasses (Figure 3-4)		
WA1	West bypass – limited access and grade-separated interchanges	Concept proposes a highway-type facility with six interchanges at major connections: U.S. 40 (2), U.S. 189 (2), S.R. 113, and 1300 South. Speed limit would be 65 miles per hour (mph).
WA2	West bypass – limited access and grade-separated interchanges and realign U.S. 189	Concept proposes a highway-type facility with six interchanges at major connections: U.S. 40 (2), U.S. 189 (2), S.R. 113, and 1300 South. Speed limit would be 65 mph. Concept includes the realignment of U.S. 189.
WB1	West bypass – parkway and at-grade intersections	Concept proposes a parkway-type facility with eight intersections: U.S. 40 (2), U.S. 189 (2), S.R. 113, 1300 South, Industrial Parkway, and 300 West. Speed limit would be 55 mph.

(continued on next page)

Table 3-1. Initial Alternative Concepts Presented during the Public Comment Period

Alternative		Description
West Bypass (Figure 3-4) (continued)		
WB2	West bypass – parkway and at-grade intersections and realign U.S. 189	Concept proposes a parkway-type facility with eight intersections: U.S. 40 (2), U.S. 189 (2), S.R. 113, 1300 South, Industrial Parkway, and 300 West. Speed limit would be 55 mph. Concept includes the realignment of U.S. 189.
WC1	West bypass – arterial route and at-grade intersections	Concept proposes an arterial-type facility with intersections at all cross streets (nine total): U.S. 40 (2), U.S. 189 (2), 1300 South, S.R. 113, Industrial Parkway, 300 West, and S. Daniels Road. Speed limit would be 45 mph.
WC2	West bypass – arterial route and at-grade intersections and realign U.S. 189	Concept proposes an arterial-type facility with intersections at all cross streets (nine total): U.S. 40 (2), U.S. 189 (2), 1300 South, S.R. 113, Industrial Parkway, 300 West, and S. Daniels Road. Speed limit would be 45 mph. Concept includes the realignment of U.S. 189.
WD1	West bypass – parkway and turbo roundabouts	Concept has turbo roundabouts at seven key locations. Speed limit would be 55 mph.

Figure 3-2. Initial Alternatives for U.S. 40 Presented during Public Comment Period

U.S. 40 ALTERNATIVE CONCEPTS

Six concepts for improving U.S. 40 have been developed. These include widening, intersection improvements, tunneling/bridging, converting to a one-way couplet, and utilizing reversible lanes. The design speed limit for all the alternative concepts is 35 mph (same as existing) unless otherwise noted.

- 40A ALTERNATIVE 40A: WIDEN U.S. 40**
 Concept proposes widening U.S. 40 from five lanes to seven lanes, from 500 North to U.S. 189.
- 40B ALTERNATIVE 40B: IMPROVE U.S. 40 – ROUNDABOUTS**
 Concept proposes replacing the existing signalized intersections with roundabouts at 500 North, Center Street, 100 South, 600 South, and 1200 South, with no additional lanes added to U.S. 40.
- 40C ALTERNATIVE 40C: IMPROVE U.S. 40 – INTERSECTION IMPROVEMENTS**
 Concept proposes realigning S.R. 113 to line up with Center Street (to align major east-west movements), adding turn lanes to signalized intersections, with no additional lanes added to U.S. 40.
- 40D ALTERNATIVE 40D: IMPROVE U.S. 40 – TUNNELING/BRIDGING**
 Concept proposes constructing a bridge over or a tunnel under U.S. 40 from 500 North to 1200 South.
- 40E ALTERNATIVE 40E: REVERSIBLE LANES**
 Concept proposes converting the center turn lane to a reversible lane from 500 North to U.S. 189, with no additional lanes added to U.S. 40. The center lane would be used for northbound traffic in the AM and southbound traffic in the PM.
- 40F ALTERNATIVE 40F: ONE-WAY-COUPLET**
 Concept proposes splitting U.S. 40 into two roads between 500 North and 1000 South. Main Street would be for northbound travel and 100 West would be for southbound travel.

**SPEED
 LIMIT
 50**

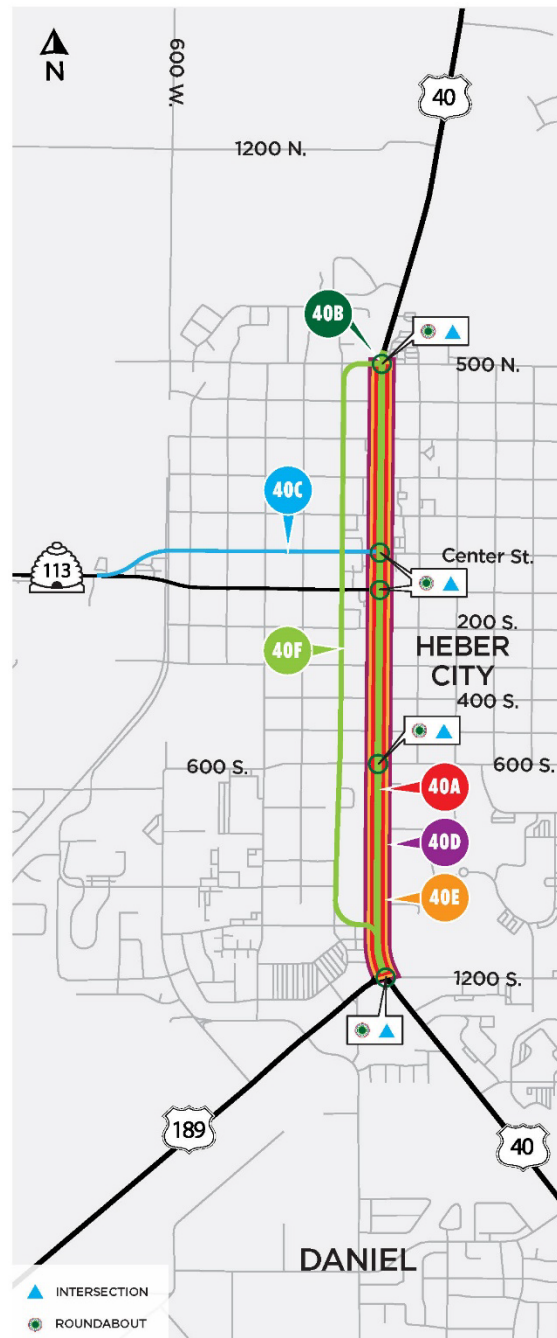


Figure 3-3. Initial Alternatives for East Bypass Presented during Public Comment Period

EAST BYPASS ALTERNATIVE CONCEPTS

Three alternative concepts for an eastern bypass have been developed. The primary differences between the alternatives are speed limit and connections to the local network (interchange or intersection locations).

Two of the eastern bypass concepts would be parallel to 1200 East; the third would be on 1200 East (Mill Road).

- EA ALTERNATIVE EA: EAST BYPASS LIMITED-ACCESS GRADE-SEPARATED**
 Concept proposes a highway type facility offset from 1200 East (Mill Road) with three interchanges: Center Street and the north and south connections to U.S. 40.

**SPEED
 LIMIT
 65**

- EB ALTERNATIVE EB: EAST BYPASS PARKWAY AT-GRADE**
 Concept proposes a parkway type facility offset from 1200 East (Mill Road) with seven intersections at key locations.

**SPEED
 LIMIT
 55**

- EC ALTERNATIVE EC: EAST BYPASS ARTERIAL AT-GRADE**
 Concept proposes an arterial type facility on 1200 East (Mill Road) with intersections at all cross streets, 12 total.

**SPEED
 LIMIT
 45**

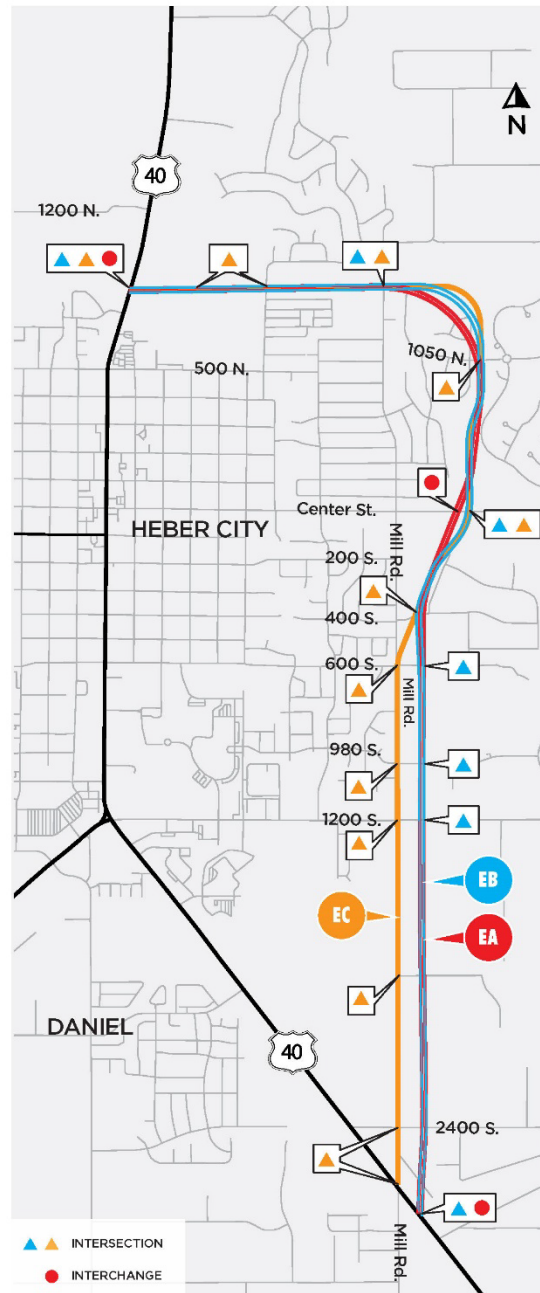


Figure 3-4. Initial Alternatives for West Bypass Presented during Public Comment Period

WEST BYPASS ALTERNATIVE CONCEPTS

Four alternative concepts for a western bypass have been developed. The primary differences between the alternatives are speed limit and connections to the local network (interchange or intersection locations).

Three western bypass concepts generally follow the corridor that has been preserved by Heber City and Wasatch County, the fourth extends farther to the north.

Concepts WA, WB and WC each have an option to realign U.S. 189.

WA ALTERNATIVE WA: WEST BYPASS LIMITED-ACCESS GRADE-SEPARATED

Concept proposes a highway-type facility with six interchanges at major connections: U.S. 40 (2), U.S. 189 (2), S.R. 113, and 1300 South.

**SPEED
LIMIT
65**

WB ALTERNATIVE WB: WEST BYPASS PARKWAY AT-GRADE

Concept proposes a parkway-type facility with eight intersections: U.S. 40 (2), U.S. 189 (2), S.R. 113, 1300 South, Industrial Parkway, and 300 West.

**SPEED
LIMIT
55**

WC ALTERNATIVE WC: WEST BYPASS ARTERIAL AT-GRADE

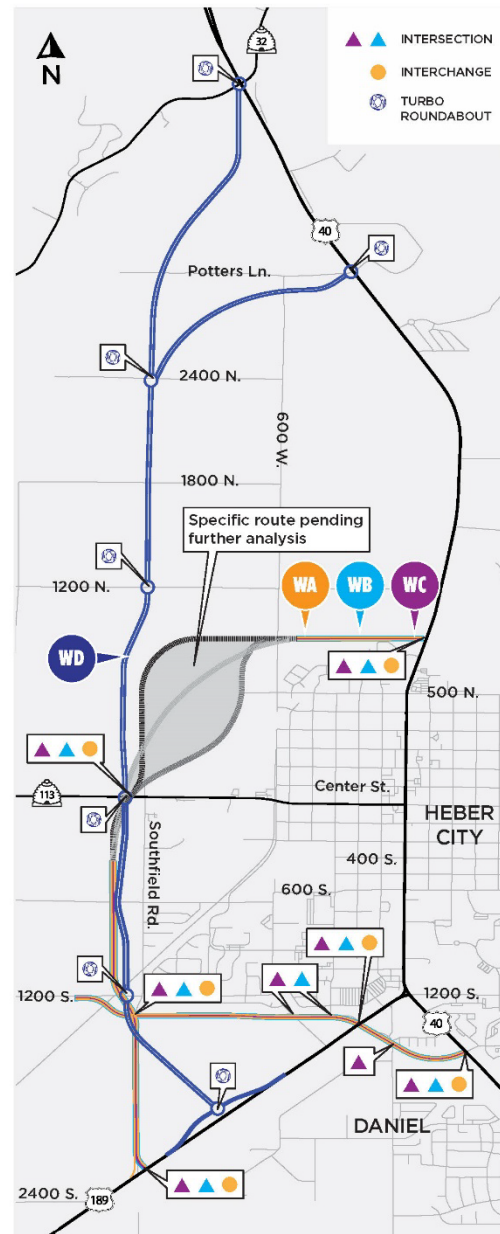
Concept proposes an arterial-type facility with intersections at all cross streets, nine total: U.S. 40 (2), U.S. 189 (2), 1300 South, S.R. 113, Industrial Parkway, 300 West, and S. Daniels Road.

**SPEED
LIMIT
45**

WD ALTERNATIVE WD: WEST BYPASS PARKWAY TURBO ROUNDABOUTS

Concept has turbo roundabouts at seven key locations.

**SPEED
LIMIT
55**



3.2.3 Initial Alternatives Agency and Public Comment Period

On September 30, 2021, UDOT held an alternatives meeting to present the conceptual alternatives to resource agencies. Representatives from the U.S. Environmental Protection Agency, U.S. Army Corps of Engineers, U.S. Bureau of Reclamation, Utah Reclamation, Mitigation, and Conservation Commission, and Utah Division of Wildlife Resources were in attendance. See Appendix A, *Agency Alternatives Meeting*, for the presentation and meeting summary.

UDOT held two public meetings to present the conceptual alternatives for public review and comment. A virtual public meeting was held on October 5, 2021, on Zoom, and the presentation was followed by a question-and-answer session. An in-person open house was held on October 6 at the Heber Valley Elementary School, and an opportunity to review materials and speak directly with UDOT was provided. The same information was presented at both meetings. The materials presented are available in Appendix C, *Virtual Open House Meeting Minutes*, and Appendix D, *In-person Open House Meeting Materials*. A 30-day public comment period ran from October 5 to November 4, 2021.

Notification

The following methods were used to notify the general public of the October public meetings, the materials available for review, and how to comment:

- Advertisements were placed in the following publications:
 - *Wasatch Wave*, September 22 and 29, 2021
 - *The Salt Lake Tribune*, September 19, 2021
 - *Deseret News*, September 17, 24, and October 1, 2021
- Notifications and reminders were posted on the Heber Valley Corridor Project website: hebervalleyeis.udot.utah.gov.
- Notifications and reminders were posted on UDOT's social media sites:
 - Facebook on September 16 and 24; October 1, 5, 6, 8, 13, 18, 19, 21, and 29; and November 1 and 4, 2021
 - Instagram on October 2 and 6, 2021
 - Paid video advertisements on Instagram intermittently from October 5 to November 4, 2021
 - Twitter on September 16; October 1, 5, 6, 13, 18, 19, 21, 25, and 29; and November 1 and 4, 2021
- An email notice was sent to the Heber Valley Corridor Project mailing list on September 14 and 24; October 1, 5, 6, 8, 15, and 29; and November 3 and 4, 2021.
- Printed flyers were hung at the following locations:

○ Dairy Keen	○ Sinclair
○ Heber City offices	○ Smith's grocery store
○ Heber City Police Department	○ Wasatch County Administrative Building
○ Natural Grocers	○ Wasatch County Library
- A UDOT press release was sent to local media outlets on September 27, 2021.

Copies of the notification materials listed above are included in Appendix B, *Notifications of Alternatives Meetings and Comment Period*.

City and County Council Presentations

Prior to the alternatives public comment period, UDOT presented at two city council meetings, one county council meeting, and one interlocal government meeting. UDOT presented to the Midway City Council on September 7, 2021; the Wasatch County Council on September 8, 2021; the Heber City Council on September 21, 2021; and the Wasatch County Interlocal Meeting on September 22, 2021. The presentations for the council meetings were the same and included an overview of the project's purpose and need, a list of the alternatives under consideration, information about the upcoming public meetings, an overview of the process, and how to comment. UDOT encouraged councils and the public to submit comments on alternatives and alternatives screening criteria. A copy of the presentations is included in Appendix E, *Council Presentations*.

Stakeholder Working Group Meetings

UDOT developed a stakeholder working group (SWG) that includes 18 representatives who represent trucking, agriculture, open lands, emergency services, schools, residents, developers, local government staff, and businesses. The group serves as a communication conduit to the community and helps inform UDOT's decision-making process. The fourth SWG meeting was held during the initial alternatives comment period on October 28, 2021, at the Heber City Police Department (with a virtual option via Zoom).

Nine SWG members and eight project team members attended. A presentation was given, including an update on the revised purpose and need statement, an overview of the screening process, an overview of the alternative concepts under consideration, a summary of comments received to date, and information regarding how to comment. After the presentation, SWG members asked questions and provided comments. The presentation and notes from the meeting are included in Appendix F, *Stakeholder Working Group Meeting*. The SWG will continue to meet at major milestones throughout the EIS process.

3.2.4 Summary of Public Comment on Initial Alternatives

The initial alternatives public comment period for the Heber Valley Corridor EIS began on October 5 and concluded on November 4, 2021. All comments that were received during this period are included in Appendix G, *Alternatives Comments*.

UDOT reviewed each comment and assigned it a number. Appendix G includes a list of commenters presented chronologically according to the order in which they commented and the corresponding comment number. A single comment might include several issues. A summary of the comments is included below, and more details are provided in Appendix G. UDOT reviewed comments received after the formal alternatives comment period and before the development of the Draft EIS and will consider them during the development of the Draft EIS. All comments received will be considered. The public will continue to have opportunities to provide input throughout the Heber Valley Corridor EIS environmental review process, and public comments will continue to be solicited throughout the project.

During the alternatives public comment period, UDOT received about 670 individual comment submissions from the public and agencies. Common themes included the following:

- An east bypass has never been part of the plan; a west bypass has been planned.
- An east bypass would reduce the quality of life in existing neighborhoods.
- An east bypass would reduce safety for students at four schools in the Mill Road area.
- A bypass should be placed where it would affect the fewest people.
- The west side is much less developed (fewer homes and schools).
- Something needs to be done about congestion.
- Congestion on Main Street is preferable to affecting so many homes and neighborhoods.
- The north fields and south fields should be preserved. Please don't impact the fields.
- A west bypass would impact natural resources (wetlands, creeks, aquifer, and/or wildlife).
- A bypass should connect to U.S. 40 farther to the north (River Road/S.R. 32) for a long-term solution. Development will continue to the north.

Suggestions for new alternatives or modifications to existing alternatives included the following:

- New alignments for bypass and one-way-couplet alternatives
- Different locations for bypass alternatives to connect to U.S. 40 and/or U.S. 189
- Different locations for and types of connections to the local road network for bypass alternatives (that is, specific type of interchange or intersections at specific locations)
- Regulating truck traffic
- Constructing a frontage road or median barrier on U.S. 40 (north of Heber City)
- Widening U.S. 40 and U.S. 189 south of Heber City, or installing a median barrier
- Spot improvements (for example, new traffic signals and pedestrian crossings)
- Lowering the speed limit or implementing traffic-calming measures on Main Street
- Combining different alternatives
- Building an oil pipeline or a railway to haul crude oil (to eliminate oil tanker truck traffic)

UDOT sorted the comments suggesting new or modified alternatives and split or combined them into about 40 unique suggestions. UDOT reviewed each suggestion for new alternatives or modifications to existing alternatives to determine if they should be evaluated further in the screening process. The reasons not to carry suggestions through the screening process included the following:

- Included in No-action Alternative
- Does not meet project objectives
- Outside the study area
- Outside the scope of the EIS
- Not technically feasible
- Will be considered during alternatives development (the comment suggested a design detail that could be incorporated into an alternative but did not suggest a standalone alternative)

Appendix I, *Alternatives Suggested by the Public*, includes a table listing these suggestions, whether they were further considered in Level 1 screening, and, if they were not advanced, the rationale for not considering them further in Level 1 screening.

UDOT developed responses for key themes and frequently asked questions (FAQ). The FAQ is available in Appendix H, *Responses to Alternatives Comments*. Formal comments were submitted by one cooperating agency (U.S. Environmental Protection Agency) and two participating agencies (U.S. Bureau of Reclamation and Utah Reclamation, Mitigation, and Conservation Commission). UDOT provided a response to comments from the U.S. Environmental Protection Agency, which is also available in Appendix H. Letters from the U.S. Bureau of Reclamation and the Utah Reclamation, Mitigation, and Conservation Commission did not include comments on the conceptual alternatives presented in October 2021, but both agencies said they wanted to continue to participate in the NEPA process. UDOT did not develop responses to these two agencies.

New Alternatives Developed for Screening

In response to the comments received, UDOT developed six new alternatives and modified some of the original 17 alternative concepts before conducting screening. These new alternatives are five western bypass alternatives and a new one-way couplet configuration in downtown Heber City. Modifications to alternatives included adding improvements to north U.S. 40 as suggested by the public.

North U.S. 40 Improvements

UDOT received numerous comments during the alternatives public comment period regarding planned development north of Heber City. Substantial development is planned for the area along North 40—the area north of Heber City—and this development could reduce regional mobility on the segment of U.S. 40 between S.R. 32 and 800 North. The commenters stated that, once this area develops, this section of North 40 would become congested just like Main Street in downtown Heber City.

In response to concerns regarding planned development north of Heber City, UDOT met with Heber City, Wasatch County, and MAG to compare the population growth used as an input to MAG's travel demand model comparing that with approved subdivision developments. This travel demand model is the tool that UDOT used to project traffic volumes in 2050, which is the design year for the EIS. Through this consultation, UDOT found that some of the approved development is expected to occur after 2050. After thorough consideration, UDOT determined that the approved MAG travel demand model reflects the best information available and did not need to be revised. However, based on the public concerns and information regarding anticipated development along North 40, UDOT will strive to make alternatives forward-compatible with any improvements that are needed after 2050; however, for this EIS, the alternatives are designed to address transportation needs in 2050. For more information, see Appendix J, *Traffic Memorandum*.

Some public comments suggested that safety improvements or frontage roads are needed on North 40. In addition, UDOT recently updated its *Roadway Design Manual* (in 2021), which includes revised design

What is North 40?

North 40 is the existing section of U.S. 40 north of downtown Heber City from 800 North to River Road/S.R. 32.

What is a design year?

The design year is the year for which a project is engineered. Design years for infrastructure projects are typically 20 to 30 years from the year of construction in order to provide long-term benefits. The design year for the Heber Valley Corridor Project is 2050.

standards for center medians. Based on these issues discovered during the alternatives development phase, UDOT decided to add improvements on North 40 to the alternatives considered in screening.

UDOT developed two options for improvements to address regional mobility needs for North 40. The two options are based on different access categories as defined by UDOT Administrative Rule R930-6, *Access Management* (UDOT 2019b).

- **Access category 3.** The first option is designed to achieve access category 3: appropriate for use on limited-access highways that have the capacity for high speed and relatively high traffic volumes, where direct access to abutting land is subordinate to providing service to through traffic movement.
- **Access category 5.** The second option is designed to achieve access category 5: appropriate for use on highways that have the capacity for moderate speed and moderate to high traffic volumes, providing a balance between direct access and mobility needs.

What is an access category?

An access category is a classification that UDOT assigns to a segment of highway that determines how access to the highway is managed. Access categories are used to determine the minimum allowable spacing of highway features such as signal spacing, street spacing, and driveway spacing. For example, interstates are access category 1, which does not allow signals or driveways.

Note that North 40 is currently designated as access category 5, but its current design does not meet the requirements of its assigned access category—it has too many side streets and driveways along this section. For the access category 5 option, UDOT proposes consolidating accesses to meet the defined spacing criteria to protect regional mobility by providing frontage roads in specific areas. For access category 3, driveways are not allowed, so with this option UDOT would add frontage roads on both sides of U.S. 40 along the entire length to provide access to adjacent homes and businesses. These two additional improvement options for North 40 have been paired with the alternatives that passed local mobility screening criteria to allow UDOT to objectively screen the alternatives in Level 1 screening using regional mobility criteria for the entire length of the project area (between U.S. 189 and S.R. 32).

New/Extended Western Bypass Alternatives

UDOT received numerous comments that bypass alternatives should connect to U.S. 40 farther north (near River Road/S.R. 32). Commenters suggested that a bypass tying into U.S. 40 at 800 North would not provide a long-term solution given the anticipated growth along North 40. They suggested that western bypass alternatives should extend farther north to bypass this growing area, and they identified various potential connection points along North 40.

Because many members of the public want the EIS to examine western bypass routes that connect farther north, and because there will be additional development along North 40, UDOT explored extending the potential connections at the north end of the western bypass alternatives. UDOT identified three additional western bypass alternatives that have a second northern connection at River Road/S.R. 32. These new alternatives are “west bypass – limited access and grade-separated interchanges with northern extension” (WA3), “west bypass – parkway and at-grade intersections with northern extension” (WB3), and “west bypass – parkway and at-grade intersections with northern extension and realigned U.S. 189” (WB4). Other potential western bypass connection locations on North 40 do not meet intersection spacing requirements

for safety and operations and/or would not provide a significant traffic benefit, or they would have greater wetland impacts. Therefore, other potential connection locations were not developed further for screening.

UDOT also received a suggestion to revise the western bypass with a southern extension through the town of Daniel connecting U.S. 40 and U.S. 189 south of the hub intersection and closer to the foothills. This third new alternative is “west bypass with southern extension – arterial route and at-grade intersections” (WS).

What is the hub intersection?

The hub intersection is the λ-shaped intersection of U.S. 40 and U.S. 189 on the south side of Heber City.

When initially reviewing the travel demand model, UDOT determined that a 1300 South connection is critical to the traffic operations of all the western bypasses. As a result, UDOT added a fifth new alternative—a revised version of the western bypass with roundabouts alternative (WD1) that includes a connection at 1300 South (WD2). These five western bypass alternatives (WA3, WB3, WB4, WD2, and WS) are included in Table 3-2 and are discussed below in Section 3.2.5, *Range of Alternatives Considered in the Screening Process*.

New Couplet Alternative

UDOT also received a suggestion to reroute the one couplet off U.S. 40 entirely using 100 West and 100 East. This new alternative is called “one-way couplet on 100 West and 100 East” (40G) in the analysis below.

3.2.5 Range of Alternatives Considered in the Screening Process

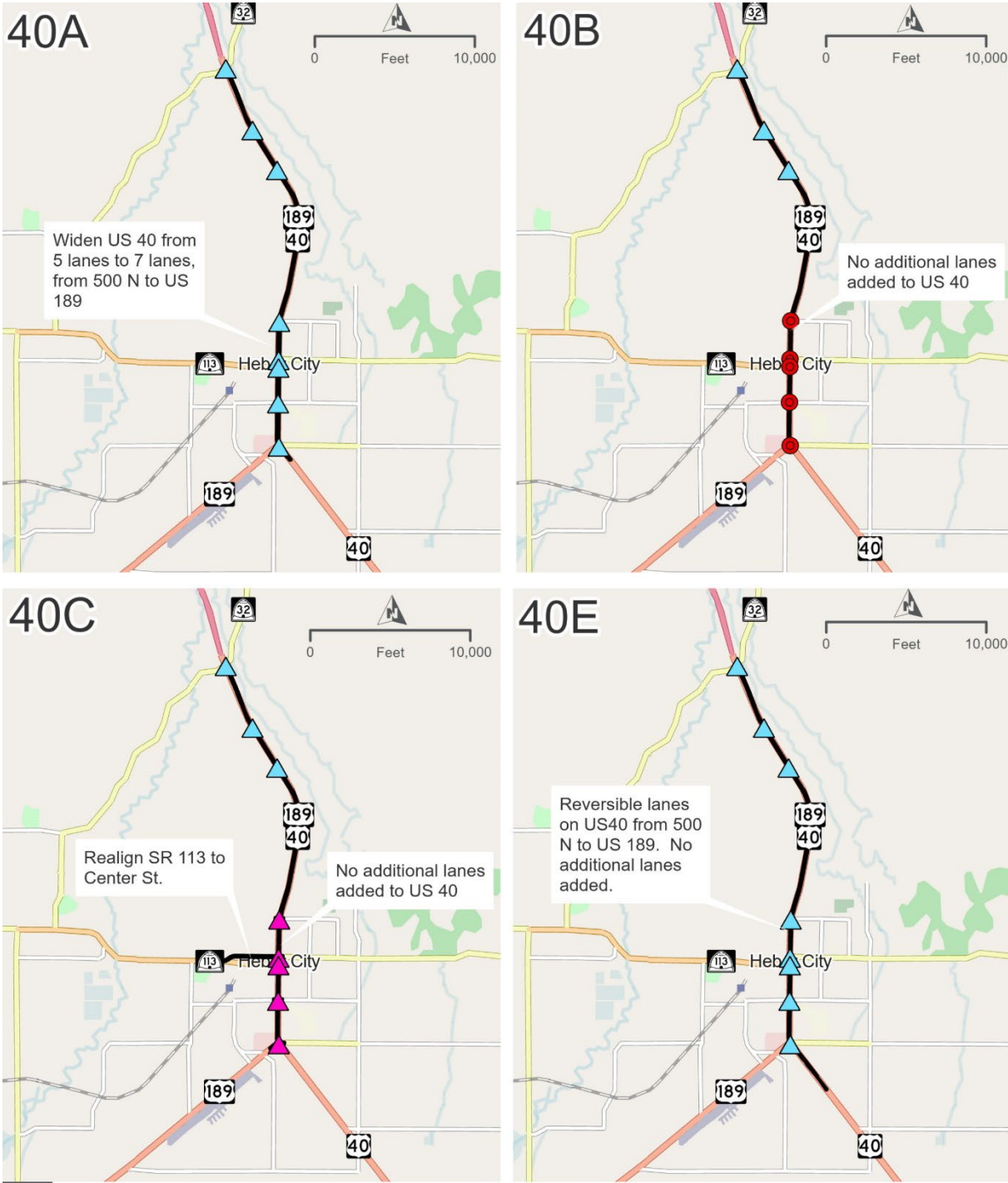
UDOT developed the 23 alternatives listed in Table 3-2 for evaluation in screening based on previous studies, public and agency input during scoping, and local and regional land use and transportation plans. Figure 3-5 through Figure 3-8 show the design layouts and cross sections of the Main Street improvement alternatives. Figure 3-9 through Figure 3-14 show the design layouts and cross sections of the eastern and western bypasses as revised to include improvements on North 40.

Table 3-2. Alternatives Evaluated in Screening

Alternative ^a		Concept Added after 2021 Public Comment Period?
—	Transit alternative	
U.S. 40 Improvements (Figure 3-5, Figure 3-6, Figure 3-7, and Figure 3-8)		
40A	Widen U.S. 40	
40B	Improve U.S. 40 – roundabouts	
40C	Improve U.S. 40 – intersection improvements	
40D	Improve U.S. 40 – tunneling or bridging	
40E	Reversible lanes	
40F	One-way couplet	
40G	One-way couplet on 100 West and 100 East	Yes, new alternative based on public comment
East Bypasses (Figure 3-9 and Figure 3-14)		
EA	East bypass – limited access and grade-separated interchanges	
EB	East bypass – parkway and at-grade intersections	
EC	East bypass – arterial route and at-grade intersections	
West Bypasses (Figure 3-10, Figure 3-11, Figure 3-12, Figure 3-13, and Figure 3-14)		
WA1	West bypass – limited access and grade-separated interchanges	
WA2	West bypass – limited access and grade-separated interchanges and realign U.S. 189	
WA3	West bypass – limited access and grade-separated interchanges with northern extension	Yes, new alignment based on public comment
WB1	West bypass – parkway and at-grade intersections	
WB2	West bypass – parkway and at-grade intersections and realign U.S. 189	
WB3	West bypass – parkway and at-grade intersections with northern extension	Yes, new alignment based on public comment
WB4	West bypass – parkway and at-grade intersections with northern extension and realigned U.S. 189	Yes, new alignment based on public comment
WC1	West bypass – arterial route and at-grade intersections	
WC2	West bypass – arterial route and at-grade intersections and realign U.S. 189	
WD1	West bypass – parkway and turbo roundabouts	
WD2	West bypass – parkway and turbo roundabouts with connection at 1300 South	Yes, new alignment based on traffic operations requiring a connection at 1300 South
WS	West bypass with southern extension – arterial route and at-grade intersections	Yes, new alignment based on public comment

^a To allow uniform screening, North 40 improvements were added to all nontransit alternatives.

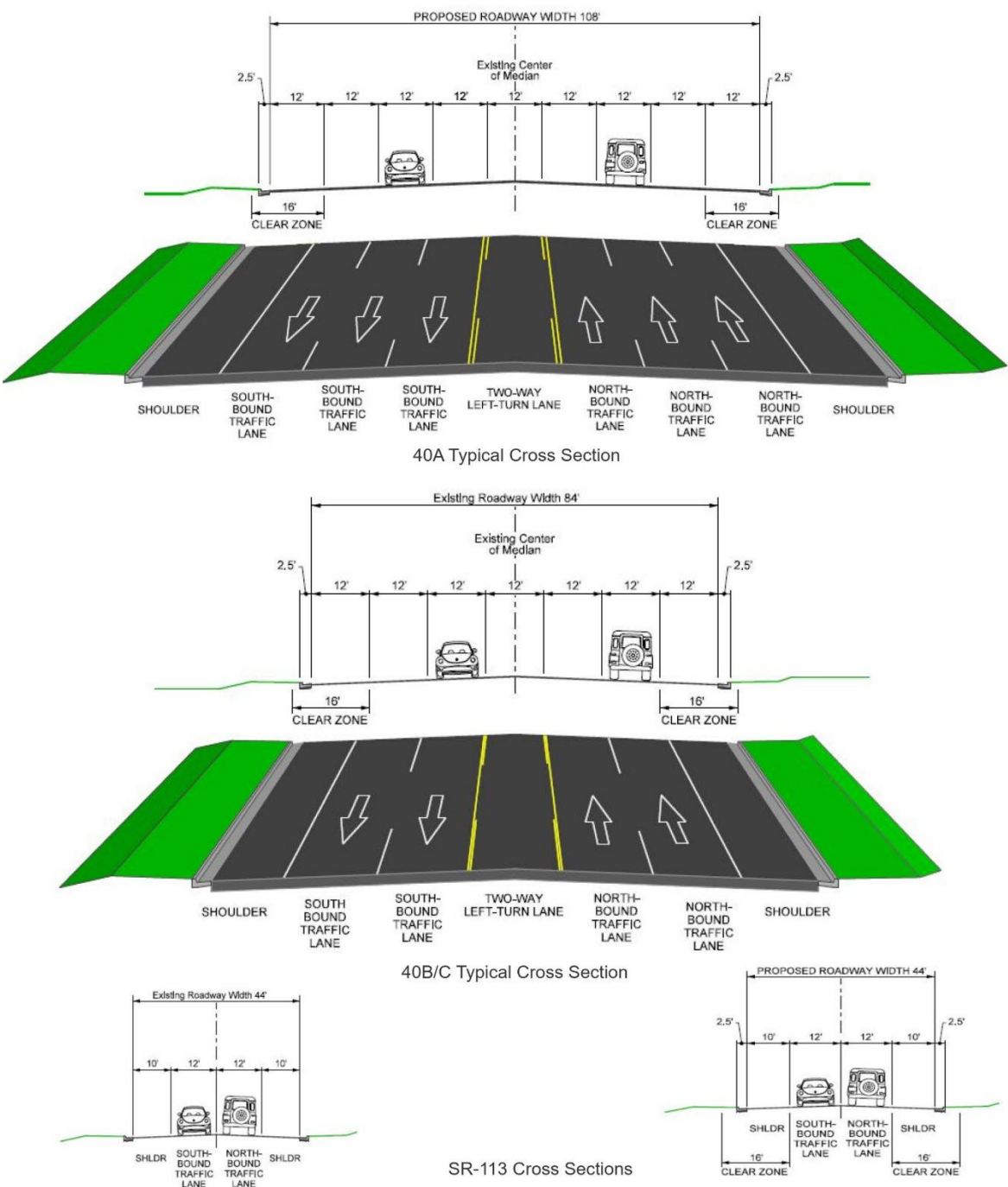
Figure 3-5. Level 1 Design Layouts for U.S. 40 Improvements and Reversible Lanes



**US 40 ALTERNATIVES
 SCREENING LEVEL 1**

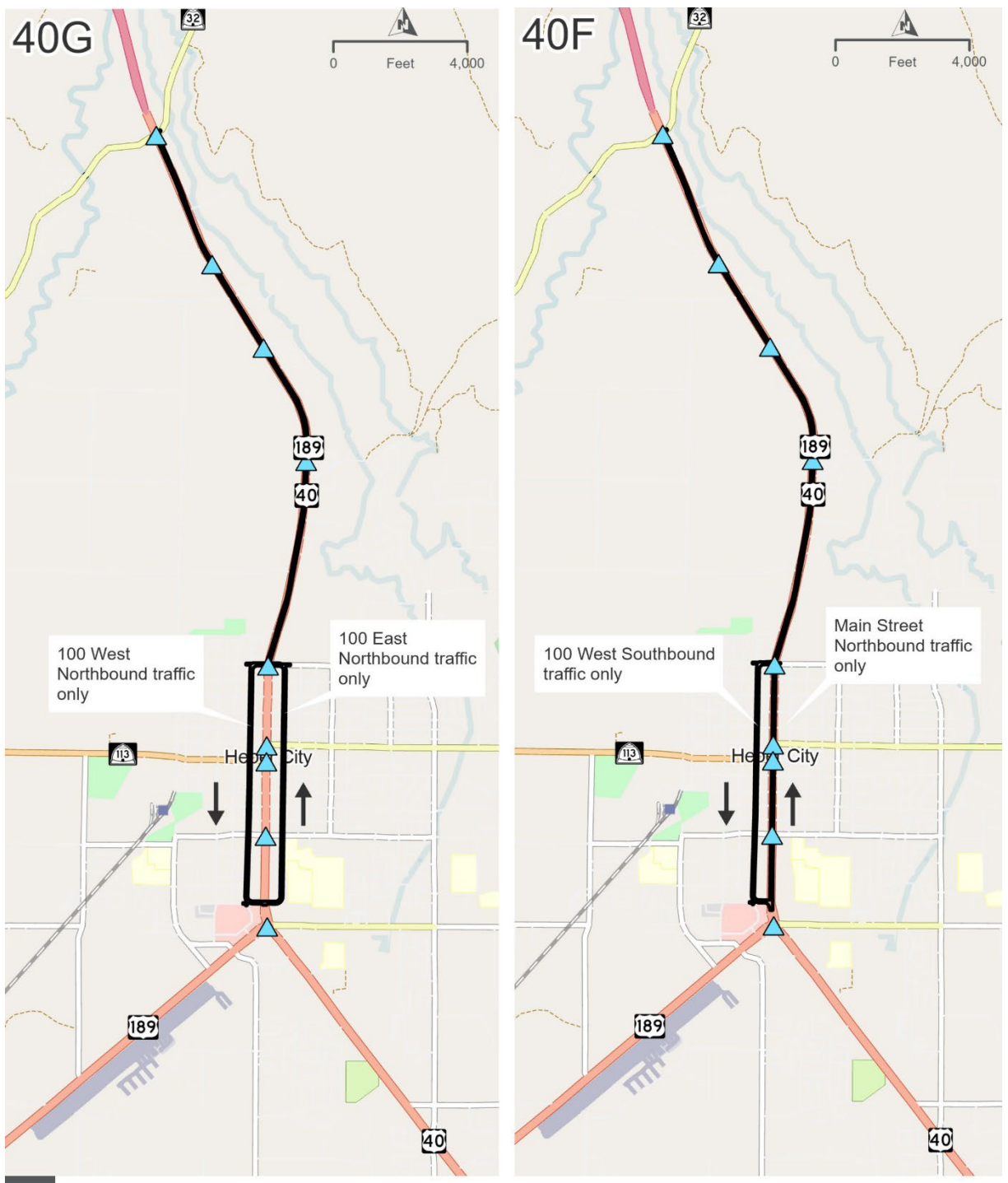
- Signalized Intersection
- Intersection Improvements (e.g. turn lanes)
- Roundabout
- Alternative Right of Way

Figure 3-6. Level 1 Design Cross Sections for U.S. 40 Main Street Alternatives



**US 40 ALTERNATIVES
 CROSS SECTIONS**

Figure 3-7. Level 1 Design Layouts for Couplets



US 40 ALTERNATIVES
SCREENING LEVEL 1



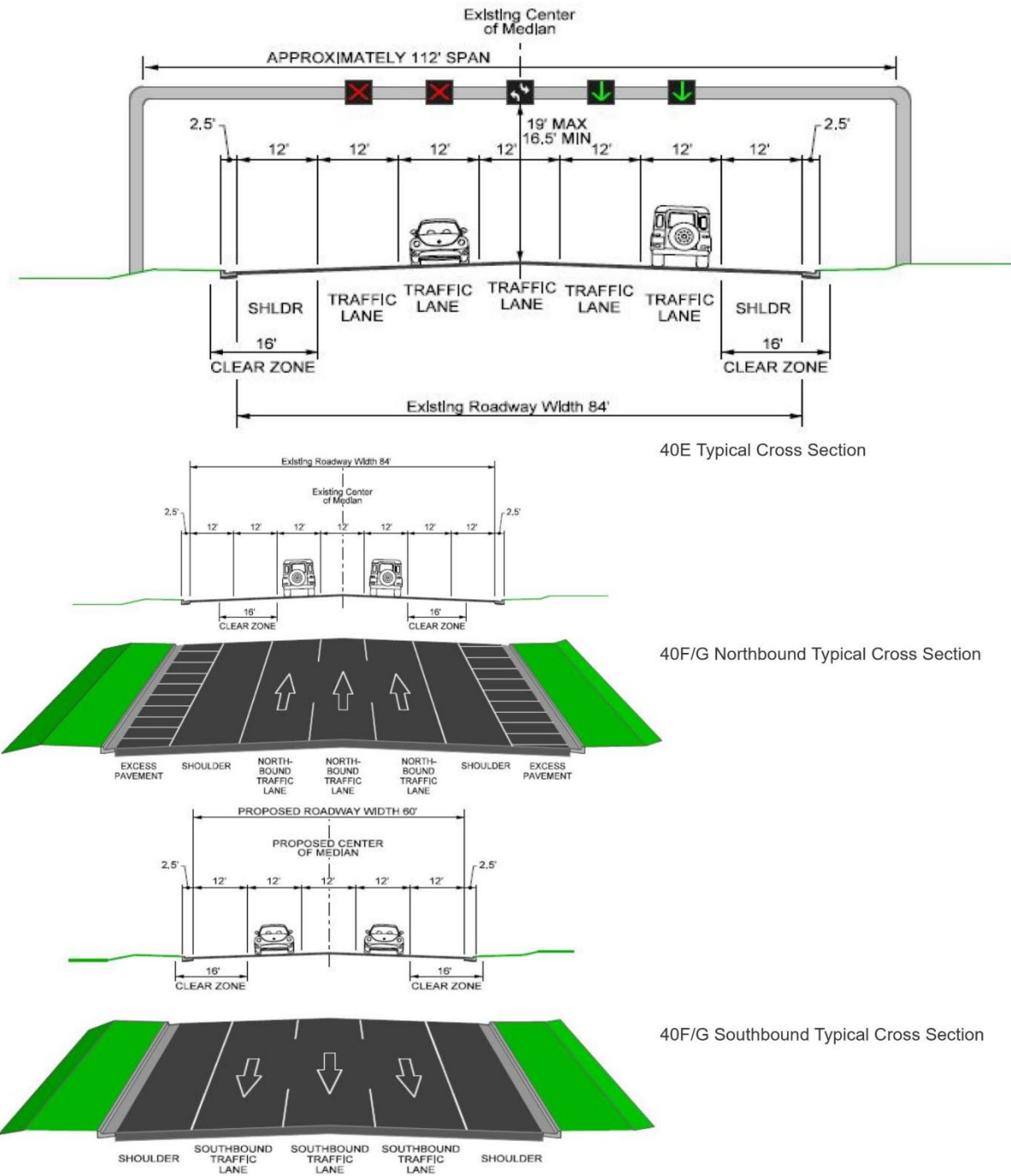
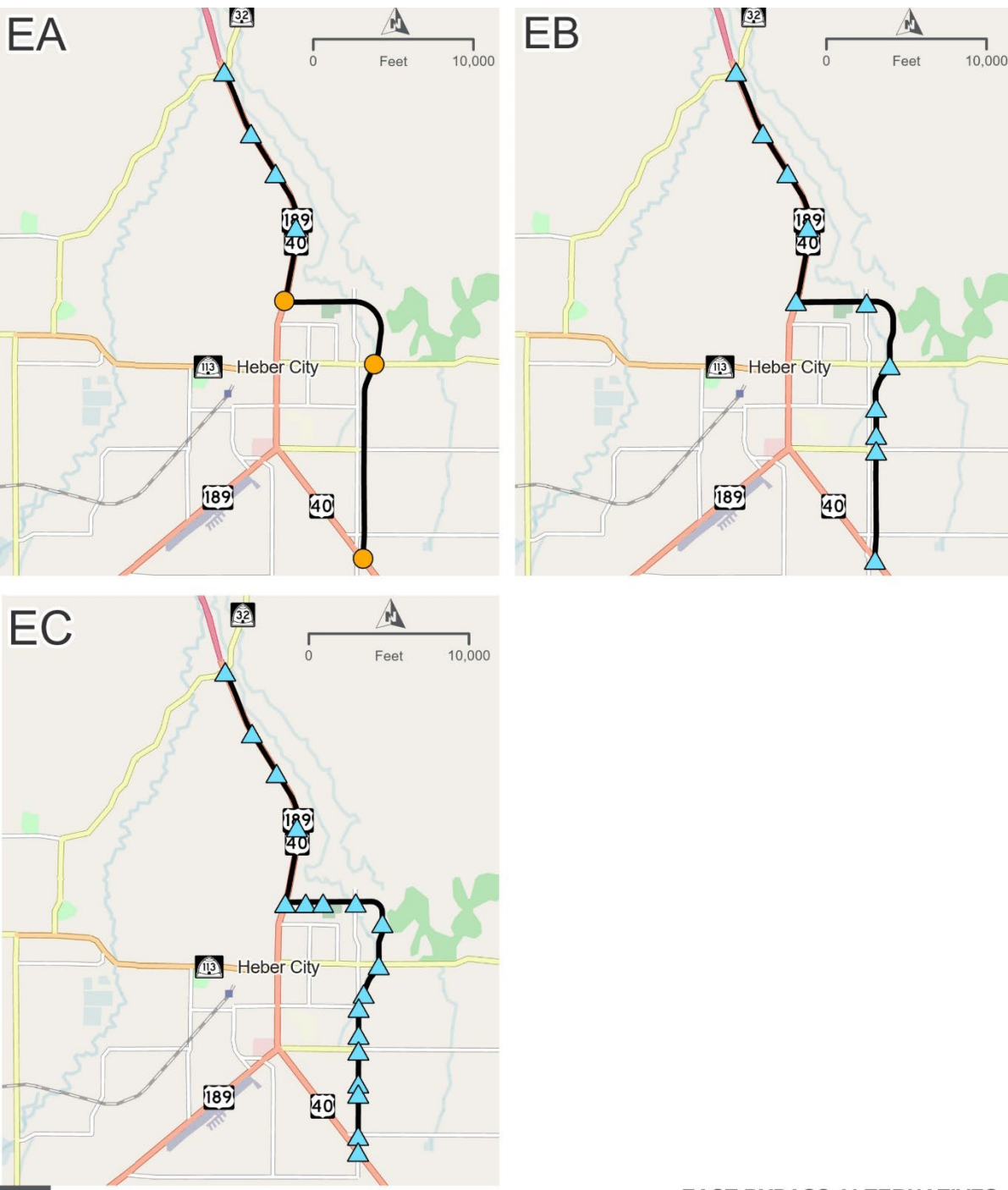
-  Signalized Intersection
-  Alternative Right of Way

Figure 3-8. Level 1 Design Cross Sections for One-way Couplet and Reversible-lane Alternatives



US 40 ALTERNATIVES
 CROSS SECTIONS

Figure 3-9. Level 1 Design Layouts for East Bypasses

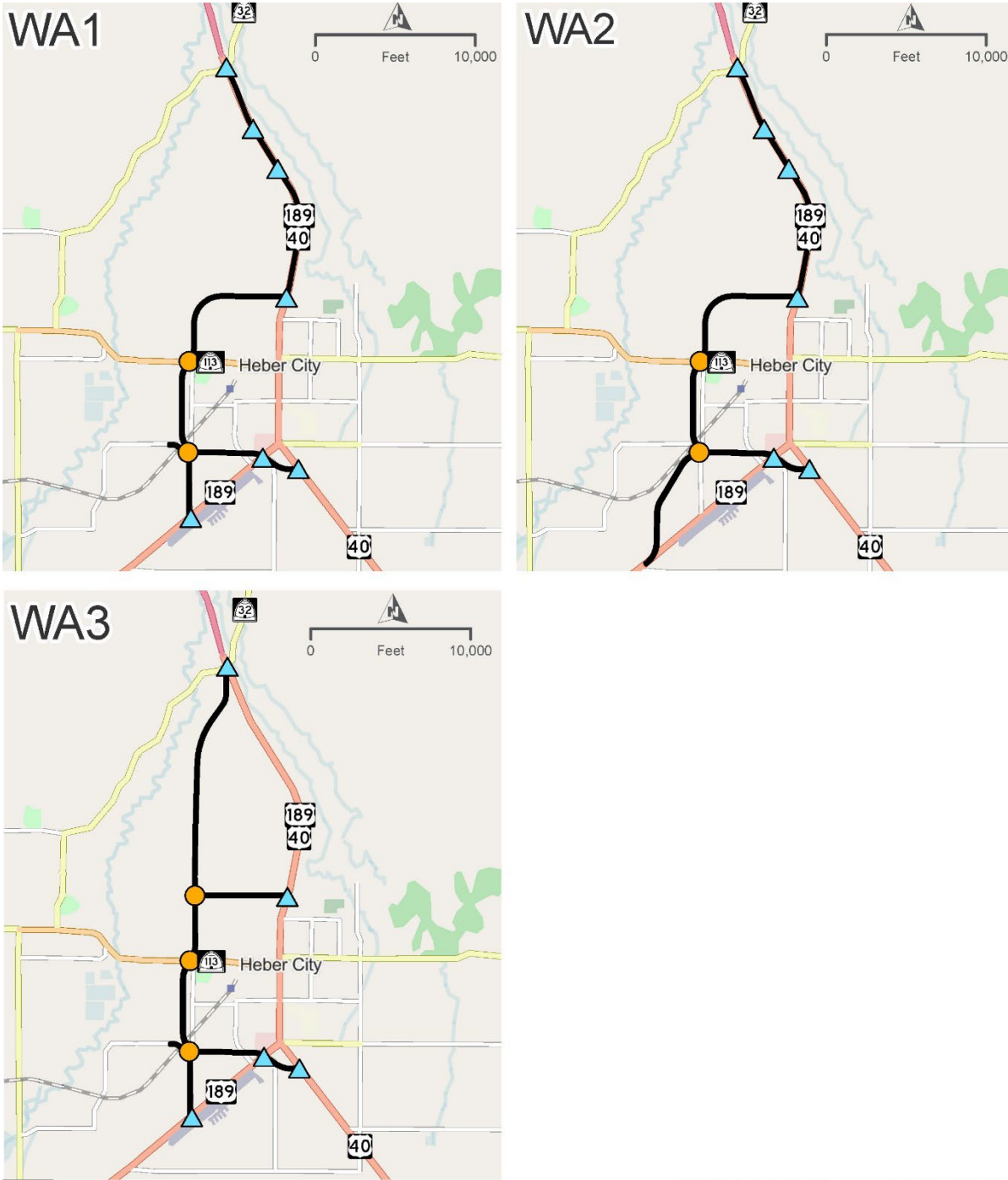


**EAST BYPASS ALTERNATIVES
 SCREENING LEVEL 1**

Heber Valley Corridor
**ENVIRONMENTAL
 IMPACT STATEMENT**

- Grade Separated Interchange
- ▲ Signalized Intersection
- Alternative Right of Way

Figure 3-10. Level 1 Design Layouts for Limited-access West Bypasses

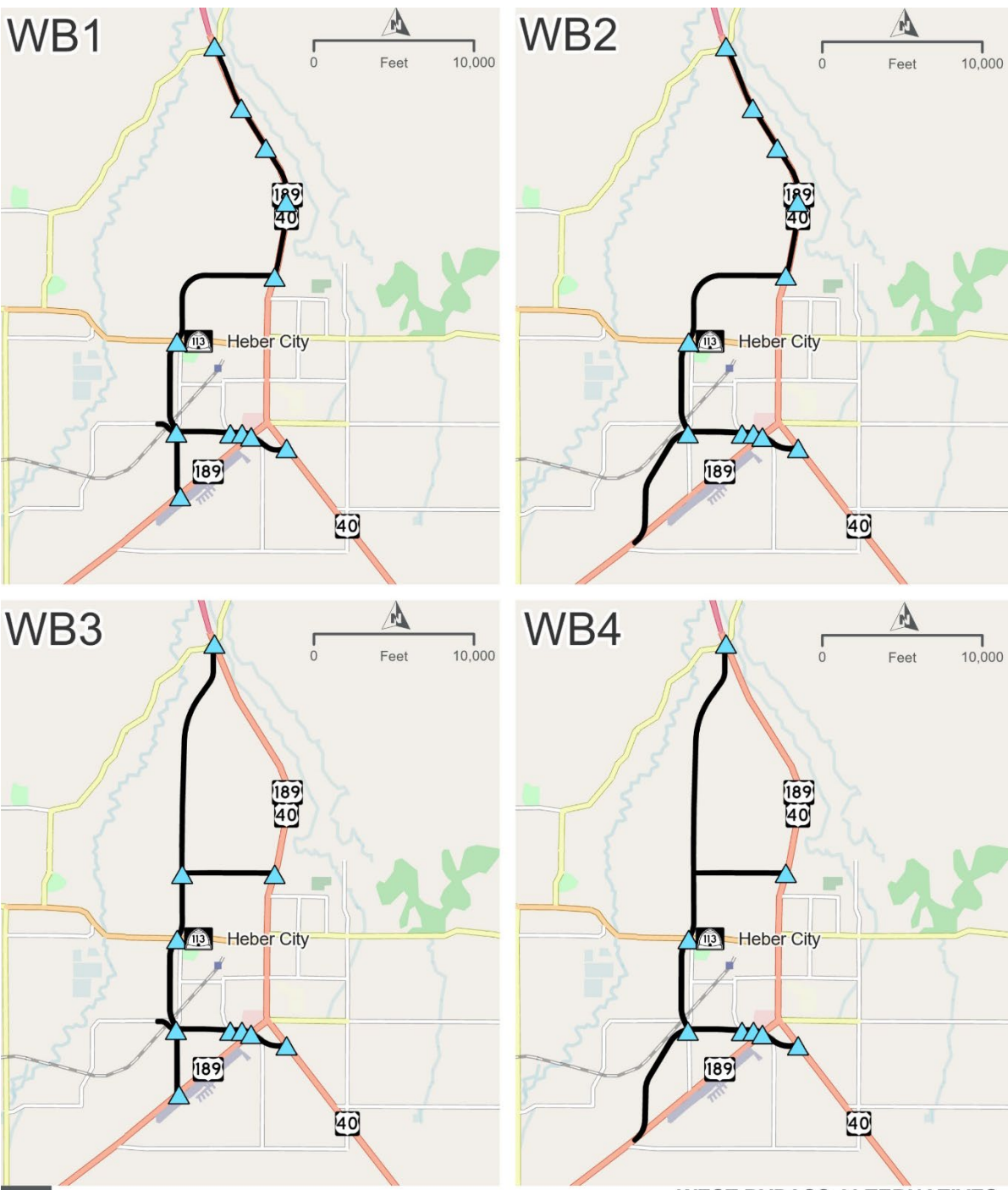


WEST BYPASS ALTERNATIVES
SCREENING LEVEL 1

Heber Valley Corridor
ENVIRONMENTAL
IMPACT STATEMENT

- Grade Separated Interchange
- ▲ Signalized Intersection
- Alternative Right of Way

Figure 3-11. Level 1 Design Layouts for West Bypass Parkways



**WEST BYPASS ALTERNATIVES
 SCREENING LEVEL 1**

Heber Valley Corridor
**ENVIRONMENTAL
 IMPACT STATEMENT**

▲ Signalized Intersection
 ▭ Alternative Right of Way

Figure 3-12. Level 1 Design Layouts for West Bypass Arterials

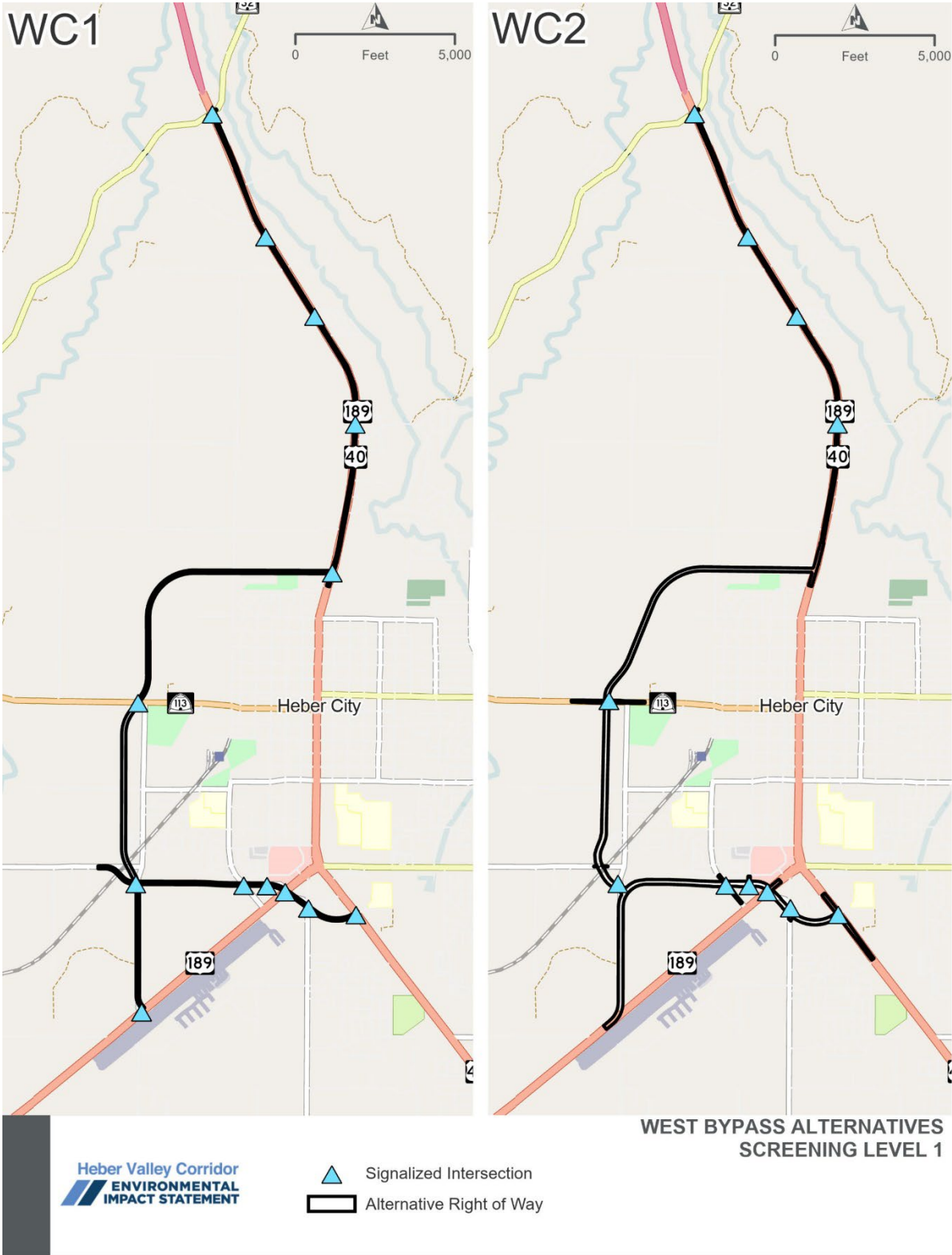
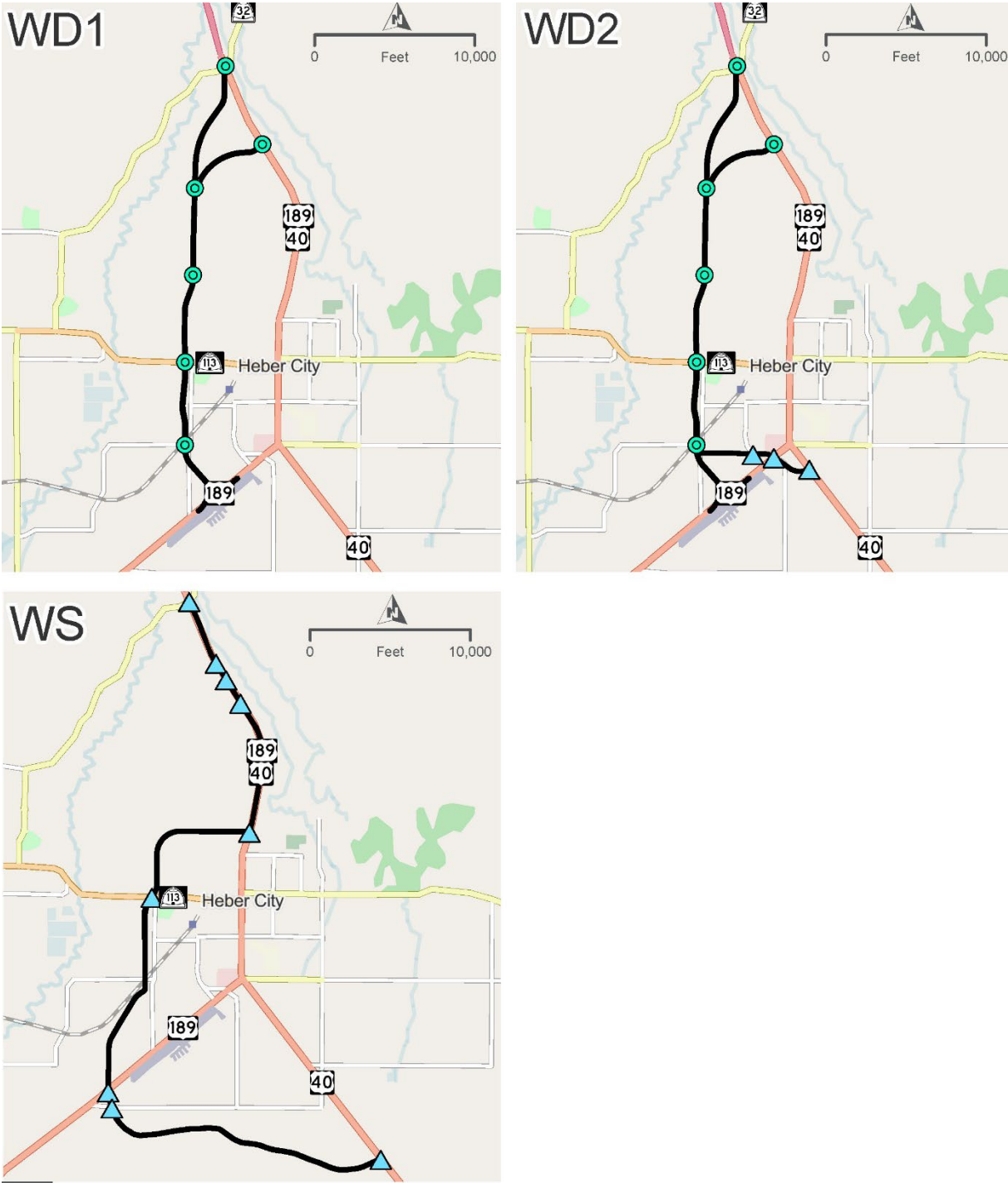


Figure 3-13. Level 1 Design Layouts for West Bypasses with Roundabouts and Southern Extension



**WEST BYPASS ALTERNATIVES
 SCREENING LEVEL 1**




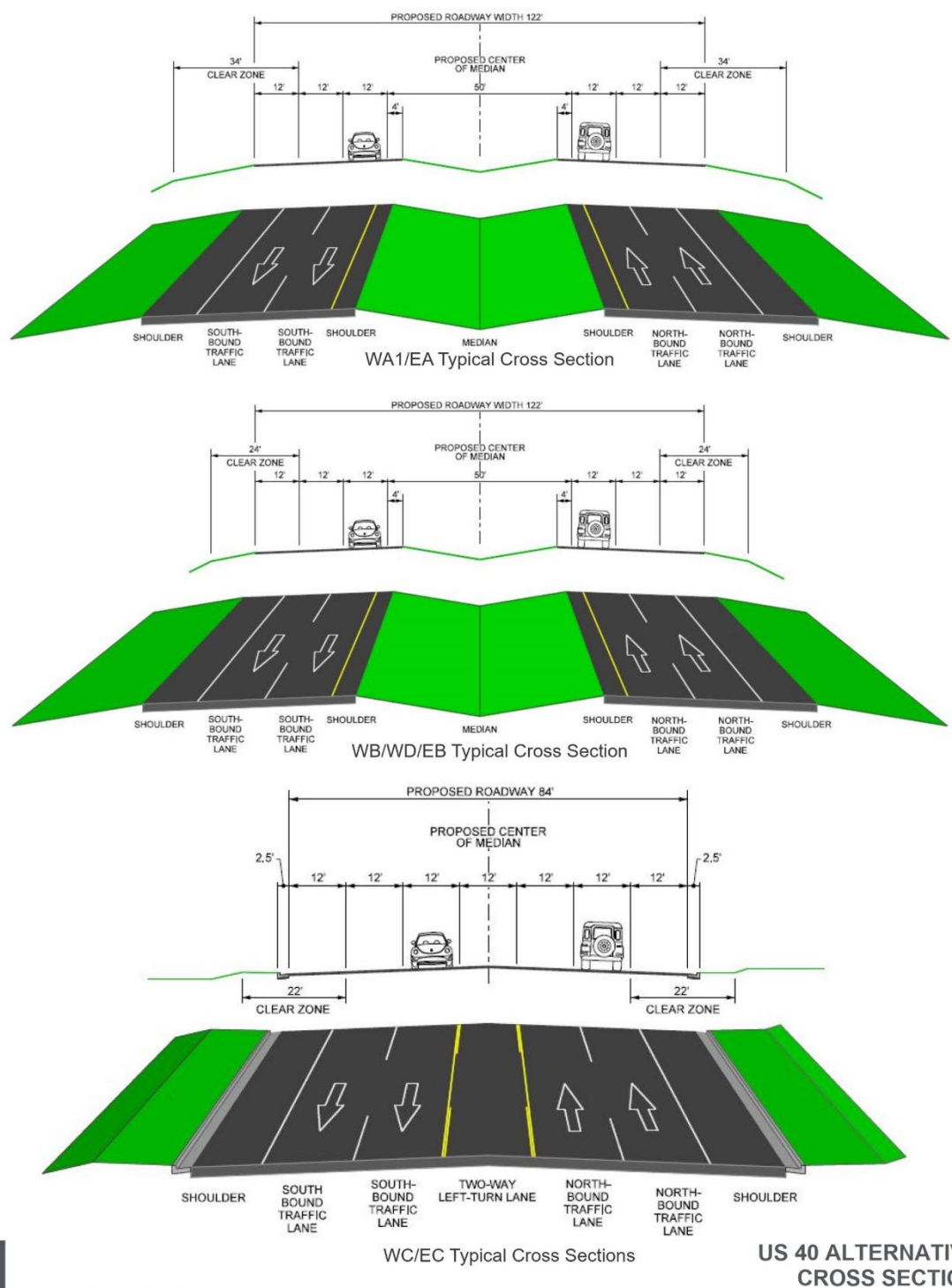
-  Signalized Intersection
-  Turbo Roundabout
-  Alternative Right of Way

Figure 3-14. Level 1 Design Cross Sections for East and West Bypasses



**US 40 ALTERNATIVES
 CROSS SECTIONS**

3.3 Alternatives Screening Phase

3.3.1 Preliminary Evaluation of Alternatives

UDOT first evaluated the 23 alternatives listed above in Table 3-2, *Alternatives Evaluated in Screening*, for fatal flaws to determine whether they should be developed and advanced to Level 1 screening.

Two alternatives—the transit alternative and tunneling under or bridging over U.S. 40 (40D) through downtown Heber City—were eliminated in preliminary screening and were not further developed by UDOT. This section describes the alternatives that were eliminated from further analysis and the reasons why they were eliminated.

Transit Alternative

The transit alternative was eliminated for not meeting the project purpose, specifically for not allowing Heber City to meet their vision for the historic town center, and for its similarity with a no-action scenario. Heber City's general plan, *Heber City Envision 2050*, identifies oil tanker trucks as an impediment to meeting the City's vision for the historic town center. The transit alternative would not support regional mobility or remove oil tanker trucks from Main Street. Additionally, the transit alternative would not remove enough traffic from Main Street to improve local mobility (that is, congestion issues would remain) and would therefore also not allow Heber City to meet their downtown vision. Expanding transit would benefit the Heber Valley but not enough to address the transportation needs for this project. For these reasons, this alternative does not satisfy the project's purpose.

Bridging over U.S. 40 (40D)

The bridging over U.S. 40 alternative was eliminated for not meeting the project's purpose. Specifically, a large bridge (or viaduct) over U.S. 40 for its entire length through Heber City would be incompatible with the City's vision for the historic town center. A large viaduct would have significant visual impacts to Main Street by obscuring views of mountains and historic architecture from Main Street and across Main Street, thereby adversely changing the setting for numerous historic buildings along Main Street. UDOT determined that such changes were unacceptable from both Section 106 and Section 4(f) standpoints.

The alternative is also not practicable or prudent. There would also be considerable maintenance and safety issues with a large structure in a snowy environment. Structures can freeze and get icy during the winter and removing snow from the structure is a potential safety and operation concern because snow would be dropped on buildings, vehicles, and pedestrians below. U.S. 40 would need to be closed while snow is being removed from the bridge (snow would need to be hauled away in trucks), which would not improve local or regional mobility.

For these reasons, this alternative is not practicable or feasible and is incompatible with the project's purpose.

Tunneling under U.S. 40 (40D)

The tunneling under U.S. 40 alternative was eliminated for not being a practicable or reasonable alternative. Tunnels cost about \$500 million to \$600 million per mile to construct (at a minimum), and they can exceed \$1 billion per mile in urban environments. The most economical method for constructing a tunnel within UDOT-owned right of way is the cut-and-cover method. This method involves digging a trench, constructing the tunnel, backfilling the trench, and repaving the surface. A cut-and-cover tunnel project on Main Street would disrupt the businesses along the street by limiting their access during construction, which is estimated to be 2 years or more. Constructing a tunnel through boring is less disruptive to businesses, but it is a far more expensive construction method.

Transporting hazardous materials in a tunnel is a safety risk and fire risk. For this reason, oil tanker trucks would be prohibited from using the tunnel and would continue to use Main Street through Heber City, which is inconsistent with the purpose of allowing Heber City to meet their vision for the historic town center. An alternative that does not meet the project purpose is, by definition, unreasonable and can be eliminated. Tunnel construction and operations also have considerable technical feasibility issues. They would affect water hydrology, water quality, soils, cultural resources, and historic properties on Main Street. For these reasons, this alternative was determined to not be practicable or prudent and is incompatible with the project’s purpose. Additional information about the considerations for and impacts from a tunnel under Main Street is provided in the *Preliminary Road Tunnel Feasibility Analysis Technical Memo* (HDR 2022).

3.3.2 Level 1 Screening

Level 1 screening was based on the project purpose. The purpose of the Heber Valley Corridor Project is to substantially improve regional and local mobility on U.S. 40 through 2050, provide opportunities for nonmotorized transportation, and allow Heber City to meet their vision for the historic town center.

To allow Level 1 screening (Table 3-3), UDOT developed the proposed alternatives in enough detail to model and evaluate traffic operations on U.S. 40, estimate travel times, and meet UDOT’s design criteria. Note that the proposed alternatives were not engineered to the same degree as the alternatives that passed Level 1 screening (for example, cut-and-fill lines were not created using computer design software). The alternatives that passed Level 1 screening were refined with additional engineering and were then evaluated in Level 2 screening in terms of their expected impacts to key resources.

What is the purpose of Level 1 screening?

The purpose of Level 1 screening is to eliminate alternatives that do not meet the purpose and need of the project.

What is cut and fill?

Cut and fill is a type of excavation in which material is removed (cut) or added (fill) to construct a road with acceptable grades.

Table 3-3. Level 1 Screening Criteria and Measures

Criterion	Measures
Improve regional and local mobility on U.S. 40 through 2050	<ul style="list-style-type: none"> Local mobility: Improve arterial and intersection level of service (LOS) on U.S. 40. Local mobility: Decrease travel time on Main Street (S.R. 32 to hub intersection). Local mobility: Substantially decrease vehicle queue lengths on U.S. 40. Regional mobility: Substantially decrease through traffic travel time (S.R. 32 to U.S. 189). Regional mobility: Minimize conflicts (driveway accesses, intersections, etc.) to north-south mobility for through traffic.
Provide opportunities for nonmotorized transportation	<ul style="list-style-type: none"> Provide opportunities for nonmotorized transportation consistent with local and regional planning documents.
Allow Heber City to meet their vision for the historic town center	<ul style="list-style-type: none"> Avoid or minimize impacts to valued places and historic buildings along Main Street. Avoid improvements that would preclude Heber City from implementing strategies to achieve their vision for Main Street (wide sidewalks, bike lanes, landscaping, and a reduced speed limit).

Level 1 Local Criteria

Meeting the local mobility and Heber City vision criteria is necessary for an alternative to meet the project’s purpose.

Traffic Screening for Local Mobility on U.S. 40

Level 1 local mobility screening criteria focused on traffic operations on Main Street between 500 North and U.S. 189 at the hub intersection. A microsimulation traffic model was used to review each alternative for its ability to improve southbound PM peak-hour (5:00 to 6:00 PM) travel time on Main Street, limit vehicle queue lengths at the 500 North intersection, and improve the level of service (LOS) on Main Street and its intersections in downtown Heber City. The measurement details for local mobility are listed in Table 3-4.

What is level of service?

Level of service is a measure of the operating conditions on a road or at an intersection. Level of service is represented by a letter “grade” ranging from A (free-flowing traffic and little delay) to F (extremely congested, stop-and-go traffic and excessive delay).

Table 3-4. Level 1 Local Mobility Measures

Measure	Details
Number of intersections operating at LOS F	There are five intersections on U.S. 40 in downtown Heber City. Level of service was calculated during the PM peak hour (5:00-6:00 p.m.) for the following intersections: 500 North, Center Street, 100 South, 600 South, and the hub intersection.
Travel time	Travel time is calculated during the PM peak hour (5:00 to 6:00 PM) in the southbound direction from S.R. 32 to the hub intersection. Failing intersection level of service and excessive vehicle queue lengths on U.S. 40 correlate with travel times in excess of about 12 minutes. Therefore, alternatives with travel times greater than 12 minutes are designated as failing the criteria.
Southbound vehicle queue lengths at 500 North	The U.S. 40 and 500 North intersection was identified through travel demand modeling as the best indicator of intersection performance in downtown Heber. If the 500 North intersection fails during the PM peak hour (5:00 to 6:00 PM) in the southbound direction, then there are generally congestion issues throughout Main Street. Vehicle queue lengths are measured using the 95th percentile and are described as Acceptable < 1,420 feet, Moderate = 1,421–2,640 feet (0.5 mile), and Unacceptable > 2,641 feet. The acceptability of vehicle queue lengths is related to the distance to preceding intersections and resulting poor operations if vehicle queue lengths extend beyond those intersections.
Number of southbound segments operating at LOS F	Level of service was calculated for the PM peak hour (5:00 to 6:00 PM) in the southbound direction for the following seven segments: <ol style="list-style-type: none"> 1. U.S. 40: From 500 North to 100 North 2. U.S. 40: From 100 North to Center Street 3. U.S. 40: From Center Street to 100 South 4. U.S. 40: From 100 South to 600 South 5. U.S. 40: From 600 South to U.S. 189 6. U.S. 40: South of U.S. 189 7. U.S. 189: Southwest of U.S. 40

Local traffic is the dominant traffic type on U.S. 40 (about 50% in 2019), and alternatives that pass Level 1 screening are deemed to benefit local traffic mobility enough to satisfy the project’s purpose. Table 3-5 and Appendix J, *Traffic Memorandum*, summarize the travel demand model results for local mobility on U.S. 40.

Table 3-5. Level 1 Travel Demand Model Screening Results (Local Mobility)^a

Alternative		Number of Intersections at LOS F	Travel Time	Southbound Queue Lengths at 500 North	Number of Southbound Segments at LOS F	Pass/Fail
—	Existing conditions (2019)	0	8:20	375 ft	2	NA
—	U.S. 40 no-action (2050)	3	17:40	13,100 ft	2	NA
Improvements on U.S. 40						
40A	Widen U.S. 40	1	10:30	525 ft Acceptable	2	Fail
40B	Improve U.S. 40 – roundabouts	5	—	—	—	Fail
40C	Improve U.S. 40 – intersection improvements	4	17:50	14,700 ft Unacceptable	2	Fail
40E	Reversible lanes	3	10:45	950 ft Acceptable	0	Fail
40F	One-way couplet	0	9:40	350 ft Acceptable	0	Pass
40G	One-way couplet on 100 West and 100 East	0	(Similar to 40F)	(Similar to 40F) Acceptable	0	Pass
East Bypasses						
EA	East bypass – limited access and grade-separated interchanges	3	14:55	6,100 ft Unacceptable	3	Fail
EB	East bypass – parkway and at-grade intersections	3	14:00	5,200 ft Unacceptable	2	Fail
EC	East bypass – arterial route and at-grade intersections	2	17:15	11,800 ft Unacceptable	3	Fail
West Bypasses						
WA1	West bypass – limited access and grade-separated interchanges	0	11:05	1,600 ft Moderate	1	Pass
WA2	West bypass – limited access and grade-separated interchanges and realign U.S. 189	2	12:30	2,800 ft Unacceptable	1	Fail
WA3	West bypass – limited access and grade-separated interchanges with northern extension	0	10:00	1,100 ft Acceptable	1	Pass
WB1	West bypass – parkway and at-grade intersections	0	11:00	1,500 ft Moderate	1	Pass
WB2	West bypass – parkway and at-grade intersections and realign U.S. 189	0	9:30	400 ft Acceptable	0	Pass
WB3	West bypass – parkway and at-grade intersections with northern extension	0	8:55	375 ft Acceptable	0	Pass

(continued on next page)

Table 3-5. Level 1 Travel Demand Model Screening Results (Local Mobility)^a

Alternative		Number of Intersections at LOS F	Travel Time	Southbound Queue Lengths at 500 North	Number of Southbound Segments at LOS F	Pass/Fail
WB4	West bypass – parkway and at-grade intersections with northern extension and realigned U.S. 189	0	8:55	400 ft Acceptable	1	Pass
West Bypasses (continued)						
WC1	West bypass – arterial route and at-grade intersections	2	13:10	4,800 ft Unacceptable	1	Fail
WC2	West bypass – arterial route and at-grade intersections and realign U.S. 189	1	10:55	1,300 ft Acceptable	1	Pass
WD1	West bypass – parkway and turbo roundabouts	2	13:30	4,700 ft Unacceptable	2	Fail
WD2	West bypass – parkway and turbo roundabouts with connection at 1300 South	2	11:15	2,100 ft Moderate	1	Fail
WS	West bypass with southern extension – arterial route and at-grade intersections	2	13:15	3,800 ft Unacceptable	2	Fail

^a Color coding for results by measure: green is passing, yellow is fair and approaching failure, red is failure.

Screening for Heber City Vision and Valued Places

All alternatives that were advanced to Level 1 screening were reviewed for their ability to allow Heber City to meet their vision for their Main Street (wide sidewalks, bike lanes, landscaping, reduced speed limit, and protecting historic buildings) and the protection of Heber City’s valued places (Tabernacle Square, Main Street Park, and the Public Safety Property) and historic buildings. To pass Level 1 screening, an alternative must be compatible with Heber City’s Vision criteria.

Heber City created *Envision Heber*, an initiative to address their community’s need for a collaborative vision, and resulted in an update to their general plan in 2019. This plan, *Heber City Envision 2050*, states the long-term goals and imagines the desired future for the city with respect to economic and commercial development, housing, culture, education, and transportation.

What is the Heber City historic town center?

Heber City defines their historic town center as the area between 200 West and 200 East from 500 North to 600 South. Heber City has defined a specific vision for their historic town center in *Heber City Envision 2050*.

Some of the plan’s principles are related to Main Street, and these principles inform the screening criteria summarized in Table 3-6.

Downtown, Heber [City]’s historic center, will develop into an even stronger center and remain the heart of the community. Main Street, together with surrounding blocks, is a local and regional destination.

1. Heber [City] preserves, enhances, and improves access to its valued places and buildings on Main Street.
2. Heber [City] improves pedestrian and bike accessibility, parking, and traffic conditions along Main Street.

Table 3-6. Level 1 Heber City Vision and Valued Places Measures

Measure	Detail
Valued places impacts	Valued places are defined in <i>Heber City Envision 2050</i> as the Tabernacle Square, Main Street Park, and the Public Safety Property. Using the alternative’s right-of-way boundary, impacts to the valued places are summarized in acres.
Historic buildings impacts on Main Street	Historic buildings were identified in <i>Cultural Resources Scoping for Heber Valley Parkway Project</i> (Certus 2020). The inventory was generally based on desktop research of available data and will be updated when a detailed cultural resource identification is conducted for the EIS. This measure focuses on historic buildings in downtown Heber City. Historical significance abbreviations are EC = eligible contributing, ES = eligible significant, and UN = unknown historical significance. Using the alternative’s right-of-way boundary and buffering historic buildings by 15 feet—a distance to define encroachment and potential property takes—impacts to historic buildings were summarized by estimated historical significance.
Allows Heber City to achieve their vision	Heber City’s vision is defined in <i>Heber City Envision 2050</i> , which discusses their goals for Main Street and the historic town center. Each alternative was reviewed for its compatibility with their vision quoted above.

Additionally, *Heber City Envision 2050* identifies oil tanker trucks as an impediment to meeting the City’s vision for the historic town center.

The traditional feel of Heber [City]’s Main Street has been disrupted by increases in traffic volume and especially by the impact of oil tanker trucks. It is difficult to hear conversations while trying to enjoy restaurants and gathering areas along the street, and pedestrian crossings feel unsafe due to traffic and wide street width. (p. 36)

When a western bypass route is finalized and constructed, Main Street will see a significant reduction in large trucks and a reduction in vehicle traffic. A western bypass, where UDOT responsibility is shifted from Main Street to the new bypass, creates opportunities for Main Street to become a destination for business to grow and for placemaking to foster a pleasant street atmosphere. (p. 62)

Table 3-7 summarizes the results of alternatives screening for Heber City’s vision and valued places criteria.

Table 3-7. Level 1 Heber City Vision and Valued Places Screening Results

Alternative		Valued Places Impacts	Historic Buildings Impacts on Main Street ^a	Allows Heber City to Achieve Their Vision?	Pass/Fail
—	U.S. 40 no-action (2050)	NA	NA	No. The projected traffic in 2050 prevents Heber City from achieving their vision for Main Street.	NA
U.S. 40 Improvements					
40A	Widen U.S. 40	Main Street Park: 0.1 acres Public Safety Property: 0.01 acres Tabernacle Square: 0.17 acres	Potential and full acquisitions: EC: 9 (10% of EC) ES: 5 (13% of ES) UN: 19 (9% of UN) Total: 33 (10% of historic properties)	No. The alternative would not reduce traffic in Heber City's historic town center.	Fail
40B	Improve U.S. 40 – roundabouts	Tabernacle Square: 0.09 acres	Potential and full acquisitions: EC: 1 (1% of EC) ES: 0 (0% of ES) UN: 8 (4% of UN) Total: 9 (3% of historic properties)	No. The alternative would not reduce traffic in Heber City's historic town center.	Fail
40C	Improve U.S. 40 – intersection improvements	Tabernacle Square: 0.22 acres	Potential and full acquisitions: EC: 4 (4% of EC) ES: 0 (0% of ES) UN: 13 (6% of UN) Total: 17 (5% of historic properties)	No. Wide width at intersections and impacts to historic buildings conflict with Heber City's vision.	Fail
40E	Reversible lanes	No impacts to valued places.	No impacts to historic buildings on Main Street; however, this alternative would dramatically change the character of Main Street.	No. The alternative would not reduce traffic in Heber City's historic town center.	Fail
40F	One-way couplet	Main Street Park: 0.1 acres Tabernacle Square: 0.1 acres (Impacts would be on the west side of the valued places along 100 West.)	Potential and full acquisitions: EC: 2 (2% of EC) ES: 2 (5% of ES) UN: 11 (5% of UN) Total: 15 (4% of historic properties)	No. The alternative would not reduce traffic in Heber City's historic town center.	Fail
40G	One-way couplet on 100 West and 100 East	Main Street Park: 0.1 acres Tabernacle Square: 0.1 acres (Impacts would be on the west side of the valued places along 100 West.)	Potential and full acquisitions: EC: 10 (11% of EC) ES: 3 (7% of ES) UN: 23 (11% of UN) Total: 36 (10% of historic properties)	No. The alternative would not reduce traffic in Heber City's historic town center.	Fail

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Table 3-7. Level 1 Heber City Vision and Valued Places Screening Results

Alternative		Valued Places Impacts	Historic Buildings Impacts on Main Street ^a	Allows Heber City to Achieve Their Vision?	Pass/Fail
East Bypasses					
EA	East bypass – limited access and grade-separated interchanges	No impacts to valued places.	No impacts to historic buildings on Main Street.	Yes. The east bypass alternatives would allow Heber City to implement traffic calming and other elements of their vision on Main Street.	Pass
EB	East bypass – parkway and at-grade intersections	No impacts to valued places.	No impacts to historic buildings on Main Street.		Pass
EC	East bypass – arterial route and at-grade intersections	No impacts to valued places.	No impacts to historic buildings on Main Street.		Pass
West Bypasses					
WA1	West bypass – limited access and grade-separated interchanges	No impacts to valued places.	No impacts to historic buildings on Main Street.	Yes. The west bypass alternatives would allow Heber City to implement traffic calming and other elements of their vision on Main Street.	Pass
WA2	West bypass+ – limited access and grade-separated interchanges and realign U.S. 189	No impacts to valued places.	No impacts to historic buildings on Main Street.		Pass
WA3	West bypass – limited access and grade-separated interchanges with 2 northern connections to U.S. 40	No impacts to valued places.	No impacts to historic buildings on Main Street.		Pass
WB1	West bypass – parkway and at-grade intersections	No impacts to valued places.	No impacts to historic buildings on Main Street.		Pass
WB2	West bypass – parkway and at-grade intersections and realign U.S. 189	No impacts to valued places.	No impacts to historic buildings on Main Street.		Pass
WB3	West bypass – parkway and at-grade intersections with 2 northern connections to U.S. 40	No impacts to valued places.	No impacts to historic buildings on Main Street.		Pass
WB4	West bypass – parkway and at-grade intersections with northern extension and realigned U.S. 189	No impacts to valued places.	No impacts to historic buildings on Main Street.		Pass

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Table 3-7. Level 1 Heber City Vision and Valued Places Screening Results

Alternative		Valued Places Impacts	Historic Buildings Impacts on Main Street ^a	Allows Heber City to Achieve Their Vision?	Pass/Fail
West Bypasses (continued)					
WC1	West bypass – arterial route and at-grade intersections	No impacts to valued places.	No impacts to historic buildings on Main Street.	Yes. The west bypass alternatives would allow Heber City to implement traffic calming and other elements of their vision on Main Street.	Pass
WC2	West bypass – arterial route and at-grade intersections and realign U.S. 189	No impacts to valued places.	No impacts to historic buildings on Main Street.		Pass
WD1	West bypass – parkway and turbo roundabouts	No impacts to valued places.	No impacts to historic buildings on Main Street.		Pass
WD2	West bypass – parkway and turbo roundabouts with connection at 1300 South	No impacts to valued places.	No impacts to historic buildings on Main Street.		Pass
WS	West bypass – with southern extension	No impacts to valued places.	No impacts to historic buildings on Main Street.		Pass

^a EC is eligible contributing, ES is eligible significant, and UN is unknown historical significance. These categories define historic significance based on the rating system used for the National Register of Historic Places. Percentages are calculated based on the percentage of the category of all historic buildings on Main Street, or 100 West/100 East for one-way-couplet, between 500 North and 600 South to define the extent of impact.

Level 1 Regional Criteria

UDOT evaluated Level 1 regional criteria only for the alternatives that passed local criteria for both local traffic mobility (Table 3-5 above) and Heber City’s vision (Table 3-7 above). Regional traffic mobility was measured in travel time southbound across the Heber Valley from S.R. 32 to U.S. 189 near 3000 South and was then compared to the no-action conditions. In addition, regional mobility was measured in terms of the number of conflict points intersected by an alternative. Conflict points include the existing and anticipated future number of accesses (driveways and side streets) along an alternative. Conflict points reduce highway mobility as cars enter or exit the highway and also present safety concerns on a high-speed facility.

UDOT identified the existing access points (driveways and side streets) using aerial images. Future access points were estimated based on the access spacing allowed by the proposed access category for each alternative. Conflict points affect travel time and safety and are not compatible with highway facilities that are intended to promote mobility. If an alternative did not improve regional traffic mobility compared to the no-action conditions based on these measures, it was eliminated and not moved forward to Level 2 screening.

The measurement details for regional mobility are included in Table 3-8. Table 3-9 below summarizes the results of the regional traffic mobility screening.

Table 3-8. Level 1 Regional Mobility Measures

Measure	Details
Travel time	Travel time is measured during the PM peak hour (5:00 to 6:00 PM) in the southbound direction from S.R. 32 to U.S. 189 near 3000 South for all alternatives. The travel model assumed a 45-mph posted speed limit on U.S. 40 north of Heber City based on design standards used for North 40 alternatives.
Conflict points	Conflict points are a measure of regional mobility. A route with a high number of accesses, or conflict points, results in slower travel times in the future. Conflict points were measured by counting existing accesses (such as driveways and intersecting side streets) along U.S. 40 or by estimating the allowed accesses based on the existing or assumed future access category for each alternative. A range of conflict points is provided in cases where the number of potential accesses depends on the spacing of other features that are not yet known (that is, future land use decisions and development).
Access category	Access category is not a measure. This is a disclosure of the proposed access category for the alternative. The access category was used to calculate the number of conflict points that would be allowed per UDOT’s design standards.

Table 3-9. Level 1 Regional Mobility Criteria Screening Results

Alternative		Travel Time	Number of Conflict Points ^a	Access Category	Pass/Fail
—	Existing conditions (2019)	10:40	144	NA	NA
—	U.S. 40 no-action (2050)	19:05	152–157	NA	NA
WA1	West bypass – limited access and grade-separated interchanges	9:10	16	3	Pass
WA3	West bypass – limited access and grade-separated interchanges with northern extension	6:45	3	3	Pass
WB1	West bypass – parkway and at-grade intersections	10:25	26–35	5	Pass
WB2	West bypass – parkway and at-grade intersections and realign U.S. 189	10:05	27–36	5	Pass
WB3	West bypass – parkway and at-grade intersections with northern extension	8:10	12	5	Pass
WB4	West bypass – parkway and at-grade intersections with northern extension and realigned U.S. 189	7:45	12	5	Pass
WC2	West bypass – arterial route and at-grade intersections and realign U.S. 189	10:45	74–123 (Future concern as an arterial that allows more access and connections.)	6	Fail

^a Conflict points include the existing and potential future accesses along the alternative, such as driveways and intersecting side streets. All alternatives provide a reduction in the number of conflict points over the no-action scenario.

Summary of Level 1 Screening Results

As a result of Level 1 screening, 15 alternatives were eliminated from further consideration because they would not meet the project purpose (they would either not improve regional or local mobility or not allow Heber City to meet their vision for the historic town center). Table 3-10 shows the final Level 1 screening results. The alternatives that are shown in Table 3-10 as not recommended for further analysis, and the reasons why they are not recommended, are described following the table.

Table 3-10. Final Level 1 Screening Results

Alternative		Improves Local Mobility on U.S. 40 through 2050?	Allows Heber City to Meet Their Vision for the Historic Town Center?	Improves Regional Mobility in the Heber Valley in 2050?	Recommended for Level 2 Screening?
U.S. 40 Improvements					
40A	Widen U.S. 40	No	No	NA	No
40B	Improve U.S. 40 – roundabouts	No	No	NA	No
40C	Improve U.S. 40 – intersection improvements	No	No	NA	No
40E	Reversible Lanes	No	No	NA	No
40F	One-way couplet	Yes	No	NA	No
40G	One-way couplet on 100 West and 100 East	Yes	No	NA	No
East Bypasses					
EA	East bypass – limited access and grade-separated interchanges	No	Yes	NA	No
EB	East bypass – parkway and at-grade intersections	No	Yes	NA	No
EC	East bypass – arterial route and at-grade intersections	No	Yes	NA	No
West Bypasses					
WA1	West bypass – limited access and grade-separated interchanges	Yes	Yes	Yes	Yes
WA2	West bypass – limited access and grade-separated interchanges and realign U.S. 189	No	Yes	NA	No
WA3	West bypass – limited access and grade-separated interchanges with northern extension	Yes	Yes	Yes	Yes
WB1	West bypass – parkway and at-grade intersections	Yes	Yes	Yes	Yes
WB2	West bypass – parkway and at-grade intersections and realign U.S. 189	Yes	Yes	Yes	Yes

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Table 3-10. Final Level 1 Screening Results

Alternative		Improves Local Mobility on U.S. 40 through 2050?	Allows Heber City to Meet Their Vision for the Historic Town Center?	Improves Regional Mobility in the Heber Valley in 2050?	Recommended for Level 2 Screening?
West Bypasses (continued)					
WB3	West bypass – parkway and at-grade intersections with northern extension	Yes	Yes	Yes	Yes
WB4	West bypass – parkway and at grade intersections with northern extension and realigned U.S. 189	Yes	Yes	Yes	Yes
WC1	West bypass – arterial route and at-grade intersections	No	Yes	Yes	No
WC2	West bypass – arterial route and at-grade intersections and realign U.S. 189	Yes	Yes	No	No
WD1	West bypass – parkway and turbo roundabouts	No	Yes	NA	No
WD2	West bypass – parkway and turbo roundabouts with connection at 1300 South	No	Yes	NA	No
WS	West bypass with southern extension – arterial route and at-grade intersections	No	Yes	NA	No

Nonmotorized Transportation Screening

All alternatives that pass Level 1 and Level 2 screening will be refined with additional engineering to include bicycle and pedestrian accommodations that are compatible with local planning documents. No alternatives were eliminated in Level 1 screening for nonmotorized accommodations.

Alternatives Eliminated in Level 1 Screening

Widen U.S. 40 along Main Street (40A)

The widen U.S. 40 alternatives, and associated variations to widen down the center, to the east of center, and to the west of center through downtown, were eliminated for not meeting the project’s purpose. Specifically, widening U.S. 40 would not allow Heber City to meet their vision for the historic town center and would only marginally improve local mobility over the no-action conditions. Widening U.S. 40 to three travel lanes in each direction would be visually and functionally incompatible with Heber City’s vision for Main Street (wide sidewalks, bike lanes, landscaping, and a reduced speed limit). Widening U.S. 40 would further degrade the comfort of the roadway for pedestrians and bicyclists. Widening U.S. 40 would also impact Heber City’s historic structures and valued places, taking some land away from Main Street Park, the Tabernacle Square, and the Public Safety Property to accommodate a wider footprint for U.S. 40. This alternative does not satisfy the project’s purpose and is therefore not reasonable.

Improve U.S. 40 – Roundabouts along Main Street (40B)

The roundabouts on U.S. 40 alternative was eliminated for not meeting the project's purpose. Specifically, widening U.S. 40 at intersections on Main Street to accommodate a roundabout size that meets traffic demand would not allow Heber City to meet their vision for the historic town center and would be difficult for large vehicles to navigate. A smaller, two-lane roundabout at intersections was examined, but it would not support projected traffic volumes in 2050 and it would fail the local mobility criteria for all intersections reviewed. Widening U.S. 40 at intersections to accommodate a three-lane roundabout (to support the traffic demand) would be visually and functionally incompatible with Heber City's vision for Main Street (wide sidewalks, bike lanes, landscaping, and a reduced speed limit). A three-lane roundabout also proved to not be able to accommodate traffic volumes in 2050 and would be difficult for trucks to navigate. Widening U.S. 40 at intersections to accommodate a three-lane roundabout would further degrade the comfort of the roadway for pedestrians and cyclists. Widening U.S. 40 would also impact Heber City's historic buildings and valued places, taking some land away from the Tabernacle Square to accommodate a wider footprint for U.S. 40. This alternative does not satisfy the project's purpose and is therefore not reasonable.

Improve U.S. 40 – Intersection Improvements along Main Street (40C)

The improve intersections on U.S. 40 alternative was eliminated for not meeting the project purpose and need. Specifically, widening U.S. 40 at intersections to accommodate additional vehicle turning movements would not allow Heber City to meet their vision for the historic town center, and the alternative also fails local mobility criteria. Widening U.S. 40 at intersections to accommodate a wider footprint would be visually and functionally incompatible with Heber City's vision for Main Street (wide sidewalks, bike lanes, landscaping, and a reduced speed limit). Widening U.S. 40 at intersections would further degrade the comfort of the roadway for pedestrians and cyclists. Widening U.S. 40 would also impact Heber City's historic structures and valued places, taking some land away from the Tabernacle Square to accommodate a wider footprint for U.S. 40. Finally, this alternative is worse than the no-action conditions for local mobility criteria resulting in long vehicle queue lengths, long travel times, and failing intersections. For these reasons, this alternative is not reasonable.

Reversible Lanes (40E)

The reversible lane alternative was eliminated due to operational and safety concerns and for not meeting the project's purpose. Specifically, reversible lanes would not allow Heber City to meet their vision for the historic town center. The reversible lane alternative would require 21 to 32 overhead gantries, in addition to the existing traffic signals, resulting in substantial visual impacts from the numerous overhead structures. An example of an overhead gantry is shown in Figure 3-15.

Overhead gantries are required to communicate traffic movements between every intersection so that drivers turning onto U.S. 40 from a cross street or an existing business know which lanes they can travel in at a given time of day. These gantries would harm the historic setting by adding modern, visually intrusive technology to a small, historic downtown. The gantries would affect the historic setting and could also affect the historic buildings along Main Street when they are constructed and placed. These effects would also make a reversible lane functionally incompatible with Heber City's vision for Main Street (wide sidewalks, bike lanes, landscaping, and a reduced speed limit). A reversible lane would limit left turns into business driveways during peak hours and potentially cause economic impacts if people choose to shop at other businesses that have easier access.

Lastly, the reversible lanes alternative would not improve local mobility. The reversible lanes alternative prohibits left turns from Main Street in downtown during peak hours, which forces drivers to turn left at traffic signals at either end of downtown. The added left-turn movements at these signals contribute to failing level of service (LOS F). Also, overhead gantries can confuse drivers. Drivers traveling through Heber City might not be familiar with the operation of a reversible lane, leading to safety concerns such as wrong-way driving. For these reasons, the reversible lane option was eliminated.

One-way Couplets (40F and 40G)

Both of the one-way couplets were eliminated for similar reasons. Both couplets would support local traffic mobility on Main Street; however, the couplets would create a barrier to local east-west traffic in Heber City. The couplets would divide the city, and drivers would be required to wait at additional signals as they travel east-west across town, thereby creating a barrier for residents. The couplets would not satisfy regional mobility through the valley due to the lower speed limits for travel through town (35 mph). The numerous conflicts associated with driveways and intersections in town would cause drivers to stop or slow down, thereby reducing travel times.

The couplets were proposed to have three lanes in each direction to support travel demand; however, this requires a wide footprint on 100 West (40F and 40G) and 100 East (40G) that would impact historic buildings and valued places. There would be additional right-of-way impacts north and south of Heber City

Figure 3-15. Overhead Gantry Example from Utah



Note: Main Street would require 21-32 gantries in addition to signals

where the couplets would start and end. The intersections at the start and end would need to be large and include free turning movements to accommodate the travel demand in 2050. These alternatives would not remove traffic and oil tanker trucks from Heber City's historic town center, which would conflict with Heber City's vision for Main Street (wide sidewalks, bike lanes, landscaping, and a reduced speed limit). For these reasons, these alternatives would not meet the project's purpose and are therefore not reasonable.

East Bypass Alternatives (EA, EB, and EC)

All three eastern bypass alternatives failed Level 1 screening because they would not improve local mobility on U.S. 40 through 2050. All of the east alternatives would have several failing intersections and arterial segments (LOS F), long travel times, and very long vehicle queue lengths. The primary reason these alternatives fail is because east alternatives do not attract enough traffic off Main Street. Travel demand to and from the Provo–Orem area on U.S. 189 is currently 2.7 times greater than traffic on U.S. 40 heading southeast and is expected to be 1.6 times greater in 2050. The U.S. 189 traffic would not find eastern bypass options useful due to out-of-direction travel and longer travel times. The traffic model predicts that the U.S. 189 traffic heading north of Heber City would continue to use Main Street. Additionally, Midway residents contribute to the local and regional travel demand and would not find east-side routes beneficial. Main Street would continue to have local mobility problems characterized by congestion and slow travel times. For these reasons, eastern bypasses would not satisfy the project's purpose and are not reasonable.

West Bypass – Limited Access and Grade-separated Interchanges and Realign U.S. 189 (WA2)

The western bypass limited-access alternative with grade-separated interchanges and the realignment of U.S. 189 was eliminated based on Level 1 local mobility traffic analysis. WA2 would not reduce traffic on Main Street enough to satisfy local mobility criteria. Specifically, two intersections on Main Street would fail (LOS F), and overall travel time on U.S. 40 would be poor. The result would be that Main Street would continue to have local mobility problems characterized by congestion and slow travel times. For these reasons, WA2 would not satisfy the project's purpose and is not reasonable.

West Bypass – Arterial Route and At-grade Intersections (WC1 and WC2)

The western bypass arterial route with at-grade intersections alternatives (WC1 and WC2) were eliminated based on Level 1 traffic analysis. WC1 fails local mobility screening criteria. WC2 and the realignment of U.S. 189 passed local mobility screening; however, it does not satisfy regional mobility due to its lower speeds, considerable number of conflict points (driveways and intersections), and less desirable geometry. For these reasons, these alternatives were eliminated as not meeting the project's purpose.

West Bypass – Parkway and Turbo Roundabouts (WD1 and WD2)

The western bypass parkway alternative with turbo roundabouts (WD1), as suggested by a commenter during scoping (and as presented to the public during the open house in October 2021), was eliminated based on local mobility traffic analysis. Western bypass alternatives without a connection to 1300 South, such as WD1 and WC1 above, would not move enough local traffic to provide a benefit to local mobility because the alternatives would not be an attractive option to Main Street. The 1300 South connection provides an important route for traffic from the west side of the Heber Valley to access commercial centers

in south Heber City. Without the 1300 South connection, more traffic would be forced to continue to use Main Street. For this reason, UDOT developed and screened a revised WD alternative with a 1300 South connection (WD2). However, even with the 1300 South connection, WD2 also failed Level 1 local mobility screening. The result would be that Main Street would continue to have local mobility problems characterized by congestion and slow travel times, and two intersections with failing level of service. WD1 and WD2 do not have connections to U.S. 40 at 800 North, like the west bypass alternatives that passed screening, which contributes to their poor performance on Main Street. For these reasons, WD1 and WD2 would not satisfy the project's purpose and are not reasonable.

West Bypass with Southern Extension – Arterial Route and At-grade Intersections (WS)

The western bypass with southern extension alternative was suggested in a public comment. It was eliminated based on Level 1 local mobility screening. The southern extension would provide a connection between U.S. 40 and U.S. 189 south of the town of Daniel. It was modeled but was projected to carry only 2,000 regional trips per day. Additionally, the southern extension would be too far south to support local traffic movements; therefore, it would not reduce traffic volumes on Main Street. Adding a 1300 South extension to carry more local trips would make WS duplicative of other alternatives but with little to no additional benefit given the low travel demand but with considerably greater impacts. For these reasons, this alternative is not reasonable or fiscally prudent.

3.3.3 Level 2 Screening

The purpose of Level 2 screening is to eliminate alternatives that perform similarly in meeting the purpose of the project compared to other alternatives but would result in greater impacts. During Level 2 screening, UDOT evaluated the alternatives that passed Level 1 screening against criteria that focus on each alternative’s impacts to key resources and project costs. Table 3-11 lists the Level 2 screening criteria. Figure 3-16 through Figure 3-21 show the design layouts, and Figure 3-22 and Figure 3-23 show the cross sections for the alternatives that passed Level 1 screening.

What is the purpose of Level 2 screening?

The purpose of Level 2 screening is to eliminate alternatives that perform similarly in meeting the purpose of the project compared to other alternatives but would result in greater impacts.

Table 3-11. Level 2 Screening Criteria and Measures

Criterion	Measure
Waters of the United States	<ul style="list-style-type: none"> • Acres and types of wetlands and other waters of the United States affected • Linear feet of ditches and creeks affected
Section 4(f) resources	<ul style="list-style-type: none"> • Number of Section 4(f) historic properties affected (all properties in addition to the historic town center) • Number of Section 4(f) recreation resources affected
Right of way	<ul style="list-style-type: none"> • Number of full property acquisitions and relocations (commercial and residential) • Number of partial property acquisitions
Cost	<ul style="list-style-type: none"> • Alternative’s cost compared to other alternatives (alternatives would not be eliminated based on cost unless the cost is an order of magnitude greater)

The criteria listed above in Table 3-11 were selected based on applicable federal regulations—such as Section 4(f) of the U.S. Department of Transportation Act of 1966 and Section 404 of the Clean Water Act—and comments received during agency and public outreach. Waters of the United States and Section 4(f) properties were given special consideration during screening because federal laws require UDOT to consider and analyze alternatives that avoid or minimize impacts to these resources. See Section 2.3, *Reasons Why an Alternative Might Be Eliminated during the Screening Process*, for more information regarding Section 4(f) and Section 404 of the Clean Water Act.

The overall process for Level 2 screening was as follows:

- Conduct additional engineering refinement to develop a footprint for each alternative and to consider alignment shifts to avoid or minimize impacts.
- Estimate the impacts on key resources of each alternative that passed Level 1 screening.
- Evaluate the alternatives’ costs.
- Determine whether any of the alternatives would have substantially greater impacts or costs without having substantially greater benefits in meeting the purpose of the project.

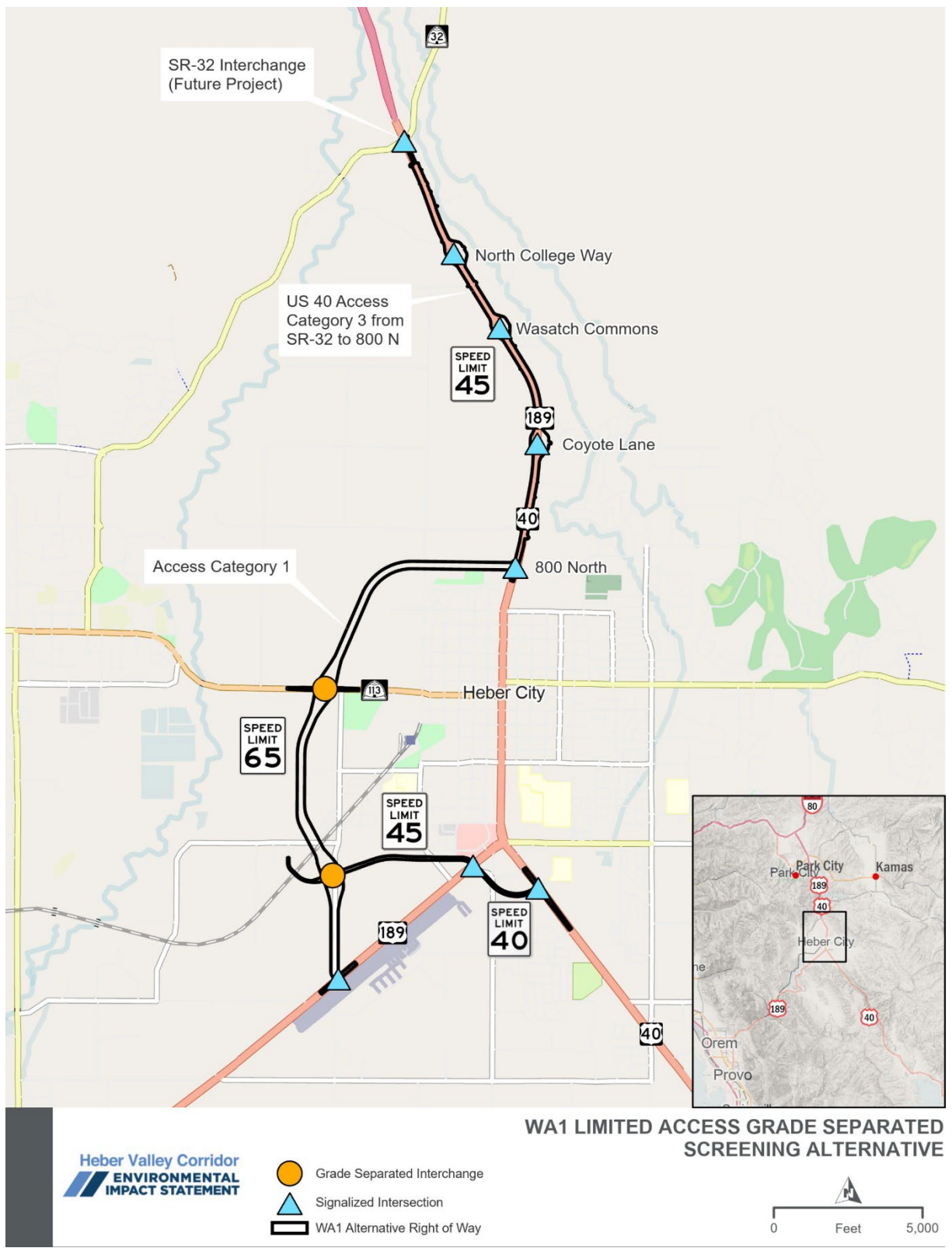
Using the information obtained from Level 2 screening, UDOT determined which alternatives are reasonable and will be studied in greater detail in the EIS. These alternatives are listed in Table 3-15, *Final Level 2 Screening Results*.

Engineering Refinement. UDOT conducted additional engineering on alternatives that passed Level 1 screening. Engineers developed alignments to meet applicable UDOT design criteria. Alternatives were refined to establish an adequate number of lanes, median spacing, lane width, and safe curve geometry for the proposed travel speeds and estimated travel demand. The alignments were configured to determine how they would connect to U.S. 40 and U.S. 189 at each end, whether bridges and ramps were needed, and how other major roads would connect. Based on this engineering, cut-and-fill lines were generated to estimate the footprint required to build each alternative (a 15-foot buffer was added to account for potential construction impacts and equipment access), and right-of-way lines were estimated. The footprint and right-of-way area were used to calculate impact values for Level 2 screening. The engineering analysis was also used to try to avoid or minimize impacts to key resources.

Estimate Impacts to Key Resources and Private Property. Using geographic information systems (GIS) software, UDOT estimated how each alternative that passed Level 1 screening might affect key resources such as wetlands, other potential waters of the United States, and Section 4(f) resources. The expected impacts were determined by overlaying the estimated right of way for each alternative over the GIS datasets for these resources. UDOT used the same approach to identify the potential property acquisitions and relocations. For alternatives that are carried forward for analysis in the EIS, UDOT will conduct additional engineering refinement and resource impact analysis. For more information about Section 4(f) resources and the Clean Water Act, see Section 2.3, *Reasons Why an Alternative Might Be Eliminated during the Screening Process*.

Compare Impacts and Costs to Benefits. UDOT used the screening results to determine whether any of the alternatives would have substantially greater impacts to key resources or costs without having substantially greater benefits in meeting the purpose of the project. Alternatives were also refined to try to avoid or minimize impacts to key resources. Alternatives that would have the same or similar benefits as other alternatives but would have substantially greater impacts or costs were eliminated and considered unreasonable for NEPA purposes.

Figure 3-16. Level 2 Design Layout for Limited-access West Bypass (WA1)



WA1 LIMITED ACCESS GRADE SEPARATED SCREENING ALTERNATIVE




-  Grade Separated Interchange
-  Signalized Intersection
-  WA1 Alternative Right of Way



Figure 3-17. Level 2 Design Layout for Limited-access West Bypass with Northern Extension (WA3)

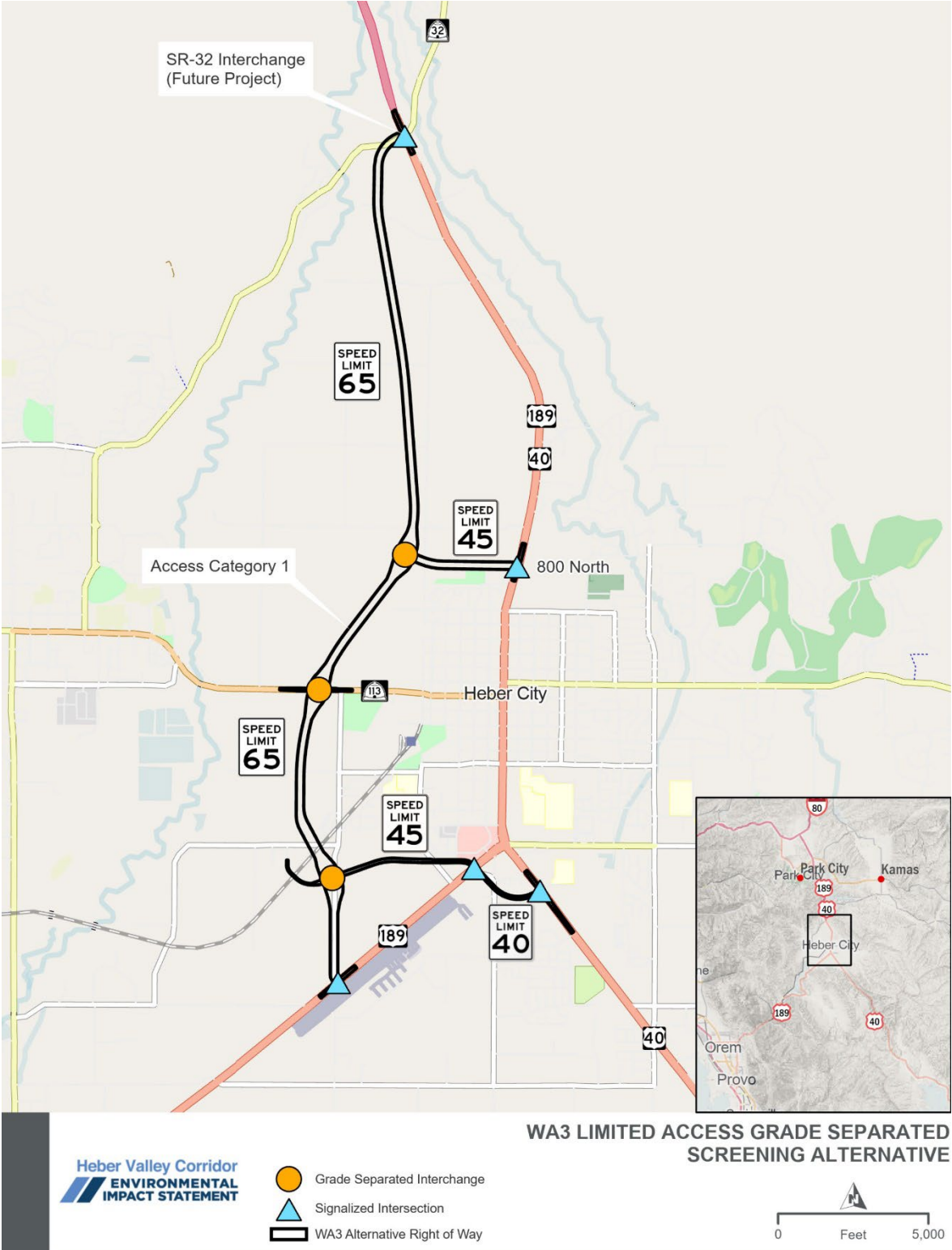


Figure 3-18. Level 2 Design Layout for West Bypass Parkway (WB1)

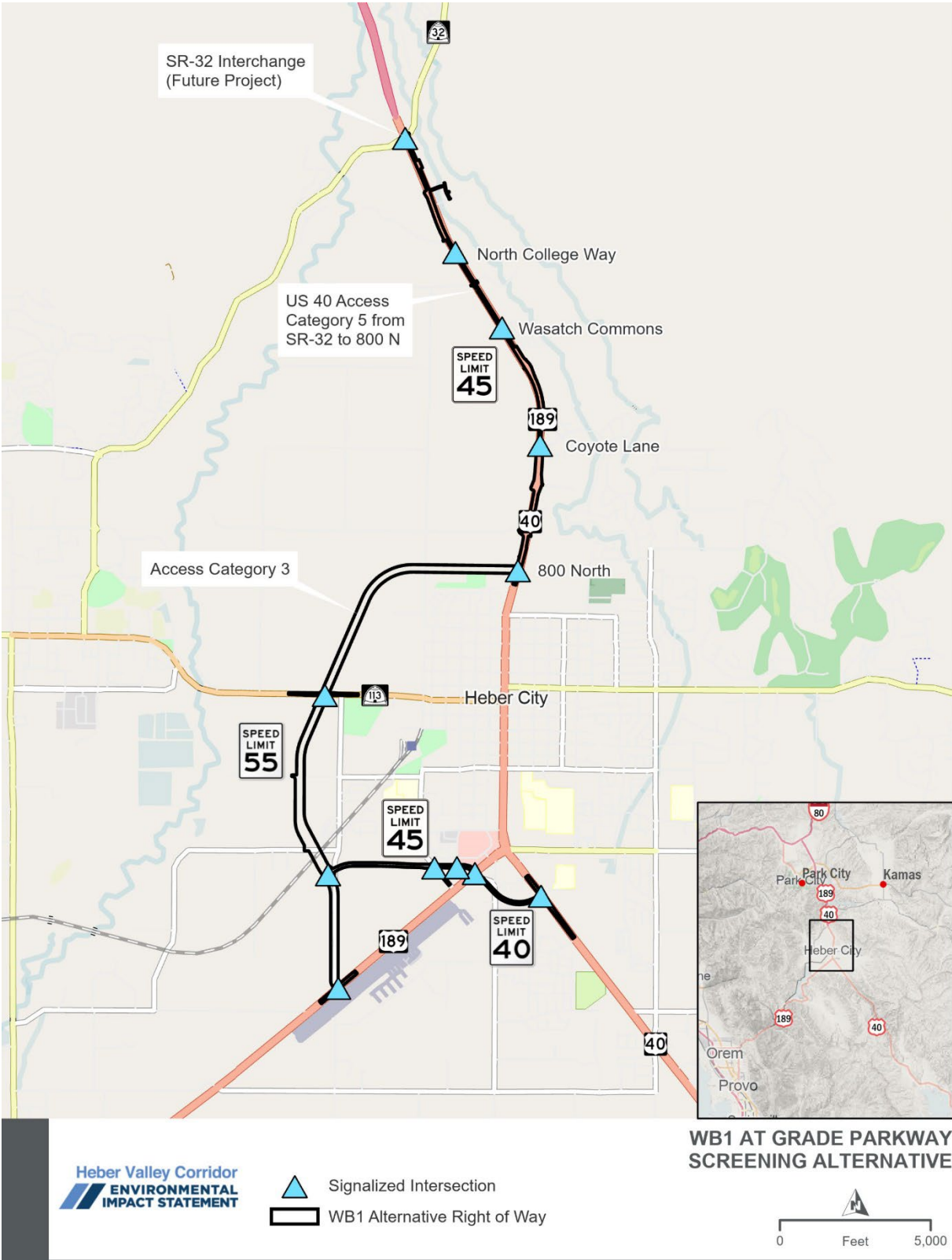


Figure 3-19. Level 2 Design Layout for West Bypass Parkway and Realignment of U.S. 189 (WB2)

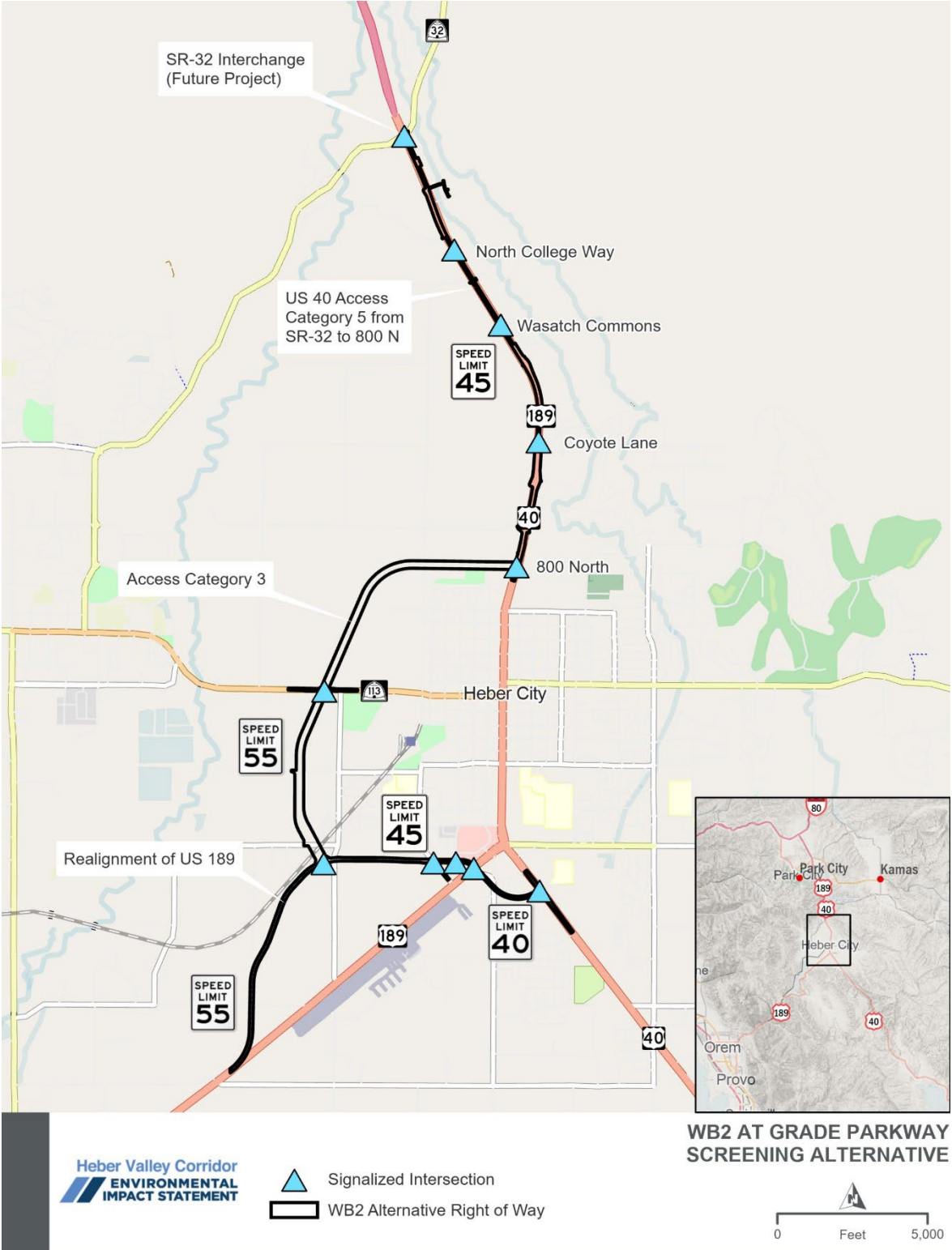


Figure 3-20. Level 2 Design Layout for West Bypass Parkway with Northern Extension (WB3)

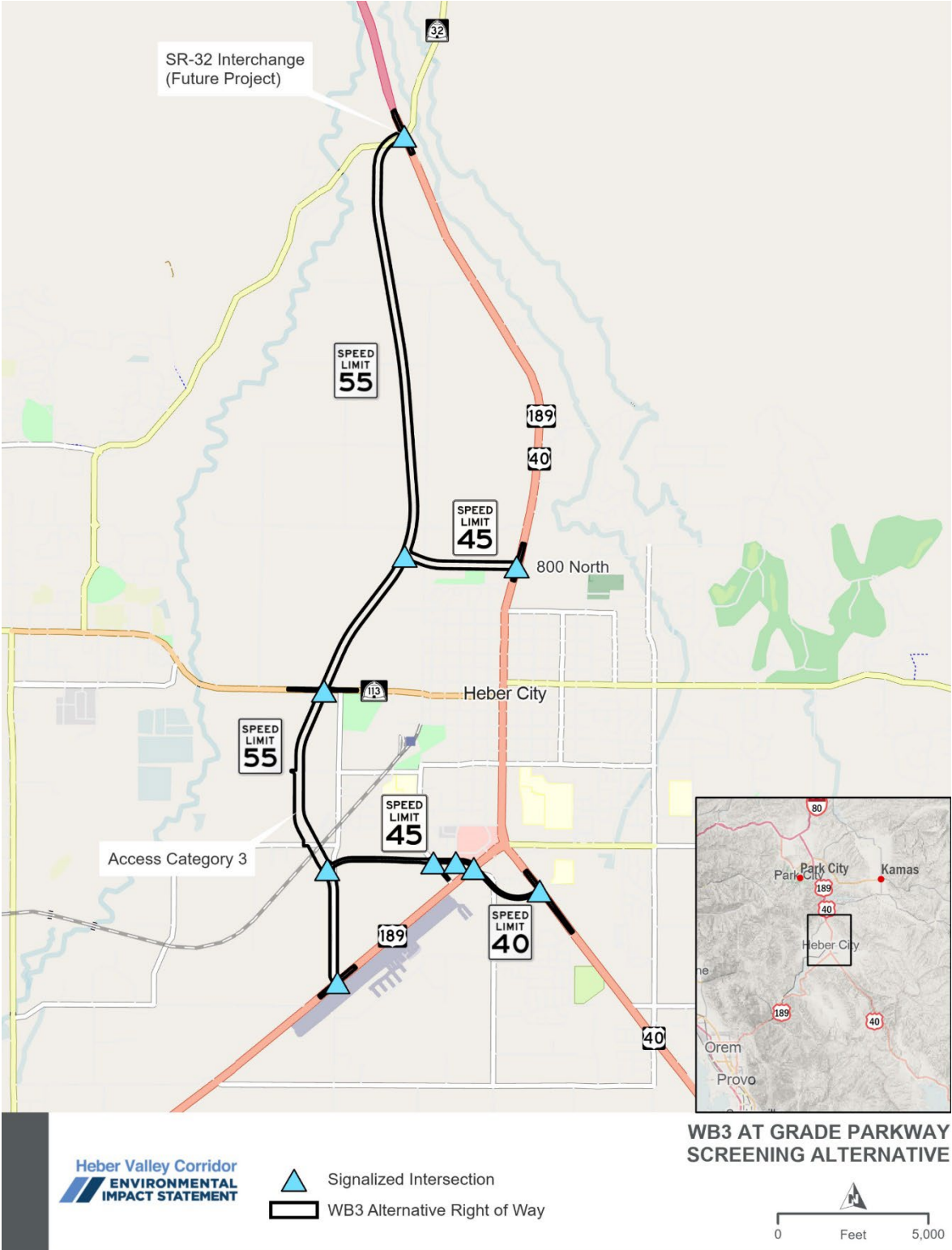
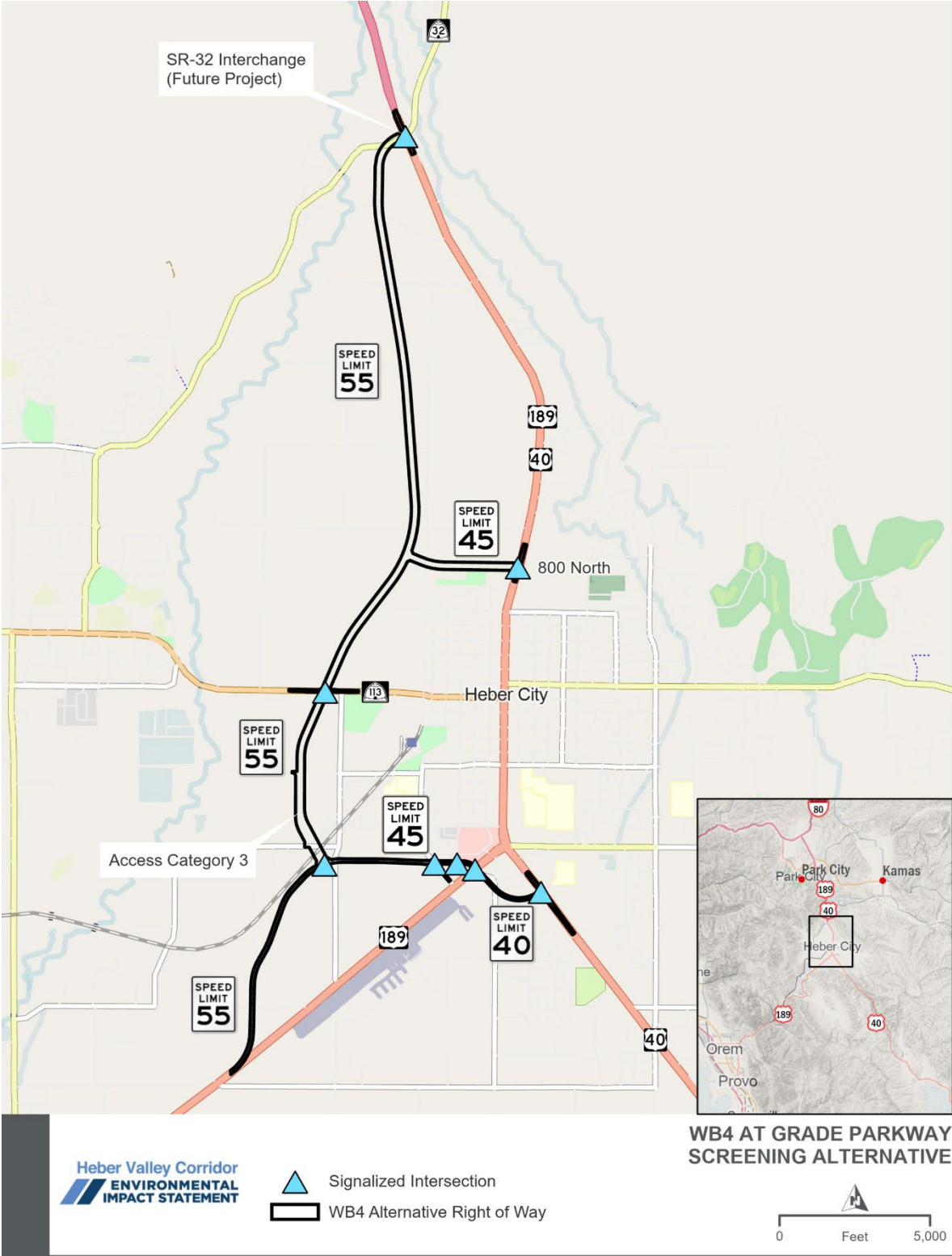
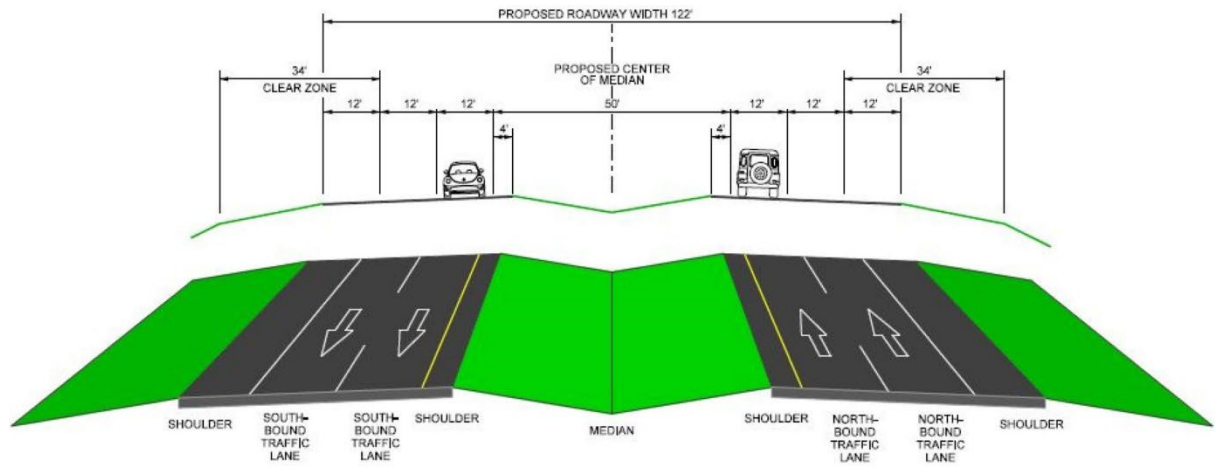


Figure 3-21. Level 2 Design Layout for West Bypass Parkway with Northern Extension and Realigned U.S. 189 (WB4)

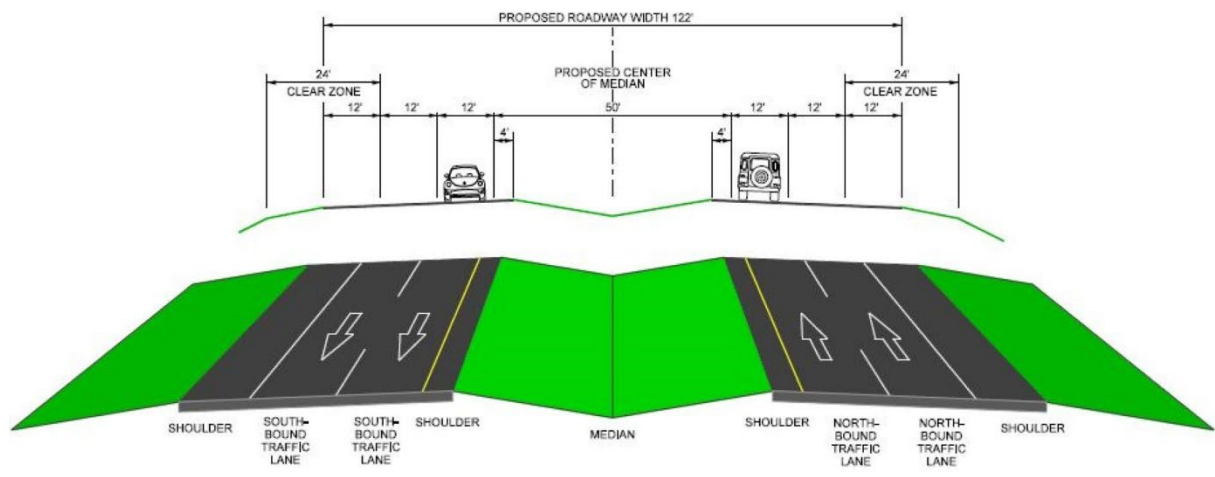


**WB4 AT GRADE PARKWAY
 SCREENING ALTERNATIVE**

Figure 3-22. Level 2 Design Cross Sections by West Bypass Alternative

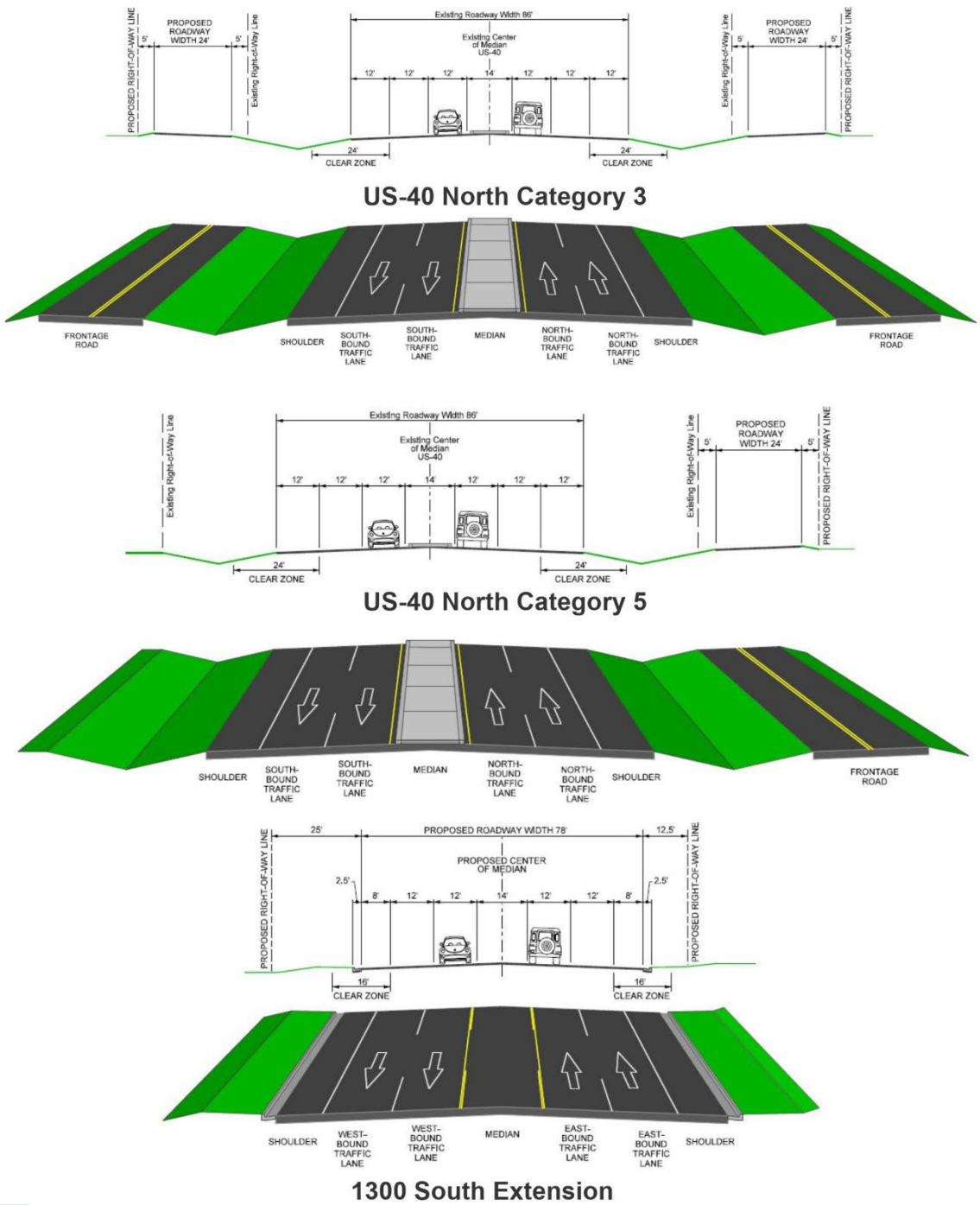


WA1/WA3 Typical Cross Section



WB1/WB2/WB3/WB4 Typical Cross Section

Figure 3-23. Level 2 Design Cross Sections for North 40 and 1300 South



US-40 AND 1300 SOUTH
TYPICAL CROSS SECTIONS

Level 2 Screening for Waters of the United States

Waters of the United States (WOTUS) are protected by Section 404 of the Clean Water Act. A Section 404 permit from the U.S. Army Corps of Engineers (USACE) is required for projects that would impact WOTUS. Water quality impacts to WOTUS are considered by USACE in their permitting process. USACE cannot issue a permit if a practicable alternative exists that would have less adverse impacts. Table 3-12 summarizes the potential WOTUS that would be intersected by each alternative that passed Level 1 screening. Wetland delineation fieldwork is partially complete and will continue in the summer of 2022. These potential WOTUS impacts will be refined in the EIS.

Table 3-12. Level 2 Waters of the United States Screening Results

Alternative		Canals ^a	Ditches ^a	Perennial Streams ^a	Wetlands ^b	Total WOTUS Impacts
WA1	West bypass – limited access and grade-separated interchanges	995 lf 0.36 ac	1,901 lf 0.11 ac	1,301 lf 0.63 ac	7.74 ac	8.84 ac
WA3	West bypass – limited access and grade-separated interchanges with northern extension	995 lf 0.36 ac	2,126 lf 0.24 ac	8,400 lf 1.98 ac	22.14 ac	24.72 ac
WB1	West bypass – parkway and at-grade intersections	901 lf 0.33 ac	653 lf 0.04 ac	1,202 lf 0.58 ac	5.60 ac	6.55 ac
WB2	West bypass – parkway and at-grade intersections and realign U.S. 189	901 lf 0.33 ac	653 lf 0.04 ac	1,202 lf 0.58 ac	5.60 ac	6.55 ac
WB3	West bypass – parkway and at-grade intersections with northern extension	869 lf 0.33 ac	1,334 lf 0.18 ac	6,938 lf 1.32 ac	10.53 ac	12.35 ac
WB4	West bypass – parkway and at-grade intersections with northern extension and realigned U.S. 189	1,351 lf 0.46 ac	1,334 lf 0.18 ac	6,938 lf 1.32 ac	10.53 ac	12.48 ac

^a Linear feet and acreage of potential impacts are calculated from the alternative’s cut-and-fill lines with a 15-foot buffer.

^b Wetland impact acreage does not include canals, ditches, or perennial stream acreages.

The potential WOTUS impacts shown above in Table 3-12 are predictably higher for the western bypasses that extend through the north fields (WA3, WB3, and WB4) than for the western bypasses that connect to U.S. 40 near 800 North and then continue to S.R. 32 on the existing U.S. 40 alignment (WA1, WB1, and WB2). Western bypass WA3 would have the greatest potential impacts because of the larger footprint necessary for grade-separated interchanges. WA3 was eliminated in Level 2 screening because it would perform similarly to the other alternatives but would have greater impacts to potential WOTUS.

Level 2 Screening for Section 4(f) Resources

Section 4(f) properties are protected under Section 4(f) of the U.S. Department of Transportation Act of 1966. UDOT can approve an alternative that uses Section 4(f) properties only if there is no feasible and prudent alternative that would avoid such impacts. For example, an alternative can be selected if the impact would be *de minimis*. Or, if all alternatives would affect Section 4(f) properties, then the selected alternative must have the least overall harm. Table 3-13 summarizes the Section 4(f) properties that would be impacted by each alternative that passed Level 1 screening. Section 4(f) properties include:

- Parks and recreation areas of national, state, or local significance that are both publicly owned and open to the public,
- Historic sites of national, state, or local significance in public or private ownership regardless of whether they are open to the public, and
- Publicly owned wildlife and waterfowl refuges of national, state, or local significance that are open to the public to the extent that public access does not interfere with the primary purpose of the refuge. (There are no applicable refuges in the Heber Valley needs assessment study area.)

Table 3-13. Level 2 Section 4(f) Screening Results

Alternative		Historic Buildings Potential Full Acquisitions	Historic Buildings Full Acquisitions	Recreation Resources
WA1	West bypass – limited access and grade-separated interchanges	3 residences	1 business 2 residences 2 outbuildings	Midway Lane Connector: 1,544 lf Wasatch County Railroad Trail: 429 lf
WA3	West bypass – limited access and grade-separated interchanges with northern extension	—	1 business	Midway Lane Connector: 1,609 lf Wasatch County Railroad Trail: 429 lf
WB1	West bypass – parkway and at-grade intersections	3 residences 1 outbuilding	1 business 2 residences 1 outbuilding	Midway Lane Connector: 860 lf Wasatch County Railroad Trail: 376 lf
WB2	West bypass – parkway and at-grade intersections and realign U.S. 189	3 residences 1 outbuilding	1 business 2 residences 1 outbuilding	Midway Lane Connector: 860 lf Wasatch County Railroad Trail: 376 lf
WB3	West bypass – parkway and at-grade intersections with northern extension	—	1 business	Midway Lane Connector: 860 lf Wasatch County Railroad Trail: 376 lf
WB4	West bypass – parkway and at-grade intersections with northern extension and realigned U.S. 189	—	1 business	Midway Lane Connector: 860 lf Wasatch County Railroad Trail: 376 lf

No alternatives were eliminated in Level 2 screening due to Section 4(f) impacts. All remaining alternatives would result in impacts to historic buildings or recreational trails. The historic building data used for Level 2 screening is preliminary and based on a desktop survey of existing databases. An intensive historic architecture survey will be conducted for all alternatives carried forward for detailed evaluation. UDOT will strive to minimize the Section 4(f) impacts shown above in Table 3-13 through preliminary engineering

design refinements in the EIS. The impacts to trails might be mitigated by relocating impacted trail segments to maintain connectivity. UDOT will conduct additional planning to minimize harm and will evaluate the Section 4(f) uses in greater detail in the EIS.

Level 2 Screening for Right of way and Cost

UDOT analyzed each alternative for its potential impacts to residential and commercial property and construction costs. For screening purposes, *potential full acquisitions* were identified as properties with buildings that would be within 15 feet of an alternative (whether a full acquisition is necessary would need additional analysis). *Full acquisitions* were identified as properties with larger potential impacts where the alternative would intersect with structures on the parcel and change the primary use, access, or function of the parcel, or there would be no useable remainder.

If an action alternative that requires acquisitions is ultimately selected in the project’s Record of Decision, UDOT would work with property owners to acquire the right of way. Properties would be acquired in accordance with the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970¹; Title VI of the Civil Rights Act of 1964, as amended; and the State of Utah Relocation Program (under the Utah Relocation Assistance Act, Utah Code, Section 57-12).

The potential property acquisitions of an alternative and its construction costs are included in its cost estimate. The construction cost was estimated at a high level for each alternative using standard per-lane mile and per acreage of right-of-way assumptions. Construction costs will be refined after design refinements are made as part of the EIS process. Table 3-14 summarizes the right-of-way and cost information by alternative.

Table 3-14. Level 2 Right of Way and Cost Screening Results

Alternative		Potential Full Acquisitions	Full Acquisitions	Right-of-way Acreage	Cost Estimate
WA1	West bypass – limited access and grade-separated interchanges	3 businesses 5 residences	4 businesses 6 residences	162 parcels 186.40 ac	\$234.3 M
WA3	West bypass – limited access and grade-separated interchanges with northern extension	1 business	4 businesses 2 residences	144 parcels 240.27 ac	\$269.8 M
WB1	West bypass – parkway and at-grade intersections	2 businesses 3 residences	4 businesses 8 residences	146 parcels 141.10 ac	\$172.7 M
WB2	West bypass – parkway and at-grade intersections and realign U.S. 189	2 businesses 3 residences	4 businesses 9 residences	148 parcels 137.14 ac	\$178.6 M
WB3	West bypass – parkway and at-grade intersections with northern extension	2 businesses	4 businesses 2 residences	139 parcels 212.00 ac	\$191.4 M
WB4	West bypass – parkway and at-grade intersections with northern extension and realigned U.S. 189	2 Businesses	4 Businesses 3 Residences	141 parcels 208.05 ac	\$196.7 M

¹ This is a federal law that establishes minimum standards for federally funded programs and projects that require the acquisition of property or that displace persons from their homes, businesses, or farms.

The right-of-way and property impacts shown above in Table 3-14 are predictably greater for the western bypasses that extend through the north fields (WA3, WB3, and WB4) than for the western bypasses that connect to U.S. 40 near 800 North and then continue to S.R. 32 along the existing U.S. 40 alignment (WA1, WB1, and WB2). Western bypass WA3 would have the greatest right-of-way impacts because of the larger footprint necessary for grade-separated interchanges. WA1 and WA3 would be more expensive due to the cost of constructing grade-separated interchanges.

Level 2 Screening Results

As a result of the final Level 2 screening, one alternative (WA3) was eliminated from further consideration because it would have high impacts to potential WOTUS without appreciably greater benefits in satisfying the project’s purpose. Table 3-15 shows the Level 2 screening results. The five alternatives that passed this phase will be further refined in the EIS. The alternative that is shown in Table 3-15 as not recommended for further analysis (WA3) is described following the table.

Table 3-15. Final Level 2 Screening Results

Alternative		Impacts			Cost	Recommended for Draft EIS?
		Waters of the U.S.	Section 4(f) Resources	Property Acquisitions		
WA1	West bypass – limited access and grade-separated interchanges	8.84 ac	1,973 lf of trails 8 Buildings	162 parcels 186.40 ac	\$234.3 M	Yes
WA3	West bypass – limited access and grade-separated interchanges with northern extension	24.72 ac	2,038 lf of trails 1 building	144 parcels 240.27 ac	\$269.8 M	No
WB1	West bypass – parkway and at-grade intersections	6.55 ac	1,236 lf of trails 8 buildings	146 parcels 141.10 ac	\$172.7 M	Yes
WB2	West bypass – parkway and at-grade intersections and realign U.S. 189	6.55 ac	1,236 lf of trails 8 buildings	148 parcels 137.14 ac	\$178.6 M	Yes
WB3	West bypass – parkway and at-grade intersections with northern extension	12.35 ac	1,236 lf of trails 1 building	139 parcels 212.00 ac	\$191.4 M	Yes
WB4	West bypass – parkway and at-grade intersections with northern extension and realigned U.S. 189	12.48 ac	1,236 lf of trails 1 building	141 parcels 208.05 ac	\$196.7 M	Yes

West Bypass – Limited Access and Grade-separated Interchanges with Northern Extension (WA3)

The western bypass limited access and grade-separated interchanges with northern extension alternative (WA3) was eliminated based on Level 2 analysis of potential WOTUS. WA3 would have the highest estimated potential WOTUS impacts of all alternatives. Although WA3 meets the Level 1 screening criteria, it does not have substantively greater benefits relative to the project’s purpose, other alternatives are estimated as having fewer impacts to key resources.

4.0 EIS and Preliminary Engineering Phase

The alternatives that passed the screening process (WA1, WB1, WB2, WB3, and WB4) will be further developed through preliminary engineering to support detailed analysis in the EIS. The preliminary engineering phase will include additional design work to provide details such as horizontal and vertical alignments, right-of-way needs, intersection design, pedestrian and bicycle accommodations, access design, and potential drainage designs including stormwater management. Access design will include road, driveway, or parking lot revisions for properties intersected by an alternative. All five alternatives will be designed to a similar level of detail.

Once the preliminary engineering phase is complete, the expected effects of the alternatives will be characterized and compared to the No-Action Alternative in the EIS, as required by NEPA.

The Heber Valley Corridor EIS will analyze the reasonably foreseeable activities and operations that would occur from implementing the action alternatives. Environmental and resource categories in the affected environment that would be affected are analyzed in the EIS to provide decision-makers with enough information to plan and make informed decisions. For this analysis, the following 17 resource categories will be considered: land use, community and property impacts, farmlands, environmental justice, economics, traffic and transportation, joint development, considerations related to pedestrians and bicyclists, air quality, noise, water resources, ecosystem resources, floodplains, cultural resources, paleontological resources, hazardous materials and waste sites, and visual resources.

The following resources were reviewed and determined not to be within the area of influence of the action alternatives and therefore will not be considered further in this EIS:

- **Wild and Scenic Rivers.** There are no designated wild and scenic rivers within or adjacent to U.S. 40 and U.S. 189 in the needs assessment study area.

How will the alternatives be designed?

The alternatives that passed screening and are evaluated in the Draft EIS might be revised or incorporate minor alignment variations as the alternatives are refined to improve operations or avoid impacts.

4.1 New Alternative Names for EIS

The alternative names used in the scoping and screening processes were created to identify the location of each alternative (east of Heber City, west of Heber City, or on U.S. 40) and to describe the features that made the alternative unique to other alternatives in the same location. Moving forward, in the EIS these alternative names will be simplified and no longer need to describe the location since only western alternatives advance to the EIS. The new names are documented in Table 4-1.

Table 4-1. New Alternative Names for Western Bypasses That Advance to the EIS

Alternative ID	Scoping and Screening Report Name	EIS Name
WA1	West bypass – limited access and grade-separated interchanges	Freeway with North U.S. 40
WB1	West bypass – parkway and at-grade intersections	Highway with North U.S. 40
WB2	West bypass – parkway and at-grade intersections and realign U.S. 189	Highway with North U.S. 40 and Realigned U.S. 189
WB3	West bypass – parkway and at-grade intersections with northern extension	Highway to S.R. 32
WB4	West bypass – parkway and at-grade intersections with northern extension and realigned U.S. 189	Highway to S.R. 32 and Realigned U.S. 189

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