



WEST DAVIS
CORRIDOR

Technical Memorandum 15: Alternatives Screening Report

in support of the
Environmental Impact Statement

West Davis Corridor Project

Federal Highway Administration
Utah Department of Transportation



UDOT Project No. S-0067(14)0

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Summary

The purpose of this memorandum is to summarize and present the results of the alternatives development and screening process for the West Davis Corridor (WDC) Environmental Impact Statement (EIS). The alternatives development and screening process described in this memorandum provided critical information about how well an alternative satisfies the purpose of and need for the WDC project and whether it is reasonable and feasible.

This summary provides an overview of the changes that were made between the initial screening decisions released to the public in February 2011 and those released to the public in September 2011. These changes were made as part of a revised screening effort that took into account changes to the travel demand model, additional data, and input from the public and agencies. Alternative refinements made after September 2011 are described in detail in Chapter 2, Alternatives, of the EIS.

What changes or updates have been made to the WDC alternatives development and screening process since February 2011?

The WDC team has updated the study area boundary and re-screened the alternatives for the WDC project due to changes to the Wasatch Front Regional Council's (WFRC) 2040 Regional Transportation Plan (RTP) and travel demand model. The WDC team has also refined alternatives based on updated resource information and public and agency comments.

What is a travel demand model?

Travel demand refers to the forecasted amount of travel on existing and future roads. A *travel demand model* predicts future travel demand based on projections of land use, socioeconomic patterns, and transportation system characteristics.

What were the changes to the WDC EIS study area boundary, and why did the boundary change?

The initial northern boundary for the WDC EIS study area (1200 South in Weber County) was developed using version 6.0 of the travel demand model maintained by WFRC and the Mountainland Association of Governments (MAG) for the four-county metropolitan area (Weber, Davis, Salt Lake, and Utah Counties). WFRC is the local metropolitan planning organization for Weber and Davis Counties. In June 2011, WFRC and MAG released version 7.0 of the travel demand model and WFRC released a new RTP. UDOT used version 7.0 of the travel demand model to conduct a sensitivity analysis to determine whether the decisions about the boundaries of the WDC study area, which were made with version 6.0 of the travel demand model, were still valid with version 7.0 of the travel demand model. The sensitivity analysis showed that two of the key reasons for selecting 1200 South as the northern boundary of the study area were no longer valid.

One of the reasons for selecting 1200 South as the northern boundary was that version 6.0 of the travel demand model showed that 4700 West in Weber County would operate at an unacceptable level of service (LOS E or F) between 4000 South and 1200 South in Weber County in 2040. Therefore, there was a need to improve the level of service on this arterial. In version 6.0 of the model (and in WFRC's 2030 RTP), 4700 West was a two-lane arterial. In version 7.0 of the model (and in the 2040 RTP), 4700 West is proposed to be widened to a five-lane arterial from 4000 South to 1200 South. As a five-lane arterial in version 7.0 of the travel demand model, 4700 West would operate at an acceptable level of service (LOS D or better) in 2040, so there is no need for additional improvements north of 4000 South.

The other reason for selecting 1200 South as the northern boundary was that version 6.0 of the travel demand model showed 1200 South operating at LOS E between 3500 West and 4300 West in 2040. Version 7.0 of the travel demand model shows all segments of 1200 South operating at an acceptable level of service (LOS D or better) west of Interstate 15 (I-15). Overall, version 7.0 of the travel demand model shows that no roads would operate at an unacceptable level of service west of 2700 West and north of 4000 South in 2040.

Based on the information above, the northern boundary of the study area has been amended from 1200 South to about 3000 South based on the results from version 7.0 of WFRC's travel demand model. Although version 7.0 of the travel demand model did not show a need north of 4000 South, to ensure that project alternatives have enough distance to meet roadway design, level of service, and safety standards, a location at about 3000 South was selected as the northern boundary for the study area.

Specifically, the alternatives that propose widening existing east-west arterial roads (Alternatives 04, 05, and 08) would require widening 4000 South and Hinckley Drive, which connect to I-15 at Hinckley Drive (about 3100 South) in Weber County. Alternative 10A would require additional improvements north of 4000 South to function at a level of service of LOS D or better in 2040, and Alternative 13A would require minor widening and intersection improvements immediately north of 4000 South to ensure that safety standards are met. Section 3.3.3, Northern and Western Termini for Alternatives Advanced to Level 2 Screening, provides additional information about the northern termini for these alternatives.

The eastern, western, and southern boundaries of the study area remain valid and did not change due to using version 7.0 of the travel demand model, since these boundaries are based on major geographic features (the Great Salt Lake for the western boundary) or transportation facilities (I-15, Legacy Parkway, and U.S. Highway 89 for the eastern and southern boundaries).

What is level of service (LOS)?

Level of service (LOS) is a measure of the operating conditions on a road. Level of service is expressed as a letter "grade" from A (free-flowing traffic and little delay) to F (extremely congested traffic and excessive delay). LOS B through E represent progressively worse operating conditions.



How did the change in the study area boundary affect the alternatives that were considered in the WDC screening process?

The WDC team updated the list of preliminary alternatives to accommodate the change in the northern boundary of the WDC study area from 1200 South to 3000 South in Weber County. Figure S-1 below shows the map of the preliminary alternative concepts that were identified in the summer of 2010 with the original WDC study area boundary. Figure S-2 below shows the map of the preliminary alternatives used in the revised version of the alternatives screening report in 2011.

As shown in Figure S-2 below, all of the new roadway alternatives that had previously ended at 1200 South were refined to end at 4000 South instead of 1200 South. The improvements for some new roadway alternatives extend north of 4000 South to ensure that all roadway design, level of service, and safety standards would be met.

The alternatives that proposed widening existing east-west roads were refined to remove any proposed widening on 1200 South as part of the alternatives. The alternatives that proposed widening I-15, State Route (SR) 126, or SR 108 were refined to end all north-south widening at Hinckley Drive in Roy instead of at 1200 South.

The previous new roadway alternatives that had proposed unique alignments in Weber County north of 4000 South were not considered as part of the revised screening process. The unique alignments north of 4000 South that were not considered as part of the revised range of alternatives were the Weber County 2009 North Legacy Transportation Corridor Supplemental Study alignment, the Hooper Canal alignment that connected to I-15 at 2100 South in West Haven, and the Midland Drive alignment that connected to I-15 at 2400 South in Ogden.

Additionally, because the previous and updated traffic modeling showed that the connection in Farmington and minor shifts to the main corridor alignments did not make a substantial difference in the alternatives' traffic performance, the WDC team simplified the number of new roadway alternatives to the five main corridors (Denver & Rio Grande [D&RG] Railroad corridor, power corridor, 2001 corridor, 4000 West corridor, and Far West corridor), each with the three different roadway types (four-lane divided highway, five-lane arterial, and two-lane expressway), and assumed that each of these five corridors could use any of the three connections (Shepard Lane, D&RG, or Glovers Lane) in Farmington.

The net result of these revisions was that the list of preliminary alternatives decreased from 46 to 23. Appendix G, Comparison Table for Range of Preliminary Alternatives, cross-references the old alternative numbers with the new alternative numbers for the list of preliminary alternatives.

Figure S-1. 2010 Preliminary Alternative Concepts

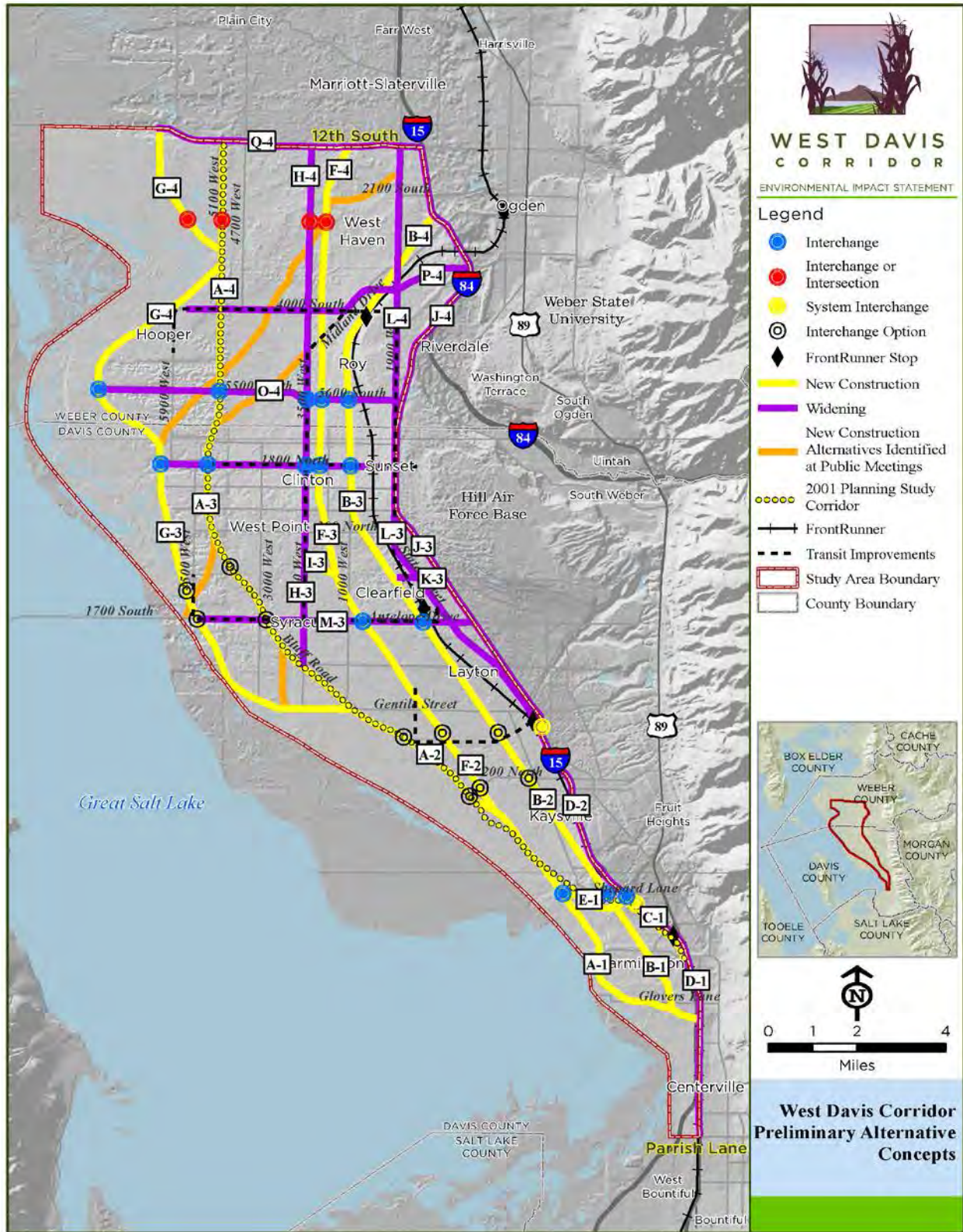
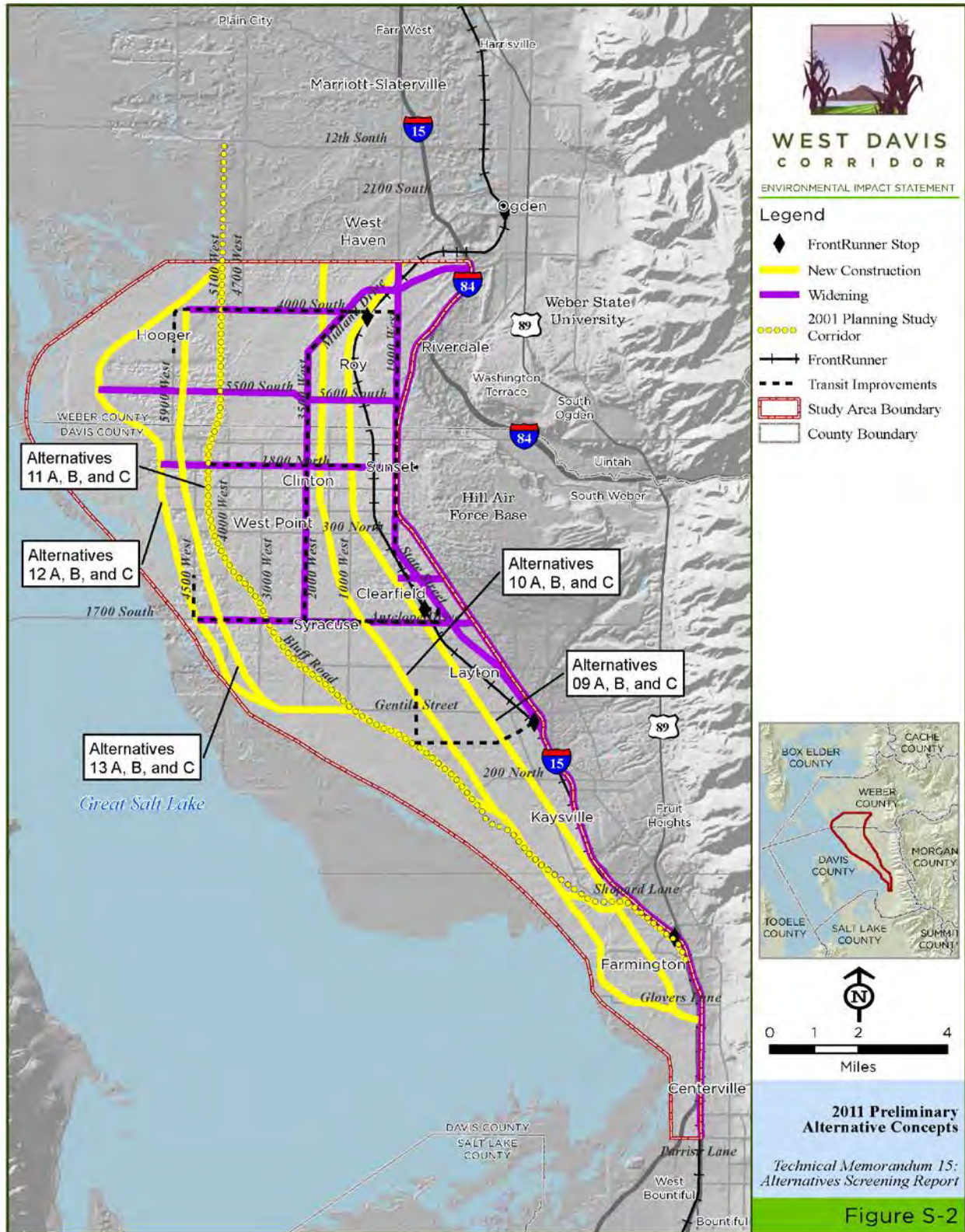


Figure S-2. 2011 Preliminary Alternative Concepts



Did these changes affect which alternatives were advanced to Level 2 screening?

As shown in Appendix G, Comparison Table for Range of Preliminary Alternatives, all of the alternatives that had been advanced to Level 2 screening in February 2011 were advanced to Level 2 screening as part of the revised alternatives, with four exceptions: the alternative that had used the 2009 North Legacy Transportation Corridor Supplemental Study alignment in Weber County (old Alternative 15A), the Hooper Canal alternative (old Alternative 21A), the Midland Drive Alternative (old Alternative 20A), and the Far West Four-lane divided highway alternative (old Alternative 14A). The 2009 North Legacy Transportation Corridor Supplemental Study alignment, Hooper Canal alignment, and Midland Drive alternatives were not part of the revised list of preliminary alternatives, since there was not a need for the WDC project north of 4000 South. During the re-screening process, the WDC team found that the Far West four-lane divided highway alternative was not able to meet the purpose of and need for the project using the new travel demand model, so it was not advanced to Level 2 screening.

Additionally, three combinations of new roadway alternatives and upgrade existing roads alternatives that had previously been considered in Level 2 screening were not considered during the revised Level 2 screening process. In 2011, the revised Level 1 screening analysis showed that these three combination alternatives would not meet the Level 1 screening criteria for the project.

In Appendix G, the cells that are shaded gray identify the old and new alternatives that were advanced to Level 2 screening.

Were there any changes to the Level 2 screening criteria?

Yes. During the revised Level 2 screening process, the WDC team used updated wetlands, farmland, and community resource information.

- **Wetlands** – Based on comments from the resource agencies, farmers, and the public, the WDC team conducted additional wetland analysis in 2011. The WDC biologists surveyed additional areas and verified or adjusted previous wetland boundaries. As a result of this effort, some wetland areas increased in size and some areas decreased in size. The WDC team used the wetlands data for the revised Level 2 screening analysis.
- **Farmland** – Based on comments from the public, farmers, and the agricultural community, the WDC team estimated the impacts to farmland as part of the Level 2 screening criteria by evaluating the number of Agriculture Protection Areas (APAs), the acres of APAs, and the acres of irrigated prime or unique farmland that would be affected by each Level 2 screening alternative. The previous Level 2 screening effort had considered only the number of APAs that would be affected by an alternative. The evaluation of irrigated prime or unique farmland was requested by farmers and the Utah Department of Agriculture, since many areas with prime or unique farmland are not included in Agriculture Protection Areas.
- **Built Environment Resources** – Comments from the public, local government officials, utility company representatives, and agencies identified areas of new



development and planned or platted developments (for example, schools, parks, sewer lines, power lines, and subdivisions) that had not previously been identified. This updated information was used as part of the Level 2 screening analysis.

- **Costs** – The WDC team updated the cost methodology for the Level 2 screening analysis to include the costs of relocations and wetlands mitigation as part of the cost analysis.
- **Engineering Design** – The WDC team performed preliminary engineering design that accommodated standard horizontal curves for the new roadway alternatives considered for the revised Level 2 screening analysis.
- **Alignment Shifts** – In some areas, the alignments of the alternatives evaluated in Level 2 screening were shifted from their previous location based on the engineering design or requests from the public or agencies to minimize impacts to wetlands, farmlands, or the built environment. Most of the alignment shifts were minor changes to the alignments that had been released to the public in February 2011.

What changes were made to the alternatives advanced to the Draft EIS?

The changes and refinements to the alternatives advanced to the Draft EIS are shown in Appendix H, Comparison Maps for Alternatives Advanced to the Draft EIS.

What was the overall timeline for the WDC alternatives development and screening process?

- **Summer 2010** – Alternatives development process initiated. Range of preliminary alternatives identified with public and agency input and comment.
- **Fall 2010** – Initial Level 1 screening.
- **October 2010** – Release of draft Level 1 screening version of Alternatives Screening Report (Technical Memorandum 15) to agencies and the public.
- **Winter 2011** – Initial Level 2 screening.
- **February 2011** – Release of draft Level 2 screening version of Alternatives Screening Report (Technical Memorandum 15) to agencies and the public.
- **Spring 2011** – Public and agency comment period.
- **June 2011** – WFRC releases new travel demand model (version 7.0) and 2040 RTP.
- **Summer 2011** – Revise WDC study area boundary based on WFRC travel demand model version 7.0 and 2040 RTP.

Revise and update Level 1 screening process based on changes to study area, travel demand model version 7.0, and 2040 RTP.

Revise and update Level 2 screening process based on new wetlands, farmland, community resource, engineering design, costs, and public and agency comments.

- **Fall 2011** – Release revised WDC alternatives screening process and refined alternatives to the public and agencies for review and comment.

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1.0 Introduction

The purpose of this memorandum is to summarize and present the results of the alternatives development and screening process for the West Davis Corridor (WDC) Environmental Impact Statement (EIS). The process consisted of the following three basic phases:

- Developing preliminary project alternatives
- Applying first-level (Level 1) screening criteria, identifying alternatives that will move to the next level, and refining alternatives that pass the first-level screening
- Applying second-level (Level 2) screening criteria and identifying alternatives that pass second-level screening and will be analyzed in detail in the EIS

The alternatives development and screening process described in this memorandum provided critical information about how well an alternative satisfies the purpose of and need for the WDC project and whether it is reasonable and feasible. The criteria used in both the first- and second-level screening analyses generated measures that allowed the Utah Department of Transportation (UDOT) and the Federal Highway Administration (FHWA) to systematically and objectively identify reasonable alternatives and screen out unreasonable alternatives. The entire process took place over 14 months and considered agency and public input.

Updates from Previous Versions. As described in the summary, UDOT and FHWA prepared a draft of *Technical Memorandum 15: Alternatives Screening Report* (TM 15) dated February 21, 2011. Following the release of the February 21, 2011, draft of TM 15, UDOT and FHWA received over 4,500 unique comments from the public, local government officials, and resource agencies. See Appendix A, Spring 2011 Public Involvement Summary, for a summary of the comments received. Some of these comments addressed the range of preliminary project alternatives, options to consider during Level 1 and Level 2 screening, and resources to consider as part of the Level 2 screening criteria.

As a result of these comments, UDOT and FHWA met with various stakeholders and performed additional wetland, farmland, community impact, and engineering analysis. In addition, the Wasatch Front Regional Council (WFRC) released its Regional Transportation Plan (RTP) for 2040 and a new version of its travel demand model. UDOT and FHWA determined that the public comments and the updates to the resource information, RTP, and travel demand model warranted rescreening the WDC alternatives. This version of TM 15 has been updated to include all new information and replaces all previous versions of TM 15.

The summary provides more details about the changes that were made between February 2011 and September 2011. Appendix G, Comparison Table for Range of Preliminary Alternatives, provides a comparison matrix that compares the previous range of alternatives considered to the current range of alternatives considered. Appendix H, Comparison Maps for Alternatives Advanced to the Draft EIS, provides figures showing the differences between the alternatives previously advanced to the Draft EIS and the current alternatives advanced to the Draft EIS. Additional alternative refinements made after the release of this memorandum are described in detail in Chapter 2, Alternatives, of the EIS.

1.1 Reasons Why Alternatives Might Be Eliminated

FHWA and CEQ Regulations and Guidance. According to National Environmental Policy Act (NEPA) regulations (40 Code of Federal Regulations [CFR] 1500–1508 and 23 CFR 771) and guidance from FHWA and the Council on Environmental Quality (CEQ), there are three primary reasons why an alternative might be determined to be not reasonable and eliminated from further consideration.

1. The alternative does not satisfy the purpose of and need for the project.
2. The alternative is determined to be not practical or feasible from a technical and/or economic standpoint.
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.

Clean Water Act Requirements. Because the project study area supports federally regulated wetlands, FHWA and UDOT have also considered the *Clean Water Act Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material* and Executive Order 11990, Protection of Wetlands, during alternatives development. If a build alternative is ultimately selected and that alternative would discharge fill material to wetlands (which are classified as “special aquatic sites”), then UDOT and FHWA would need to demonstrate that the selected alternative complies with Section 404(b)(1).

Where is the project study area?

The WDC study area is bounded on the north by 3000 South in Hooper and West Haven, on the south by about Parrish Lane in Centerville, on the west just east of the Great Salt Lake, and on the east by I-15.

The 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” (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.

A separate WDC technical memorandum, *Section 404(b)(1) Practicability Analysis*, was prepared to address the Clean Water Act guidelines and is summarized in this memorandum in Section 4.2, Level 2 Screening under Section 404(b)(1) of the Clean Water Act.

Section 4(f) Requirements. Section 4(f) (49 United States Code [USC] 303) of the Department of Transportation Act of 1966 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, the Federal Transit Administration, and the Federal Aviation Administration).

Section 4(f) prohibits USDOT agencies 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 Section 4(f) land by making a determination that (1) there is no prudent and feasible alternative that would avoid the use of the Section 4(f) resource, *and* (2) the project includes all possible planning to minimize harm to that property.
- Second, the USDOT agency can approve the use of Section 4(f) property by making a finding of *de minimis* impact for that property.

An alternative that would have substantially more Section 4(f) impacts could be eliminated during the screening process.

Section 6(f) Requirements. Section 6(f) of the Land and Water Conservation Fund (LWCF) Act (16 USC 4601 and subsequent sections) applies to public properties that have received Conservation Fund monies to acquire, develop, or improve public recreation facilities. Section 6(f)(3) of the LWCF Act requires that no property acquired or developed with LWCF assistance shall be converted to a use other than public outdoor recreation unless the National Park Service approves substitution property of reasonable equivalent use and location and of at least equal fair market value.

Technical Memorandum 13: Alternatives Development and Screening Process provides additional information on the methodology and process for the WDC project.

1.2 Summary of the Project's Purpose and Need

As shown in Figure 1-1 on page 6, the project's purpose and need are the foundation of the alternatives development and screening process.

Purpose of the Project. The WDC is intended to achieve the following primary purposes:

- Improve regional mobility for automobile, transit, and freight trips by reducing user delay on the road system compared to the No-Action conditions through the consideration of all transportation modes.
- Enhance mobility during the AM and PM peak periods for the main travel direction (north-south) to help accommodate the projected travel demand in the study area in 2040.

In addition to the primary purposes listed above, the WDC team will also evaluate the following secondary objectives:

- Increase the interconnection between transportation modes.
- Support local growth objectives.
- Increase bicycle and pedestrian options.

Need for the Project. The major transportation needs in the WDC study area are a result of the rapidly growing population and employment projected for the area. The existing road network in the study area primarily consists of arterial streets that are not intended to accommodate a high volume of long-distance trips and freight movements. Also, west of Interstate 15 (I-15) and the Utah Transit Authority's (UTA) FrontRunner commuter-rail line, the existing transportation infrastructure does not support efficient transit (rail and bus) use.

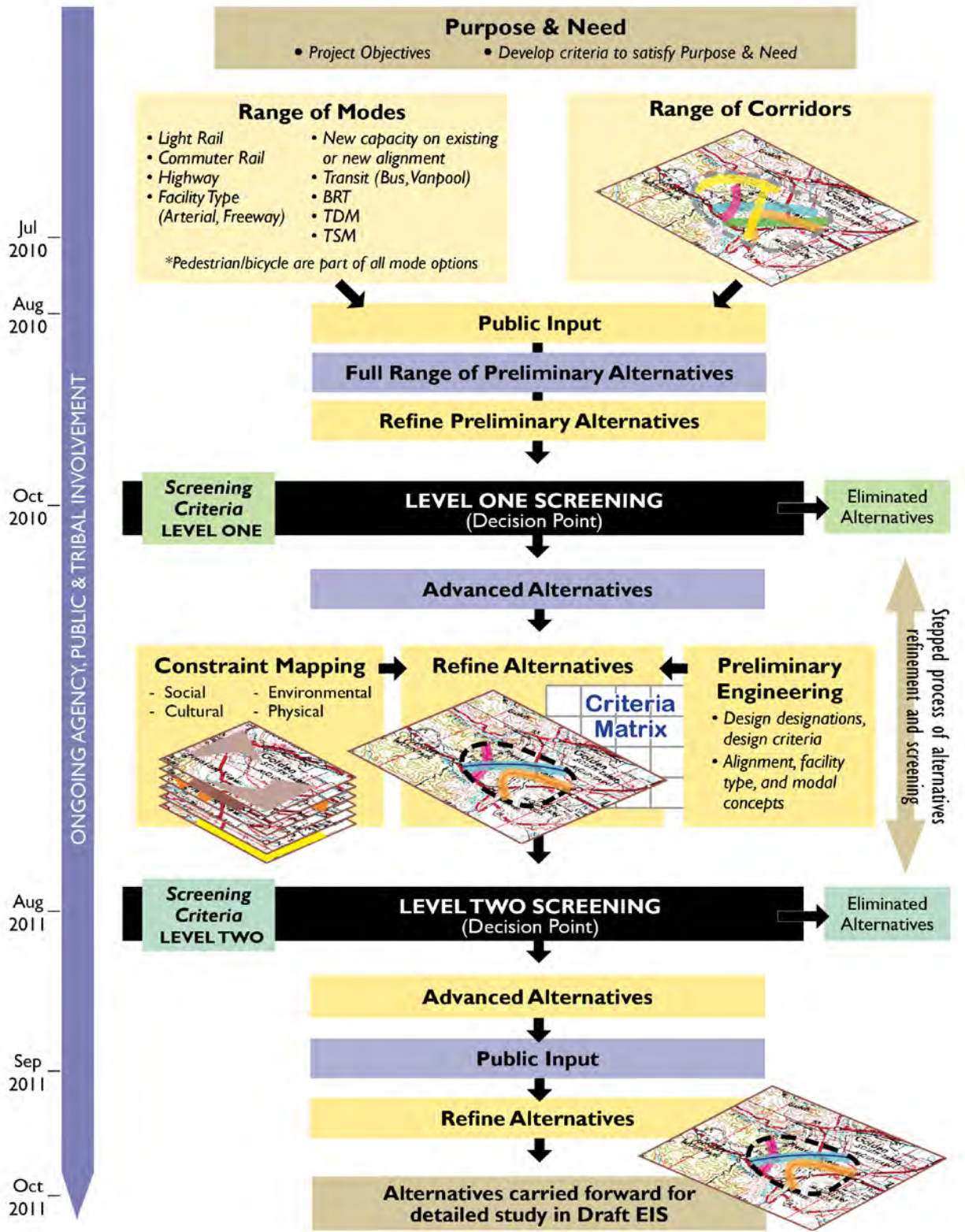
These conditions will result in the following deficiencies in 2040:

- Decreased mobility and increased traffic congestion in the AM and PM peak travel periods (inadequate roadway capacity)
- Lack of adequate north-south transportation capacity to serve the main travel direction (north-south) in the AM and PM peak travel periods, which will lead to increased east-west congestion as travelers move in this direction to access the north-south routes
- Increased user delay and lost productivity
- Inadequate interconnection of transportation modes
- Lack of continuous pedestrian/bicycle facilities

1.3 Overview of the Alternatives Development and Screening Process

Figure 1-1 below illustrates the alternatives development and screening process.

Figure 1-1. Alternatives Development and Screening Process



2.0 Alternatives Development Process

The first 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 and had to present a type of solution that could potentially meet the project's purpose and basic transportation needs. For example, an alternative had to be compatible with the area's topography, climate, and available technology and had to be potentially capable of addressing regional mobility challenges, especially during the peak travel periods.

To address these considerations, the WDC team (FHWA, UDOT, and the project consultants) reviewed general information about the following issues:

- Appropriate transportation modes for the area (for example, types of transit, types of roads, and mode combinations)
- Appropriate corridor locations in the study area (Combinations of different corridors in different geographic areas of the project area were combined and considered as different preliminary alternatives.)

2.1 Identification of Preliminary Alternatives

The WDC team used several methods to identify and develop preliminary alternatives. In addition to suggestions from WDC team members and lead agency staff, preliminary alternatives were also identified from previous studies and plans, from scoping comments, from Stakeholder Working Group meetings and comments, and from public and agency input and comments.

2.1.1 Previous Studies and Plans

The WDC team considered alternatives from the following previous transportation studies:

- 2001 North Legacy Transportation Corridor Study
- 2007 Regional Transportation Plan from the Wasatch Front Regional Council (WFRC)
- 2007 North Legacy to Legacy Connection Study
- 2009 North Legacy Transportation Corridor Supplemental Study
- City transportation master plans

2.1.2 Scoping

As discussed in the *West Davis Corridor Summary Scoping Report*, during the scoping period for the WDC project, the WDC team received 189 scoping comments. Of these 189 comments, 149 were related to alternatives development or design. These 149 comments addressed alternative locations, alternative configurations, intersection locations, modes, construction costs, construction methods, smart growth, and logical termini. Where

applicable, the WDC team incorporated the alternatives scoping comments when developing the range of preliminary alternatives.

2.1.3 Meetings of the Stakeholder Working Group

A Stakeholder Working Group meeting that was devoted to the development of preliminary alternatives was held on August 3, 2010. The Stakeholder Working Group included representatives of Cities in the project area, government agencies (including cooperating and participating agencies under SAFETEA-LU [the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users of 2005] as described in Section 2.1.4, Agency and Public Input under SAFETEA-LU), and nongovernmental organizations. Lists of SAFETEA-LU cooperating and participating agencies are included in Appendix B, List of SAFETEA-LU Agencies. The Stakeholder Working Group members are listed in Appendix C, List of Stakeholder Working Group Members.

The Stakeholder Working Group meeting gave cooperating and participating agencies and other stakeholders an opportunity to provide comments on the alternatives screening criteria and the development of preliminary alternatives in accordance with the requirements of SAFETEA-LU. During this meeting, stakeholders were specifically asked to provide ideas for preliminary alternatives and comments on any previously existing alternatives.

Additionally, the alternatives screening methodology and criteria were presented and provided to the Stakeholder Working Group during this meeting (see *Technical Memorandum 13: Alternative Development and Screening Process*, September 2010). A 40-day review period (from August 3, 2010, to September 12, 2010) was provided for stakeholder comments on the preliminary alternatives development and alternatives screening criteria.

2.1.4 Agency and Public Input under SAFETEA-LU

The WDC team used several methods to involve agencies and the public during the development and screening of preliminary alternatives as required under NEPA and SAFETEA-LU.

The WDC team requested agency and public input through meetings, open houses, and reviews of project materials. As described in Section 2.1.3, Meetings of the Stakeholder Working Group, on August 3, 2010, the WDC team hosted a meeting with the established Stakeholder Working Group (comprised of SAFETEA-LU cooperating and participating agencies and representatives from nongovernmental organizations) that presented (1) the proposed alternatives screening methodology and criteria and (2) a list of preliminary alternatives from previous studies and plans.

At this meeting, the WDC team requested comments on the alternatives screening methodology and criteria and the preliminary alternatives for the WDC project. Additionally, the Stakeholder Working Group and the agencies were given a 40-day review and comment period from August 3, 2010, to September 12, 2010. The WDC team received comments from 17 members of the Stakeholder Working Group, which included comments from 11 SAFETEA-LU cooperating and participating agencies.



The public was also asked to review and provide comments on the proposed alternatives screening methodology and criteria and on the list of preliminary alternatives. Opportunities for public comments were provided at three open houses held between August 3 and August 5, 2010; at a booth at the Davis County Fair between August 18 and August 21, 2010; and through the project website, written comments, and e-mail. The proposed alternatives screening methodology and criteria and the preliminary list of alternatives were posted on the project website for public review between August 3, 2010, and September 12, 2010.

Over 500 members of the public attended the open houses between August 3 and August 5, 2010. During the 40-day comment period, the WDC team received 398 public or agency comments related to the development and screening of preliminary alternatives, of which 168 were submitted at the public meetings. The majority of these comments expressed support for or opposition to the preliminary corridors that were presented at the public open houses. Of the comments about the preliminary corridors, the preliminary corridors in Farmington were the subject of the largest number of comments. The WDC team posted a file containing all of the comments received and a summary of responses to unique comments on the project website (www.udot.utah.gov/westdavis/pages/documentation).

During the August 2010 comment period, members of the public suggested two new preliminary alignments in the north part of the study area: one on Midland Drive and one along the Hooper Canal between 2300 North and 1200 South. The concept behind both of these alternatives was that the WDC could use Midland Drive or the Hooper Canal alignments to connect to I-15 without going all the way to 1200 South. With the study area now ending at 3000 South, these alternatives would not have a logical northern terminus because a connection to I-15 would not be possible south of 3000 South. Therefore, they were not considered in the screening process in 2011.

During the August 2010 comment period, when the study area extended to 1200 South in Weber County, members of the public suggested two new northern connections in the Weber County part of the project study area that connected to I-15 north of 4000 South: one on Midland Drive in Roy and one along the Hooper Canal between 2300 North and 1200 South in Hooper and West Haven.

The WDC team considered these northern connections when developing Alternatives 11A, 12A, and 13A during the screening process in 2011. With the revised study area boundary (see Section 1.2, Description of the Study Area) to 3000 South there was no need for a northern connection to I-15 north of 3000 South. In addition, the northern termini of the alternatives suggested by the public after the study area boundary had been revised are between existing roads and would not have a logical terminus connection with the existing roadway network. Therefore, these alternatives were combined into alternatives 11A and 13A with logical termini that connected into the existing roadway network.

The Midland Drive connection was a potential northern connection for Alternative 11A. The traffic modeling for Alternative 11A determined that Alternative 11A only needed to go to 5500 South in Weber County. Compared to ending Alternative 11A at 5500 South/5100 West, ending Alternative 11A at 5500 South/Midland Drive would result in an unsafe,

What is the project study area?

The project study area is the area shown in Figure 1-1, West Davis Corridor Study Area.

skewed intersection, and would have substantially more impacts on wetlands, Howard Slough, and residences, without any additional transportation benefits. Due to these reasons, the Midland Drive northern connection was not considered further in Level 2 screening for Alternative 11A.

The Hooper Canal northern connection proposed by the public was intended to connect the far western alignment (Alternatives 12A, 12B, and 12C) to an alignment on the Hooper Canal in Weber County to avoid impacts to farmlands around 5100 West between 1200 South and 4000 South in Weber County. During the screening process in 2011, Alternatives 12A, 12B, and 12C did not pass Level 1 screening. A northern connection for Alternative 13A on the Hooper Canal alignment was also considered, but was found to be more impactful and to have an inefficient northern terminus when compared to the 4700 West northern connection for Alternative 13A. Compared to ending Alternative 13A at 4000 South/4700 West, ending Alternative 13A at 4000 South where it crosses the Hooper Canal (~4250 West) would result in an unsafe, skewed intersection, and would have substantially more impacts on wetlands, Hooper Canal, and residences, without any additional transportation benefits. Due to these reasons, the Hooper Canal northern connection was not considered further in Level 2 screening for Alternative 13A.

Additionally, public and agency comments in 2010 suggested two new alignments in the central section of the study area:

- An alignment that follows Gentile Street west from the Gentile Street/Bluff Road intersection to 3000 West and then follows 3000 West north to intersect with the 2001 alignment north of Antelope Drive. This alignment was considered as Syracuse Option 1 for Alternative 11A in Level 2 screening. See the section titled Alternative 11A on page 28.
- An alignment between 2700 South 4000 West in Syracuse and the 2001 alignment near 300 North in West Point. This alignment is identified as Alternatives 13A, 13B, and 13C in Figure 2-1 on page 17.

The WDC team incorporated both of these new central alignments into the range of preliminary alternatives, which are shown in Figure 2-1.

WDC team members also had focused meetings with individuals, agency representatives, city or county representatives, and representatives of nongovernmental organizations to discuss specific concerns or proposals. These meetings were recorded in meeting minutes, and the minutes were made available to the team as it developed the alternatives.

Finally, as part of the SAFETEA-LU process, the WDC team consulted with tribal representatives regarding Native American concerns about potential alternatives and the screening process. FHWA and UDOT also consulted with Native American tribes under Section 106 of the National Historic Preservation Act. Consultation regarding alternatives took place as part of that process as well as through the NEPA/SAFETEA-LU process.

The information gathered during the SAFETEA-LU agency and public involvement process was used to help define the range of preliminary alternatives. Table 2-1 below lists the



comments received on *Draft Technical Memorandum 13: Alternatives Development and Screening Process* and the responses to these comments.

Table 2-1. Comments on Draft Technical Memorandum 13: Alternatives Development and Screening Process

Comment	How Comment Was Incorporated
Air quality should be considered as a screening criterion.	Air quality has been added as a Level 2 screening criterion as it relates to vehicle-miles traveled (VMT).
The criterion <i>Support for local growth objectives</i> should be moved from Level 2 screening to Level 1 screening.	For the WDC EIS, Level 1 screening is being used to determine if an alternative meets the project transportation need. The degree of consistency with land-use plans is an appropriate factor to consider when comparing alternatives that meet the transportation need, but the failure of an alternative to be consistent with land-use plans is not an appropriate factor for Level 1 screening. If consistency with land-use plans were moved to Level 1 screening, all alternatives except those in the plans of the Cities would be eliminated. This would eliminate other potentially reasonable and practicable alternatives that could potentially have fewer impacts to the natural environment. Therefore, consistency with land-use plans has not been moved to Level 1 screening.
Mode share and VMT should be added as screening criteria.	Mode share and VMT have been added to the Level 2 screening criteria as measures to consider.
The criterion <i>No substantial impacts to the natural environment</i> should be moved from Level 2 screening to Level 1.	Level 1 screening is used to determine if an alternative meets the project's purpose and need. Since impacts to the natural environment are not elements of the purpose and need, this criterion was not moved to Level 1 screening. The project purpose is based on the transportation need. Minimizing or avoiding impacts to the natural environment will be considered in Level 2 screening.
Delay should include the extra time spent covering a particular distance due to congestion.	The criterion of reducing delay is based on the extra time it takes a traveler to cover a distance.
Is the <i>lost productivity</i> criterion based on the vehicle or person?	Lost productivity is based on the person. It is the estimated value of the extra time a person spends in congestion.
How do the criteria account for the extra miles traveled by users when they use a new roadway? I suggest VMT be included as a criterion.	VMT has been included in Level 2 screening.
Should impacts to agriculture protection areas be by number of acres versus just the impact to the parcel?	Level 2 screening will identify the number and acres of agricultural protection areas affected by each alternative.
We support performance and screening criteria that measure and support a balanced mode-share split between transit, walk/bike, and automobile trips, especially at the AM and PM peaks.	The WDC team will evaluate mode share as part of Level 2 screening. Mode share has been added to the list of measures to consider in this memorandum.
We should utilize performance criteria that optimize access to I-15 and FrontRunner commuter rail as the main north-south facilities.	Optimizing access to I-15 and FrontRunner includes reducing congestion on east-west streets. The Level 1 screening criteria include reducing congestion on east-west streets. In addition, one of the Level 2 screening criteria is to look at how access to transit can be improved.

Table 2-1. Comments on Draft Technical Memorandum 13: Alternatives Development and Screening Process

Comment	How Comment Was Incorporated
Level 1 screening should focus on no increase in commute time.	Level 1 screening is used to determine if an alternative meets the project's purpose and need. Several criteria will be used to evaluate how alternatives reduce congestion and thus commuting time. Given the expected growth in population and employment in the project area over the next 30 years, it might not be possible to develop an alternative that would maintain or reduce commuting time compared to current conditions.
Level 2 screening: <i>Impacts to the built environment</i> should carry more weight than <i>Impacts to natural resources</i> .	All Level 2 screening criteria will be evaluated to determine the alternative that provides the best transportation solution while minimizing impacts to the human and natural environment.
I think screening is biased toward highways by having Level 1 screening before Level 2 screening.	Level 1 screening is designed to determine which alternatives solve the transportation problem, whether the alternatives are highways or transit improvements. Before UDOT and FHWA can evaluate Level 2 criteria, they must first determine that a given alternative can meet the purpose of and need for the project.
The safety of the community and the effects to the community should be considered first and foremost.	To ensure the safety of the traveling public, any new transportation facility would be designed to meet all current safety standards. Additionally, Level 2 screening evaluates community impacts such as impacts to homes, businesses, community facilities, schools, and parks. Impacts to the safety of a community is a very subjective criterion, and transportation facilities are not known to increase crime rates. Therefore, it would be difficult to measure such criteria.
Noise pollution should be considered in screening.	The impacts of noise will be evaluated in detail in the EIS for those alternatives carried forward for detailed study.
Impacts to property values should be considered in screening.	How a transportation project changes property values depends on many factors. There is a large amount of subjectivity and variability in evaluating how a property might increase or decrease in value as a result of transportation improvements. Due to this uncertainty, impacts to property values is not included as a criterion.

2.1.5 Agency and Public Comment during the Alternatives Screening Comment Period

In February 2011, the WDC team presented the draft results of the alternative screening process to the agencies and the public and provided a 6-week comment period. Three public meetings were held on February 8 to February 10, 2011. During the comment period, the WDC team received over 4,500 unique comments. A summary of the public and agency comments received is included in Appendix A, Spring 2011 Public Involvement Summary. Included among those comments were some new alignments, variations of existing alignments, and comments about the screening process and screening criteria. Where the alternatives suggested in the public comments were different from corridors or alternatives previously evaluated, the WDC team incorporated these suggested alternatives into the range of preliminary alternatives that were considered during the re-screening process in the summer of 2011.

2.2 List of Preliminary Alternatives

Changes from Previous Version of TM 15. As described in the Summary and Appendix G, Comparison Table for Range of Preliminary Alternatives, in the previous version of TM 15, the WDC team considered 46 preliminary alternatives: one transit alternative, eight alternatives that widened existing roads, and 37 new roadway alternatives. When the WDC team updated the alternatives screening process in 2011, they found that six of the previous 37 new roadway alternatives included northern segments that were no longer needed because their northern termini had changed from 1200 South to 4000 South in Weber County. The team also found that the other 31 new roadway alternatives were essentially combinations of the five main corridors with three different connections in Farmington.

The previous and updated traffic modeling showed that, at a regional scale, the choice of southern connection would not affect the transportation performance of any of the new roadway alternatives. For this reason, the WDC team did not model every combination of southern connection with each new roadway alternative during Level 1 screening. The team also simplified the number of new roadway alternatives to five main corridors, each with three different roadway types, and assumed that each of these five corridors could use any of the three connections in Farmington. A table that compares the range of preliminary alternatives is provided in Appendix G.

Revised List of Preliminary Alternatives Evaluated in 2011. Based on previous studies and input from the agencies and the public, the WDC team identified and modeled 23 preliminary alternatives in addition to the No-Action Alternative. The 23 preliminary alternatives considered various combinations of modes, facility types, and corridor alignments. Table 2-2 on page 15 lists the preliminary alternatives.

The 23 preliminary alternatives included one Transportation System Management/Traffic Demand Management (TSM/TDM) alternative, two transit alternatives, five alternatives that proposed widening existing roads, and 15 alternatives that proposed new roads. The 15 new roadway alternatives included five unique corridors:

- Denver & Rio Grande (D&RG) Railroad corridor (Alternatives 09A, 09B, and 09C in Figure 2-1 on page 17)
- Rocky Mountain Power corridor (Alternatives 10A, 10B, and 10C in Figure 2-1)
- 2001 alignment (Alternatives 11A, 11B, and 11C in Figure 2-1)
- Far West alignment (Alternatives 12A, 12B, and 12C in Figure 2-1)
- An alignment between the 2001 alignment and the Far West alignment in Syracuse and West Point (Alternatives 13A, 13B, and 13C in Figure 2-1)

Three different roadway facility types (four-lane divided highway, two-lane limited-access highway, and five-lane arterial) were modeled for each of the five unique corridors.

In Table 2-2 below, alternatives that have the same number (for example, 09A, 09B, and 09C) are on the same alignment but have different facility types. Furthermore, with the exception of alternatives that upgraded existing facilities (Alternatives 04, 05, 06, 07, and 08), alternatives that end with an A were modeled as a new four-lane divided highway; alternatives that end with a B were modeled as a new two-lane, limited-access highway; and alternatives that end with a C were modeled as a new five-lane arterial.

The preliminary alternatives were developed based on previous transportation studies listed in Section 2.1.1, Previous Studies and Plans, and comments from members of the public and representatives from Cities, resource agencies, and other stakeholders. Public and agency comments from the comment periods in the summer of 2010 and the spring of 2011 were used to develop the range of preliminary alternatives.

New roadway alternatives that involved minor variations or shifts in alignment of existing alternatives were not considered as part of Level 1 screening, since minor changes in alignment would not affect the transportation performance of an alternative at a regional scale. The variations of the new corridor alignments that passed Level 1 screening were considered during Level 2 screening (see Section 4.1.2, Level 2 Screening Results). If an alternative passed Level 1 screening, the WDC team considered all feasible variations or options for that alternative during Level 2 screening.

Similarly, for all of the new roadway alternatives (Alternatives 09A, 09B, 09C, 10A, 10B, 10C, 11A, 11B, 11C, 12A, 12B, 12C, 13A, 13B, and 13C), various southern connections were considered. The traffic modeling showed that, at a regional scale, the choice of southern connection would not affect the transportation performance of any of the alternatives. For this reason, the WDC team did not model every combination of southern connection with each new roadway alternative during Level 1 screening. Section 3.3.4, Southern Termini for New Roadway Alternatives, describes the southern termini that were considered during Level 1 screening.

The range of preliminary alternatives that was considered during the Level 1 screening process is listed in Table 2-2.

Figure 2-1 on page 17 shows the different corridors and alignments that the WDC team considered when developing the preliminary list of alternatives.

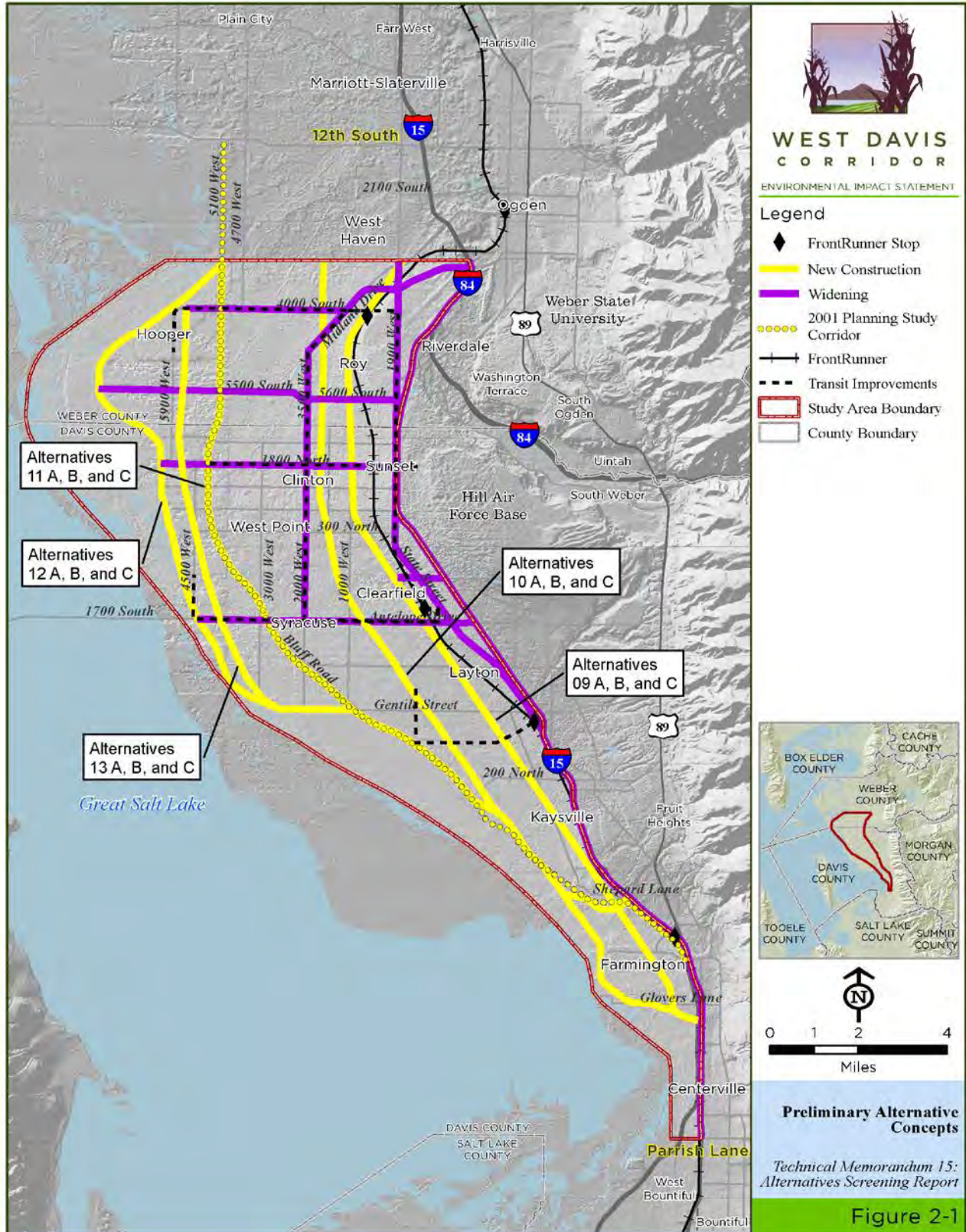
Table 2-2. Preliminary Alternatives

Alternative	Facility Type	Description
No-Action	Not applicable	No action taken other than the projects in WFRC's current Regional Transportation Plan (RTP) minus the West Davis Corridor and North Legacy projects.
TSM/TDM	Not applicable	Improve roadway operations by 10% by using systemwide mobility improvements on Hinckley Drive, 4000 South, 5500/5600 South, 1800 North, State Route (SR) 193, Antelope Drive, SR 126, and SR 108. WFRC has determined that a 10% operational improvement is the maximum reasonable improvement that could be expected from TSM/TDM projects.
01	Transit	<i>Ultimate Transit:</i> In addition to the transit projects in the RTP, add light-rail transit along 4000 South and Antelope Drive, add bus rapid transit along 1800 North and in Layton (all lines would connect to existing FrontRunner stations), and reduce FrontRunner headway times to 30 minutes.
02	Transit	Assumes the same transit projects listed in Alternative 01 with reduced household size for the socioeconomic data. <i>Reduce household size:</i> The socioeconomic data assumed a reduced household size for the population in the study area. The assumption of reduced household size had the net effect of reducing population in the study area by 15,500 compared to the 2040 No-Action Alternative socioeconomic conditions. This change to the socioeconomic data was based on findings by Envision Utah that found higher transit use was correlated with smaller household sizes in some areas of the United States (2002).
04	Upgrade existing roads	<i>Widen Existing East-West Roads beyond RTP:</i> Widen Hinckley Drive, 4000 South, 5500/5600 South, 1800 North, SR 193, and Antelope Drive. All east-west roads are widened from I-15 to SR 37 (Weber County) or SR 110 (Davis County).
05	Upgrade existing roads	<i>Widen Existing East-West Roads beyond RTP plus I-15 Widening:</i> Widen Hinckley Drive, 4000 South, 5500/5600 South, 1800 North, SR 193, and Antelope Drive. All east-west roads are widened from I-15 to SR 37 (Weber County) or SR 110 (Davis County). Include I-15 widening to add one more general-purpose lane in each direction (Milepost [MP] 324/SR 225 to MP 342/SR 79).
06	Upgrade existing roads	<i>Widen Existing North-South Roads beyond RTP:</i> Widen SR 126 (Layton Parkway to Hinckley Drive) and SR 108 (Antelope Drive to Hinckley Drive).
07	Upgrade existing roads	<i>Widen Existing North-South Roads beyond RTP plus I-15 Widening:</i> Widen SR 126 (Layton Parkway to Hinckley Drive) and SR 108 (Antelope Drive to Hinckley Drive). Include I-15 widening to add one more general-purpose lane in each direction (MP 324/SR 225 to MP 342/SR 79).
08	Upgrade existing roads	<i>Widen Existing East-West and North-South Roads beyond RTP plus I-15 Widening:</i> Combine Alternatives 05 and 07.
09A	New four-lane divided highway	Begin at Farmington, merge to D&RG corridor, and stay on D&RG corridor to 4000 South. Interchanges at 5600 South, 1800 North, SR 193, Antelope Drive, Hill Field Road, Layton Parkway, 200 North, and Shepard Lane.

Table 2-2. Preliminary Alternatives

Alternative	Facility Type	Description
09B	New two-lane, limited-access highway	Same alignment as 09A. At-grade intersections at minimum 1-mile spacing.
09C	New five-lane arterial	Same alignment as 09A. At-grade intersections at minimum 0.5-mile spacing.
10A	New four-lane divided highway	Begin at Farmington, follow 2001 alignment to 2000 West in Layton, merge to power corridor, and stay on power corridor to 4000 South. Interchanges at 5600 South, 1800 North, SR 193, Antelope Drive, Hill Field Road, Layton Parkway, 200 North, and Shepard Lane.
10B	New two-lane, limited-access highway	Same alignment as 10A. At-grade intersections at minimum 1-mile spacing.
10C	New five-lane arterial	Same alignment as 10A. At-grade intersections at minimum 0.5-mile spacing.
11A	New four-lane divided highway	Begin at Farmington, follow 2001 alignment to 4000 South. Interchanges at 5500 South, 1800 North, SR 193, Antelope Drive, 2000 West, 2700 West (Layton), 200 North, and Shepard Lane.
11B	New two-lane, limited-access highway	Same alignment as 11A. At-grade intersections at minimum 1-mile spacing.
11C	New five-lane arterial	Same alignment as 11A. At-grade intersections at minimum 0.5-mile spacing.
12A	New four-lane divided highway	Begin at Farmington, follow 2001 alignment to Gentile Street, swing far west crossing Antelope Drive west of 4500 West, stay west of existing development in West Point crossing the Davis County–Weber County line near 6500 West (Weber County), follow 6500 West in Hooper to 4600 South, then cut northeast to 4000 South at 5900 West. Interchanges at 5500 South, 1800 North, SR 193, Antelope Drive, 2000 West, 2700 West (Layton), 200 North, and Shepard Lane.
12B	New two-lane, limited-access highway	Same alignment as 12A. At-grade intersections at minimum 1-mile spacing.
12C	New five-lane arterial	Same alignment as 12A. At-grade intersections at minimum 0.5-mile spacing.
13A	New four-lane divided highway	Begin at Farmington, follow 2001 alignment to Gentile Street, swing west crossing Antelope Drive west of 4000 West, stay west of 4000 West in West Point crossing 4500 West near 800 North and the Davis County–Weber County line near 5700 West (Weber County), then cut northeast to 4000 South. Interchanges at 5500 South, 1800 North, SR 193, Antelope Drive, 2000 West, 2700 West (Layton), 200 North, and Shepard Lane.
13B	New two-lane, limited-access highway	Same alignment as 13A. At-grade intersections at minimum 1-mile spacing.
13C	New five-lane arterial	Same alignment as 13A. At-grade intersections at minimum 0.5-mile spacing.

Figure 2-1. Preliminary Alternative Concepts



3.0 Level 1 Screening

The purpose of Level 1 screening is to identify alternatives that meet the purpose of and need for the project. Alternatives that were determined to not meet the purpose of and need for the project were considered unreasonable for NEPA purposes and not practicable for Clean Water Act Section 404(b)(1) purposes and were not carried forward for further analysis in Level 2 screening.

Level 1 screening was the first major decision point at which alternatives were eliminated based on specific screening criteria. During Level 1 screening, the preliminary alternatives were screened against delay and congestion criteria (see Table 3-1). To accommodate Level 1 screening, the preliminary alternatives were developed in enough detail to allow the WDC team to use the travel demand model to forecast future traffic for roadway alternatives and future transit ridership for transit alternatives.

Table 3-1. Level 1 Screening Criteria for the Preliminary Alternatives

Criterion	Measures
Reduce delay (improve regional mobility)	<ul style="list-style-type: none"> • Substantial reduction in daily hours of delay • Substantial reduction in lost productivity (dollars)^a
Reduce congestion (enhance peak-hour mobility)	<ul style="list-style-type: none"> • Substantial reduction of lane-miles of roads operating at levels of service (LOS) E or F in the PM peak period • Substantial reduction of vehicle-miles traveled (VMT) in congestion during the PM peak period • Substantial reduction in vehicle-hours traveled (VHT) at LOS E or F in the PM peak period^b
Have adequate capacity	<ul style="list-style-type: none"> • Transit alternative would have enough capacity to meet ridership demands • Roadway alternative would be designed to achieve LOS D or better in the PM peak period

^a Lost productivity is based on an aggregate user rate of \$25.80 using \$15.50/hour for passenger vehicles, \$56.00/hour for box trucks, and \$102.00/hour for tractor trailer trucks. Assuming an average traffic composition of 86% passenger vehicles, 4% box trucks, and 10% tractor trailer trucks, the average cost is \$25.80/hour for travel time.

^b Other information, such as travel time by specific trips, could also be considered in comparing alternatives.

3.1 Travel Demand Modeling

WFRC and the Mountainland Association of Governments (MAG) jointly maintain a travel demand forecasting model for the four-county metropolitan region (Weber, Davis, Salt Lake, and Utah Counties).

During the initial screening effort in 2010, the WDC team used version 6.0 of the travel demand model. In 2011, WFRC and MAG released a new, official version of the travel demand model, version 7.0, which was calibrated to 2007 and used 2040 as the forecast year. The main changes between version 6.0 and version 7.0 were a reduction in traffic capacity for interstate facilities, an increase in traffic capacity for collector and arterial roads, and a reduction in the proportion of trips during the PM 3-hour peak period.

When the WDC team conducted a sensitivity check of the traffic analyses using version 7.0 of the travel demand model, the version 7.0 traffic volumes, delay, and congestion measures were similar to the version 6.0 traffic volumes, delay, and congestion measures, but the measures varied enough that UDOT and FHWA decided to re-screen the alternatives using version 7.0 of the travel demand model.

Additionally, the WDC team collected traffic data in the WDC study area in 2009 and 2011 and calibrated version 7.0 of the travel demand model with the 2009 and 2011 data. This version of the model was used to perform initial analyses, including identifying the purpose of and need for the project.

The WDC team made some modifications to the official version of the travel demand model to increase the model's accuracy in the study area. Some of the model revisions included:

- The traffic analysis zones were modified to better predict conditions in the WDC study area.
- The afternoon 3-hour peak-period values were updated based on 2009 and 2011 traffic data counts in the WDC study area.

The WDC team consulted with WFRC regarding these model revisions. WFRC agreed that these revisions were appropriate given the data collected in 2009 and 2011.

For more information about the modifications made to the travel demand model for the WDC project, see *West Davis Corridor Technical Memorandum 6: Existing Conditions* (April 2010) and *West Davis Corridor Technical Memorandum 7: 2040 Baseline Travel Demand Model* (June 2010).

What is a travel demand model?

A *travel demand model* predicts future travel demand based on projections of land use, socioeconomic patterns, and transportation system characteristics.

The model used by WFRC and MAG is based on the TP+/Cube software (currently version 5.1.1). References to “the model” in this memorandum refer to the scripts and data maintained by WFRC and MAG, not to the Cube software.

3.2 Level 1 Screening Criteria

3.2.1 Reduce Delay and Congestion in the Study Area

In order to determine whether the preliminary action alternatives would substantially reduce congestion and delay in the study area, the WDC team calculated the following measures of effectiveness (MOE) for each preliminary alternative:

- Daily total delay (measured in hours).** This MOE quantifies the daily total hours of delay experienced by drivers on all freeway, arterial, and collector roads in the study area for each alternative.
- North-south road lane-miles with $V/C \geq 0.9$ (measured in miles).** This MOE calculates the number of north-south lane-miles in the study area that would operate in congestion (LOS E or F) in the PM peak 3-hour period for each alternative.
- East-west road lane-miles with $V/C \geq 0.9$ (measured in miles).** This MOE calculates the number of east-west lane-miles in the study area that would operate in congestion (LOS E or LOS F) in the PM peak 3-hour period for each alternative.
- Vehicle-miles traveled (VMT) with $V/C \geq 0.9$ (measured in miles).** This MOE calculates the total number of vehicle-miles traveled in congestion (LOS E or LOS F) in the study area during the PM peak 3-hour period for each alternative.
- Vehicle-hours traveled (VHT) with $V/C \geq 0.9$ (measured in hours).** This MOE calculates the total number of vehicle-hours traveled in congestion (LOS E or F) in the study area during the PM peak 3-hour period for each alternative.

What is level of service (LOS)?

Level of service (LOS) is a measure of the operating conditions on a road. Level of service is expressed as a letter “grade” from A (free-flowing traffic and little delay) to F (extremely congested traffic and excessive delay). LOS B through E represent progressively worse operating conditions.

What is volume to capacity (V/C)?

Volume to capacity (V/C) is a measure of the actual traffic volume on a road compared to the traffic capacity for which the road was designed. A V/C ratio of 0.9 or greater indicates operating conditions of LOS E or F, which are generally considered unacceptable operating conditions.

For these MOEs, the travel demand model used V/C ratios greater than or equal to 0.9 to calculate which roads would be in congestion (LOS E or F).

Using the travel demand model, the WDC team calculated the five MOEs listed above for the 23 preliminary action alternatives and the No-Action Alternative listed in Table 2-2 on page 15. The No-Action Alternative’s MOE values were used as the basis for comparing the action alternatives in order to determine whether the action alternatives substantially reduced congestion and delay.

Once the range of MOE values for the action alternatives was calculated from the travel demand model, the WDC team calculated the average value and the first-quartile value (top 25%) for each MOE for all of the action alternatives. Both the absolute reduction (in hours or

miles) and the percentage reduction compared to the No-Action Alternative were calculated to provide bases for comparing alternatives.

Although the range of values and percent reduction from the No-Action Alternative were different for each MOE, the average and first-quartile values provided a way for the WDC team to evaluate how substantially each action alternative reduced each MOE.

For the Level 1 screening process, the WDC team determined that the following criteria would indicate alternatives that would substantially reduce delay and congestion in the study area and would meet the purpose of and need for the project:

1. Perform better than the No-Action Alternative for all five MOEs
2. Perform better than the average value of all alternatives for all five MOEs
3. Perform at or better than the first-quartile (top 25%) value for at least three of the five MOEs

The WDC team determined that any alternative that (1) increased delay or congestion compared to the No-Action Alternative, (2) performed worse than the average value for one or more MOEs, or (3) did not perform in the first quartile for at least three of the five MOEs would not substantially reduce delay or congestion in the study area and would not meet the purpose of and need for the project.

The action alternatives that performed better than the No-Action Alternative for all five MOEs, had MOE values better than the average values for all five MOEs, and had MOE values in the first quartile for at least three of the five MOEs were advanced to Level 2 screening.

3.2.2 Adequate Capacity

Additionally, for a roadway alternative to pass Level 1 screening, the alternative had to function at LOS D or better in 2040 to meet the purpose and need for the project. For example, a new roadway alternative would need to have all segments function at LOS D or better in 2040, and an alternative that would widen existing roads would need all widened roads to function at LOS D or better in 2040. If an alternative met the delay and congestion metrics but did not function at LOS D or better, the WDC team used the travel demand model analysis to identify additional capacity or improvements to the alternative (for example, intersection improvements, extending the new roadway or widened roadway, adding additional lanes, etc.) to try to make the alternative function at LOS D or better.

Similarly, if an alternative would cause failure conditions (LOS E or F) at a terminus, the WDC team also considered the alternative to not meet the purpose of and need for the project. In this situation, the WDC team used the travel demand model analysis to identify improvements for the alternative (for example, intersections improvements, extending the new roadway or widened roadway, adding additional lanes, etc.) that might allow the alternative to avoid failure conditions at either of the termini.

If an alternative could not be designed to function at LOS D or better and provide LOS D or better operations at its termini, the WDC team considered the alternative to not meet the purpose of and need for the project.

3.3 Level 1 Screening Results

The Level 1 screening results are summarized in Table 3-2 below. The No-Action MOE values, which are the basis for comparing the action alternatives, are shown in the first data row of Table 3-2. The average and first-quartile values for each MOE are listed at the bottom of the table below the alternatives along with their corresponding percent reductions from the No-Action Alternative's MOE values.

The data cells in Table 3-2 are colored as follows:

- **Black** – MOE value is worse than (higher than) the No-Action Alternative MOE value.
- **Red** – MOE value is worse than (higher than) the average MOE value for the range of action alternatives.
- **Yellow** – MOE value is better than (lower than) the average MOE value but less than the first-quartile MOE value for the range of alternatives.
- **Green** – MOE value is equal to or better than (lower than) the first-quartile MOE value for the range of alternatives.

Similarly, the left column of Table 3-2 indicates the results of the screening process.

- If the cell in the left column is **black**, the alternative was eliminated because at least one MOE value was worse than (higher than) the No-Action MOE values.
- If the cell in the left column is **red**, the alternative was eliminated because at least one MOE value was worse than (higher than) the average value for the action alternatives.
- If the cell in the left column is **yellow**, the alternative was eliminated because it did not have MOE values better than (less than) the first-quartile value for at least three of the five MOEs.
- If the cell in the left column is **green**, the alternative had MOE values better than (less than) the first-quartile value for at least three of the five MOEs and was advanced to Level 2 screening.

Table 3-2. Numerical Results from Level 1 Screening

Alternative	Daily Total Delay (hr)	North-South Road Lane-Miles with V/C \geq 0.9	East-West Road Lane-Miles with V/C \geq 0.9	Vehicle-Miles Traveled (VMT) with V/C \geq 0.9	Vehicle-Hours Traveled (VHT) with V/C \geq 0.9
No-Action	10,760	43.5	26.9	245,500	9,490
TSM/TDM	9,890	40.2	23.1	231,300	8,550
01	10,640	43.9	26.2	244,200	9,440
02	10,080	42.1	27.1	242,800	9,200
04	8,810	42.8	16.6	225,900	7,520
05	7,660	15.0	16.6	68,500	4,400
06	9,880	34.9	26.6	225,100	8,370
07	8,690	9.3	27.2	82,000	5,540
08	6,830	7.8	15.4	50,300	3,320
09A	7,240	10.3	26.6	83,000	4,490
09B	10,450	58.4	26.0	272,900	9,830
09C	9,070	34.4	26.6	208,800	7,760
10A	6,950	9.7	21.0	70,600	4,050
10B	10,120	48.9	26.3	249,900	9,180
10C	9,160	32.7	25.5	202,100	7,580
11A	7,530	17.2	15.9	94,400	4,770
11B	9,630	40.6	28.6	233,400	8,690
11C	8,970	37.4	21.9	203,100	7,680
12A	8,280	24.7	19.3	128,500	6,120
12B	9,640	38.6	26.3	221,800	8,430
12C	9,610	38.4	24.6	216,300	8,300
13A	7,830	18.5	17.1	100,400	5,130
13B	9,480	40.7	25.3	225,000	8,440
13C	9,300	36.6	24.1	206,900	7,910
Average	8,950	31.4	23.2	177,700	7,160
% Reduction from No-Action	16.8%	27.8%	13.8%	27.6%	24.6%
1st Quartile	8,060	17.9	20.2	97,400	5,340
% Reduction from No-Action	25.1%	58.9%	24.9%	60.3%	43.7%
Legend					
xx,xxx	MOE value is higher than No-Action MOE value.				
xx,xxx	MOE value is higher than average of all alternatives.				
xx.x	MOE value is lower than average of all alternatives but not in 1st quartile.				
xx.x	MOE value is in 1st quartile of all alternatives.				
Alt. xxx	Alternative eliminated because at least one MOE value is higher than No-Action.				
Alt. xxx	Alternative eliminated because at least one MOE value is higher than average of all alternatives.				
Alt. xxx	Alternative eliminated because less than three of five MOE values are in the 1st quartile of all alternatives.				
Alt. xxx	Alternative advanced because the above rejection criteria were not met.				

3.3.1 Alternatives Advanced to Level 2 Screening

Based on the analysis from the Level 1 screening process, five action alternatives would substantially reduce delay and congestion in the project study area and were advanced to Level 2 screening. These alternatives are listed in Table 3-3 and shown in Figure 3-1 below.

Table 3-3. Alternatives Selected for Advancement to Level 2 Screening

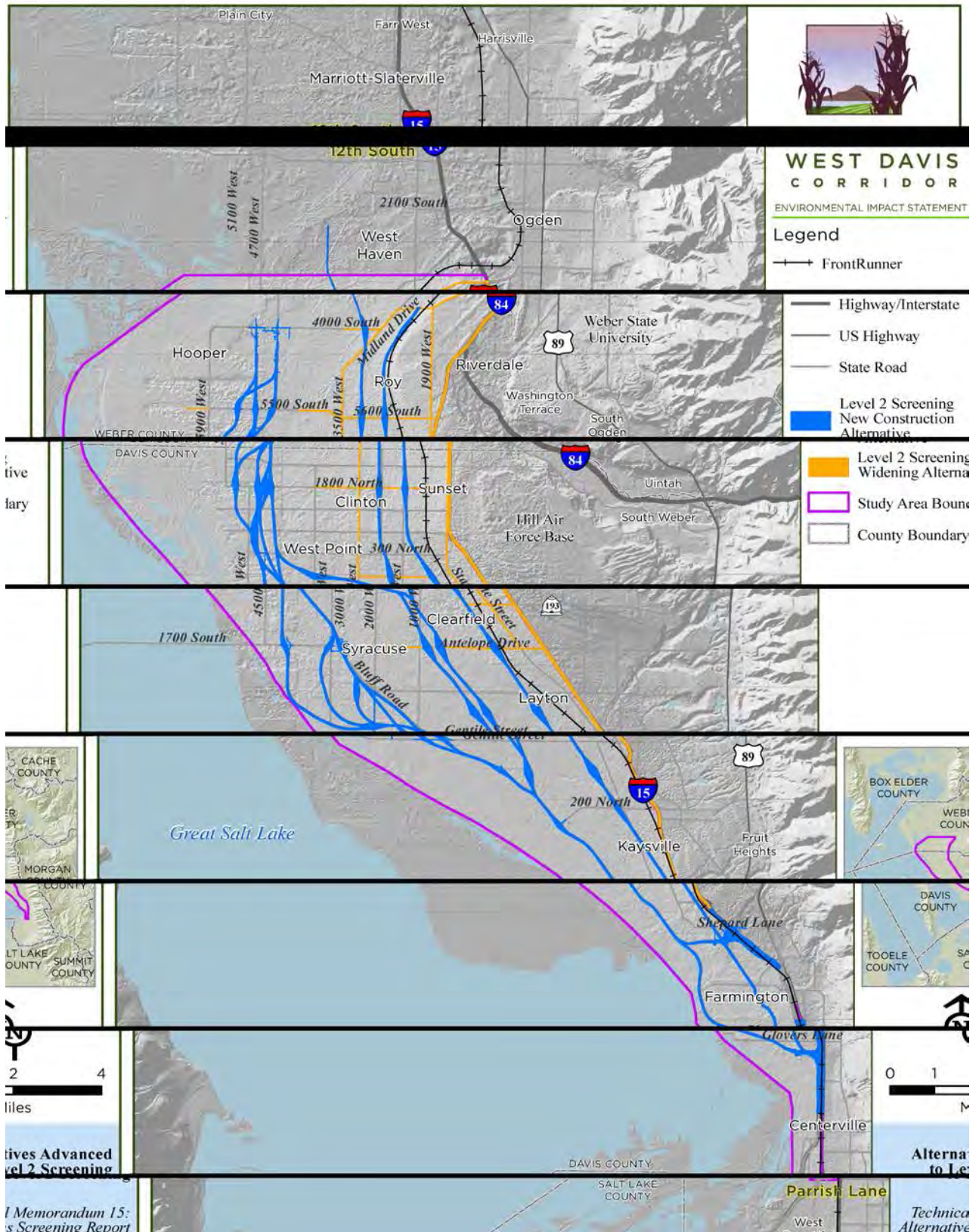
Alternative	Facility Type	Description
05	Upgrade existing roads	<i>Widen Existing East-West Roads beyond RTP plus I-15 Widening:</i> Widen Hinckley Drive, 4000 South, 5500/5600 South, 1800 North, SR 193, and Antelope Drive. All east-west roads are widened from I-15 to SR 37 (Weber County) or SR 110 (Davis County). Include I-15 widening to add one more general-purpose lane in each direction (MP 324/SR 225 to MP 342/SR 79).
08	Upgrade existing roads	<i>Widen Existing East-West and North-South Roads beyond RTP plus I-15 Widening:</i> Combine Alternatives 05 and 07.
10A	New four-lane divided highway	Begin at Farmington, follow 2001 alignment to 2000 West in Layton, merge to power corridor, and stay on power corridor to 4000 South. Interchanges at 5600 South, 1800 North, SR 193, Antelope Drive, Hill Field Road, Layton Parkway, 200 North, and Shepard Lane.
11A	New four-lane divided highway	Begin at Farmington, follow 2001 alignment to 4000 South. Interchanges at 5500 South, 1800 North, SR 193, Antelope Drive, 2000 West, 2700 West (Layton), 200 North, and Shepard Lane.
13A	New four-lane divided highway	Begin at Farmington, follow 2001 alignment to Gentile Street, swing west crossing Antelope Drive west of 4000 West, stay west of 4000 West in West Point crossing 4500 West near 800 North and the Davis County–Weber County line near 5700 West (Weber County), then cut northeast to 4000 South. Interchanges at 5500 South, 1800 North, SR 193, Antelope Drive, 2000 West, 2700 West (Layton), 200 North, and Shepard Lane.

3.3.2 Combinations of Roadway Alternatives That Met the Level 1 Screening Criteria

During the Stakeholder Working Group meeting on November 3, 2010, the U.S. Army Corps of Engineers (USACE) also requested that the WDC team evaluate alternatives eliminated during Level 1 screening that, if combined with widening of east-west arterials, might meet the Level 1 screening criteria and have fewer wetland impacts. The WDC team looked at all of the alternatives that did not pass Level 1 screening to determine if combining these alternatives would make an alternative that would pass Level 1 screening (see Appendix D, Combinations of Alternatives).

As a result of the evaluation, the team determined that one alternative combination, the combination of the D&RG four-lane divided highway (Alternative 09A) with widening of east-west arterials (as described in Alternative 04), would meet the Level 1 screening criteria. Therefore, the WDC team also advanced this combination alternative (referred to as Alternative 09A+04 in this memorandum) to Level 2 screening.

Figure 3-1. Alternatives Advanced to Level 2 Screening



Alternative Options

Figure 3-1 above shows the alternatives that were advanced to Level 2 screening.

The three new roadway alternatives advanced to Level 2 screening have different alignment options in some locations. Because these options would not affect the transportation performance of the alternatives at a regional level, not all of the different options were evaluated in Level 1 screening. The WDC team considered four different options of Alternative 10A, 48 different options of Alternative 11A, and 20 different options of Alternative 13A during Level 2 screening. The different variations for these alternatives are described in the sections titled Alternative 10A on page 27, Alternative 11A on page 28, and Alternative 13A on page 30.

3.3.3 Northern and Western Termini for Alternatives Advanced to Level 2 Screening

The WDC team used the travel demand model data and sensitivity analysis to determine (1) where the northern terminus for each of the new roadway alternatives would be and (2) where the western terminus would be for the alternatives that widen existing east-west arterial roads. The northern and western termini were determined by performing a sensitivity analysis with the travel demand model to determine the locations where the alternative met the Level 1 screening criteria by maintaining at least three out of five MOEs in the first quartile and all of the proposed improvements for each alternative function at LOS D or better in the 2040 design year.

Alternative 05

The widening limits for Alternative 05 were determined to be:

- **I-15:** Park Lane/SR 225 (MP 324) to Hinckley Drive/SR 79 (MP 341)
- **4000 South:** Midland Drive to 3500 West (Weber County)
- **Hinckley Drive:** I-15 to Midland Drive (Weber County)
- **5500/5600 South:** I-15 to 4300 West and 5900 West to 6300 West (Weber County)
- **1800 North:** SR 126 to 3000 West (Davis County)
- **SR 193:** I-15 to 2000 West (Davis County)
- **Antelope Drive:** I-15 to 2000 West (Davis County)

Even with these limits, the travel demand model showed that parts of three arterials proposed as part of Alternative 05 still functioned at LOS E or LOS F in 2040.

- **5600 South:** Functioned at LOS F between I-15 and SR 126.
- **1800 North:** Functioned at LOS E between I-15 and 1000 West.
- **Antelope Drive:** Functioned at LOS E between I-15 and SR 126.

Alternative 08

Alternative 08 includes all of the east-west widening projects listed for Alternative 05 and also includes north-south widening on SR 126 and SR 108. The same I-15 and east-west widening limits for Alternative 05 were used for Alternative 08. The north-south widening limits for Alternative 08 were determined to be:

- **SR 108:** SR 193 (200 South in Davis County) to Hinckley Drive (Weber County)
- **SR 126:** Antelope Drive (1700 South in Davis County) to Hinckley Drive (Weber County)

Even with these limits, the travel demand model showed that parts of three arterials proposed as part of Alternative 08 still functioned at LOS E or LOS F in 2040.

- **5600 South:** Functioned at LOS F between I-15 and SR 126.
- **1800 North:** Functioned at LOS E between I-15 and 1000 West.
- **Antelope Drive:** Functioned at LOS E between I-15 and SR 126.

Alternative 09A+04

Alternative 09A+04 includes a new four-lane divided highway on the D&RG corridor and all of the east-west widening projects listed for Alternative 04. The same east-west widening limits for Alternative 05 were used for Alternative 09A+04. The northern terminus for the D&RG four-lane divided highway part of Alternative 09A+04 was determined to be at Hinckley Drive/SR 79 in Weber County.

Even with these limits, the travel demand model showed that parts of three arterials proposed as part of Alternative 09A+04 still functioned at LOS E or LOS F in 2040.

- **5600 South:** Functioned at LOS F between I-15 and SR 126.
- **1800 North:** Functioned at LOS E between I-15 and 1000 West.
- **Antelope Drive:** Functioned at LOS E between I-15 and SR 126.

Alternative 10A

The northern terminus of Alternative 10A was determined to be just north of 2550 South in Weber County. The WDC team also evaluated a northern terminus for Alternative 10A at 3100 West 4000 South in West Haven (Weber County), but this resulted in LOS E or F conditions on the WDC between Midland Drive and 4000 South, on 4000 South between the WDC and 3500 West, and on 3500 West between 4000 South and 3600 South. According to the TDM, for Alternative 10A to function at LOS D or better in 2040, the alternative would need to include a grade-separated interchange at 4000 South, a transition from the four-lane divided highway to a five-lane arterial on 3500 West near 3600 South, and widening of 3500 West to a five-lane arterial from 3600 South to about 2400 South (all in Weber County).

For Alternative 10A Modified Option, which goes west around 700 South in Clearfield to about 3800 West in West Point, the northern terminus would be in the same location as for Alternative 11A (at 5500 South 5100 West in Weber County). For more information about

Alternative 10A Modified Option, see the section titled Alternative 10A Modified Option on page 70.

Alternative 11A

The travel demand model showed that Alternative 11A would meet the purpose of and need for the project with the last interchange at 5500 South, a transition from a four-lane divided highway to a five-lane arterial north of 5500 South, and a northern terminus at an at-grade intersection at 4000 South 5100 West (all in Weber County).

However, sensitivity analysis performed with the travel demand model (see Table 3-4 below) showed that Alternative 11A with scenario 11A3 would still meet the purpose of and need for the project with the last interchange at 1800 North (Davis County), a transition from a four-lane divided highway to a five-lane arterial north of 1800 North (Davis County), and an at-grade intersection at 5500 South 5100 West (Weber County). The travel demand model also showed that all segments of Alternative 11A, 5500 South (Weber County), and 5100 West (Weber County) would function at LOS D or better in 2040 in this scenario.

Additional sensitivity analysis performed with the travel demand model showed that Alternative 11A with scenario 11A4 would not meet the purpose of and need for the project with the last interchange at SR 193, a transition from a four-lane divided highway to a five-lane arterial north of SR 193, and an at-grade intersection at 1800 North (Davis County). In scenario 11A4, Alternative 11A would not meet the purpose of and need for the project, since only two of the five MOE values would be better than the first-quartile values for the range of alternatives.

Therefore, the northern terminus of Alternative 11A was determined to be at 5500 South 5100 West, as shown in scenario 11A3 in Table 3-4 below. Although ending Alternative 11A at 4000 South would also meet the purpose of and need for the project and have adequate capacity, the WDC team determined that the additional costs and impacts to extend Alternative 11A to 4000 South were not warranted, since similar, acceptable benefits could be achieved with a northern terminus at 5500 South (all in Weber County).

Table 3-4. Sensitivity Analysis for the Alternative 11A and Alternative 13A Northern Termini

Alternative	Description	Daily Total Delay (hr)	North-South Road Lane-Miles with V/C \geq 0.9	East-West Road Lane-Miles with V/C \geq 0.9	Vehicle-Miles Traveled (VMT) with V/C \geq 0.9	Vehicle-Hours Traveled (VHT) with V/C \geq 0.9
No-Action		10,760	43.5	26.9	245,500	9,490
Average		8,950	31.4	23.2	177,700	7,160
1st Quartile		8,060	17.9	20.2	97,400	5,340
11A	Original 11A alignment, with the last interchange at 5500 South and a limited-access arterial to 4000 South.	7,530	17.2	15.9	94,400	4,770
11A2	Same alignment as 11A, but with the last interchange at 1800 North followed by a limited-access arterial to 4000 South.	7,540	18.2	16.9	99,500	4,950
11A3	Same alignment as 11A, but with the last interchange at 1800 North followed by a limited-access arterial to 5500 South.	7,630	19.8	16.2	101,300	5,050
11A4	Same alignment as 11A, but with the last interchange at SR 193 followed by a limited-access arterial to 1800 North.	8,070	24.8	17.6	121,600	5,880
13A	Original 13A alignment, with the last interchange at 5500 South and a limited-access arterial to 4000 South.	7,830	18.5	17.1	100,400	5,130
13A2	Same alignment as 13A, but with the last interchange at 1800 North followed by a limited-access arterial to 5500 South.	8,080	24.1	17.9	124,500	5,780
Legend						
xx,xxx	MOE value is higher than No-Action MOE value.					
xx,xxx	MOE value is higher than average of all alternatives.					
xx.x	MOE value is lower than average of all alternatives but not in 1st quartile.					
xx.x	MOE value is in 1st quartile of all alternatives.					
Alt. xxx	Alternative eliminated because at least one MOE value is higher than No-Action.					
Alt. xxx	Alternative eliminated because at least one MOE value is higher than average of all alternatives.					
Alt. xxx	Alternative eliminated because less than three of five MOE values are in the 1st quartile of all alternatives.					
Alt. xxx	Alternative advanced because the above rejection criteria were not met.					

Alternative 13A

The northern terminus of Alternative 13A was determined to be at 4000 South (Weber County) with the last grade-separated interchange at 5500 South (Weber County) and a transition from a four-lane divided highway to a five-lane arterial cross-section between 5500 South (Weber County) and 4000 South (Weber County). The travel demand model showed that, if Alternative 13A were to have a northern terminus at an at-grade intersection at either 5100 West 4000 South (Weber County) or 4700 West 4000 South (Weber County), the alternative would meet the purpose of and need for the project, and all segments of Alternative 13A, 4000 South, and 5100 West or 4700 West would function at LOS D or better in 2040.

Sensitivity analysis performed with the travel demand model (see Table 3-4 above) showed that Alternative 13A would not meet the purpose of and need for the project under scenario 13A2, with the last interchange at 1800 North (Davis County), a transition from a four-lane divided highway to a five-lane arterial north of 1800 North (Davis County), and a northern terminus at an at-grade intersection at 5500 South (Weber County). In this scenario, Alternative 13A would not meet the purpose of and need for the project, since only two of the five MOE values would be better than the first-quartile values for the range of alternatives.

Additionally, by ending Alternative 13A as a five-lane arterial at 4000 South and either 5100 West (Weber County) or 4700 West (Weber County), the WDC would provide a logical northern terminus by connecting in to the existing north-south arterial network in Weber County. A northern terminus at 5500 South (Weber County) would not connect to an existing north-south arterial road.

3.3.4 Southern Termini for New Roadway Alternatives

During Level 1 screening, the travel demand model showed that an alignment that connected to I-15 south of Shepard Lane in Farmington (called the Shepard Lane Option) and an alignment that connected to I-15 and Legacy Parkway south of Glovers Lane in Farmington (called the Glovers Lane Option) would meet the purpose of and need for the project when connected to Alternatives 10A, 11A, or 13A north of Farmington.

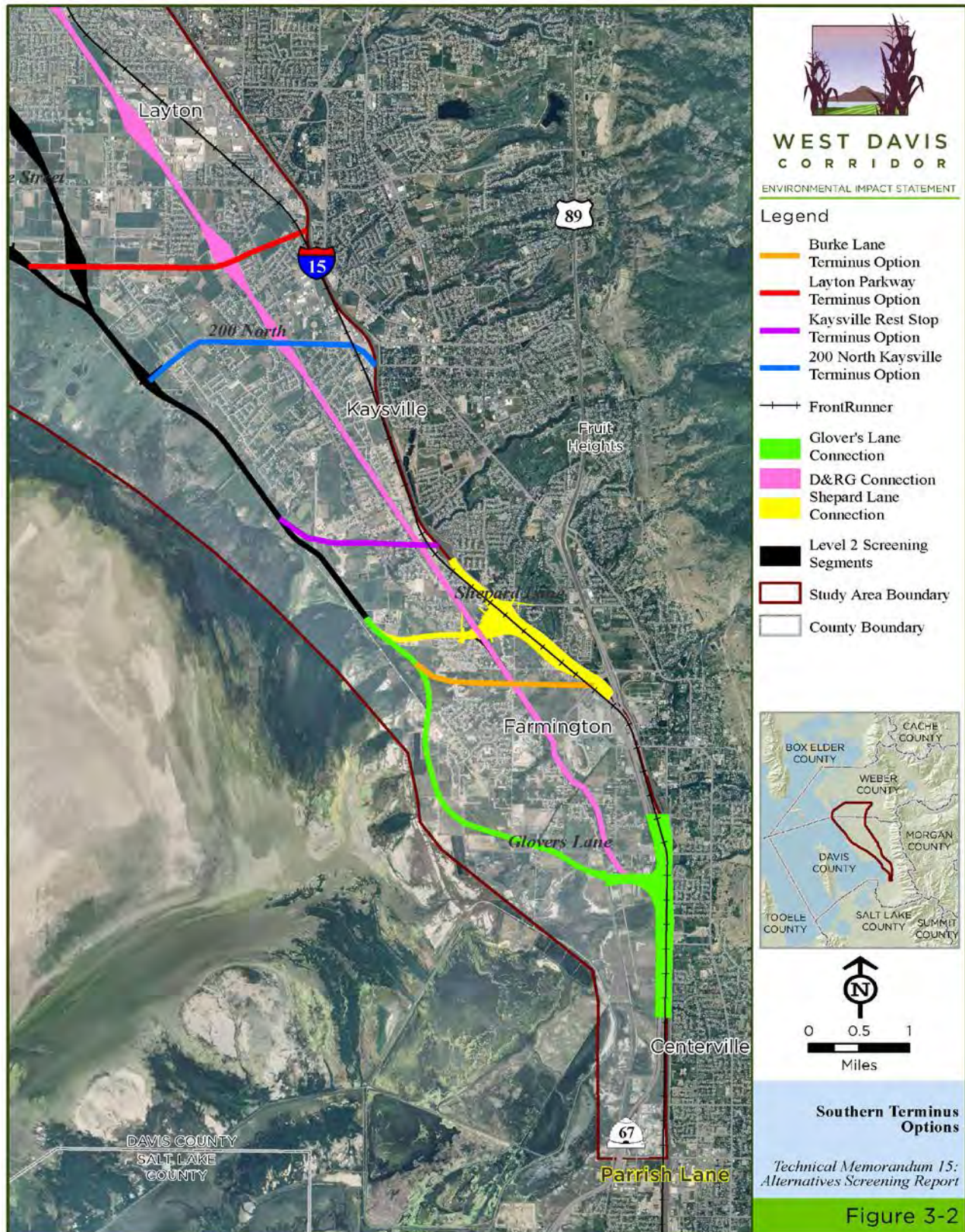
The travel demand model also showed that an alignment along the D&RG corridor that connected to I-15 using the Glovers Lane interchange in Farmington would meet the purpose of and need for the project when connected to Alternative 09A+04 north of Farmington. The alignment on the D&RG corridor was an option for Alternative 09A+04 only, since a connection from Alternatives 10A, 11A, or 13A to the D&RG corridor in Farmington would have substantially more impacts to wetlands, residences, and community facilities than the Shepard Lane or Glovers Lane options.

During the modeling process, the WDC team also considered six other southern terminus options for the new roadway alternatives. The six other southern terminus options were suggested by members of the public during the August 2010 public comment period or during the alternatives screening comment period in the spring of 2011. The WDC team found that these six other southern terminus options either would not be feasible to design or would not function from a transportation perspective. Table 3-5 lists the six southern connection options and why they were eliminated from further consideration. Figure 3-2 below shows the locations of the six southern terminus options.

Table 3-5. Southern Terminus Options Eliminated during Level 1 Screening

Southern Terminus Option	Reason for Elimination
Burke Lane connection in Farmington	Engineers determined that a WDC alignment could not connect to I-15 and Legacy Parkway with a system interchange coming in directly from the west on Burke Lane. The existing I-15, Legacy Parkway, Park Lane, and US 89 system-to-system interchange, the FrontRunner commuter-rail line, and Farmington commuter-rail station would need to be realigned and reconstructed in order for a system interchange to be possible at this location. Even if it were possible to design an interchange to connect at Burke Lane, the costs of realigning and reconstructing the I-15, Legacy Parkway, Park Lane, and US 89 system-to-system interchange and the FrontRunner commuter-rail line would be prohibitive.
Connection to I-15 in Kaysville near the rest stop (I-15 at MP 326)	The travel demand model showed that a connection to I-15 at the Kaysville rest stop would not meet the purpose of and need for the project and would cause failure conditions (LOS E or F) on I-15 between the Kaysville rest stop and Legacy Parkway.
Connection to I-15 at 200 North in Kaysville (I-15 at MP 328)	The travel demand model showed that a connection to I-15 at 200 North in Kaysville would not meet the purpose of and need for the project and would cause failure conditions (LOS E or F) on I-15 between 200 North and Legacy Parkway.
Connection to I-15 at Layton Parkway (I-15 at MP 330)	The travel demand model showed that a connection to I-15 at Layton Parkway would not meet the purpose of and need for the project and would cause failure conditions (LOS E or F) on I-15 between Layton Parkway and Legacy Parkway.
Farmington Couplet Concept	The Farmington Couplet Concept would involve splitting WDC traffic in Farmington. Northbound traffic would use the Shepard Lane Option, and southbound traffic would use the Glovers Lane Option. The Farmington Couplet Concept would be contrary to FHWA policy, since it would not accommodate all four movements to and from the WDC and I-15 at the same location. Additionally, the Farmington Couplet Concept would create major operational and safety concerns because the northbound and southbound movements would connect to I-15 over 3 miles apart with the existing Legacy Parkway and US 89 system-to-system interchanges located between the two connections.

Figure 3-2. Southern Terminus Options for New Roadway Alternatives



In addition to the southern terminus options listed in Table 3-5 on page 31, the WDC team considered many refinements of the Shepard Lane and Glovers Lane Options. Table 3-6 summarizes these refinements. The “Determination” column of Table 3-6 explains whether the refinement was eliminated from further consideration, whether it was incorporated into the design of the Shepard Lane Option or Glovers Lane Option, or whether it will be considered when additional engineering information is available for the alternatives advanced to the Draft EIS.

Table 3-6. Southern Connection Refinements

Refinement	Determination
Shepard Lane Option tunnel or lid refinements	The cost of a tunnel or lid would be at least \$65 million. The WDC team determined that this cost would not be reasonable or feasible for a 1,200-foot section of road, since the cost to construct an at-grade roadway for the same distance would be \$4 million.
Shepard Lane Option with 146-foot right-of-way	As described in <i>Technical Memorandum 14: Level 2 Screening Process</i> , a WDC alignment consisting of a four-lane divided highway would have a typical section width of 250 feet. This width is based on the roadway geometric and safety design standards of the American Association of State Highway Transportation Officials (AASHTO) and UDOT. Because a 146-foot right-of-way would not meet the AASHTO and UDOT standards, the WDC team did not consider it further.
Shepard Lane Option depressed roadway refinement	A depressed roadway would be more expensive than the proposed Shepard Lane Option. The WDC team determined that a depressed roadway would at least require easements in private residences’ back yards for retaining walls and potentially would require the acquisition of properties adjacent to the depressed roadway. The depressed roadway refinement could have the same number of residential impacts as the proposed Shepard Lane Option. Additional soil analysis and an engineering survey are needed to determine whether a depressed roadway would be feasible. This will be evaluated further once additional engineering information is available.
Shepard Lane Option northern refinement (move alignment north of Quail Crossing subdivision)	This refinement would have at least 19 residential impacts and would require at least two structures over local roads. Because the proposed Shepard Lane Option would have nine residential impacts and one structure for the same area, the WDC team determined that the Shepard Lane northern refinement would not be a reasonable refinement and did not consider it further.
Widen Shepard Lane Option to 450 feet	This refinement would have at least 18 residential impacts, compared to nine residential impacts for the proposed Shepard Lane Option for the same area. The WDC team determined that this would not be a reasonable refinement and did not consider it further.
Glovers Lane Option structure refinements	The proposed refinement to shift the Glovers Lane Option farther south and west and put the roadway on structures was determined to not be a reasonable option, since it would affect 38 acres of wetlands, the Farmington Bay Waterfowl Management Area, and a UTA wetland mitigation site and would cost about \$30 million more than the proposed Glovers Lane Option.
Glovers Lane Option southern and western refinements	The WDC team considered the publicly suggested southern and western alignments when performing the preliminary engineering and design for the Glovers Lane Option and incorporated these refinements where possible. The Glovers Lane Option was designed to minimize impacts to residences, wetlands, and other resources.
Shepard Lane and Glovers Lane interchange refinements	Different interchange concepts and designs will be evaluated once additional engineering information is available for the alternatives advanced to the Draft EIS. All interchanges must meet engineering design standards. The WDC team will consider the costs, impacts, and benefits of the interchange designs that meet design standards to determine the best interchange design for the Shepard Lane Option and Glovers Lane Option for the alternatives advanced to the Draft EIS.

3.3.5 Transit-Only Alternatives

Analysis of Transit-Only Alternatives in 2011

In 2011, the WDC team developed two transit-only alternatives, Alternative 01 and Alternative 02, to consider during Level 1 screening.

As described in Table 2-2 on page 15, Alternative 01 is a robust transit scenario for the WDC study area that includes two new light-rail lines and additional bus rapid transit (BRT) routes that connect to existing FrontRunner commuter-rail stations. Alternative 01 was developed with input from UTA and was designed to increase the use of the existing UTA FrontRunner commuter-rail line and other planned transit facilities identified in the WFRC RTP. Like the other action alternatives, Alternative 01 assumes that all transit and roadway projects in the RTP will be built with the exception of the WDC project. Alternative 01 uses the same unmodified socioeconomic data as the No-Action Alternative and the other WDC action alternatives.

As described in Table 2-2, Alternative 02 assumes the same robust transit scenario as Alternative 01, but also assumes modified socioeconomic data with reduced household sizes that are more conducive to increased transit ridership. In the *Wasatch Front Transit-Oriented Development Guidelines*, Envision Utah (2002) found that a reduced household size is correlated with higher transit use in some areas of the United States. Because the transit analysis in 2010 found that the transit-only alternative that used modified socioeconomic data with reduced household size was the best-performing transit-only alternative, the WDC team modeled it as Alternative 02 in the 2011 Level 1 screening analysis. The assumption of reduced household size had the net effect of reducing population in the study area by 15,500 compared to the 2040 No-Action Alternative socioeconomic conditions.

Based on the model results (see Table 3-2 on page 23), Alternative 01 and Alternative 02 were eliminated from further consideration in Level 1 screening because they performed worse than the No-Action Alternative for one of the five MOEs and worse than the average value for the other four MOEs.

Analysis of Transit Alternatives with Different Socioeconomic Assumptions in 2010

The WDC team used Alternative 01 and Alternative 02 for the screening analysis in 2011 based on the transit analysis conducted in 2010. These transit alternatives were selected for the 2011 analysis because they were the best-performing transit alternatives evaluated in the 2010 screening. In 2010, the WDC team performed a sensitivity analysis on Alternative 01 by analyzing four scenarios using different socioeconomic data assumptions to see if changes in these assumptions would allow Alternative 01 to perform better against the Level 1 screening criteria.

1. The first scenario used modified socioeconomic data that assumed the same overall population in the WDC study area in 2040 but shifted the population to areas near transit facilities and transit-oriented developments. Under this modified socioeconomic data scenario, there were higher population densities around the transit facilities and transit-oriented developments and lower population densities in other parts of the study area compared to the population densities used for the No-Action Alternative. The population was shifted in this way to place higher-density developments near transit stations to support ridership.
2. The second scenario used socioeconomic data that assumed a reduced household size for the population in the study area. In the *Wasatch Front Transit-Oriented Development Guidelines*, Envision Utah (2002) found that a reduced household size is correlated with higher transit use in some areas of the United States. The assumption of reduced household size had the net effect of reducing population in the study area compared to the 2040 No-Action Alternative socioeconomic conditions.
3. The third scenario used the following socioeconomic data and transit assumptions:
 - Clustered, transit-oriented developments were located within a half mile of the planned light-rail stations on 4000 South (Weber County) and Antelope Drive. The developments assumed 15 household units per acre and 1.3 people per household consistent with recommendations provided by Envision Utah (2002) in the *Wasatch Front Transit-Oriented Development Guidelines* and by the Transportation Research Board (2008) in *Transit Cooperative Research Program Report 128*. These socioeconomic data assumptions had the net effect of adding jobs and decreasing population in the study area compared to the 2040 No-Action Alternative socioeconomic conditions.
 - Traffic analysis zones were split to better account for transit-oriented developments and pedestrian trips.
 - To create a more robust transit system, local transit service was shifted from routes with planned light rail or BRT to adjacent roads without planned transit service.
 - The planned Layton BRT was extended to Ogden on SR 108.
4. The fourth scenario used the same socioeconomic data assumptions as the third scenario, a double track of the existing FrontRunner line, and an additional, separate commuter-rail line located next to the existing FrontRunner line.

Development of a New Commuter-Rail Line Transit-Only Alternative in 2010

In 2010, the WDC team developed and evaluated a transit-only alternative that involved constructing a new commuter-rail line on a new alignment in the WDC study area. The new commuter-rail alignment started at the Farmington FrontRunner station, paralleled I-15 to Shepard Lane, merged to the 2001 alignment, and followed the 2001 alignment to 4000 South.

Comparison of Transit-Only Alternatives in 2010

The 2010 analysis of the four socioeconomic data scenarios and the new commuter-rail line transit-only alternative showed that only the second socioeconomic data scenario, with reduced household size, would result in MOE values that were better than the No-Action Alternative. Additionally, the 2010 analysis showed that the second scenario would improve the MOE values compared to Alternative 01 with unmodified socioeconomic data. All of the other socioeconomic data scenarios and the new commuter-rail line transit-only alternative would result in MOE values that were worse than the No-Action Alternative.

Summary of 2010 and 2011 Analyses of Transit-Only Alternatives

Because the second scenario (reduced household size) was found to be the best version of Alternative 01 in 2010, the WDC modeled it as Alternative 02 in the 2011 Level 1 screening analysis. Based on the model results, Alternative 01 and Alternative 02 were eliminated from further consideration in Level 1 screening in 2011 because they performed worse than the No-Action Alternative for one of the five MOEs.

The 2040 WFRC RTP does not identify the need for any major transit facilities in the WDC study area, and the WDC travel demand modeling has found that a transit-only alternative would not meet the purpose of and need for the project. However, the WDC team might consider adding transit improvements to the roadway alternatives that were found to meet the purpose of and need for the project if the transit improvements are fiscally and operationally feasible and do not have substantial social or environmental impacts.

3.3.6 Combinations of Transit and Roadway Alternatives

As shown in Table 3-2 above and as discussed in Section 3.3.5 above, none of the transit-only alternatives would substantially reduce delay and congestion in the study area. Combining Alternative 01 or Alternative 02 with any of the roadway alternatives would improve the performance of the roadway alternatives on the Level 1 screening criteria. As part of the screening process, UDOT modeled the *Ultimate Transit* alternative (Alternative 01) with the best-performing widen existing roads alternative (Alternative 07), a two-lane highway new roadway alternative (Alternative 11B), and the best-performing five-lane arterial new roadway alternative (Alternative 11C) that did not pass Level 1 screening. A review of the data showed that adding Alternative 01 to Alternative 07, 11B, or 11C, which did not pass Level 1 screening, would not have allowed those alternatives to meet the screening criteria. Because these alternatives were among the best-performing alternatives that did not pass

Level 1 screening, adding transit to the other poorer-performing alternatives that did not pass Level 1 screening would not change the screening results.

Table 3-7 below shows the MOE values for Alternative 07, Alternative 07 with Alternative 01, Alternative 11B, Alternative 11B with Alternative 01, Alternative 11C, and Alternative 11C with Alternative 01. As shown in Table 3-7, including the Alternative 01 transit improvements with Alternative 07, 11B, or 11C would not result in any of the combination of alternatives passing Level 1 screening. In all three scenarios, the addition of Alternative 01 changed the MOE values by 0.5% to 4.5%. The MOE value for daily total delay for Alternative 11C with Alternative 01 was the only MOE value that changed classification (worse than no-action, below average, above average, above first quartile), since it went from being below average without Alternative 01 to above average with Alternative 01.

Alternative 07 with Alternative 01 would not pass Level 1 screening because one MOE value is higher than the No-Action MOE value. Alternative 11B with Alternative 01 would not pass Level 1 screening because one MOE value is higher than the No-Action MOE value, and four MOE values are higher than the average for all alternatives. Alternative 11C with Alternative 01 would not pass Level 1 screening because three MOE values are higher than the average for all alternatives.

Table 3-7. Combinations of Transit and Roadway Alternatives

Alternative	Description	Daily Total Delay (hr)	North-South Road Lane-Miles with V/C ≥ 0.9	East-West Road Lane-Miles with V/C ≥ 0.9	Vehicle-Miles Traveled (VMT) with V/C ≥ 0.9	Vehicle-Hours Traveled (VHT) with V/C ≥ 0.9
No-Action		10,760	43.5	26.9	245,500	9,490
Average		8,950	31.4	23.2	177,700	7,160
1st Quartile		8,060	17.9	20.2	97,400	5,340
07	<i>Widen Existing North-South Roads beyond RTP plus I-15 Widening: Widen SR 126 (Layton Parkway to Hinckley Drive) and SR 108 (Antelope Drive to Hinckley Drive). Include I-15 widening to add one more general-purpose lane in each direction (MP 324/SR 225 to MP 342/SR 79).</i>	8,690	9.3	27.2	82,000	5,540
07 with 01	Same as 07, but with the following transit improvements: In addition to the transit projects in the RTP, add light-rail transit along 4000 South and Antelope Drive, add bus rapid transit along 1800 North and in Layton (all lines would connect to existing FrontRunner stations), and reduce FrontRunner headway times to 30 minutes.	8,630	9.1	27.2	81,100	5,480

Table 3-7. Combinations of Transit and Roadway Alternatives

Alternative	Description	Daily Total Delay (hr)	North-South Road Lane-Miles with V/C ≥ 0.9	East-West Road Lane-Miles with V/C ≥ 0.9	Vehicle-Miles Traveled (VMT) with V/C ≥ 0.9	Vehicle-Hours Traveled (VHT) with V/C ≥ 0.9
11B	New two-lane, limited-access highway. Begin at Farmington, follow 2001 alignment to 4000 South. At-grade intersections at minimum 1-mile spacing.	9,630	40.6	28.6	233,400	8,690
11B with 01	Same as 11B, but with the following transit improvements: In addition to the transit projects in the RTP, add light-rail transit along 4000 South and Antelope Drive, add bus rapid transit along 1800 North and in Layton (all lines would connect to existing FrontRunner stations), and reduce FrontRunner headway times to 30 minutes.	9,540	40.4	27.9	231,600	8,600
11C	New five-lane arterial. Begin at Farmington, follow 2001 alignment to 4000 South. At-grade intersections at minimum 0.5-mile spacing.	8,970	37.4	21.9	203,100	7,680
11C with 01	Same as 11C, but with the following transit improvements: In addition to the transit projects in the RTP, add light-rail transit along 4000 South and Antelope Drive, add bus rapid transit along 1800 North and in Layton (all lines would connect to existing FrontRunner stations), and reduce FrontRunner headway times to 30 minutes.	8,910	36.6	22.9	203,400	7,680
Legend						
xx,xxx	MOE value is higher than No-Action MOE value.					
xx,xxx	MOE value is higher than average of all alternatives.					
xx.x	MOE value is lower than average of all alternatives but not in 1st quartile.					
xx.x	MOE value is in 1st quartile of all alternatives.					
Alt. xxx	Alternative eliminated because at least one MOE value is higher than No-Action.					
Alt. xxx	Alternative eliminated because at least one MOE value is higher than average of all alternatives.					
Alt. xxx	Alternative eliminated because less than three of five MOE values are in the 1st quartile of all alternatives.					
Alt. xxx	Alternative advanced because the above rejection criteria were not met.					

The WDC team will continue to consider adding transit improvements to the roadway alternatives that were found to meet the purpose of and need for the project if the transit improvements are fiscally and operationally feasible and do not have substantial social or environmental impacts.

3.3.7 Alternatives Eliminated

As a result of Level 1 screening, the following alternatives were eliminated from further consideration for not substantially reducing delay and congestion in the project study area and for not meeting the purpose of and need for the project:

- TDM/TSM Alternative
- Alternative 01
- Alternative 02
- Alternative 04
- Alternative 06
- Alternative 07
- Alternatives 09A, 09B, and 09C
- Alternatives 10B and 10C
- Alternatives 11B and 11C
- Alternatives 12A, 12B, and 12C
- Alternatives 13B and 13C

3.4 Summary of Level 1 Screening

Level 1 screening advanced five of the 23 preliminary action alternatives to Level 2 screening. Additionally, one combination of alternatives from Level 1 screening was also advanced to Level 2 screening.

Which Level 1 alternatives were advanced to Level 2 screening?

Alternatives 05, 08, 09A+04, 10A, 11A, and 13A were advanced to Level 2 screening.

3.4.1 Facility Types and Mode

Level 1 screening showed that, with the exception of Alternatives 05 and 08, a new four-lane divided highway is the facility type needed to substantially reduce delay and congestion in the study area. The transit-only alternatives; new two-lane, limited-access highways; and new five-lane arterials were not found to substantially reduce delay and congestion in the study area.

The screening analysis for Alternatives 05 and 08 showed that, to substantially reduce delay and congestion in the study area by improving existing facilities, additional capacity improvements beyond the planned improvements identified in the 2040 WFRC RTP would be needed on six east-west arterials in addition to capacity improvements on 17.5 miles of I-15. The screening analysis for Alternative 08 showed that additional reductions to delay and congestion, beyond those with Alternative 05, could be gained by also widening SR 108 and SR 126.

3.4.2 Locations

Level 1 screening showed that alternatives that substantially reduced delay and congestion in the project study area were located near the center of the study area. Alternatives 10A, 11A, and 13A, which are the more centrally located new roadway alternatives, performed the best for all five MOEs.

Specifically, Level 1 screening showed that alternatives in the eastern part of the study area along the D&RG alignment north of Farmington did not substantially reduce east-west delay and congestion in the study area. Because the D&RG alternatives were located within a mile of I-15, they were not located far enough west to substantially relieve congestion and delay on the east-west arterials in the study area.

Similarly, Level 1 screening showed that Alternatives 12A, 12B, and 12C, which are west of existing development in Syracuse and West Point, would not substantially reduce delay and congestion in the study area. This result indicates that, for many trips in the study area, Alternatives 12A, 12B, and 12C are so far west that they would not provide a quicker north-south travel option than traveling east and getting on I-15 to go north or south. The western alignment of Alternatives 12A, 12B, and 12C would not provide a quicker, better option to using the existing arterials and I-15 and therefore would not reduce delay and congestion in the study area.

Level 1 screening also showed that two alignments in the southern end of the study area around Farmington (Shepard Lane and Glovers Lane Options) were both able to substantially reduce delay and congestion if they were used as the southern terminus of Alternatives 10A, 11A, or 13A. As described in Section 3.3.4, Southern Termini for New Roadway Alternatives, other southern terminus options that connected farther north on I-15 or at different locations in Farmington were determined to not substantially reduce delay and congestion or could not be designed to function at LOS D or better in 2040.

3.5 Public and Agency Review and Comments on the Level 1 Screening Process

The WDC team produced a draft of TM 15 dated October 20, 2010, that was available for agency and public review and comment. The draft TM 15 and maps showing the results of the Level 1 screening process were made available on the project website in November 2010. Also, on November 16, 2010, the WDC team sent out an e-mail update to over 1,250 people who had signed up for the e-mail list at that time.

The WDC team presented the results of the Level 1 screening process to the Stakeholder Working Group on November 3, 2010. From November 2010 to January 2011, the WDC team attended 38 meetings with federal, state, and local government representatives and other interested stakeholders to discuss the results of the Level 1 screening process. These meetings included city council meetings for all of the cities in the study area.

3.5.1 Comments Received on the Level 1 Screening Process

The WDC team received comments on the October 20, 2010, draft of TM 15 from UTA and Clearfield City. UTA's comments related to the consideration of transit-only alternatives and requested clarification about the cooperating and participating agencies on the WDC project. TM 15 was updated to address UTA's comments. Clearfield City also provided comments supporting the need for the project and expressing concerns about the impacts of the power corridor alternatives.

In addition, the WDC team also received around 4,500 comments from the public and agencies during the spring 2011 comment period. These comments are summarized in Appendix A, Spring 2011 Public Involvement Summary. None of these comments specifically addressed the previous Level 1 screening alternatives or analysis. However, the spring 2011 comments included some new alignments, variations of existing alignments, and comments about the screening process and screening criteria. Most of the options and refinements described in Table 3-5 on page 31 and Table 3-6 on page 33 were based on public comments received during the public comment period in the spring of 2011. Additionally, many of the alignment options considered for Alternatives 10A, 11A, and 13A (as described in the sections titled Alternative 10A on page 27, Alternative 11A on page 28, and Alternative 13A on page 30, respectively) were also identified during the public comment period in the spring of 2011 and were considered during the re-screening process in the summer of 2011.

3.5.2 Input from the Cooperating and Participating Agencies during the Level 1 Screening Process

On December 2, 2010, and January 4, 2011, the WDC team held meetings with representatives from the U.S. Environmental Protection Agency (EPA), the U.S. Army Corps of Engineers (USACE), the U.S. Fish and Wildlife Service (USFWS), the Utah Division of Wildlife Resources (UDWR), and the Utah Geological Survey (UGS) to review the Level 2 screening materials and results. Also, in December 2010, these agencies were given copies of preliminary Level 2 maps and screening data to review.

Based on the Level 2 screening materials, the cooperating and participating agencies had some comments related to the Level 1 screening process. Table 3-8 summarizes these comments and the WDC team’s responses.

Table 3-8. Suggestions and Alternatives Provided by Cooperating and Participating Agencies

Agency	Comment	Response
USFWS	USFWS requested that the WDC team evaluate a new four-lane divided highway alternative that follows the power corridor alignment to 200 South in Clearfield, swings west to join the eastern refinement of the 2001 corridor study alignment around 3900 West in West Point, and then follows the eastern refinement of the 2001 corridor study alternative to 1200 South.	The WDC team evaluated this alternative as an option for Alternative 10A.
USFWS	USFWS asked the WDC team to evaluate two new alternative combinations that were based on the Level 2 maps and screening data provided on December 8, 2010.	The WDC team evaluated both of these alternatives as part of Alternative 13A.
USACE	USACE requested that the WDC team evaluate combinations of alternatives that included widening east-west arterials along with alternatives that did not meet the Level 1 screening criteria.	The WDC team evaluated one combination alternative that it determined would meet the Level 1 screening criteria (09A+04).
USACE	USACE provided the WDC team with 28 segment refinements or modifications to evaluate.	The WDC team evaluated the 28 segment refinements provided by USACE. The segment refinements for alternatives that were advanced to the Draft EIS will be considered during the preliminary engineering of the Draft EIS alternatives. The segment refinements for alternatives that were not advanced to the Draft EIS were not considered further.

4.0 Level 2 Screening

The purpose of Level 2 screening is to determine which of the alternatives advanced from Level 1 screening are reasonable and will be evaluated in detail in the EIS. The Level 2 screening process was conducted to determine which alternatives that passed Level 1 screening were reasonable alternatives under NEPA and then evaluate the same group of alternatives that passed Level 1 screening to determine if they were practicable under the Section 404(b)(1) guidelines.

The reasonable alternatives were determined by collectively evaluating the alternatives that were found to meet the purpose of and need for the project in Level 1 screening while also considering the degree to which these alternatives meet the purpose and need, their impacts to the natural and built environment, estimated project costs, logistical considerations, and overall feasibility. Table 4-1 on page 45 lists the Level 2 screening criteria.

During the Level 2 screening process, the WDC team found that none of the alternatives would avoid affecting the natural and built environment. The WDC study area contains urban and suburban areas, farmlands, and wetlands. Because of the high density of these community and natural resources, the team found that, in all situations, avoiding or minimizing impacts to one resource would cause additional impacts to other resources. Given that no alternatives would avoid affecting the natural and built environment, the WDC team collectively evaluated each of the alternatives to determine which alternatives would best meet the purpose of and need for the project with the lowest overall levels of impacts to the natural and built environment, while still meeting the requirements of Section 404(b)(1) of the Clean Water Act and Section 4(f) of the U.S. Department of Transportation Act of 1966.

4.1 Level 2 Screening under the NEPA Process

4.1.1 Methodology

As described in *Technical Memorandum 14: Level 2 Screening Process*, the WDC team used the following process to calculate the Level 2 screening criteria under NEPA for the six alternatives advanced from Level 1 screening:

1. The team developed basic alignments and footprints, based on standard right-of-way widths and typical cross-sections, for the alternatives carried forward from Level 1 screening. During this step, the team attempted to minimize impacts to natural resources and the built environment. (Alternatives that pass Level 2 screening will go through additional refinement during the engineering process.)
2. Project engineers reviewed the alignments to make sure they met basic requirements for roadway design. Preliminary engineering was performed during Level 2 screening to ensure that roadway alternatives met basic engineering geometric requirements.

3. The alternatives' footprints were rendered as digital GIS (geographic information system) files, and a GIS analysis was performed to determine the amount of impacts for each alternative.
4. The WDC team created segments for each unique alignment for the alternatives considered in Level 2 screening. Because many alternatives had common segments, the WDC team was able to combine the segments to calculate the total Level 2 screening impacts for each alternative. When developing the segments for the new alignments, the WDC team used GIS data to show the locations of resources in order to minimize impacts to the natural and built environment where reasonably possible. During the development process for the segments, the WDC team took steps to avoid and minimize impacts to natural resources and the built environment. After the release of the February 2011 draft of TM 15, the WDC team further refined the segments to reduce the impacts to natural resources or the built environment. These refined segments were included as part of the Level 2 screening process in 2011. Appendix E, Level 2 Screening Alternative – Segment Cross-Reference Table, provides a cross-reference table that identifies which segments comprised each alternative. Appendix F, Level 2 Screening Data for WDC Segments, provides the impact information for each segment.
5. The alternatives' effects on the resources listed in Table 4-1 below were compared to determine the reasonable alternatives to be advanced for detailed study in the Draft EIS.

During Level 2 screening, the WDC team collectively evaluated the alternatives advanced from Level 1 screening for their ability to meet the project's purpose and need as well as their impacts, costs, logistical considerations, feasibility, and practicability. If an alternative was similar to another alternative and was determined to have substantially higher impacts or costs without having substantially higher benefits, it was considered unreasonable for NEPA purposes and was not carried forward for detailed analysis in the EIS. A separate document, *Section 404(b)(1) Practicability Analysis*, was produced to specifically address practicability issues with the WDC alternatives.

The alternatives that passed Level 2 screening were advanced for detailed study in the Draft EIS. The alternatives considered in detail in the Draft EIS will go through additional engineering design and further refinement to optimize their performance and reduce their impacts.

Table 4-1. Level 2 Screening Criteria

Criterion	Measures
Access to transit and pedestrian facilities	<ul style="list-style-type: none"> • Number of mode transfer locations (for example, park-and-ride lots, bus stops, or commuter-rail stations). • Mode share. • Rate of growth in VMT. • 2040 daily VMT. • 2040 daily VMT per capita.
Consistency with local and regional plans	<ul style="list-style-type: none"> • Alternative's consistency with local and regional land-use and transportation plans.^a
Impacts to trail connections	<ul style="list-style-type: none"> • Number of trails that will be connected.
Cost, technology, and logistics	<ul style="list-style-type: none"> • Estimated project cost (general). • Constructability given available technology. • Logistical considerations.^b
Impacts to natural resources	<ul style="list-style-type: none"> • Acres and types of wetlands and other waters of the U.S. affected.^c • Acres and types of sensitive wildlife habitat affected. • Number of drainage crossings (includes streams, canals, or ditches). • Number and acres of Agriculture Protection Areas affected. • Acres of irrigated prime or unique farmland affected.^d • Acres of floodplain affected. • Percent increase in vehicle emissions based on VMT (impacts to air quality).
Impacts to the built environment	<ul style="list-style-type: none"> • Number and area of parks and trails affected. • Number of community facilities affected. • Number of potential property acquisitions, including residential, business, and utility acquisitions. • Number of Section 4(f)/Section 6(f) uses.^e • Potential for impacts to low-income or minority populations (environmental justice populations).^f • Number of cultural resources affected (for example, historic and archaeological resources).
Extent to which the alternative meets the project's purpose and need	<ul style="list-style-type: none"> • Relative effectiveness of the alternative in meeting the project's purpose and need; that is, the degree to which the alternative addresses regional mobility, peak-period mobility, mode interconnection, local growth objectives, and bicycle and pedestrian options compared to other alternatives. Similar alternatives could be combined to optimize performance.

^a This criterion will not be used to determine if an alternative is reasonable or practicable but will be used to make minor shifts to alignments.

^b Logistical considerations for each alternative are described in more detail in the *Section 404(b)(1) Practicability Analysis*.

^c Based on Clean Water Act requirements, an alternative with a substantially greater number of wetland impacts could be eliminated from detailed study.

^d Acres of prime or unique irrigated farmland were added to the Level 2 screening criteria based on comments from the Utah Department of Agriculture and farmers during the comment period in the spring of 2011. This metric estimates the effects to soils identified by the U.S. Department of Agriculture as being prime or unique that are irrigated and actively farmed.

^e Based on Section 4(f) of the Department of Transportation Act of 1966 requirements and Section 6(f) of the Land and Water Conservation Fund Act requirements, an alternative with a substantially greater number of Section 4(f) or Section 6(f) impacts could be eliminated from detailed study.

^f Areas with higher percentages of low-income or minority populations were identified using U.S. Census data. If an alternative would cause residential relocations in areas with higher percentages of low-income or minority populations, that alternative was determined to have a "high" potential for environmental justice impacts. If an alternative would not affect areas with higher percentages of low-income or minority populations, the alternative was determined to have a "low" potential for environmental justice impacts.

Assumptions

Technical Memorandum 14: Level 2 Screening Process explains the Level 2 screening process and methodologies. To summarize, during Level 2 screening, the WDC team used GIS software to estimate how each alternative would affect the resources listed in Table 4-1 above. The WDC team used GIS analysis to estimate how each alternative might affect resources such as wetlands, waters of the U.S., wildlife habitat, farmland, existing and planned transit systems, existing and planned parks and trail systems, cultural resources, and community facilities (such as schools, senior centers, fire stations, and community gathering places).

The WDC team also used GIS analysis to identify the expected number of impacts to homes and businesses, potential property acquisitions, and potential community impacts. Using aerial photographs from 2009 at a 1:1,000 scale, the team digitized the structures within or adjacent to the alternative alignments in a layer in a GIS file. During the public comment period in 2011, the WDC team received many comments and information about new and platted development from Cities, Counties, and the public. The WDC team updated the 2009 GIS property acquisitions layer with this information for use in 2011. The updated GIS layer was used to calculate the potential property impacts. If a structure was within an alternative's right-of-way, this was considered an acquisition during Level 2 screening. If a structure was not within an alternative's right-of-way, this was not considered an acquisition. Note that, in this technical memorandum, the terms *acquisition* and *relocation* are used interchangeably, since the Level 2 screening process evaluated only full acquisitions, which would include both the acquisition of property and the relocation of the occupants (owners or tenants) of the properties.

Right-of-Way Widths

The amount of impacts to the resources listed in Table 4-1 above was determined based on the estimated right-of-way width and the typical cross-section needed for each alternative. The right-of-way widths used in the Level 2 screening process are based on the roadway geometric standards in *A Policy on the Geometric Design of Highways and Streets* from the American Association of State Highway and Transportation Officials (AASHTO 2004). *Technical Memorandum 14: Level 2 Screening Process* shows the typical cross-sections that were used for each facility type. The widths assumed for these cross-sections are:

- Four-lane divided highway: 250 feet wide
- Five-lane arterial: 112 feet wide
- Seven-lane arterial: 136 feet wide

Widen Existing Roads

Three of the alternatives (Alternatives 05, 08, and 09A+04) considered in Level 2 screening included widening existing roads. Some of the existing roads identified for widening include roads that are planned to be widened as part of the 2040 WFRC RTP. The widening assumed with Alternatives 05, 08, and 09A+04 for these roads would be beyond the widening

identified in the 2040 WFRC RTP. It was assumed that the planned widening in the RTP would occur before the additional widening proposed with these alternatives. For the WDC project, this would consist of widening the existing roads listed in Table 2-2 on page 15 for Alternatives 05, 08, or 09A+04 by an additional lane in each direction. For example, if an existing three-lane road is shown as a five-lane arterial in the RTP, Alternatives 05, 08, and 09A+04 assume that it would be a seven-lane arterial for the WDC project.

Impacts were measured by calculating the difference between the existing right-of-way (for roads not planned to be widened) or the 2040 WFRC RTP widths (for roads planned to be widened) and the WDC typical cross-section widths for five-lane or seven-lane arterial widths (112 feet or 136 feet, respectively). The WDC team used the Level 2 screening data layers in the GIS files and aerial photographs during the process to reduce impacts to the community and natural resources if possible.

When developing the right-of-way lines for these alternatives, the WDC team performed an analysis to determine if widening to one side of an existing road would have fewer impacts. If the analysis showed that widening from the middle would affect development on both sides of the existing road, the WDC team assumed that the alternative would widen the road on one side of the existing road instead of from the middle. In this situation, the WDC team assumed that the alternative would widen the road on the side that would have the fewest impacts.

The WDC team performed a similar analysis for the widening identified in the 2040 WFRC RTP. The WDC team assumed that the RTP widening would occur under the scenario that would have the fewest impacts—from the middle if this would affect development on only one side of the existing road, or all on one side if widening from the middle would affect development on both sides of the existing road.

Cost Assumptions

Technical Memorandum 16: Level 2 Screening Alternatives Cost Estimate explains the methodology and assumptions that were used to estimate costs during the Level 2 screening process. To summarize, the WDC team developed construction cost estimates for the Level 2 alternatives based on similar projects in Utah and using information obtained from other states. The cost estimates are based on readily available cost information from recently completed construction projects in comparable surrounding areas. The cost estimates were calculated the same way for all of the alternatives to provide a reasonable basis for comparing alternatives during the Level 2 screening process.

The actual construction costs cannot be determined until additional design and impact data are available. Because the actual future construction costs depend on the costs of many highly variable inputs, the timing of construction would greatly affect the total cost of any project at the time of construction. However, because the cost estimates were applied similarly for all of the Level 2 alternatives, any variance from the actual costs would be similar for all of the alternatives.

The Level 2 cost estimates include estimates of construction costs, relocation costs, right-of-way costs, and wetland mitigation costs.

- **Construction Costs.** The construction costs were based on the length of each facility type included with each alternative. An estimated cost per mile for each facility type was used for the construction cost estimates. Items included in the per-mile costs are engineering, mobilization, pavement, earthwork, drainage, lighting, landscaping, signing, and striping. Cost estimates of interchanges and major structure costs were also included in addition to the cost-per-mile estimates.
- **Relocation Costs.** Relocation costs were estimated by multiplying the number of estimated relocations by the estimated relocation cost for each category of relocation (residential, agricultural, commercial, industrial, institutional, and utility).
- **Right-of-Way Costs.** The right-of-way costs were estimated by multiplying the number of acres of each type of land use by the estimated right-of-way cost for each type of land use. The land-use acreages were calculated by overlaying the footprint of each alternative onto the WDC land-use data layer in the GIS file.
- **Wetland Mitigation Costs.** Wetland mitigation costs were estimated by assuming a cost of \$250,000 per acre of affected wetland. This cost was based on a recently completed UDOT wetland mitigation bank, where the cost of creating 1 acre of wetland was estimated to be \$125,000. Mitigation ratios for wetland impacts generally range from 1:1 to 3:1 (meaning that 1 to 3 acres of new wetlands are created for every 1 acre affected). The mitigation ratio depends on the type, quality, and jurisdictional status of the affected wetlands. Because these variables were not known during the alternatives screening process, the WDC team assumed a mitigation ratio of 2:1 to conservatively estimate the costs for wetland mitigation during the alternatives screening process.

4.1.2 Level 2 Screening Results

Figure 4-1 below shows the results of Level 2 screening for each of the alternatives advanced to Level 2 screening. Since Alternatives 10A, 11A, and 13A all had multiple options, Figure 4-1 shows the range of Level 2 screening impacts for these alternatives' options.

Figure 4-1. Level 2 Screening Results

Level 2 Screening Measures*	Alternative 05	Alternative 08	Alternative 09A+04	Alternative 10A - Power Corridor	Alternative 11A - 2001 Corridor	Alternative 13A - Western Corridor
<small>*Measures are preliminary. The impacts and costs of alternatives advanced to the Draft EIS will change based on additional engineering design.</small>	I-15 and East-West Arterial Widening	I-15, East-West and North-South Arterial Widening	D&RG and East-West Arterial Widening	Range for All Options	Range for All Options	Range for All Options
Impacts to the Built Environment						
Total Number of Res. Or Bus. Relocations**	277	557	1108	274-690	33-109	46-121
Number of residential relocations	213	413	967	251-661	25-102	42-115
Number of business relocations**	64	144	141	23-29	6-11	4-8
Number of utility relocations	19	20	19	60-106	3-7	3-7
Number of parks	5	8	11	4-7	3-8	6-11
Number of community facilities	3	7	6	0-1	0	0-1
Number of Section 4f (public parks or wildlife refuges)	4	7	11	1-4	2-5	4-8
Number of 6f	0	0	0	0-1	0	0
Potential for Impacts to Low-Income or Minority Populations (Env. Justice)	High	High	High	High	Low	Low
Number of areas with high density of historic properties	16	30	17	4-5	0	0
Number of archaeological sites	49	53	77	15-17	13-18	16-20
Impacts to Farmlands						
Acres of Farmland (irrigated prime or unique farmland)	7.5	9.5	49.8	203-295	62-166	138-239
Number of APAs	0	4	0	2-5	0-4	8-12
Acres of APAs	0.0	0.7	0	15-17	0-43	33-38
Impacts to Natural Resources						
Total Acres of Wetlands	2.6	2.6	22.1	38-56	97-176	76-110
Acres of wetlands by quality						
High Quality	0.0	0.0	0.0	0.2-0.6	18-27	16-17
Medium Quality	0.0	0.0	0.1	13.4-33.1	47-104	35-53
Low Quality	0.0	0.0	1.3	14.0-18.6	16-46	18-28
Other	2.6	2.6	20.7	5.4-9.0	3-18	4-12
Acres of wildlife habitat by quality						
Acres of High Quality Wildlife Habitat	0.0	0.0	7.4	23-46	56-94	58-83
Acres of Medium Quality Wildlife Habitat	2.9	2.9	43.9	75-129	138-242	120-205
Acres of Low Quality Wildlife Habitat	11.3	16.1	243.5	411-488	266-480	413-572
Acres of 100-year floodplain	19.2	19.2	58.9	47-192	47-192	47-192
Number of water crossings	8	8	7.0	7	7-13	12-16
Costs						
Total Cost Estimate (to nearest \$1 M)	\$816 Million	\$1.15 Billion	\$1.16 Billion	\$572-\$809 Million	\$433-\$452 Million	\$476-\$496 Million
Consistency with Local and Regional Plans						
Is Alternative consistent with local and regional land-use and transportation plans?	Consistent with 0 of 11 local land-use and transportation plans.	Consistent with 0 of 11 local land-use and transportation plans.	Consistent with 0 of 11 local land-use and transportation plans.	Consistent with 2 of 8 local land-use and transportation plans.	Consistent with 5 of 7 local land-use and transportation plans.	Consistent with 3 of 7 local land-use and transportation plans.
Access to Transit and Pedestrian Facilities						
Number of mode transfer locations***	TBD	TBD	TBD	TBD	TBD	TBD
Daily Total Trips in WDC Study Area Mode Share (% Transit Trips)	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%
Rate of growth in Daily VMT (2009-2040)	59%	59%	64%	64%	62%	61%
2040 Daily VMT	6,073,100	6,079,500	6,269,200	6,257,600	6,202,900	6,153,100
Daily VMT per capita	24	24	25	25	24	24

**The number of business relocations for Alternatives 05, 08, and 09A+04 has increased compared to earlier versions of TM 15 due to field visits conducted as part of the Clean Water Act Section 404(b)(1) analysis. These field visits found that many relocated commercial buildings had multiple businesses occupying the relocated buildings.

***Mode Transfer Locations were not determined during Level 2 Screening.

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Level 2 Screening Results That Were Similar for All Alternatives

As shown in Figure 4-1 above, many of the Level 2 screening results were the same or similar for all of the alternatives evaluated. Because all of the alternatives performed substantially the same for these screening criteria, the WDC team was not able to use these criteria to differentiate between the alternatives during the Level 2 screening process.

All of the alternatives:

- Were constructable given available technology
- Would intersect and accommodate all crossings on existing trails
- Would intersect and accommodate all water crossings
- Would result in a transit mode share of 0.8% of the total trips in the study area
- Would result in an amount of daily VMT in the study area in 2040 of between 6.1 million and 6.3 million VMT per day
- Would result in a 59% to 64% growth rate in VMT compared to 2009 VMT levels (VMT would grow 58% under the 2040 No-Action Alternative)
- Would result in daily per-capita VMT levels of 20 VMT per capita,
- Would result in a 1% to 4% increase in vehicle emissions compared to the 2040 No-Action Alternative (based on VMT)

The Level 2 screening criteria include the evaluation of secondary objectives such as the number of mode transfer locations and trail locations. None of the alternatives would affect any existing mode transfer locations. During the Level 2 screening process, specific information about new mode transfer locations, trails, or trail connections was not available. However, none of the alternatives eliminated during the Level 2 screening process would provide unique opportunities for increasing the number of mode transfer locations and trail facilities compared to the alternatives advanced to the Draft EIS. The location and evaluation of viable mode transfer locations or pedestrian facilities will continue to be coordinated with UTA and local governments as the Draft EIS is developed.

Level 2 Screening Results Used for Evaluation

As discussed in the section above titled Level 2 Screening Results That Were Similar for All Alternatives, the values for several of the Level 2 screening criteria were the same or similar for all of the alternatives, and those criteria were therefore not useful for screening purposes. The Level 2 screening criteria that did have different values among the alternatives are discussed below.

Impacts to Natural Resources

Wetlands. All of the alternatives advanced to Level 2 screening would affect wetlands. The Level 2 alternatives' range of impacts to wetlands varied from 3 acres to 176 acres.

Wildlife Habitat. The Level 2 alternatives' range of impacts to high-quality wildlife habitat varied from 0 acres to 94 acres.

Floodplains. All of the alternatives advanced to Level 2 screening would affect floodplains. The Level 2 alternatives' range of impacts to floodplains varied from 19 acres to 192 acres.

Impacts to Farmland

Irrigated Prime or Unique Farmland. All of the alternatives advanced to Level 2 screening would affect irrigated prime or unique farmland. The Level 2 alternatives' range of impacts to irrigated prime or unique farmland varied from 7.5 acres to 295 acres.

Agriculture Protection Areas (APAs). The Level 2 alternatives' range of impacts to APAs varied from 0 to 12 APAs affected.

Impacts to the Built Environment

Residential Relocations. All of the alternatives advanced to Level 2 screening would require the acquisition of residences. All of the residential acquisitions evaluated during Level 2 screening were assumed to be relocations that would require displacement and compensation for existing or platted residences. The Level 2 alternatives' range of residential relocations varied from 25 to 967.

Business Relocations. All of the alternatives advanced to Level 2 screening would require the acquisition of businesses. All of the business acquisitions evaluated during Level 2 screening were assumed to be relocations that would require displacement and compensation for existing businesses. The Level 2 alternatives' range of business relocations varied from 4 to 144.

Section 4(f) Resources. All of the alternatives advanced to Level 2 screening would affect Section 4(f) resources. The Level 2 alternatives' range of impacts to Section 4(f) resources varied from 1 to 11.

Community Facilities. The Level 2 alternatives' range of community facilities affected varied from 0 to 7.

Section 6(f) Resources. Alternative 10A would affect 1 Section 6(f) property. Section 6(f) properties are properties acquired with federal Land and Water Conservation Act funds. All of the other alternatives would avoid impacts to Section 6(f) properties.

Low-Income or Minority Populations. Alternatives 05, 08, 09A+04, and 10A (all options) would affect areas that census data indicate have low-income or minority populations. Executive Order 12898, Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations, requires federal agencies to avoid disproportionate adverse impacts to low-income or minority populations. Alternative 11A and Alternative 13A (including all of their options) would not affect areas that census data indicate have low-income or minority populations.

Neighborhoods with Historic Properties. For Level 2 screening, due to the large size of the study area and the length of the alternatives being considered, the impacts to historic

properties were determined by reviewing the existing National Register of Historic Places data and by calculating the number of impacts for each alternative on neighborhoods that were identified as having 50% or more buildings that meet the age requirements to be considered historic buildings. The number of neighborhoods with historic properties undercounts the total number of historic property impacts, since each impact to a neighborhood with historic properties would likely affect many individual historic properties. Alternative 05 would affect 16 neighborhoods with historic properties, Alternative 08 would affect 30 neighborhoods with historic properties, and Alternative 09A+04 would affect 17 neighborhoods with historic properties. Alternative 10A would affect 4 or 5 neighborhoods with historic properties. Alternatives 11A and 13A (including all of their options) would not affect any neighborhoods with a high density of historic properties.

Archaeological Sites. For Level 2 screening, due to the large size of the study area, the impacts to archaeological sites were based on existing Utah Division of State History data. All of the alternatives advanced to Level 2 screening would affect archaeological sites. Alternatives 10A, 11A, and 13A would affect from 13 to 20 archaeological sites. Alternative 05 would affect 49 archaeological sites, Alternative 08 would affect 53 archaeological sites, and Alternative 09A+04 would affect 77 archaeological sites. No alternatives would avoid archaeological sites.

Cost

The preliminary costs for the alternatives advanced to Level 2 screening varied from \$433 million to \$1.16 billion. Alternatives 08 and 09A+04 had costs that exceeded \$1 billion. Alternative 05 and Alternative 10A Original Option had costs that exceeded \$800 million. Alternative 10A Modified Option had a cost that exceeded \$572 million. However, adding the costs of relocating Utility Trailer and Schneider's Bluff Golf Course and the 60 to 64 utility line impacts would increase the cost of Alternative 10A Modified Option by at least \$70 million, bringing the total cost to \$642 million to \$644 million. Alternatives 11A and 13A (including all options) had costs that were less than \$496 million.

Consistency with Local and Regional Plans

The WDC team evaluated each alternative to determine how consistent it would be with the local transportation and land-use plans of the cities and counties that would be affected by the alternative's footprint. Alternatives 05, 08, and 09A+04 would not be consistent with any city, county, or regional transportation or land-use plans. Only the southern end of Alternative 10A in Farmington and Kaysville, which shares a common alignment with Alternatives 11A and 13A, would be consistent with city, county, or regional transportation or land-use plans. The unique alignment sections of Alternative 10A would not be consistent with any city, county, or regional transportation or land-use plans. Alternatives 11A and 13A would be consistent with most of the city and county transportation and land-use plans. Only the version of Alternative 11A that followed the 2001 alignment would be consistent with all of the city and county transportation and land-use plans.

4.1.3 Level 2 Screening Evaluation

This section explains the reasons why each alternative advanced from Level 1 screening was eliminated during Level 2 screening or was advanced to the Draft EIS. This section includes a subsection with a map, description, and the determination for each Level 2 screening alternative. The subsections for Alternatives 10A, 11A, and 13A also describe the different options that were considered for these alternatives. A summary of the Level 2 screening process is provided in Section 4.1.4, Summary of Level 2 Screening.

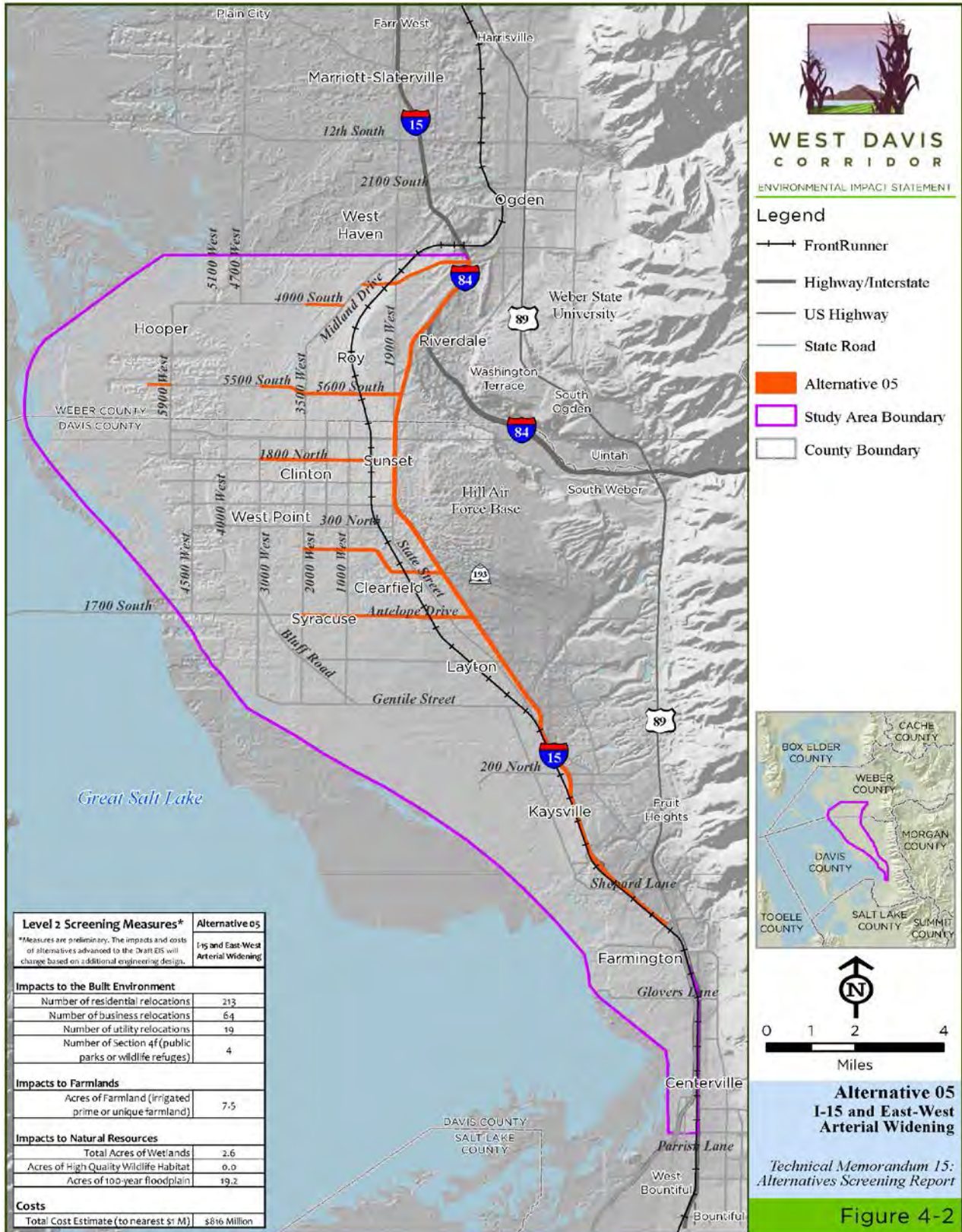
Alternative 05

Description and Options Considered

Alternative 05 proposed widening I-15 and existing east-west arterial roads. During the development of Alternative 05, the WDC team compared both sides of the existing roads to determine if widening to one side would have fewer impacts. If such an option existed, the WDC team assumed that the alternative would widen the road on the side that would have fewer impacts. Because this analysis took place during the development of Alternative 05, further refinement would not have led to a version of the alternative with fewer impacts. Only one version of Alternative 05 was considered for Level 2 screening.

Figure 4-2 below shows the existing roads that would be widened as part of Alternative 05 and includes an impact table showing the Level 2 screening impacts for Alternative 05.

Figure 4-2. Alternative 05



Determination

Alternative 05 was eliminated for having significantly higher impacts to the built environment and a significantly higher cost than the alternatives advanced to the Draft EIS.

- **Residential and Business Relocations.** Alternative 05 would require 213 potential residential relocations. The alternatives advanced to the Draft EIS would require 25 to 69 potential residential relocations. Alternative 05 would require 64 potential business relocations. The alternatives advanced to the Draft EIS would require 4 to 9 potential business relocations. Alternative 05 would affect about 3 to 9 times more residences and 7 to 16 times more businesses than the alternatives advanced to the Draft EIS.

The WDC team prepared a supplemental memo, *Technical Memorandum 15C: Logistical Considerations for Relocations*, which lists the business impacts of Alternative 05. Technical Memorandum 15C shows that the 64 businesses that would be relocated by Alternative 05 employ an estimated 482 to 600 people and have estimated annual revenues of \$76 million. Technical Memorandum 15C also describes the lack of suitable replacement properties for the affected businesses in the cities where they are currently located. Technical Memorandum 15C is included as Appendix K.

In addition to these direct impacts, Alternative 05 would also have significant indirect impacts to existing development, since widening the existing arterial roads would change the access to adjacent properties. Since most of these arterial roads are located in commercial districts, the impacts to local government planning and tax revenues would also likely be significant. The impacts to the local utility networks, which are generally located within, under, or adjacent to these arterial roads, would also be significant.

- **Historic Properties and Archaeological Resources.** Alternative 05 would have impacts to 16 neighborhoods with historic properties and impacts to 49 archaeological resources. The alternatives advanced to the Draft EIS would affect no neighborhoods with historic properties and 18 or fewer archaeological resources. Alternative 05 would affect 16 neighborhoods with historic properties that would not be affected by the alternatives advanced to the Draft EIS. Alternative 05 would affect about 3 times more archaeological resources than the alternatives advanced to the Draft EIS.

Because impacts to neighborhoods with historic properties and archaeological resources are considered Section 4(f) impacts, Alternative 05 would affect significantly more Section 4(f) protected historic properties and archaeological resources than the alternatives advanced to the Draft EIS. Additionally, because Alternative 05 would have significantly more impacts to residences in older neighborhoods, it would have a greater potential to affect additional historic properties that would qualify as Section 4(f) resources compared to the alternatives advanced to the Draft EIS.

- **Low-Income or Minority Populations.** Alternative 05 would have a higher likelihood of affecting low-income or minority populations, since it proposes

widening existing roads that would require residential relocations in neighborhoods where census data indicate low-income or minority populations reside. None of the alternatives advanced to the Draft EIS are likely to have impacts to low-income or minority populations.

- **Cost.** Alternative 05 would have a substantially higher cost. Alternative 05 was estimated to cost \$816 million. All of the alternatives advanced to the Draft EIS were estimated to cost \$439 million to \$482 million. The cost of Alternative 05 would be 69% to 86% more than the costs of the alternatives advanced to the Draft EIS.
- **Consistency with Local and Regional Plans.** Alternative 05 is inconsistent with all of the state, regional, city, and county transportation plans. Alternative 05 would widen I-15 and existing arterial roads beyond what is already planned. The facility types and general locations of the alternatives advanced to the Draft EIS are consistent with the 2040 WFRC RTP.
- **Transportation Performance.** Additionally, the travel demand model showed that segments of three arterials proposed as part of Alternative 05 would still function at LOS E or LOS F in 2040.
 - **5600 South:** Functioned at LOS F between I-15 and SR 126.
 - **1800 North:** Functioned at LOS E between I-15 and 1000 West.
 - **Antelope Drive:** Functioned at LOS E between I-15 and SR 126.

Summary. The WDC team determined that Alternative 05 was not a reasonable alternative due to its significantly higher impacts to existing residences, businesses, historic properties, archaeological resources, and low-income and minority populations; its lack of consistency with all city, county, and regional transportation and land-use plans and existing development; and its significantly higher cost. For these reasons, Alternative 05 was eliminated during the Level 2 screening process.

Alternative 08

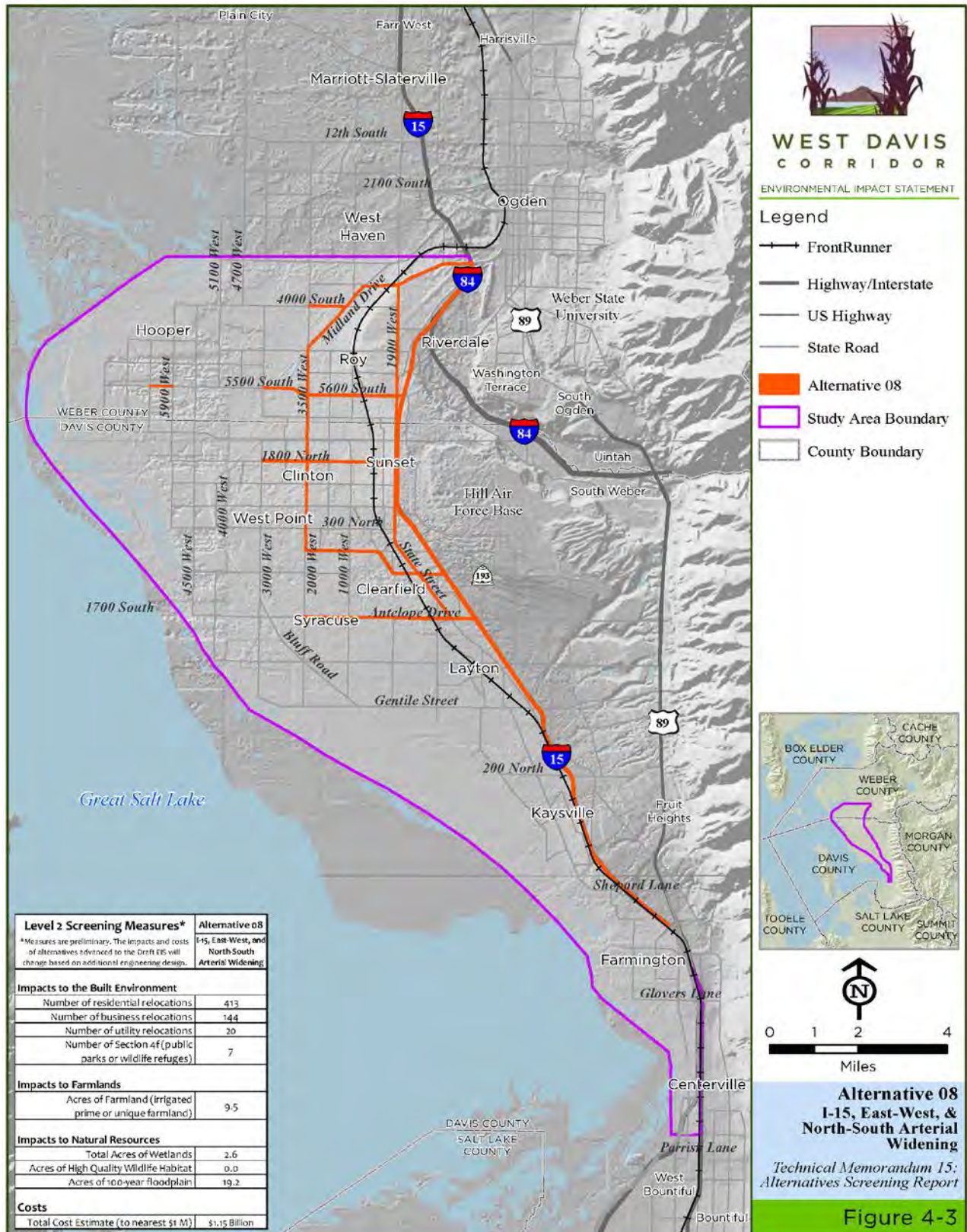
Description and Options Considered

Alternative 08 proposed widening I-15 and existing east-west and north-south arterial roads. Alternative 08 includes all projects proposed as part of Alternative 05 and also includes widening SR 126 and SR 108. As a result, Alternative 08 was essentially a better-performing but more expensive version of Alternative 05 with higher impacts.

During the development of Alternative 08, the WDC team compared both sides of the existing roads to determine if widening to one side would have fewer impacts. If such an option existed, the WDC team assumed that the alternative would widen the road on the side that would have fewer impacts. Because this analysis took place during the development of Alternative 08, further refinement would not have led to a version of the alternative with fewer impacts. Only one version of Alternative 08 was considered for Level 2 screening.

Figure 4-3 below shows the existing roads that would be widened as part of Alternative 08 and includes an impact table showing the Level 2 screening impacts for Alternative 08.

Figure 4-3. Alternative 08



Determination

Alternative 08 was eliminated for having significantly higher impacts to the built environment and a significantly higher cost than the alternatives advanced to the Draft EIS.

- **Residential and Business Relocations.** Alternative 08 would require 413 potential residential relocations. The alternatives advanced to the Draft EIS would require 25 to 69 potential residential relocations. Alternative 08 would require 144 potential business relocations. The alternatives advanced to the Draft EIS would require 4 to 9 potential business relocations. Alternative 08 would affect about 6 to 16 times more residences and 16 to 36 times more businesses than the alternatives advanced to the Draft EIS.

The WDC team prepared a supplemental memo, *Technical Memorandum 15C: Logistical Considerations for Relocations*, which lists the business impacts of Alternative 05. Alternative 08 would affect 144 businesses, including all 64 of the businesses that Alternative 05 would affect. Technical Memorandum 15C shows that the 64 businesses that would be relocated by Alternative 05 employ an estimated 482 to 600 people and have estimated annual revenues of \$76 million. Technical Memorandum 15C also describes the lack of suitable replacement properties for the affected businesses in the cities where they are currently located. Technical Memorandum 15C is included as Appendix K.

These business impacts would be even greater for Alternative 08 since it would affect 80 more businesses than Alternative 05. In addition to these direct impacts, Alternative 08 would also have significant indirect impacts to existing development, since widening the existing arterial roads would change the access to adjacent properties. Since most of these arterial roads are located in commercial districts, the impacts to local government planning and tax revenues would also likely be significant. The impacts to the local utility networks, which are generally located within, under, or adjacent to these arterial roads, would also be significant.

- **Historic Properties and Archaeological Resources.** Alternative 08 would have impacts to 30 neighborhoods with historic properties and impacts to 53 archaeological resources. The alternatives advanced to the Draft EIS would affect no neighborhoods with historic properties and 18 or fewer archaeological resources. Alternative 08 would affect 30 neighborhoods with historic properties that would not be affected by the alternatives advanced to the Draft EIS. Alternative 08 would affect about 3 times more archaeological resources than the alternatives advanced to the Draft EIS.

Because impacts to neighborhoods with historic properties and archaeological resources are considered Section 4(f) impacts, Alternative 08 would affect significantly more Section 4(f) protected historic properties and archaeological resources than the alternatives advanced to the Draft EIS. Additionally, because Alternative 08 would have significantly more impacts to residences in older neighborhoods, it would have a greater potential to affect additional historic

properties that would qualify as Section 4(f) resources compared to the alternatives advanced to the Draft EIS.

- **Community Facilities.** Alternative 08 would affect 7 community facilities. The alternatives advanced to the Draft EIS would affect either 0 or 1 community facility. Alternative 08 would affect about 7 times more community facilities than the alternatives advanced to the Draft EIS.
- **Low-Income or Minority Populations.** Alternative 08 would have a higher likelihood of affecting low-income or minority populations, since it proposes widening existing roads that would require residential relocations in neighborhoods where census data indicate low-income or minority populations reside. None of the alternatives advanced to the Draft EIS are likely to have impacts to low-income or minority populations.
- **Cost.** Alternative 08 would have a substantially higher cost. Alternative 08 was estimated to cost \$1.15 billion. All of the alternatives advanced to the Draft EIS were estimated to cost \$439 million to \$482 million. The cost of Alternative 08 would be 138% to 162% more than the costs of the alternatives advanced to the Draft EIS.
- **Consistency with Local and Regional Plans.** Alternative 08 is inconsistent with all of the state, regional, city, and county transportation plans. Alternative 08 would widen I-15 and existing arterial roads beyond what is already planned. The facility types and general locations of the alternatives advanced to the Draft EIS are consistent with the 2040 WFRC RTP.
- **Transportation Performance.** Additionally, the travel demand model showed that segments of three arterials proposed as part of Alternative 08 would still function at LOS E or LOS F in 2040.
 - **5600 South:** Functioned at LOS F between I-15 and SR 126.
 - **1800 North:** Functioned at LOS E between I-15 and 1000 West.
 - **Antelope Drive:** Functioned at LOS E between I-15 and SR 126.

Summary. The WDC team determined that Alternative 08 was not a reasonable alternative due to its significantly higher impacts to existing residences, businesses, historic properties, archaeological resources, community facilities, and low-income and minority populations; its lack of consistency with all city, county, and regional transportation and land-use plans and existing development; and its significantly higher cost. For these reasons, Alternative 08 was eliminated during the Level 2 screening process.

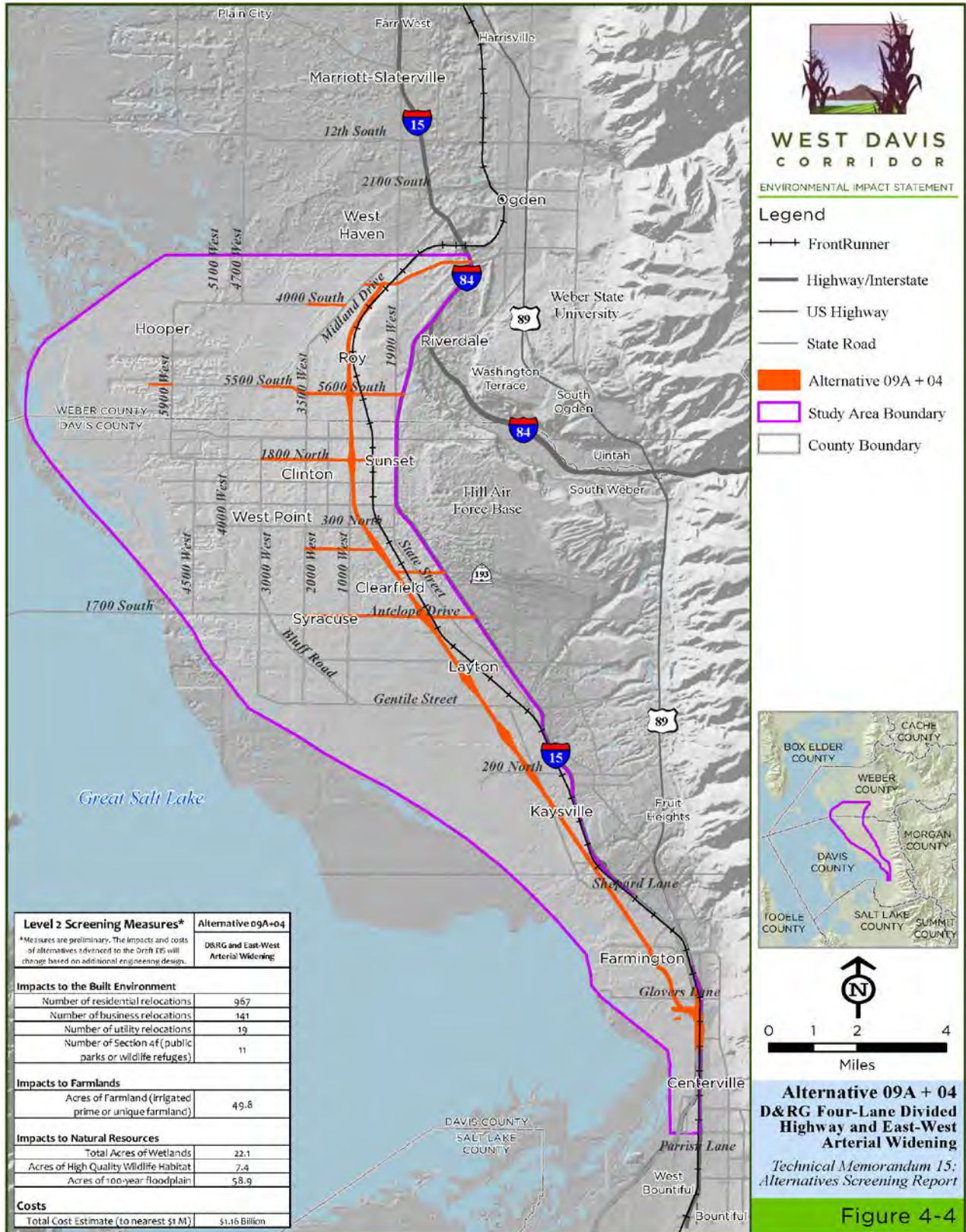
Alternative 09A+04

Description and Options Considered

Alternative 09A+04 proposed a new four-lane divided highway on the D&RG alignment along with widening existing east-west arterial roads. During the development of Alternative 09A+04, the WDC team compared both sides of the existing roads to determine if widening to one side would have fewer impacts. If such an option existed, the WDC team assumed that the alternative would widen the road on the side that would have fewer impacts. Because this analysis took place during the development of Alternative 09A+04, further refinement would not have led to a version of the alternative with fewer impacts. Only one version of Alternative 09A+04 was considered for Level 2 screening.

Figure 4-4 below shows the existing roads that would be widened as part of Alternative 09A+04 and includes an impact table showing the Level 2 screening impacts for Alternative 09A+04.

Figure 4-4. Alternative 09A+04



Determination

Alternative 09A+04 was eliminated for having significantly higher impacts to the built environment and a significantly higher cost than the alternatives advanced to the Draft EIS.

- **Residential and Business Relocations.** Alternative 09A+04 would require 967 potential residential relocations. The alternatives advanced to the Draft EIS would require 25 to 69 potential residential relocations. Alternative 09A+04 would require 141 potential business relocations. The alternatives advanced to the Draft EIS would require 4 to 9 potential business relocations. Alternative 09A+04 would affect about 14 to 39 times more residences and 15 to 35 times more businesses than the alternatives advanced to the Draft EIS.

The WDC team prepared a supplemental memo, *Technical Memorandum 15C: Logistical Considerations for Relocations*, which lists the business impacts of Alternative 05. Alternative 09A+04 would affect 141 businesses, including all 64 of the businesses that Alternative 05 would affect. Technical Memorandum 15C shows that the 64 businesses that would be relocated by Alternative 05 employ an estimated 482 to 600 people and have estimated annual revenues of \$76 million. Technical Memorandum 15C also describes the lack of suitable replacement properties for the affected businesses in the cities where they are currently located. Technical Memorandum 15C is included as Appendix K.

These business impacts would be even greater for Alternative 09A+04 since it impacts 77 more businesses than Alternative 05. In addition to these direct impacts, Alternative 09A+04 would also have significant indirect impacts to existing development, since locating a new four-lane divided highway on the D&RG corridor would not be consistent with the existing transportation and utility networks in the study area. Widening the existing arterial roads would also likely cause indirect impacts as a result of changing the access to adjacent properties. Since a large part of the D&RG corridor and most of these arterial roads are located in commercial districts, the impacts to local government planning and tax revenues would also likely be significant. The impacts to the local utility networks, which are generally located within, under, or adjacent to these arterial roads, would also be significant.

- **Historic Properties and Archaeological Resources.** Alternative 09A+04 would have impacts to 17 neighborhoods with historic properties and impacts to 77 archaeological resources. The alternatives advanced to the Draft EIS would affect no neighborhoods with historic properties and 18 or fewer archaeological resources. Alternative 09A+04 would affect 17 neighborhoods with historic properties that would not be affected by the alternatives advanced to the Draft EIS. Alternative 09A+04 would affect about 4 times more archaeological resources than the alternatives advanced to the Draft EIS.

Because impacts to neighborhoods with historic properties and archaeological resources are considered Section 4(f) impacts, Alternative 09A+04 would affect significantly more Section 4(f) protected historic properties and archaeological

resources than the alternatives advanced to the Draft EIS. Additionally, because Alternative 09A+04 would have significantly more impacts to residences in older neighborhoods, it would have a greater potential to affect additional historic properties that would qualify as Section 4(f) resources compared to the alternatives advanced to the Draft EIS.

- **Community Facilities.** Alternative 09A+04 would affect 6 community facilities. The alternatives advanced to the Draft EIS would affect either 0 or 1 community facility. Alternative 09A+04 would affect about 6 times more community facilities than the alternatives advanced to the Draft EIS.
- **Parks.** Alternative 09A+04 would affect 11 public parks that would be considered Section 4(f) resources. The alternatives advanced to the Draft EIS would affect 8 or fewer public parks that would be considered Section 4(f) resources. Alternative 09A+04 would affect at least 3 more public parks that would be considered Section 4(f) resources than the alternatives advanced to the Draft EIS.
- **Low-Income or Minority Populations.** Alternative 09A+04 would have a higher likelihood of affecting low-income or minority populations, since it proposes a new four-lane divided highway and widening existing roads that would require residential relocations in neighborhoods where census data indicate low-income or minority populations reside. None of the alternatives advanced to the Draft EIS are likely to have impacts to low-income or minority populations.
- **Cost.** Alternative 09A+04 would have a substantially higher cost. Alternative 09A+04 was estimated to cost \$1.16 billion. All of the alternatives advanced to the Draft EIS were estimated to cost \$439 million to \$482 million. The cost of Alternative 09A+04 would be 140% to 164% more than the costs of the alternatives advanced to the Draft EIS.
- **Consistency with Local and Regional Plans.** Alternative 09A+04 is inconsistent with all of the state, regional, city, and county transportation plans. Alternative 09A+04 would place a new four-lane divided highway in planned, existing residential and commercial development and would widen existing arterial roads beyond what is already planned. The facility types and general locations of the alternatives advanced to the Draft EIS are consistent with the 2040 WFRM RTP.
- **Restriction on Use of the D&RG Rail Corridor.** Alternative 09A+04 would affect the D&RG rail alignment, which has been converted to a regional trail. The Utah Transit Authority has an agreement with Union Pacific Railroad to use the alignment as a potential future transit corridor. Currently, the D&RG alignment is under a Notice of Interim Trail Use and is subject to reactivation for freight use. The alignment is also subject to the Prospective Purchaser Agreement with the Utah Department of Environmental Quality and EPA that allows the alignment to be used for rail or trail use only. The Utah Transit Authority intends to use the D&RG alignment as a future transit corridor, and therefore this alignment is not available for UDOT to use for the WDC as part of Alternative 09A+04.

- **Transportation Performance.** Additionally, the travel demand model showed that segments of three arterials proposed as part of Alternative 09A+04 would still function at LOS E or LOS F in 2040.
 - **5600 South:** Functioned at LOS F between I-15 and SR 126.
 - **1800 North:** Functioned at LOS E between I-15 and 1000 West.
 - **Antelope Drive:** Functioned at LOS E between I-15 and SR 126.

Summary. The WDC team determined that Alternative 09A+04 was not a reasonable alternative due to its significantly higher impacts to existing residences, businesses, historic properties, archaeological resources, community facilities, parks, and low-income and minority populations; its lack of consistency with all city, county, and regional transportation and land-use plans and existing development; and its significantly higher cost. In addition, Alternative 09+04 would use the D&RG rail corridor, which is not available for use for the WDC. For these reasons, Alternative 09A+04 was eliminated during the Level 2 screening process.

Alternative 10A

Description and Options Considered

Alternative 10A proposed a new four-lane divided highway following the Rocky Mountain power corridor alignment. Two southern options and two northern options were considered for Alternative 10A.

The two southern options, the Shepard Lane Option and the Glovers Lane Option, are the same two southern options considered for Alternative 11A and Alternative 13A. The alignment of Alternative 10A followed the same alignment as Alternative 11A and Alternative 13A from Farmington until about 2000 West in Layton.

The first northern option was the original option that followed the Rocky Mountain Power corridor north to 2550 South 3500 West in Weber County, with an interchange at 4000 South and a five-lane arterial road from 4000 South to 2550 South. The second northern option was a modified option that went west from the first option around 700 South in Clearfield, stayed west to about 3800 West in West Point, turned north at 3800 West, and had a last interchange at 1800 North with a five-lane arterial between 1800 North in Davis County and 5500 South in Weber County. The modified option of Alternative 10A was an alignment recommended for analysis by the resource agencies (USFWS, USACE, and EPA).

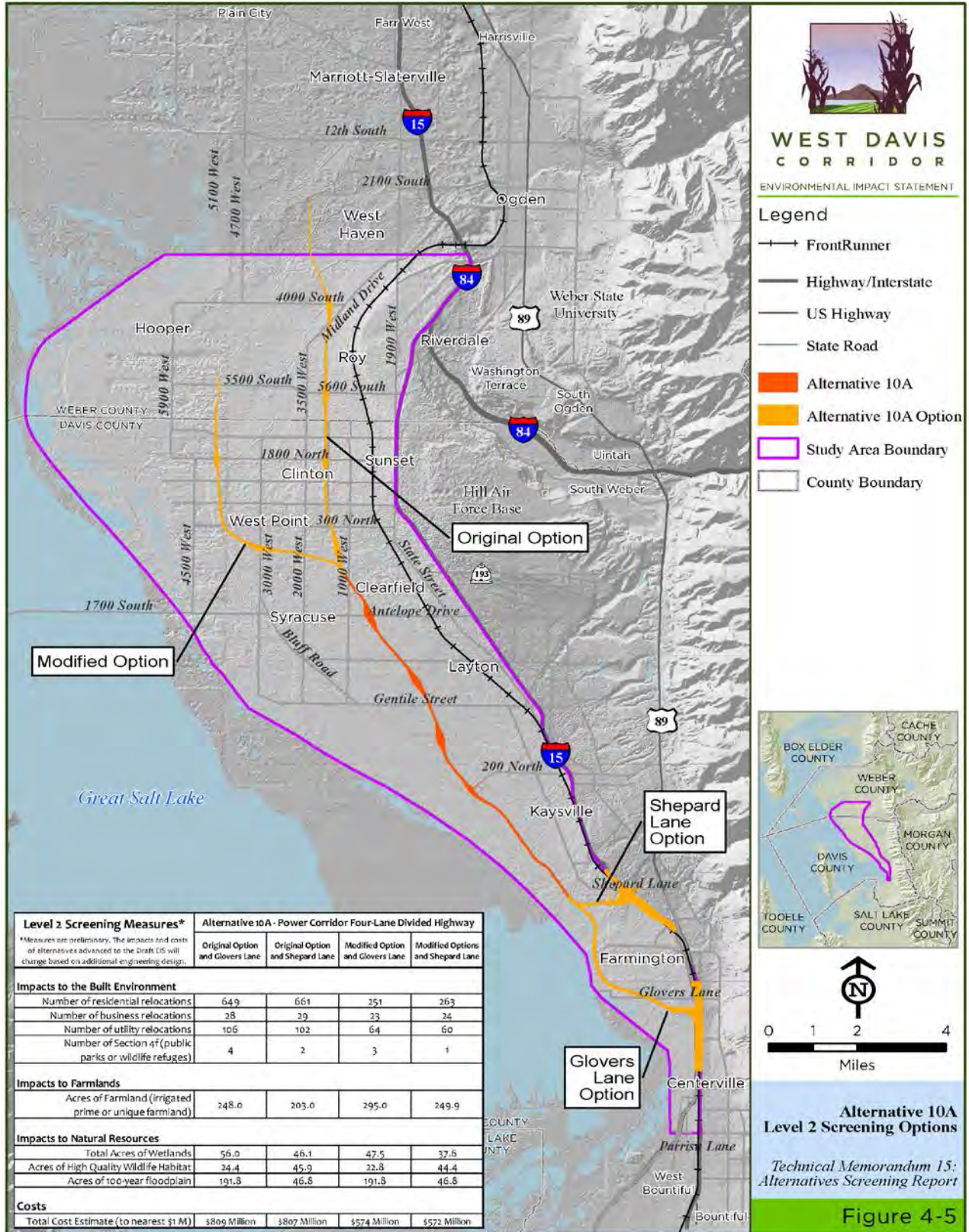
When considering the alignment for Alternative 10A north of 1000 South in Layton, the WDC team evaluated whether an alignment along the east side or west side of the power corridor would have more impacts. The WDC team found that both sides would have a large amount of impacts but chose the east side to use for analysis, since the alignment on the east side of the power corridor would have 29 fewer direct residential impacts, fewer indirect residential impacts, 11 fewer business impacts, 2 fewer Section 4(f) impacts, no Section 6(f) impacts (the west side alignment would affect a Section 6(f) park), fewer impacts to irrigated prime or unique farmland, and no impacts to the Syracuse City Cemetery compared to the alignment on the west side of the power corridor. The alignment on the west side of the



power corridor would affect 0.1 acre of wetlands; the alignment on the east side of the power corridor would affect 2.2 acres of wetlands.

Figure 4-5 below shows the new four-lane divided highway alignments and options for Alternative 10A and includes an impact table showing the Level 2 screening impacts for the four different option combinations for Alternative 10A.

Figure 4-5. Alternative 10A



Determination

Both the original and modified options of Alternative 10A were eliminated for having significantly higher impacts to the built environment and significantly higher costs than the alternatives advanced to the Draft EIS.

Alternative 10A Original Option

- **Residential and Business Relocations.** Alternative 10A Original Option would require 649 to 661 potential residential relocations. The alternatives advanced to the Draft EIS would require 25 to 69 potential residential relocations. Alternative 10A Original Option would require 28 to 29 potential business relocations, including Utility Trailer. Utility Trailer is one of the seven largest employers in Davis County and employs 700 to 1,000 people (Davis County Office of the Assessor 2011).

The WDC team prepared *Technical Memorandum 15A: Alternative 10A Modified – Bridge over Utility Trailer*, which describes why it is not possible to construct a bridge over Utility Trailer to avoid affecting it, and *Technical Memorandum 15B: Alternative 10A Modified – Economic Impacts of Utility Trailer Closure*, which estimates that the economic impacts of closing Utility Trailer would likely be a loss of 1,255 jobs, a loss of \$15 million in tax revenues, and a total economic output loss of \$238.5 million. Although these technical memoranda refer to Alternative 10A Modified, the impact to Utility Trailer would be the same for Alternatives 10A and 10A Modified Option, so the technical memoranda are applicable to both alternatives. Technical Memorandum 15A and Technical Memorandum 15B are included as Appendix I and Appendix J.

The alternatives advanced to the Draft EIS would require 4 to 9 potential business relocations. Alternative 10A Original Option would require 102 to 106 utility relocations. The alternatives advanced to the Draft EIS would require 3 to 7 utility relocations. Alternative 10A Original Option would require 592 to 617 more residential relocations, 20 to 24 more business relocations (including Utility Trailer), and 99 more utility relocations than the alternatives advanced to the Draft EIS.

In addition to these direct impacts, Alternative 10A Original Option would also have significant indirect impacts to existing development, since locating a new four-lane divided highway on the power corridor would not be consistent with the existing transportation and utility networks in the study area. Alternative 10A Original Option would remove at least 30 streets and terminate 35 streets from the local transportation network in Clearfield and Roy. Since the majority of the power corridor is surrounded by residential development and commercial districts, the impacts to local government planning and tax revenues would also likely be significant. The impacts to the local utility networks would also be significant due to the density and levels of impacts to existing development.

- **Historic Properties.** Alternative 10A Original Option would have impacts to 5 neighborhoods with historic properties. The alternatives advanced to the Draft EIS would affect no neighborhoods with historic properties. Alternative 10A Original Option would affect 5 neighborhoods with historic properties that would not be affected by the alternatives advanced to the Draft EIS. Because impacts to neighborhoods with historic properties are considered Section 4(f) impacts, Alternative 10A Original Option would affect significantly more Section 4(f) protected historic properties than the alternatives advanced to the Draft EIS. Additionally, because Alternative 10A Original Option would have significantly more impacts to residences in older neighborhoods, it would have a greater potential to affect additional historic properties that would qualify as Section 4(f) resources compared to the alternatives advanced to the Draft EIS.
- **Low-Income or Minority Populations.** Alternative 10A Original Option would have a higher likelihood of affecting low-income or minority populations, since it proposes a new four-lane divided highway that would require significant numbers of residential relocations in neighborhoods where census data indicate low-income or minority populations reside. None of the alternatives advanced to the Draft EIS are likely to have impacts to low-income or minority populations.
- **Cost.** Alternative 10A Original Option would have a substantially higher cost. Alternative 10A Original Option was estimated to cost \$807 million to \$809 million. All of the alternatives advanced to the Draft EIS were estimated to cost \$439 million to \$482 million. The cost of Alternative 10A Original Option would be 68% to 83% more than the costs of the alternatives advanced to the Draft EIS.
- **Consistency with Local and Regional Plans.** Alternative 10A Original Option is inconsistent with all of the state, regional, city, and county transportation plans. Alternative 10A Original Option would locate a new four-lane divided highway in developed areas with dense existing residential, commercial, and industrial development. The new four-lane divided highway proposed in Alternative 10A Original Option would be incompatible with the existing regional and local street networks in Layton, Syracuse, Clearfield, Clinton, Roy, and West Haven. The facility types and general locations of the alternatives advanced to the Draft EIS are consistent with the 2040 WFRC RTP.

Summary. The WDC team determined that Alternative 10A Original Option was not a reasonable alternative due to its significantly higher impacts to existing residences, businesses, historic properties, and low-income and minority populations; its lack of consistency with all city, county, and regional transportation and land-use plans and existing development; and its significantly higher costs. For these reasons, Alternative 10A Original Option was eliminated during the Level 2 screening process.

Alternative 10A Modified Option

- **Residential and Business Relocations.** Alternative 10A Modified Option would require 251 to 263 potential residential relocations. The alternatives advanced to the Draft EIS would require 25 to 69 potential residential relocations. Alternative 10A Modified Option would require 23 to 24 potential business relocations, including Utility Trailer. Utility Trailer is one of the seven largest employers in Davis County and employs 700 to 1,000 people (Davis County Office of the Assessor 2011).

The WDC team prepared *Technical Memorandum 15A: Alternative 10A Modified – Bridge over Utility Trailer*, which describes why it is not possible to construct a bridge over Utility Trailer to avoid affecting it, and *Technical Memorandum 15B: Alternative 10A Modified – Economic Impacts of Utility Trailer Closure*, which estimates that the economic impacts of closing Utility Trailer would likely be a loss of 1,255 jobs, a loss of \$15 million in tax revenues, and a total economic output loss of \$238.5 million. Technical Memorandum 15A and Technical Memorandum 15B are included as Appendix I and Appendix J.

Alternative 10A Modified Option would also require the relocation of Schneiter's Bluff Golf Course in West Point, since it would relocate six holes of an 18-hole golf course and would separate the remaining 12 holes from the clubhouse, putting green, and driving range. It would cost at least \$5 million to construct a new golf course, assuming that a suitable location is available. Golf courses require about 150 acres of contiguous property. Given the developed nature of West Point, it would not be possible to find available, contiguous land suitable for relocating the golf course in West Point.

The alternatives advanced to the Draft EIS would require 4 to 9 potential business relocations. Alternative 10A Modified Option would require 60 to 64 utility relocations, relocate about 1 mile of two power distribution lines, and would acquire property that is part of the Rocky Mountain Power Syracuse Substation. The alternatives advanced to the Draft EIS would require 3 to 7 utility relocations. Alternative 10A Modified Option would require 194 to 226 more residential relocations, 15 to 19 more business relocations (including Utility Trailer and Schneiter's Bluff Golf Course), and 57 more utility relocations than the alternatives advanced to the Draft EIS.

In addition to these direct impacts, Alternative 10A Modified Option would also have significant indirect impacts to existing development, since locating a new four-lane divided highway on the power corridor would not be consistent with the existing transportation and utility networks in the study area. Alternative 10A Modified Option would remove 10 streets and terminate 15 streets from the local transportation network in Clearfield. Since the majority of the power corridor is surrounded by residential development and commercial districts, the impacts to local government planning and tax revenues would also likely be significant. The impacts to the local utility networks would also be significant due to the density and levels of impacts to existing development.

- **Historic Properties.** Alternative 10A Modified Option would have impacts to 4 neighborhoods with historic properties. The alternatives advanced to the Draft EIS would affect no neighborhoods with historic properties. Alternative 10A Modified Option would affect 4 neighborhoods with historic properties that would not be affected by the alternatives advanced to the Draft EIS. Because impacts to neighborhoods with historic properties are considered Section 4(f) impacts, Alternative 10A Modified Option would affect significantly more Section 4(f) protected historic properties than the alternatives advanced to the Draft EIS. Additionally, because Alternative 10A Modified Option would have significantly more impacts to residences in older neighborhoods, it would have a greater potential to affect additional historic properties that would qualify as Section 4(f) resources compared to the alternatives advanced to the Draft EIS.
- **Low-Income or Minority Populations.** Alternative 10A Modified Option would have a higher likelihood of affecting low-income or minority populations, since it proposes a new four-lane divided highway that would require significant numbers of residential relocations in neighborhoods where census data indicate low-income or minority populations reside. About 6.5 miles of the 17-to-20-mile Alternative 10A Modified Option—from Gentile Street in Layton to 300 South in West Point—are in an area where most of the census tracts have percentages of low-income and minority populations that are higher than the averages for the surrounding county. This 6.5-mile segment is 33% to 38% of the alternative. None of the alternatives advanced to the Draft EIS are likely to affect low-income or minority populations.
- **Irrigated Prime or Unique Farmland.** Alternative 10A Modified Option had the highest number of impacts to irrigated prime or unique farmland of all the alternatives considered in Level 2 screening. Alternative 10A Modified Option would affect 64 to 182 more acres of irrigated prime or unique farmland, or 27% to 267% more than the alternatives advanced to the Draft EIS.
- **Cost.** Alternative 10A Modified Option would have a substantially higher cost. Alternative 10A Modified Option was estimated to cost \$572 million to \$574 million using the Level 2 screening cost estimates. However, adding the costs of relocating Utility Trailer and Schneider’s Bluff Golf Course and the 60 to 64 utility line impacts would increase the cost of this alternative by at least \$70 million, bringing the cost of Alternative 10 Modified Option to \$642 million to \$644 million. (These costs were not accurately reflected in the \$1.535 million cost per business relocation used as part of the Level 2 screening cost estimate.) All of the alternatives advanced to the Draft EIS were estimated to cost \$439 million to \$482 million. The cost of Alternative 10A Modified Option would be \$162 million to \$203 million, or 33% to 46% more than the costs of the alternatives advanced to the Draft EIS, counting the additional cost of at least \$70 million that would be needed to relocate Utility Trailer, Schneider’s Bluff Golf Course, and the utility infrastructure.

- **Consistency with Local and Regional Plans.** Alternative 10A Modified Option is inconsistent with all of the state, regional, city, and county transportation plans. Alternative 10A Modified Option would locate a new four-lane divided highway in developed areas with dense existing residential, commercial, and industrial development. The new four-lane divided highway proposed in Alternative 10A Modified Option would be incompatible with the existing regional and local street networks in Layton, Syracuse, Clearfield, West Point, and West Haven. The facility types and general locations of the alternatives advanced to the Draft EIS are consistent with the 2040 WFRC RTP.
- **Transportation System Impacts.** Alternative 10A Modified Option would remove 10 roads from the local network, terminate 15 local roads, and construct 20 crossings of existing roads between the Davis County–Weber County border and Kaysville. Additionally, providing a connection to SR 193, a major east-west arterial in Clearfield, might not be possible with this design. Changes to the currently planned transportation network could cause additional relocations, out-of-direction travel, and increased travel time.

Summary. The WDC team determined that Alternative 10A Modified Option was not a reasonable alternative due to its significantly higher impacts to existing residences, businesses, utilities, historic properties, low-income and minority populations, and irrigated prime or unique farmland; its lack of consistency with all city, county, and regional transportation and land-use plans and existing development; and its significantly higher cost. For these reasons, Alternative 10A Modified Option was eliminated during the Level 2 screening process.

Alternative 11A

Description and Options Considered

Alternative 11A proposed a new four-lane divided highway following the 2001 alignment. Two southern options, four Syracuse options, and six West Point options were considered for Alternative 11A. Figure 4-6 below shows all of the new four-lane divided highway options that were considered for Alternative 11A as part of the Level 2 screening process and includes an impact table showing the range of Level 2 screening impacts for the 48 different options for Alternative 11A.

Southern Options for Alternative 11A

The two southern options, the Shepard Lane Option and the Glovers Lane Option, are the same two southern options considered for Alternative 10A and Alternative 13A. Figure 4-7 below shows the alignment and southern options for Alternative 11A and includes an impact table showing the Level 2 screening impacts for the Shepard Lane and Glovers Lane southern options and the Kaysville and Layton segment for Alternative 11A.

Figure 4-6. Alternative 11A

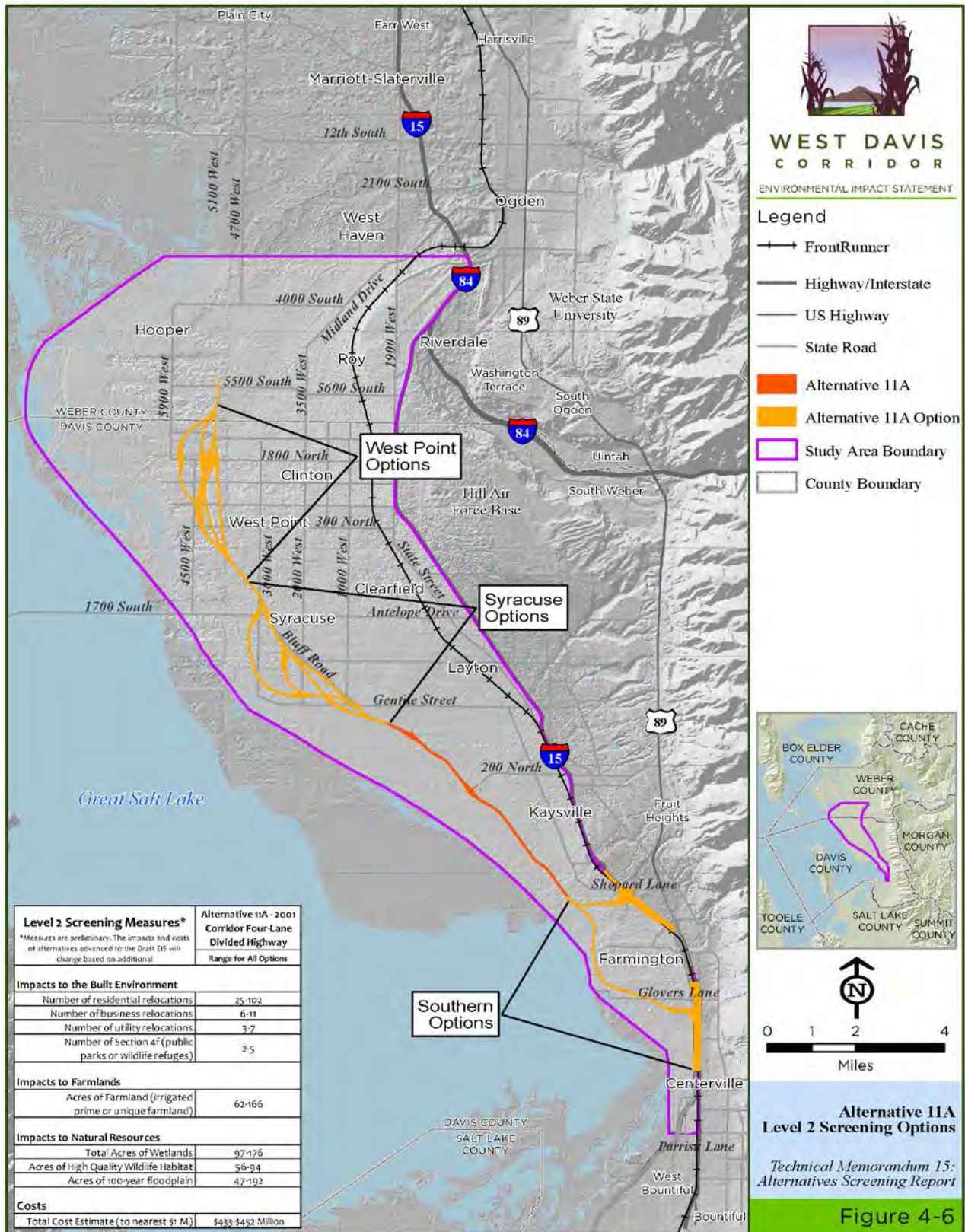
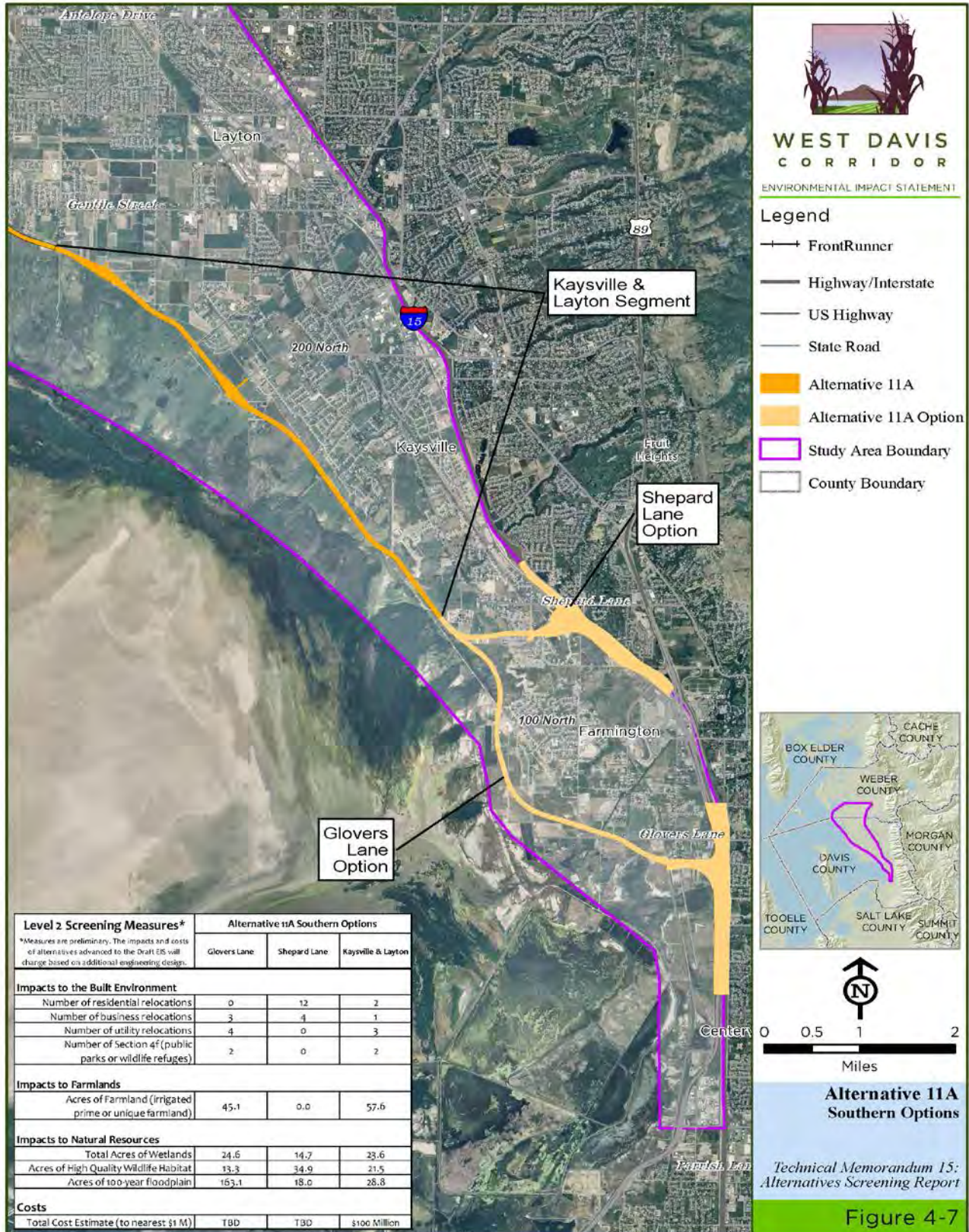


Figure 4-7. Alternative 11A Southern Options



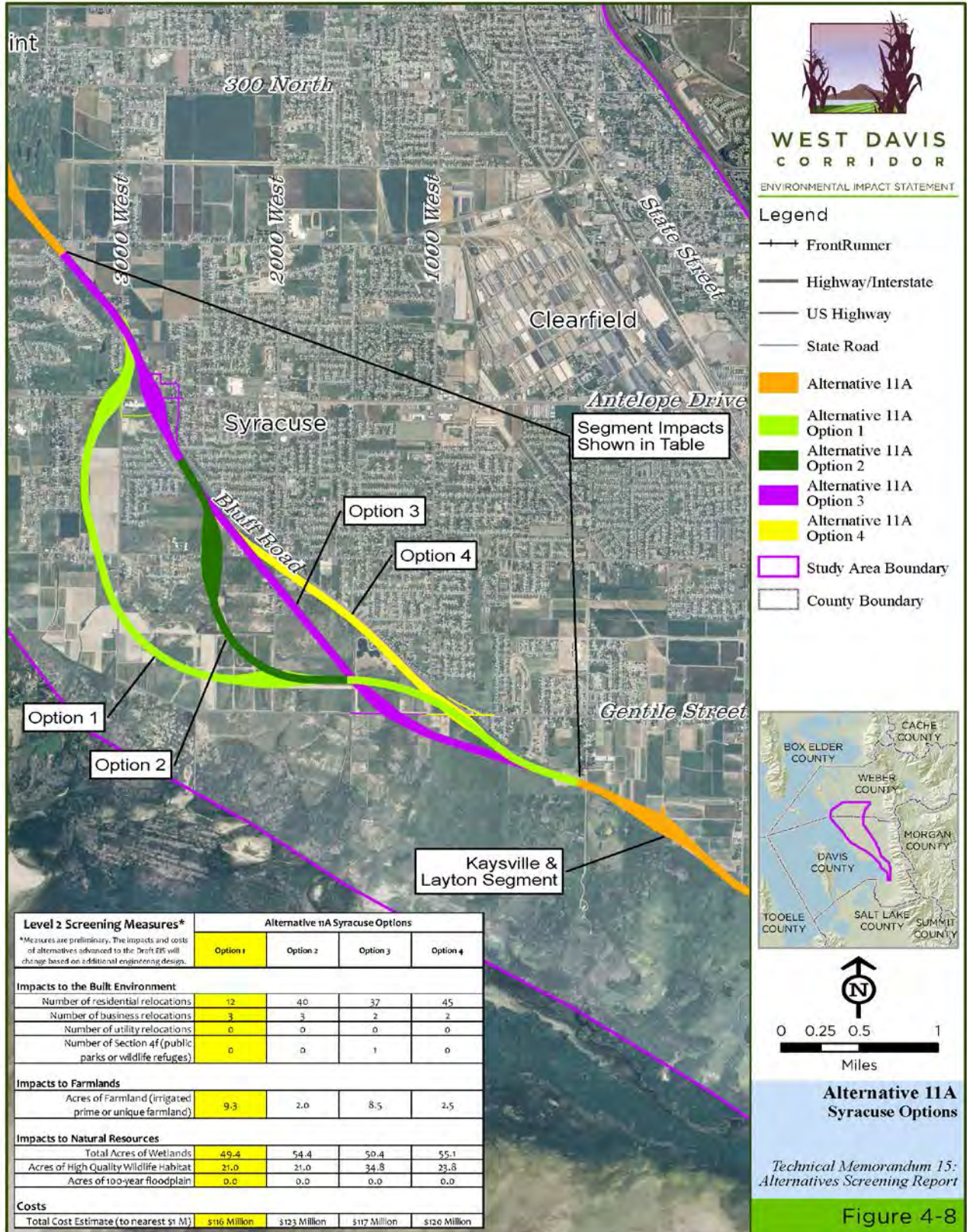
Syracuse Options for Alternative 11A

The alignment of Alternative 11A generally followed the 2001 alignment from Farmington to the Layton-Syracuse city boundary. In Syracuse, Alternative 11A included four options between 3200 West in Layton and the Syracuse–West Point city boundary near 700 South east of the Glen Eagle Golf Course. These four options are shown in Figure 4-8 below.

- **Option 1:** Option 1 stays west to about 3000 West, then turns north crossing Antelope Drive near 3000 West, and merges back to the 2001 alignment north of Antelope Drive.
- **Option 2:** Option 2 stays west to about 2400 West, then turns north to merge back to the 2001 alignment near 2200 South.
- **Option 3:** Option 3 is a western version of the Bluff Road alignment that was suggested by Syracuse City and public comments. Option 3 stays west of Jensen Park before merging back to the 2001 alignment near 2600 South.
- **Option 4:** This is the original 2001 alignment, which stays just west of Bluff Road from Gentile Street to Antelope Drive, then stays east of the Glen Eagle Golf Course from Antelope Drive to 700 South.

Figure 4-8 shows the alignments and four Syracuse options for Alternative 11A and includes an impact table showing the Level 2 screening impacts for the four Syracuse options for Alternative 11A. The impacts in the table for each option are the impacts from 3200 West in Layton to about 700 South in Syracuse.

Figure 4-8. Alternative 11A Syracuse Options



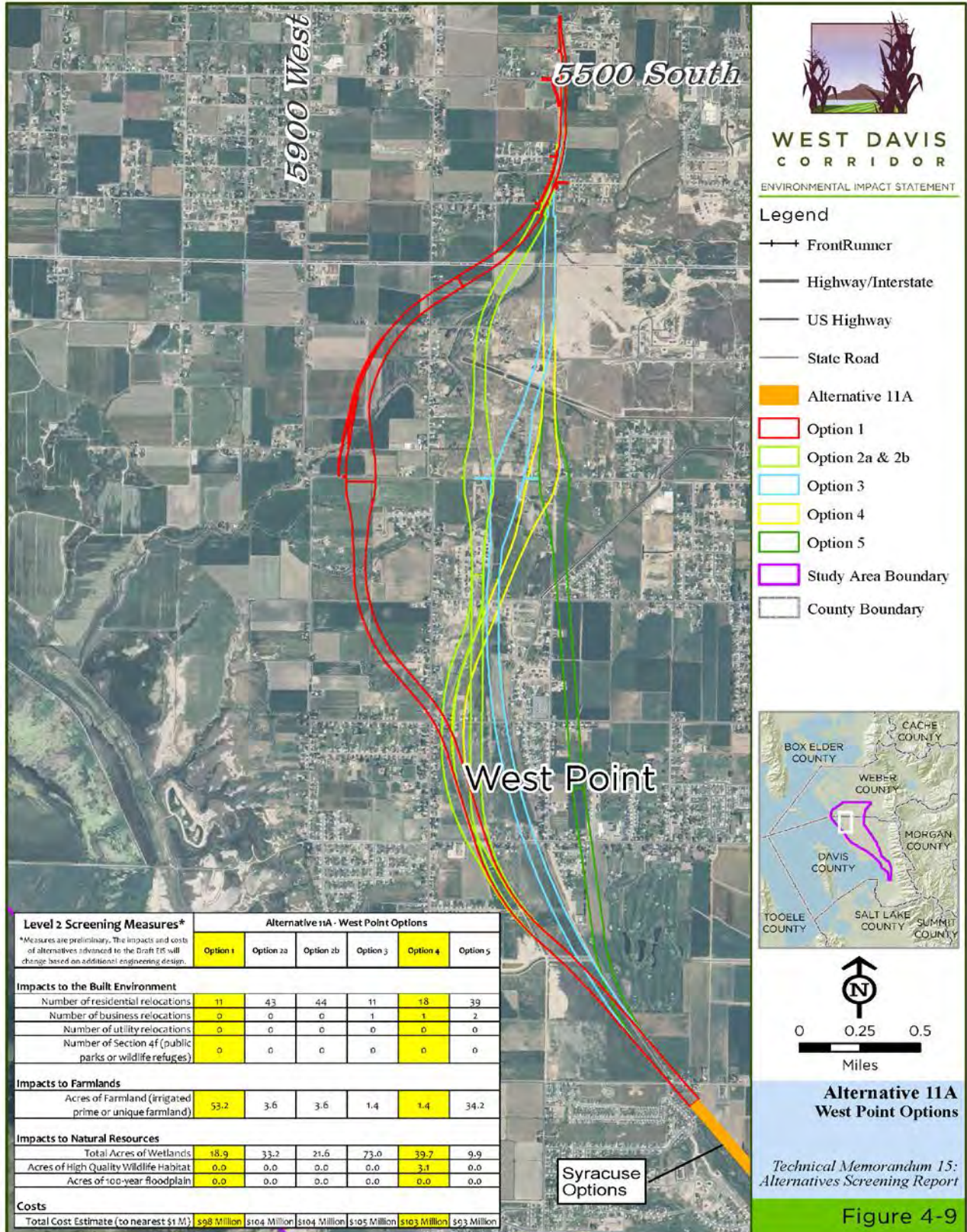
West Point Options for Alternative 11A

In West Point, Alternative 11A included six options between the Syracuse–West Point city boundary and 5500 South 5100 West in Weber County. The six West Point options are shown in Figure 4-9 below.

- **Option 1:** Option 1 is the westernmost West Point option. The alignment goes northwest to cross 1800 North at 4800 West in West Point, then goes northeast to 5500 South 5100 West in Weber County.
- **Options 2a and 2b:** Options 2a and 2b both go northwest, then split between 100 North and 1400 North in West Point, with Option 2a following an alignment west of the Layton Canal and Option 2b following an alignment east of the Layton Canal. At about 1400 North, Options 2a and 2b merge, and the alignment goes north, crossing 1800 North at 4300 West, then goes northeast to 5500 South 5100 West in Weber County.
- **Option 3:** Option 3 follows the original 2001 alignment, which stays just west of the bluff in West Point, crosses 1800 North at about 4200 West, and connects to 5500 South 5100 West in Weber County.
- **Option 4:** Option 4 follows an alignment northwest to about 300 North, staying east of the Layton Canal. Option 4 then turns northeast, crosses 1800 North near 4100 West, then turns north to connect to 5500 South 5100 West in Weber County.
- **Option 5:** Option 5 follows an alignment that stays east of the bluff in West Point near 3900 West, crosses 1800 North near 3900 West, and stays north to connect to 5500 South 5100 West in Weber County.

Figure 4-9 shows the alignments and an impact table for the six West Point options for Alternative 11A. The impacts in the table for each option are the impacts from 700 South in West Point to 5500 South 5100 West in Weber County.

Figure 4-9. Alternative 11A West Point Options



Determinations

Since there were two southern options, four Syracuse options, and six West Point options, there were a total of 48 different combinations for Alternative 11A.

The WDC team determined that any of the 48 combinations of Alternative 11A would be better options than Alternatives 05, 08, 09A+04, and 10A, since Alternative 11A would have the lowest levels of impacts to the built environment, no impacts to areas with high densities of historic properties, no impacts to low-income or minority populations, low levels of impacts to farmland, and the lowest cost of any of the Level 2 screening alternatives.

However, given the large number of similar alignment options and the wide range of impacts to residences and wetlands among the options, the WDC team wanted to select the best-performing, least-impacting, reasonable options of Alternative 11A to advance to the Draft EIS, while still meeting the requirements of Section 404(b)(1) of the Clean Water Act and Section 4(f) of the U.S. Department of Transportation Act of 1966.

Southern Options. As shown in Figure 4-7 on page 74, the Shepard Lane Option and the Glovers Lane Option were similar in cost. The Shepard Lane Option would have more impacts to the built environment, and the Glovers Lane Option would have more impacts to farmland and the natural environment. However, overall, the WDC team determined that the impacts of both options were reasonable, so both options were advanced to the Draft EIS as part of Alternative 11A.

Syracuse Options. As shown in Figure 4-8 on page 76, all four Syracuse options would have similar levels of impacts to wetlands. However, since Syracuse Option 1 had 25 to 33 fewer residential relocations (2 to 3 times fewer) compared to the other three options, the fewest impacts to wetlands and high-quality wildlife habitat, and the lowest cost, it was selected for advancement to the Draft EIS as part of Alternative 11A. Option 1 would affect 1 to 7 more acres of irrigated prime or unique farmland than the other three Syracuse options. However, the WDC team determined that it would not be reasonable to affect 25 to 33 more residences and 1 to 5 more acres of wetlands at a higher cost to avoid affecting 1 to 7 acres of irrigated prime or unique farmland. Therefore, the WDC team advanced Syracuse Option 1 to the Draft EIS as part of Alternative 11A.

West Point Options. As shown in Figure 4-9 on page 78, the six West Point options would affect 11 to 44 residences, 0 to 2 businesses, 1 to 53 acres of irrigated prime or unique farmland, and 10 to 73 acres of wetlands. Figure 4-9 shows that none of the six West Point options would avoid residences, farmland, and wetlands in West Point. Options 1 and 3 would have low levels of impacts to residences, but Option 1 would have the highest level of impacts to farmland, and Option 3 would have the highest level of impacts to wetlands. Options 2a, 2b, 3, and 4 would have low levels of impacts to farmland, but Options 2a and 2b also would have the highest levels of impacts to residences, and Option 3 would have the highest level of impacts to wetlands. Option 4 would have more impacts to residences than Options 1 and 3 and more impacts to wetlands than Options 2a or 2b, but would not have high levels of impacts to farmland, residences, or wetlands. Option 5 would have the lowest

level of impacts to wetlands, but also would have high levels of impacts to residences, farmland, businesses, and community facilities.

The WDC team advanced the two West Point options that would have low impacts in at least two of the three main categories of impacts (residences, farmland, and wetlands). The WDC team determined that West Point Options 1 and 4 were collectively the two least impacting segments to residences, businesses, farmland, and wetlands, and that both of these options should be advanced to the Draft EIS as part of Alternative 11A. Option 1 would have the lowest number of residential relocations, no impacts to businesses, the second-lowest acres of affected wetlands, and the highest level of impacts to irrigated prime or unique farmland. Option 4 would have 18 residential relocations, 1 business impact, the lowest level of impacts to farmland, and a moderate level of impacts to wetlands.

The 43 to 44 residential impacts of Options 2a and 2b, which were the result of the alignment going through a subdivision between 1300 North and 1800 North, were determined to be unreasonable compared to the residential impacts of Options 1, 3, or 4, which had 11, 11, or 18 residential impacts, respectively. Options 1, 3, or 4 would not go through any subdivisions.

Option 3 was determined to be unreasonable because of its high number of wetland impacts. Option 1 and Option 3 would both require 11 residential relocations. However, Option 1 would affect 19 acres of wetlands, while Option 3 would affect 73 acres of wetlands. Option 3 would affect 51 fewer acres of irrigated prime or unique farmland than Option 1. The WDC team determined that Option 1 was not a reasonable option compared to Option 4, since the additional 54 acres of wetland impacts from Option 1 would not likely be permitted under the Clean Water Act.

Option 5 was determined to be unreasonable due to its substantially higher levels of residential, business, community, and farmland impacts. Option 5 would affect 39 residences, the Schneider's Bluff Golf Course, three subdivisions, the West Point City Cemetery, and West Point Elementary School and would bisect Century Farm operations between 300 North and 1300 North. Option 5 would also have high levels of indirect impacts to farmland and residences, since the alignment goes through large farming operations and subdivisions. None of the other West Point options would affect Schneider's Bluff Golf Course, the West Point City Cemetery, or West Point Elementary School. The WDC team determined that, compared to West Point Option 1 (the option with the next-lowest wetland impacts), West Point Option 5 would not be reasonable since it would affect 28 more residences, Schneider's Bluff Golf Course, three subdivisions, the West Point City Cemetery, West Point Elementary School, and the large farming operations between 100 North to 1300 North while affecting 9 fewer acres of wetlands. West Point Option 1 also would affect farmland, but it would avoid all of the impacts to residences, businesses, and community facilities.

Alternative 11A Options Advanced to the Draft EIS

The Shepard Lane and Glovers Lane southern options, Syracuse Option 1, West Point Option 1 (renamed the 4800 West Option), and West Point Option 4 (renamed the 4100 West Option) were advanced to the Draft EIS as part of Alternative 11A.

These options of Alternative 11A were advanced to the Draft EIS because they met the purpose of and need for the project while having the lowest overall levels of impacts to the

human and natural environment. These options of Alternative 11A are also constructable, are logistically feasible, and have reasonable costs.

The options of Alternative 11A advanced to the Draft EIS would have the lowest levels of impacts to residences, businesses, utilities, and community facilities; no impacts to areas with high densities of historic properties; no impacts to low-income or minority populations; moderate levels of impacts to farmland; and the lowest costs of any of the Level 2 screening alternatives. The options of Alternative 11A advanced to the Draft EIS would also be the most consistent with city, county, and regional transportation and land-use plans.

The WDC team advanced the options of Alternative 11A with the lowest impacts to wetlands and the natural environment, with the exception of West Point Option 5. However, as described above, the WDC team determined that the level of impacts to the built environment and farmland from West Point Option 5 would not justify 9 fewer acres of wetland impacts compared to West Point Option 1 or West Point Option 4.

Therefore, the WDC team concluded that these options of Alternative 11A, which best meet the purpose of and need for the project while having the lowest overall levels of impacts to both the human environment and natural resources and having reasonable costs, represent the reasonable alternatives for the WDC project and concluded that they should be advanced to the Draft EIS for detailed study and evaluation. The options of Alternative 11A advanced to the Draft EIS are shown in Figure 4-15 on page 96.

Alternative 11A Options Eliminated during Level 2 Screening

Table 4-2 lists the Alternative 11A Options that were eliminated during Level 2 screening.

Table 4-2. Alternative 11A Options Eliminated during Level 2 Screening

Option	Rationale for Elimination
Syracuse Option 2	28 more residential impacts, 5 more acres of wetlands impacts, and higher costs than Syracuse Option 1.
Syracuse Option 3	25 more residential impacts, 1 more acre of wetlands impacts, and higher costs than Syracuse Option 1.
Syracuse Option 4	33 more residential impacts, 5.7 more acres of wetlands impacts, and higher costs than Syracuse Option 1.
West Point Option 2a	32 more residential impacts and 14 more acres of wetland impacts than West Point Option 1. 24 more residential impacts than West Point Option 4.
West Point Option 2b	33 more residential impacts and 3 more acres of wetland impacts than West Point Option 1. 25 more residential impacts than West Point Option 4.
West Point Option 3	1 more residential impact and 54 more acres of wetland impacts than West Point Option 1. 33 more acres of wetland impacts than West Point Option 4.
West Point Option 5	28 more residential impacts and 2 more business impacts than West Point Option 1. 21 more residential impacts and 33 more acres of farmland impacts than West Point Option 4. West Point Option 5 would affect the Schneider's Bluff Golf Course, West Point City Cemetery, West Point Elementary School, and three subdivisions. West Point Option 5 would also have substantial indirect impacts to farming operations between 100 North and 1300 North.

Alternative 13A

Description and Options Considered

Alternative 13A proposed a new four-lane divided highway following the 2001 alignment to Syracuse, and then a western alignment in Syracuse and West Point. Two southern options and 10 Weber County options were considered for Alternative 13A.

Figure 4-10 below shows all of the new four-lane divided highway options that were considered for Alternative 13A as part of the Level 2 screening process and includes an impact table showing the range of Level 2 screening impacts for the 20 different options for Alternative 13A.

Southern Options for Alternative 13A

The two southern options, the Shepard Lane Option and the Glovers Lane Option, are the same two southern options considered for Alternative 10A and Alternative 11A. Figure 4-11 below shows the alignment and southern options for Alternative 13A and includes an impact table showing the Level 2 screening impacts for the two southern options, the Kaysville and Layton segment, and the Syracuse segment for Alternative 13A.

Figure 4-10. Alternative 13A

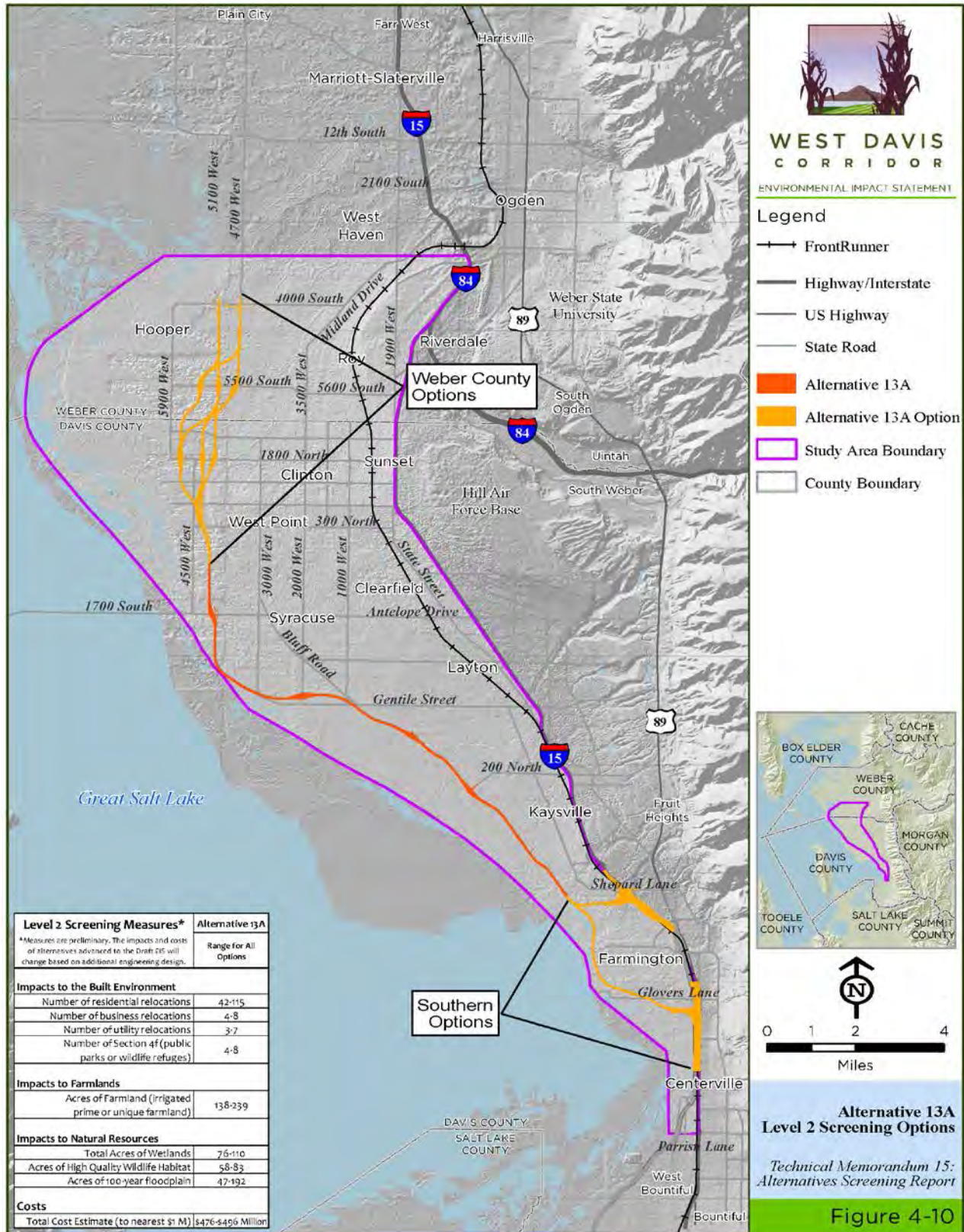
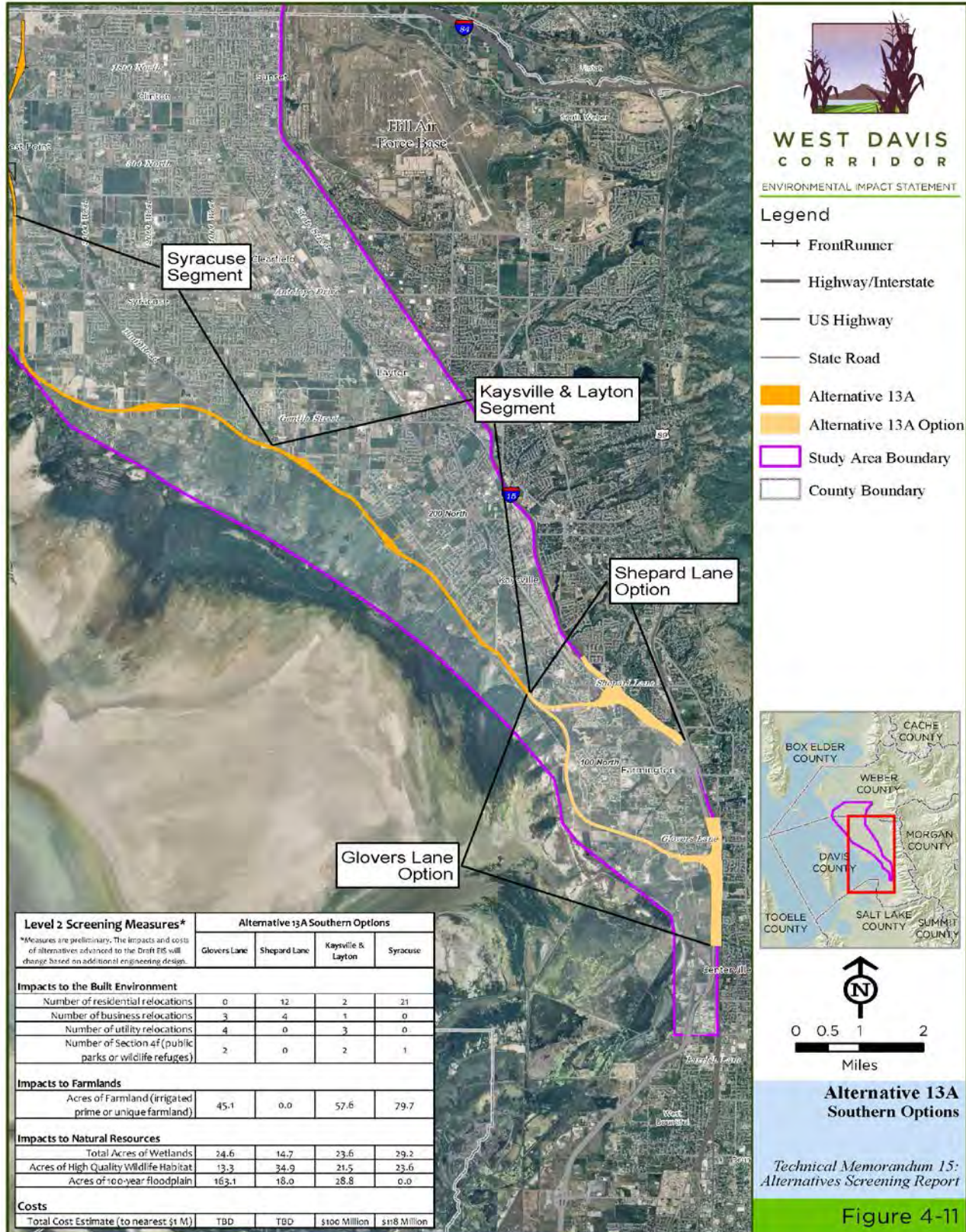


Figure 4-11. Alternative 13A Southern Options



Weber County Options for Alternative 13A

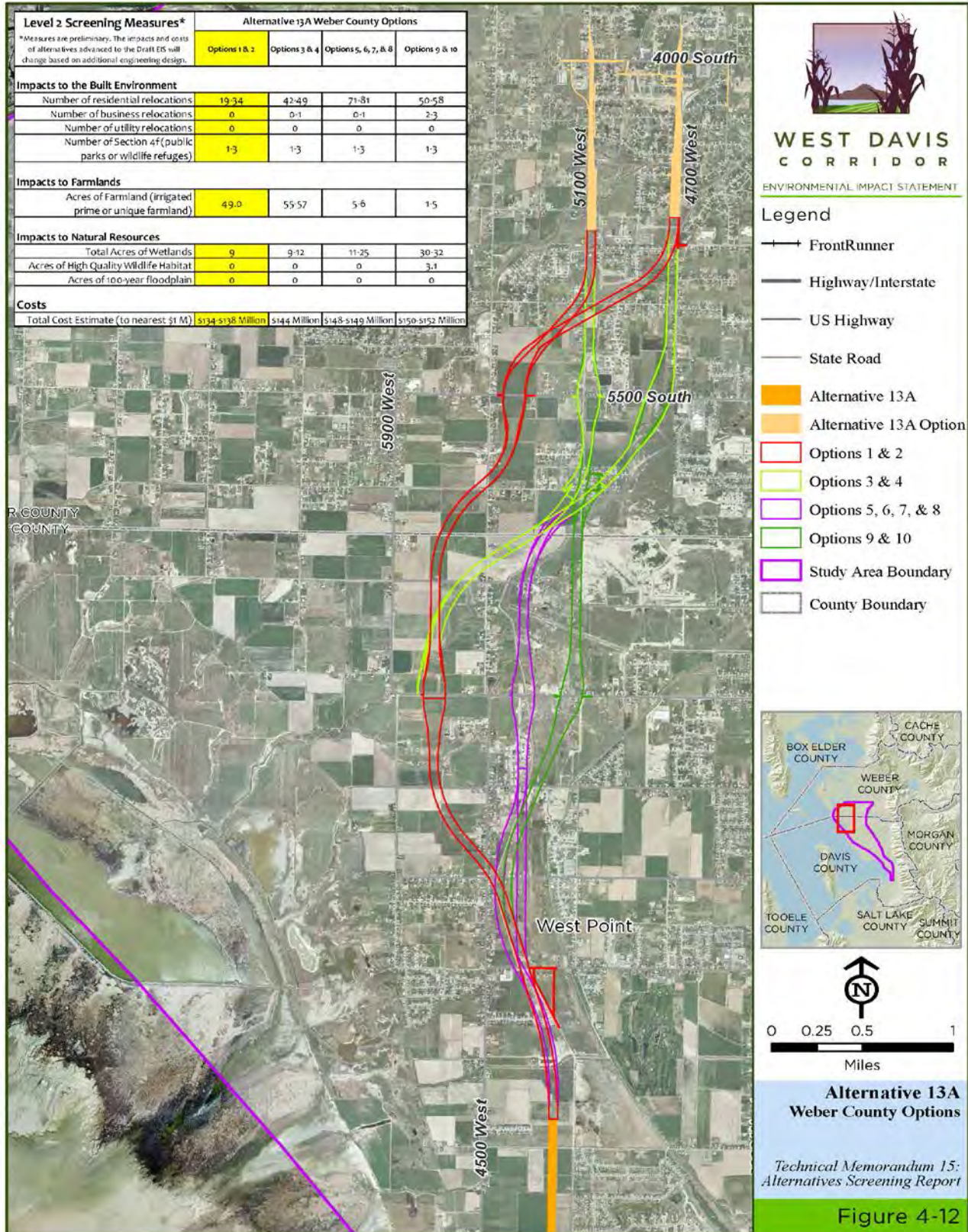
The alignment of Alternative 13A generally follows the 2001 alignment from Farmington to the Layton-Syracuse city boundary. In Syracuse, Alternative 13A turns to the west north of Gentile Street, stays west until about 4000 West, turns north at 4000 West, and crosses Antelope Drive west of 4000 West. Alternative 13A stays north to about 500 South in West Point, where the 10 Weber County options diverge.

Alternative 13A included 10 options between 500 South in West Point and 4000 South in Weber County. The 10 Weber County options consisted of five alignments between 500 South (Davis County) and about 4800 South (Weber County) that each could end at either 5100 West 4000 South or 4700 West 4000 South in Weber County. The 10 Weber County options are shown in Figure 4-12 below.

- **Options 1 and 2:** Options 1 and 2 cross the Davis County–Weber County line near 5700 West (Weber County) and connect to 4000 South at either 5100 West (Option 1) or 4700 West (Option 2).
- **Options 3 and 4:** Options 3 and 4 cross the Davis County–Weber County line near 5300 West (Weber County) and connect to 4000 South at either 5100 West (Option 3) or 4700 West (Option 4).
- **Options 5, 6, 7, and 8:** Options 5, 6, 7, and 8 all go north, then split between 100 North and 1400 North in West Point, with Options 5 and 6 following an alignment east of the Layton Canal and Options 7 and 8 following an alignment west of the Layton Canal. At about 1400 North, Options 5, 6, 7, and 8 all merge, and the alignment goes north, crosses 1800 North at 4300 West, crosses the Davis County–Weber County line near 5200 West (Weber County), and connects to 4000 South at either 5100 West (Options 5 and 7) or 4700 West (Options 6 and 8).
- **Options 9 and 10:** Options 9 and 10 go northeast to the 2001 alignment near the Davis County–Weber County line (5100 West Weber County) and connect to 4000 South at either 5100 West (Option 9) or 4700 West (Option 10).

Figure 4-12 shows the alignments and includes an impact table for the 10 Weber County options for Alternative 13A. The impacts in the table for each option are from 500 South in West Point to 4000 South in Weber County.

Figure 4-12. Alternative 13A Weber County Options



Determinations

Since there were two southern options and 10 Weber County options, there were a total of 20 different combinations for Alternative 13A.

The WDC team determined that any of the 20 combinations of Alternative 13A would be better options than Alternatives 05, 08, 09A+04, and 10A, since Alternative 13A had significantly lower levels of impacts to the built environment, no impacts to areas with high densities of historic properties, no impacts to low-income or minority populations, low levels of impacts to wetlands, and reasonable costs compared to the rest of the Level 2 screening alternatives.

However, given the large number of similar alignment options and the wide range of impacts to residences and wetlands among the options, the WDC team wanted to select the best-performing, least-impacting, reasonable options of Alternative 13A to advance to the Draft EIS, while still meeting the requirements of Section 404(b)(1) of the Clean Water Act and Section 4(f) of the U.S. Department of Transportation Act of 1966.

Southern Options. As shown in Figure 4-11 above, the Shepard Lane Option and the Glovers Lane Option were similar in cost. The Shepard Lane Option would have more impacts to the built environment, and the Glovers Lane Option would have more impacts to farmland and the natural environment. However, overall, the WDC team determined that the impacts of both options were reasonable, so both options were advanced to the Draft EIS as part of Alternative 13A.

West Point Options. As shown in Figure 4-12 above, the 10 Weber County options would affect 19 to 81 residences, 0 to 3 businesses, 1 to 57 acres of irrigated prime or unique farmland, and 9 to 32 acres of wetlands.

Figure 4-12 shows that none of the 10 Weber County options would avoid residences, farmland, and wetlands in Weber County. Options 1 and 2 would have the fewest impacts to residences and the fewest acres of affected wetlands, but also would have the second-highest level of impacts to farmland. Options 9 and 10 would have the fewest acres of affected farmland, but also would have the highest acres of affected wetlands.

The WDC team advanced the two Weber County options that would have low impacts in at least two of the three main categories of impacts (residences, farmlands, and wetlands). The WDC team determined that Weber County Options 1 and 2 were collectively the two least impacting segments to residences, businesses, farmlands, and wetlands, and that both of these options should be advanced to the Draft EIS as part of Alternative 13A. As shown in Figure 4-12, Options 1 and 2 would have the lowest number of residential relocations, no impacts to businesses, the lowest acres of affected wetlands, and the second-highest level of impacts to irrigated prime or unique farmland.

Compared to the Weber County Options 1 and 2, the other eight Weber County options all would have more residential relocations and more acres of affected wetlands and would be more expensive.

Compared to Weber County Options 1 and 2, Weber County Options 3 and 4 would require 16 to 23 more residential relocations, would affect 0.2 to 2.1 more acres of wetlands, and would affect 6 to 8 more acres of irrigated prime or unique farmland. Although Weber County Options 3 and 4 would have similar levels of wetland impacts as Weber County Options 1 and 2, the WDC team determined that Weber County Options 3 and 4 would be unreasonable options due to the options having more residential, farmland, and wetland impacts.

Weber County Options 5, 6, 7, 8, 9, and 10 would have fewer farmland impacts than Weber County Options 1 and 2, but they would also require 33 to 46 more residential relocations and would affect 2 to 23 more acres of wetlands than Options 1 and 2. The WDC team determined that the additional residential and wetland impacts of Options 5, 6, 7, 8, 9, or 10 would make each of these options unreasonable.

Alternative 13A Options Advanced to the Draft EIS

The Shepard Lane and Glovers Lane southern options, Weber County Option 1 (renamed the 5100 West Option), and Weber County Option 2 (renamed the 4700 West Option) were advanced to the Draft EIS as part of Alternative 13A.

These options of Alternative 13A were advanced to the Draft EIS because they met the purpose of and need for the project while having the lowest overall levels of impacts to the human and natural environment. These options of Alternative 13A are also constructable, are logistically feasible, and have reasonable costs.

Compared to the rest of the Level 2 screening alternatives, the options of Alternative 13A advanced to the Draft EIS would have the lowest number of affected businesses and utilities; low levels of impacts to residences; no impacts to areas with high densities of historic properties; no impacts to low-income or minority populations; low levels of impacts to community facilities; low costs; and the next-lowest levels of wetland impacts compared to Alternatives 05, 08, 09A+04, and 10A. The WDC team advanced the options of Alternative 13A with the lowest impacts to wetlands and the natural environment.

Therefore, the WDC team concluded that these options of Alternative 13A, which best meet the purpose of and need for the project while having the lowest overall levels of impacts to the human environment and natural resources and having reasonable costs, represent the reasonable options of Alternative 13A for the WDC project and concluded that they should be advanced to the Draft EIS for detailed study and evaluation. The options of Alternative 13A advanced to the Draft EIS are shown in Figure 4-16 on page 97.

Alternative 13A Options Eliminated during Level 2 Screening

Table 4-3 below lists the Alternative 13A Options that were eliminated during Level 2 screening.

Table 4-3. Alternative 13A Options Eliminated during Level 2 Screening

Option	Rationale for Elimination
Weber County Options 3 and 4	15 to 23 more residential impacts, 0.2 to 2.1 more acres of wetlands impacts, 1 more business impacts, 6 to 7 more acres of farmland impacts, and higher costs than Weber County Options 1 and 2.
Weber County Options 5, 6, 7, and 8	46 to 54 more residential impacts, 2.5 to 15.7 more acres of wetlands impacts, 1 more business impacts, and higher costs than Weber County Options 1 and 2.
Weber County Options 9 and 10	27 to 33 more residential impacts, 21.1 to 22.9 more acres of wetlands impacts, 2 to 3 more business impacts, and higher costs than Weber County Options 1 and 2.

4.1.4 Summary of Level 2 Screening under the NEPA Process

Figure 4-13 and Figure 4-14 on pages 93 and 94 show how Alternatives 05, 08, 09A+04, two variations of Alternative 10A, and the two best refinements of Alternatives 11A and 13A performed on each of the Level 2 screening criteria. As noted in the section titled Alternative 11A on page 28 and the section titled Alternative 13A on page 30, the WDC team considered any variation of Alternative 11A and 13A to be better options than Alternatives 05, 08, 09A+04, or any variation of Alternative 10A, which were all determined to be unreasonable alternatives. However, the WDC team is advancing to the Draft EIS only the refinements of Alternatives 11A and 13A that are the best-performing, least-impactful, reasonable versions of each alternative.

Figure 4-15 and Figure 4-16 on pages 96 and 97 include maps of Alternatives 11A and 13A and their options that were advanced to the Draft EIS.

During the Level 2 evaluation process, the WDC team found that none of the alternatives avoided affecting the built environment, agricultural land, and the natural environment. In all situations, avoiding or minimizing impacts to one resource caused additional impacts to other resources. For example, if an alternative was refined to have fewer impacts to residences, it caused greater impacts to farmlands and/or wetlands. Similarly, if an alternative was refined to have fewer impacts to farmlands, it caused greater impacts to residences and/or wetlands. If an alternative was refined to have fewer impacts to wetlands, it caused greater impacts to residences and/or farmlands. Given that no alternatives avoided affecting the built environment, agricultural lands, and the natural environment, the WDC team collectively evaluated each of the alternatives to determine which alternatives best met the purpose of and need for the project with the lowest costs and the lowest overall levels of impacts to the built environment, agricultural lands, and the natural environment taking into account both the quantities and qualities of the different potentially affected resources, while still meeting the requirements of Section 404(b)(1) of the Clean Water Act and Section 4(f) of the U.S. Department of Transportation Act of 1966.

Using the Level 2 screening criteria, the WDC team was able to compare the alternatives advanced from Level 1 screening. The analysis of the Level 2 screening data showed that all

of the alternatives would have impacts on several of the resources used for the Level 2 screening criteria. Some alternatives had a low level of impacts on one screening resource but high levels of impacts on other resources.

The options of Alternative 11A and Alternative 13A advanced to the Draft EIS would have between 76 and 137 acres of impacts to wetlands, 25 to 69 residential relocations, 4 to 9 business relocations, no impacts to neighborhoods with a high density of historic properties, no impacts to low-income or minority populations, and 68 to 230 acres of impacts to irrigated prime or unique farmland and would cost \$439 million to \$482 million. Compared to the rest of the alternatives considered during Level 2 screening, the advanced alternatives would have the lowest number of residential and business relocations, no impacts to areas with a high density of historic properties, no impacts to areas with low-income or minority populations, a moderate level of impacts to irrigated prime or unique farmland, a moderate level of impact to wetlands, and the lowest costs.

When developing these alternatives, the WDC team took many efforts to avoid or minimize impacts to wetlands and irrigated prime or unique farmland. Unfortunately, in the WDC study area, areas with wetlands and irrigated prime or unique farmland are surrounded by existing development. For this reason, any options that would further avoid or reduce impacts to wetlands or irrigated prime or unique farmland would result in unacceptable, unreasonable levels of impacts to the built environment. Almost all of the wetlands that would be affected are heavily modified or disturbed wetlands and are not unique in the WDC study area. The advanced alternatives do not go through the middle of any contiguous blocks of wetlands that are part of the Great Salt Lake Shorelands Preserve. All impacts to wetlands are either on the edge of an existing wetland or affect isolated, heavily disturbed wetland areas.

In comparison, Alternatives 05, 08, 09A+04, and 10A, which were all eliminated during Level 2 screening, would affect 3 to 56 acres of wetlands, 251 to 967 residences, 23 to 144 businesses, a disproportionately higher number of neighborhoods with historic properties, and 7.5 to 295 acres of irrigated prime or unique farmland; would have a high number of residential and business impacts in areas with low-income or minority populations; and would cost \$642 million to \$1.16 billion. Additionally, all of these alternatives propose new roadway facilities in areas of dense existing development in a manner that would be incompatible with the current and planned land uses, transportation networks, and utility networks.

Compared to the rest of the alternatives considered during Level 2 screening, these alternatives would have lower levels of wetland impacts, the highest levels of impacts to residences and businesses, the highest levels of impacts to historic properties, the highest levels of impacts to low-income and minority populations, and the highest costs. Alternatives 05, 08, and 09A+04 would have the lowest levels of direct impacts to irrigated prime or unique farmland, and Alternative 10A would have the highest levels of direct impacts to irrigated prime or unique farmland.

In addition to the significant direct impacts listed above, any of these alternatives would also have significant indirect impacts to existing and planned land uses, transportation networks, and utility networks in the WDC study area.



The WDC team determined that the impacts of Alternative 05, 08, 09A+04, and 10A to residences, businesses, historic properties, and low-income and minority populations would be significant, unreasonable, and unacceptable to the state and local government officials, Cities, and citizens who live in the WDC study area. The WDC team also determined that the significantly higher costs of Alternatives 05, 08, 09A+04, and 10A would make all of these alternatives unreasonable and infeasible. See Section 4.2, Level 2 Screening under Section 404(b)(1) of the Clean Water Act, for information on how the WDC considered the Clean Water Act during the Level 2 screening process.

After collectively evaluating the performance and impacts of each of the alternatives based on all of the Level 2 screening results, the WDC team identified Alternatives 11A and 13A, each with two southern options and two northern options, as best meeting the purpose of and need for the project while minimizing impacts to the built environment, agricultural lands, and the natural environment, while still meeting the requirements of Section 404(b)(1) of the Clean Water Act and Section 4(f) of the U.S. Department of Transportation Act of 1966. These two alternatives, with their northern and southern options, are highlighted in yellow in Figure 4-13 and Figure 4-14 below.



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Figure 4-13. Level 2 Screening Results with Glovers Lane Options

Level 2 Screening Measures*	Glovers Lane Options								
	Alternative 05	Alternative 08	Alternative 09A+04	Alternative 10A - Power Corridor		Alternative 11A - 2001 Corridor		Alternative 13A - Western Corridor	
	I-15 and East-West Arterial Widening	I-15, East-West and North-South Arterial Widening	D&RG and East-West Arterial Widening	Original Option and Glovers Lane	Modified Option and Glovers Lane	4100 West Option and Glovers Lane	4800 West Option and Glovers Lane	5100 West and Glovers Lane	4700 West and Glovers Lane
Impacts to the Built Environment									
Total Number of Res. Or Bus. Relocations**	277	557	1108	677	274	40	32	61	46
Number of residential relocations	213	413	967	649	251	32	25	57	42
Number of business relocations**	64	144	141	28	23	8	7	4	4
Number of utility relocations	19	20	19	106	64	7	7	7	7
Number of parks	5	8	11	4	5	4	3	6	7
Number of community facilities	3	7	6	1	0	0	0	1	1
Number of Section 4f (public parks or wildlife refuges)	4	7	11	4	3	4	4	6	8
Number of 6f	0	0	0	1	0	0	0	0	0
Potential for Impacts to Low-Income or Minority Populations (Env. Justice)	High	High	High	High	High	Low	Low	Low	Low
Number of areas with high density of historic properties	16	30	17	5	4	0	0	0	0
Number of archaeological sites	49	53	77	16	17	14	16	17	18
Impacts to Farmlands									
Acres of Farmland (irrigated prime or unique farmland)	7.5	9.5	49.8	248.0	295.0	113.4	165.2	231.6	231.2
Number of APAs	0	4	0	2	5	3	4	12	10
Acres of APAs	0.0	0.7	0	15.2	16.9	41.8	43.1	37.9	37.6
Impacts to Natural Resources									
Total Acres of Wetlands	2.6	2.6	22.1	56.0	47.5	137.4	116.5	86.0	86.8
Acres of wetlands by quality									
High Quality	0.0	0.0	0.0	0.6	0.6	24.0	24.0	16.9	16.7
Medium Quality	0.0	0.0	0.1	33.1	20.1	75.8	67.7	43.2	43.2
Low Quality	0.0	0.0	1.3	14.0	17.8	26.9	17.7	18.6	18.9
Other	2.6	2.6	20.7	8.3	9.0	10.7	7.1	7.3	8.0
Acres of wildlife habitat by quality									
Acres of High Quality Wildlife Habitat	0.0	0.0	7.4	24.4	22.8	58.9	55.8	58.4	58.4
Acres of Medium Quality Wildlife Habitat	2.9	2.9	43.9	108.5	128.9	211.9	174.0	154.1	154.1
Acres of Low Quality Wildlife Habitat	11.3	16.1	243.5	476.8	489.6	415.7	480.0	557.0	572.2
Acres of 100-year floodplain	19.2	19.2	58.9	191.8	191.8	191.8	191.8	191.8	191.8
Number of water crossings	8	8	7.0	7	7	9	13	12	13
Costs									
Total Cost Estimate (to nearest \$1 M)	\$816 Million	\$1.15 Billion	\$1.16 Billion	\$809 Million	\$574 Million	\$446 Million	\$441 Million	\$478 Million	\$482 Million
Consistency with Local and Regional Plans									
Is Alternative consistent with local and regional land-use and transportation plans?	Consistent with 0 of 11 local land-use and transportation plans.	Consistent with 0 of 11 local land-use and transportation plans.	Consistent with 0 of 11 local land-use and transportation plans.	Consistent with 2 of 8 local land-use and transportation plans.	Consistent with 2 of 8 local land-use and transportation plans.	Consistent with 5 of 7 local land-use and transportation plans.	Consistent with 5 of 7 local land-use and transportation plans.	Consistent with 3 of 7 local land-use and transportation plans.	Consistent with 3 of 7 local land-use and transportation plans.
Access to Transit and Pedestrian Facilities									
Number of mode transfer locations***	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Daily Total Trips in WDC Study Area Mode Share (% Transit Trips)	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%
Rate of growth in Daily VMT (2009-2040)	59%	59%	64%	64%	64%	62%	62%	61%	61%
2040 Daily VMT	6,073,100	6,079,500	6,269,200	6,257,600	6,257,600	6,202,900	6,202,900	6,153,100	6,153,100
Daily VMT per capita	24	24	25	25	25	24	24	24	24

**The number of business relocations for Alternatives 05, 08, and 09A+04 has increased compared to earlier versions of TM 15 due to field visits conducted as part of the Clean Water Act Section 404(b)(1) analysis. These field visits found that many relocated commercial buildings had multiple businesses occupying the relocated buildings.
 ***Mode Transfer Locations were not determined during Level 2 Screening

Figure 4-14. Level 2 Screening Results with Shepard Lane Options

Level 2 Screening Measures*	Shepard Lane Options								
	Alternative 05	Alternative 08	Alternative 09A+04	Alternative 10A - Power Corridor		Alternative 11A - 2001 Corridor		Alternative 13A - Western Corridor	
	I-15 and East-West Arterial Widening	I-15, East-West and North-South Arterial Widening	D&RG and East-West Arterial Widening	Original Option and Shepard Lane	Modified Option and Shepard Lane	4100 West Option and Shepard Lane	4800 West Option and Shepard Lane	5100 West and Shepard Lane	4700 West and Shepard Lane
Impacts to the Built Environment									
Total Number of Res. Or Bus. Relocations**	277	557	1108	690	287	53	45	74	59
Number of residential relocations	213	413	967	661	263	44	37	69	54
Number of business relocations**	64	144	141	29	24	9	8	5	5
Number of utility relocations	19	20	19	102	60	3	3	3	3
Number of parks	5	8	11	6	7	6	5	8	9
Number of community facilities	3	7	6	1	0	0	0	1	1
Number of Section 4f (public parks or wildlife refuges)	4	7	11	2	1	2	2	4	6
Number of Gf	0	0	0	1	0	0	0	0	0
Potential for Impacts to Low-Income or Minority Populations (Env. Justice)	High	High	High	High	High	Low	Low	Low	Low
Number of areas with high density of historic properties	16	30	17	5	4	0	0	0	0
Number of archaeological sites	49	53	77	15	16	13	15	16	17
Impacts to Farmlands									
Acres of Farmland (irrigated prime or unique farmland)	7.5	9.5	49.8	203.0	249.9	68.3	120.1	186.5	186.1
Number of APAs	0	4	0	2	5	3	4	12	10
Acres of APAs	0.0	0.7	0	15.2	16.9	41.8	43.1	37.9	37.6
Impacts to Natural Resources									
Total Acres of Wetlands	2.6	2.6	22.1	46.1	37.6	127.4	106.6	76.1	76.9
Acres of wetlands by quality									
High Quality	0.0	0.0	0.0	0.2	0.2	23.5	23.5	16.4	16.2
Medium Quality	0.0	0.0	0.1	26.4	13.4	69.1	61.0	36.5	36.5
Low Quality	0.0	0.0	1.3	14.9	18.6	27.9	18.6	19.7	19.9
Other	2.6	2.6	20.7	4.6	5.4	6.9	3.5	3.5	4.3
Acres of wildlife habitat by quality									
Acres of High Quality Wildlife Habitat	0.0	0.0	7.4	45.9	44.4	80.5	77.4	80.0	80.0
Acres of Medium Quality Wildlife Habitat	2.9	2.9	43.9	74.5	94.8	177.8	140.0	120.0	120.0
Acres of Low Quality Wildlife Habitat	11.3	16.1	243.5	410.8	423.5	349.7	414.0	490.9	506.1
Acres of 100-year floodplain	19.2	19.2	58.9	46.8	46.8	46.8	46.8	46.8	46.8
Number of water crossings	8	8	7.0	7	7	9	13	12	13
Costs									
Total Cost Estimate (to nearest \$1 M)	\$816 Million	\$1.15 Billion	\$1.16 Billion	\$807 Million	\$572 Million	\$444 Million	\$439 Million	\$476 Million	\$481 Million
Consistency with Local and Regional Plans									
Is Alternative consistent with local and regional land-use and transportation plans?	Consistent with 0 of 11 local land-use and transportation plans.	Consistent with 0 of 11 local land-use and transportation plans.	Consistent with 0 of 11 local land-use and transportation plans.	Consistent with 2 of 8 local land-use and transportation plans.	Consistent with 2 of 8 local land-use and transportation plans.	Consistent with 5 of 7 local land-use and transportation plans.	Consistent with 5 of 7 local land-use and transportation plans.	Consistent with 3 of 7 local land-use and transportation plans.	Consistent with 3 of 7 local land-use and transportation plans.
Access to Transit and Pedestrian Facilities									
Number of mode transfer locations***	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Daily Total Trips in WDC Study Area Mode Share (% Transit Trips)	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%
Rate of growth in Daily VMT (2009-2040)	59%	59%	64%	64%	64%	62%	62%	61%	61%
2040 Daily VMT	6,073,100	6,079,500	6,269,200	6,257,600	6,257,600	6,202,900	6,202,900	6,153,100	6,153,100
Daily VMT per capita	24	24	25	25	25	24	24	24	24

**The number of business relocations for Alternatives 05, 08, and 09A+04 has increased compared to earlier versions of TM 15 due to field visits conducted as part of the Clean Water Act Section 404(b)(1) analysis. These field visits found that many relocated commercial buildings had multiple businesses occupying the relocated buildings.

***Mode Transfer Locations were not determined during Level 2 Screening

Alternatives Advanced to the Draft EIS

The WDC team advanced two alternatives, each with two northern options and two southern options, from the Level 2 screening process for detailed study in the Draft EIS. These two alternatives are:

- Alternative 11A, with Shepard Lane and Glovers Lane southern options, and with 4100 West and 4800 West northern options (renamed Alternative B)
- Alternative 13A, with Shepard Lane and Glovers Lane southern options, and with 5100 West and 4700 West northern options (renamed Alternative A)

Figure 4-15 and Figure 4-16 below show the alignments and an abridged impact summary for these two alternatives. Since each advanced alternative has four possible combinations, the range of impacts for each alternative encompasses the highest and lowest impact for each alternative from the four possible scenarios.

These two alternatives were advanced to the Draft EIS because they met the purpose of and need for the project while having the lowest overall levels of collective impacts to the built environment, farmland, and the natural environment. These two alternatives are also constructable, are logistically feasible, and have reasonable costs.

Therefore, the WDC team concluded that these two alternatives, which best meet the purpose of and need for the project while having the lowest overall levels of collective impacts to the human environment, farmland, and natural resources and having reasonable costs, represented the reasonable alternatives for the WDC project, and concluded that they should be advanced to the Draft EIS for more detailed study and evaluation.

Figure 4-15. Alternative 11A Options Advanced to the Draft EIS

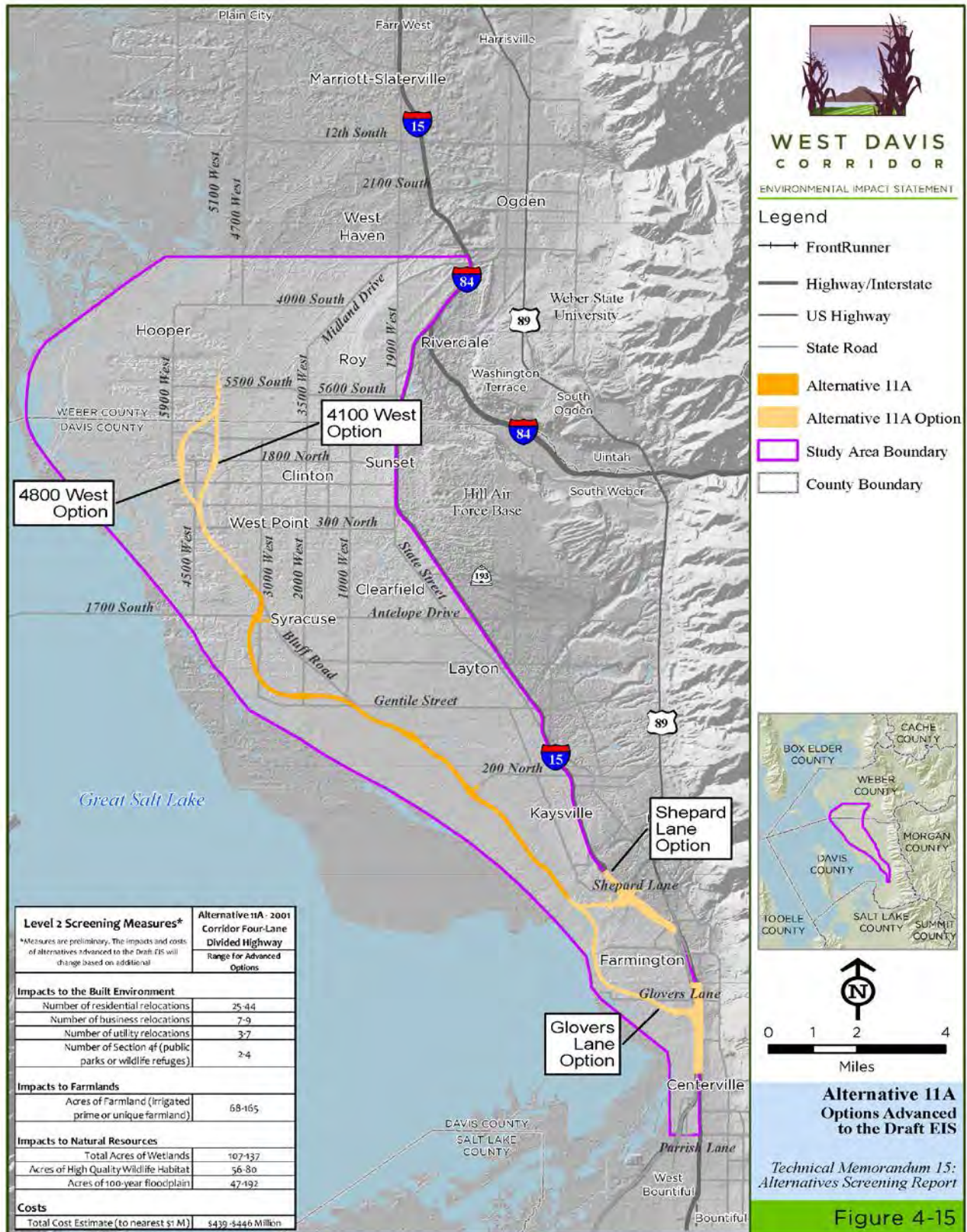
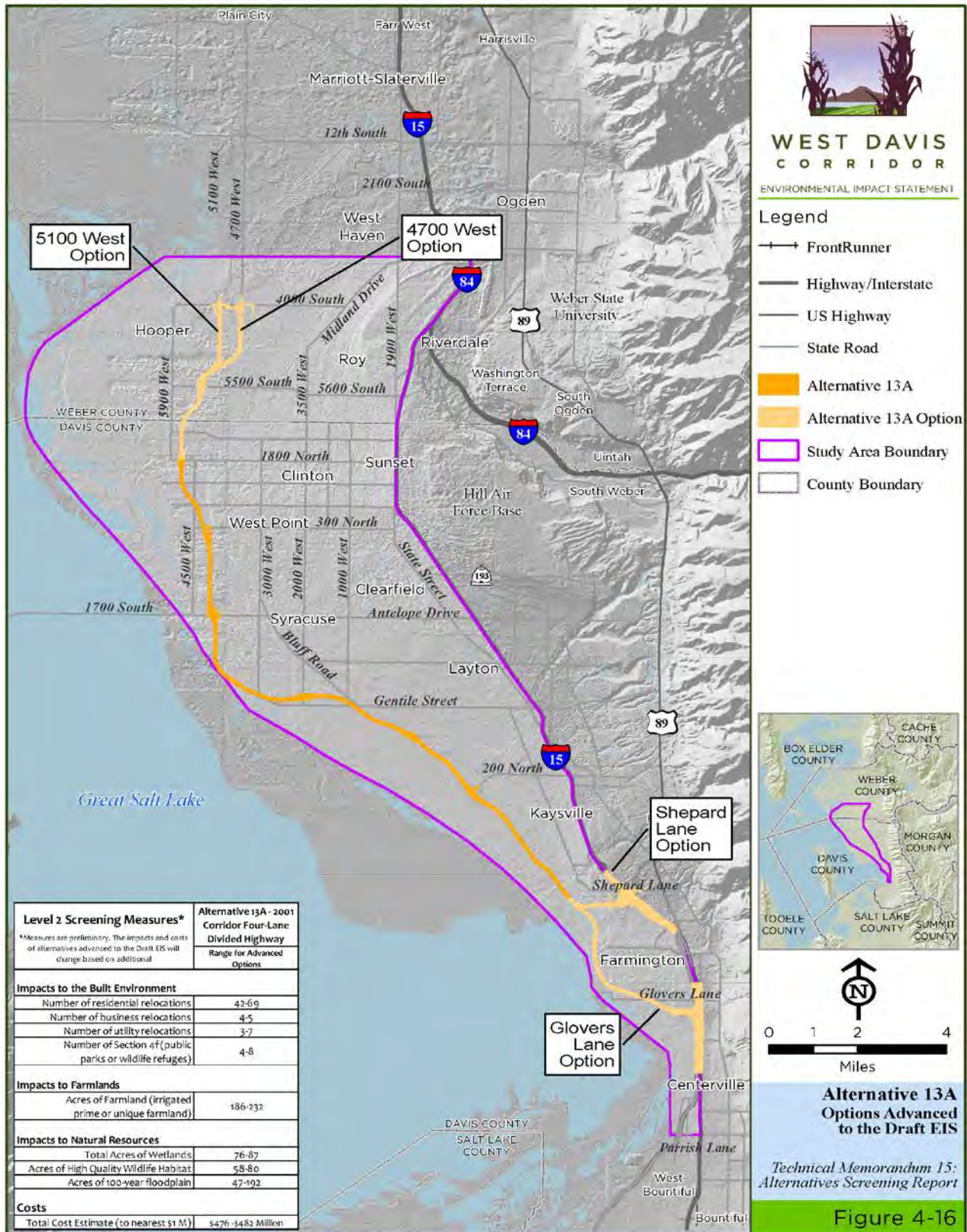


Figure 4-16. Alternative 13A Options Advanced to the Draft EIS



Alternatives Eliminated during Level 2 Screening

Table 4-4 lists the alternatives that were eliminated during Level 2 screening.

Table 4-4. Alternatives Eliminated during Level 2 Screening

Alternative	Reason for Elimination
Alternative 05	Significantly higher impacts to the built environment and costs.
Alternative 08	Significantly higher impacts to the built environment and costs.
Alternative 09A+04	Significantly higher impacts to the built environment and costs.
Alternative 10A (all options)	Significantly higher impacts to the built environment, farmland, and costs.
Alternative 11A (3 Syracuse options and 4 West Point options)	Significantly higher impacts to natural resources, farmland, or the built environment than the advanced options.
Alternative 13A (8 Weber County options)	Significantly higher impacts to natural resources, farmland, or the built environment than the advanced options.

Alternatives 05, 08, 09A+04, and 10A, which were all eliminated during Level 2 screening, would affect 3 to 56 acres of wetlands, 251 to 967 residences, 23 to 144 businesses, a disproportionately higher number of neighborhoods with historic properties, and 7.5 to 295 acres of irrigated prime or unique farmland; would have a high number of residential and business impacts in areas with low-income or minority populations; and would cost \$642 million to \$1.16 billion. Additionally, all of these alternatives propose new roadway facilities in areas of dense existing development in a manner that would be incompatible with the current and planned land uses, transportation networks, and utility networks.

Compared to the rest of the alternatives considered during Level 2 screening, these alternatives would have the lowest levels of wetland impacts, the highest levels of impacts to residences and businesses, the highest levels of impacts to historic properties, the highest levels of impacts to low-income and minority populations, and the highest costs. Alternatives 05, 08, and 09A+04 would have the lowest levels of direct impacts to irrigated prime or unique farmland; Alternative 10A would have the highest levels of direct impacts to irrigated prime or unique farmland.

In addition to the significant direct impacts listed above, any of these alternatives would also have significant indirect impacts to existing and planned land use, transportation networks, and utility networks in the WDC study area.

The WDC team determined that the impacts of Alternatives 05, 08, 09A+04, and 10A to residences, businesses, historic properties, and low-income and minority populations would be significant, unreasonable, and unacceptable to the state and local government officials, Cities, and citizens who live in the WDC study area. The WDC team also determined that the significantly higher costs of Alternatives 05, 08, 09A+04, and 10A would make all of these alternatives unreasonable and infeasible.

4.2 Level 2 Screening under Section 404(b)(1) of the Clean Water Act

As described in Section 1.1, Reasons Why Alternatives Might Be Eliminated, 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” (Section 230.10[a]). Although USACE makes official determinations under the Clean Water Act, the WDC team considered the requirements of the Clean Water Act during the alternatives-development process.

The WDC team evaluated the alternatives that passed the Level 1 screening process under the Section 404(b)(1) guidelines. These were the same alternatives that were evaluated to determine whether they were reasonable under NEPA (see Section 4.1, Level 2 Screening under the NEPA Process). The WDC team produced an additional technical memorandum, *Section 404(b)(1) Practicability Analysis*, that provides more detail on the practicability analysis that was conducted to address the Clean Water Act Section 404(b)(1) guidelines.

The following text is the summary from the *Section 404(b)(1) Practicability Analysis*:

Five alternatives were identified that would have less impacts to aquatic resources than the two alternatives that the WDC team has determined to be reasonable under NEPA (Alternatives 11A and 13A). Alternatives 05, 08, 09A+04, 10A, and 10A Modified would fill between about 3 acres and 56 acres of wetlands. Alternative 11A and Alternative 13A would fill between 76 acres and 137 acres of wetlands. The alternatives considered in the practicability analysis were the only alternatives that would meet the project’s purpose and would have less impacts to aquatic resources than Alternatives 11A and 13A.

The term *practicable* means “available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.” The Clean Water Act guidelines create a presumption that practicable avoidance alternatives are available for non-water-dependent projects. Highway and transit projects generally are not water-dependent. This presumption places the burden on the applicant to demonstrate that there are no practicable alternatives that avoid “special aquatic sites.” (With regard to the WDC project, “special aquatic sites” include wetlands and some fish and wildlife refuges.) The level of analysis and proof required varies depending on the project and the nature of the anticipated effects of the project.

Clean Water Act 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.” The evaluation in this practicability analysis is the WDC team’s demonstration that there are no practicable alternatives that have fewer wetland impacts than Alternative 13A.

Based on the practicability analysis, the WDC team has determined that Alternatives 05, 08, 10A, and 10A Modified are not practicable because of logistical constraints resulting from impacts associated with relocating businesses. In addition, the WDC team has determined that Alternative 09A+04 is not available to use for the WDC Project because it has been set aside as a potential transit corridor. Therefore, Alternatives 05, 08, 09A+04, 10A, and 10A Modified will not be considered for detailed evaluation in the WDC Draft EIS.

More details about this evaluation are included in the *Section 404(b)(1) Practicability Analysis*.

4.3 Consideration of Section 4(f) Uses during Level 2 Screening

As described in Section 1.1, Reasons Why Alternatives Might Be Eliminated, Section 4(f) (49 USC 303) of the Department of Transportation Act of 1966 applies to publicly owned parks, recreation areas, and wildlife and waterfowl refuges and publicly or privately owned significant historic properties. During the Level 2 screening process, there was not an adequate level of detail to conclusively determine the number and type of impacts to Section 4(f) properties for each alternative, primarily with respect to historic Section 4(f) properties. Additionally, detailed engineering design will be needed in order to determine whether a given impact to a Section 4(f) property is a 4(f) use or a *de minimis* impact. However, an assessment of 4(f) resources adequate for screening purposes was possible, as described below.

Parks and Recreation Areas. Figure 4-13 and Figure 4-14 on pages 93 and 94 show the number of Section 4(f) property uses of (impacts to) publicly owned parks and recreation areas. As shown in these two figures, none of the alternatives would avoid uses (impacts) of publicly owned parks and recreation areas. The number of Section 4(f) uses of publicly owned parks and recreation areas ranged from 1 to 11 for the alternatives considered in Level 2 screening.

Wildlife and Waterfowl Refuges. Alternatives 11A and 13A would affect some parcels owned by the Utah Reclamation Mitigation and Conservation Commission (URMCC) that are part of the Great Salt Lake Shorelands Preserve. The parcels owned by URMCC are considered part of a publicly owned waterfowl refuge and are therefore Section 4(f) properties.

Historic Properties and Archaeological Resources. Due to the large size of the study area, the length of the alternatives being considered, and the level of design, conducting a reconnaissance-level survey to determine the location of historic properties was not practical during Level 2 screening. The impacts to historic properties were determined by reviewing the existing National Register of Historic Places data and by calculating the number of impacts for each alternative on neighborhoods that were identified as having 50% or more buildings that meet the age requirement to be considered historic buildings. The number of neighborhoods with historic properties probably undercounts the total number of historic

property impacts, since each impact to a neighborhood with historic properties would likely affect many individual historic properties.

The WDC team also used existing information from the Utah Division of State History to identify the potential number of archaeological resources that would be affected by each alternative. The WDC team used this information to evaluate and compare the number of impacts to known historic properties and archaeological resources for each alternative. It is reasonable to conclude that an alternative that would affect more historic properties and archaeological resources according to the available data would be more likely to affect additional historic properties and archaeological resources once the alternative is engineered and constructed. The WDC team supplemented this existing information by identifying existing neighborhoods with a high likelihood of historically eligible properties based on the age of the neighborhoods. Alternatives that would require potential residential or business relocations in these neighborhoods would be more likely to have impacts to and Section 4(f) uses of historic properties.

As described in the section titled Level 2 Screening Results Used for Evaluation on page 51, none of the alternatives evaluated in Level 2 screening would avoid impacts to archaeological resources. Alternatives 11A and 13A would avoid impacts to neighborhoods with a high density of historic properties. However, Alternatives 05, 08, 09A+04, and 10A would all affect significantly more neighborhoods with a high density of historic properties than Alternatives 11A and 13A. Therefore, it is likely that Alternatives 05, 08, 09A+04, and 10A would also have significantly more uses of Section 4(f) properties than the other alternatives.

Similarly, because Alternatives 05, 08, 09A+04, and 10A all would require a large number of residential and business relocations in older neighborhoods with potential historically eligible properties, the potential for a larger number of impacts to and Section 4(f) uses of historic properties would be much higher for these alternatives than for the other alternatives that are located in newer neighborhoods in the western part of the study area.

5.0 Alternatives Advanced to the Draft EIS

The WDC team advanced the following alternatives to the Draft EIS:

- No-Action Alternative
- Alternative A (formerly Alternative 13A) with two northern options and two southern options
- Alternative B (formerly Alternative 11A) with two northern options and two southern options

Figure 5-2 on page 105 shows the alignments and Level 2 screening results for Alternatives A and B. A comparison table of the Level 2 screening impacts is provided in Figure 5-1 below. Additionally, an individual map and description of each alternative are included in this section.



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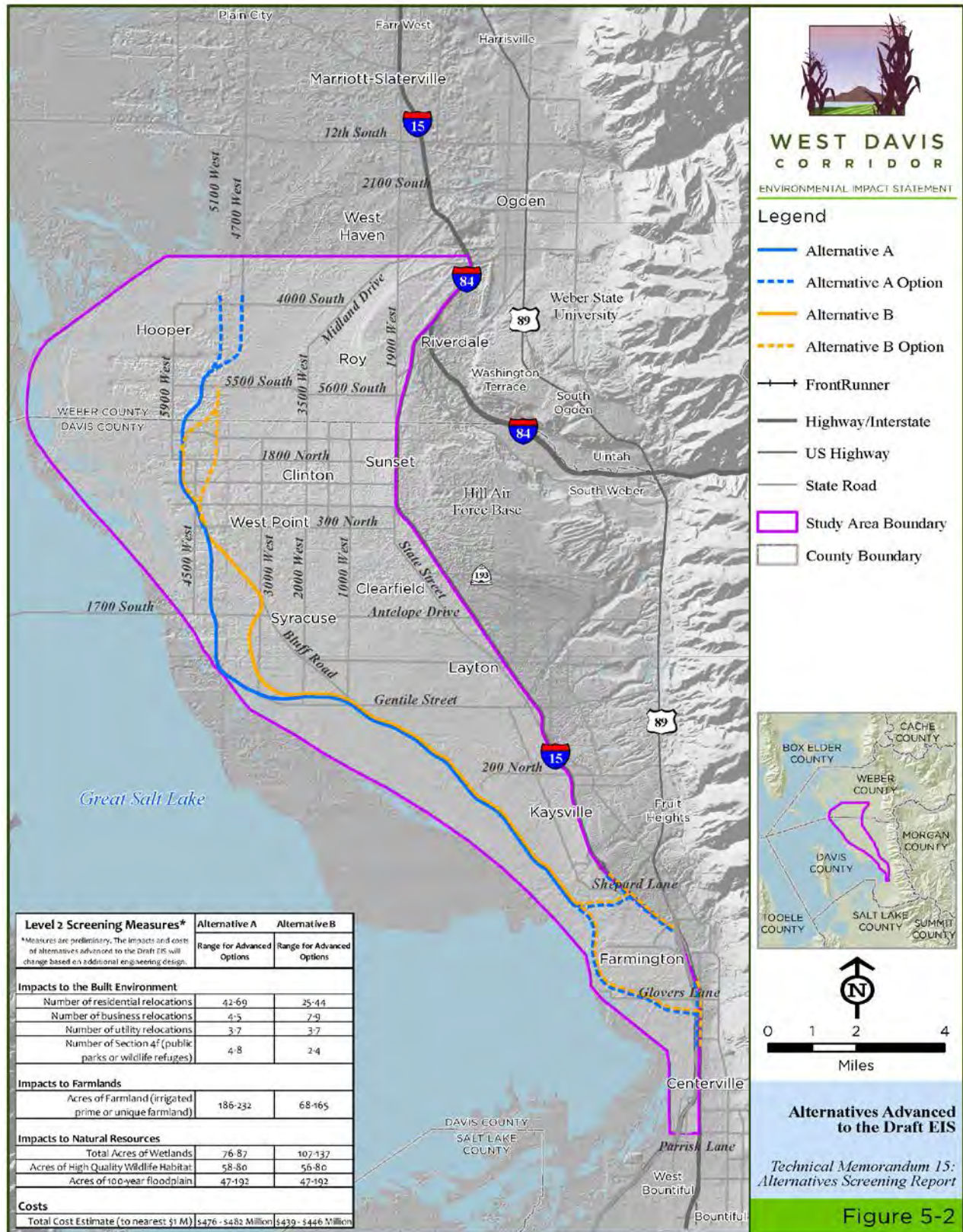
Figure 5-1. Level 2 Screening Results for the Draft EIS Alternatives

WDC EIS Level 2 Screening Data

Level 2 Screening Measures*	Alternative A				Alternative B			
	Shepard Lane Options		Glovers Lane Options		Shepard Lane Options		Glovers Lane Options	
	5100 West Option	4700 West Option	5100 West Option	4700 West Option	4800 West Option	4100 West Option	4800 West Option	4100 West Option
*Measures are preliminary. The impacts and costs of alternatives advanced to the Draft EIS will change based on additional engineering design.								
Impacts to the Built Environment								
Total Number of Res. Or Bus. Relocations	74	59	61	46	45	53	32	40
Number of residential relocations	69	54	57	42	37	44	25	32
Number of business relocations	5	5	4	4	8	9	7	8
Number of utility relocations	3	3	7	7	3	3	7	7
Number of parks	8	9	6	7	5	6	3	4
Number of community facilities	1	1	1	1	0	0	0	0
Number of Section 4f (public parks or wildlife refuges)	4	6	6	8	2	2	4	4
Number of 6f	0	0	0	0	0	0	0	0
Potential for Impacts to Low-Income or Minority Populations (Env. Justice)	Low	Low	Low	Low	Low	Low	Low	Low
Number of areas with high density of historic properties	0	0	0	0	0	0	0	0
Number of archaeological sites	16	17	17	18	15	13	16	14
Impacts to Farmlands								
Acres of Farmland (irrigated prime or unique farmland)	186.5	186.1	231.6	231.2	120.1	68.3	165.2	113.4
Number of APAs	12	10	12	10	4	3	4	3
Acres of APAs	37.9	37.6	37.9	37.6	43.1	41.8	43.1	41.8
Impacts to Natural Resources								
Total Acres of Wetlands	76.1	76.9	86.0	86.8	106.6	127.4	116.5	137.4
Acres of wetlands by quality								
High Quality	16.4	16.2	16.9	16.7	23.5	23.5	24.0	24.0
Medium Quality	36.5	36.5	43.2	43.2	61.0	69.1	67.7	75.8
Low Quality	19.7	19.9	18.6	18.9	18.6	27.9	17.7	26.9
Other	3.5	4.3	7.3	8.0	3.5	6.9	7.1	10.7
Acres of wildlife habitat by quality								
Acres of High Quality Wildlife Habitat	80.0	80.0	58.4	58.4	77.4	80.5	55.8	58.9
Acres of Medium Quality Wildlife Habitat	120.0	120.0	154.1	154.1	140.0	177.8	174.0	211.9
Acres of Low Quality Wildlife Habitat	490.9	506.1	557.0	572.2	414.0	349.7	480.0	415.7
Acres of 100-year floodplain	46.8	46.8	191.8	191.8	46.8	46.8	191.8	191.8
Number of water crossings	12	13	12	13	13	9	13	9
Costs								
Total Cost Estimate (to nearest \$1 M)	\$476 Million	\$481 Million	\$478 Million	\$482 Million	\$439 Million	\$444 Million	\$441 Million	\$446 Million
Consistency with Local and Regional Plans								
Is Alternative consistent with local and regional land-use and transportation plans?	Consistent with 3 of 7 local land-use and transportation plans.	Consistent with 3 of 7 local land-use and transportation plans.	Consistent with 3 of 7 local land-use and transportation plans.	Consistent with 3 of 7 local land-use and transportation plans.	Consistent with 5 of 7 local land-use and transportation plans.	Consistent with 5 of 7 local land-use and transportation plans.	Consistent with 5 of 7 local land-use and transportation plans.	Consistent with 5 of 7 local land-use and transportation plans.
Access to Transit and Pedestrian Facilities								
Number of mode transfer locations	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Daily Total Trips in WDC Study Area Mode Share (% Transit Trips)	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%
Rate of growth in Daily VMT (2009-2040)	61%	61%	61%	61%	62%	62%	62%	62%
2040 Daily VMT	6,153,100	6,153,100	6,153,100	6,153,100	6,202,900	6,202,900	6,202,900	6,202,900
Daily VMT per capita	24	24	24	24	24	24	24	24

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Figure 5-2. Alternatives Advanced to the Draft EIS



5.1 No-Action Alternative

The No-Action Alternative does not include a new West Davis Corridor but does include all other projects in the 2040 WFRC RTP. Table 5-1 lists all of the transportation projects in the WDC study area that are in the 2040 WFRC RTP that are assumed as part of the No-Action Alternative.

Table 5-1. Transportation Projects Included in the No-Action Alternative

Project Type	Project Location	Phase ^a
<i>I-15 Corridor</i>		
Widening	I-15: Davis/Weber County line to Hill Field Road; add high-occupancy vehicle (HOV) lane each direction	1
Widening	I-15: US 89 (Farmington) to I-215 (outside of study area); add HOV lane each direction	1
Widening	I-15: I-84 to Davis/Weber County line; add HOV lane each direction	1
Interchange improvement	Riverdale Road (Riverdale)	1
Interchange improvement	Hill Field Road (Layton), and 24th Street (Ogden)	2
Interchange improvement	Parrish Lane (Centerville), Antelope Drive (Layton), 650 North (Clearfield), and 5600 South (Roy)	3
New interchange	1800 North (Sunset)	1
New interchange	Shepard Lane	1
<i>Davis County</i>		
Widening	US 89: Antelope Drive to I-15 (Farmington) (out of study area) from 4 to 6 lanes	3
Widening	1800 North (SR 37 in Clinton): Main Street (Sunset) to 2000 West from 2 to 4 lanes	1
Widening	1800 North (SR 37 in Clinton): 2000 West to WDC from 2 to 4 lanes	2
New construction	SR 193 Extension (Clearfield): State Street (SR 126) to 2000 West; 4 lanes	1
New construction	SR 193 Extension: 2000 West to WDC; 4 lanes	2
Widening	Antelope Drive (SR 127): 2000 West to WDC from 2 to 4 lanes	1
Widening	Hill Field Road Extension (Layton): 2200 West to 3650 West from 2 to 4 lanes	3
New construction	Layton Parkway: Flint Street to WDC; 4 lanes	1
Widening	200 North (Kaysville): I-15 to WDC from 2 to 4 lanes	3
New construction	3000 West: 6000 South (Weber County) to 2300 North; 2 lanes	1
Widening	2000 West (SR 108 in Syracuse, West Point, Clinton, Roy, and West Haven): Weber County line to Antelope Drive from 2 to 4 lanes	1
Widening	2000 West: Antelope Drive to WDC from 2 to 4 lanes	3
New construction	3650 West (Layton): 700 North to Gentile Street; 2 lanes	3
New construction	2700 West (Layton): Gordon Avenue to Layton Parkway; 4 lanes	3
<i>Weber County</i>		
Widening	2550 South (Ogden & West Haven): I-15 to 3500 West from 2 to 4 lanes	3
Widening	4000 South (SR 37 in West Haven): 1900 West to North Legacy Corridor from 2 to 4 lanes	2
Widening	Midland Drive (SR 108): 1900 West (West Haven) to 3500 West (Roy) from 2 to 4 lanes	1
Widening	Riverdale Road (SR 26): I-84 to 1900 West	1
Widening	5600 South (Roy): 1900 West (SR 126) to 3500 West from 2 to 4 lanes	2
Widening	5500 South/5600 South: 3500 West (Roy) to 5900 West (Hooper) from 2 to 4 lanes	2

Table 5-1. Transportation Projects Included in the No-Action Alternative

Project Type	Project Location	Phase ^a
Widening	3500 West (Roy): Midland Drive (SR 108) to Davis County line from 2 to 4 lanes	1
Widening	3500 West: 4000 South (Weber County) to Midland Drive (SR 108) from 2 to 4 lanes	2
Widening	1900 West (SR 126 in Roy): 5600 South to Riverdale Road from 4 to 6 lanes	1
New construction	4700 West: 4600 South to 4800 South; 2 lanes	1
<i>Transit in Davis and Weber Counties</i>		
Bus rapid transit	North Ogden to downtown Salt Lake City	1,2,3
Enhanced bus	Ogden Intermodal Center (Ogden) to Layton FrontRunner station (Layton)	1,3

Source: WFRC 2011

^a Phase 1 projects are planned for 2011–2020, Phase 2 projects are planned for 2021–2030, and Phase 3 projects are planned for 2031–2040.

5.2 Alternative A (formerly Alternative 13A)

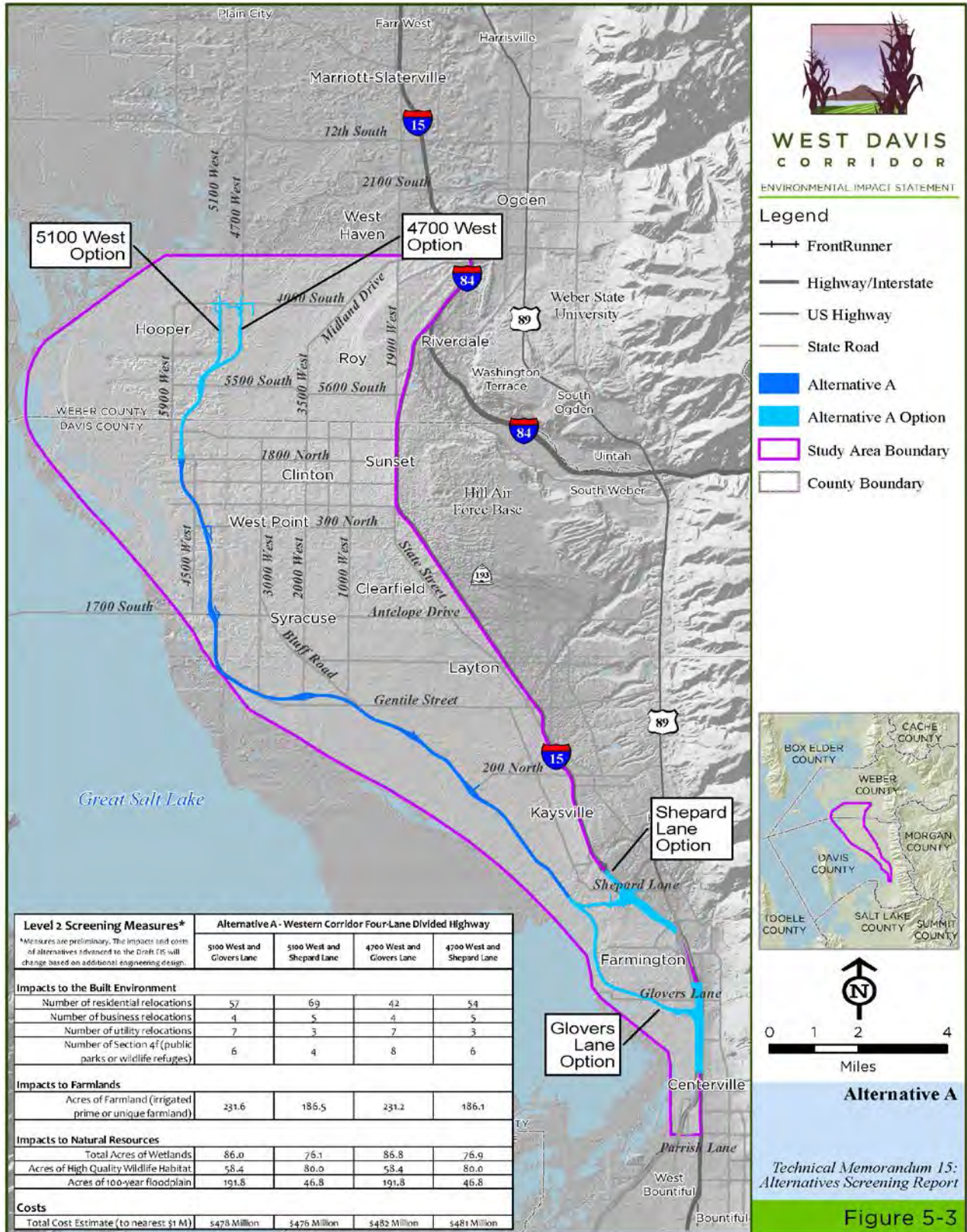
Figure 5-3 below shows the facility type, interchange locations, alignment, and options for Alternative A.

Facility Type. Alternative A is a four-lane divided highway from I-15 in Farmington to 4400 South in Weber County. From 4400 South to 4000 South in Weber County, it is a five-lane arterial. There are two southern options in Farmington and two northern options from 5500 South/5400 West (Weber County) to 4000 South (Weber County).

Interchange Locations. Interchanges are proposed at 200 North in Kaysville, the future 2700 West in Layton, 2000 West in Syracuse, Antelope Drive (SR 127), 1800 North (SR 37), and 5500 South (SR 97).

Alignment. From south to north, the alignment of Alternative A uses one of the two southern options in Farmington, then follows the 2001 alignment from Farmington to Gentile Street in Syracuse. From Gentile Street, the alignment goes west crossing 3000 West just north of Gentile Street, then turns northwest to about 3900 West, then turns north crossing Antelope Drive just west of 4000 West. The alignment then goes north, staying east of 4000 West, crossing 300 North at about 4300 West, and crossing the Layton Canal, 800 North, and 4500 West. Alternative A then turns north to cross 1800 North and the Davis County–Weber County line at about 4800 West, then turns northeast to cross 5500 South (Weber County) at about 5400 West. From 5500 South/5400 West, Alternative A follows one of the two northern options to its northern terminus at 4000 South.

Figure 5-3. Alternative A





Southern Options. In Farmington, Alternative A can follow either the Shepard Lane Option or the Glovers Lane Option.

The Shepard Lane Option connects to I-15 with a system interchange between Shepard Lane and Park Lane in Farmington and follows an alignment on the Kaysville-Farmington line to a point southwest of the Central Davis Sewer Facility, where it turns northwest on the east side of the Rocky Mountain Power corridor.

The Glovers Lane Option connects to I-15 with a system interchange south of Glovers Lane in Farmington and goes northwest, crossing Glovers Lane at 1200 West, then turning north near 2000 West, staying north until reaching a point southwest of the Central Davis Sewer Facility, where it turns northwest on the east side of the Rocky Mountain Power corridor.

Northern Options. From 5500 South/5400 West to 4000 South in Weber County, Alternative A can follow either the 5100 West Option or the 4700 West Option.

From 5500 South/5400 West, the 5100 West Option goes northeast, crossing 5100 South, 5100 West, and 4825 South before transitioning to a five-lane arterial on the east side of 5100 West at 4500 South. The 5100 West Option then widens 5100 West to a five-lane arterial from 4500 South to its northern terminus at 4000 South/5100 West.

From 5500 South/5400 West, the 4700 West Option goes northeast, crossing 5100 West, 5100 South, the Hooper Canal, and 4800 South before transitioning to a five-lane arterial on the west side of 4700 West at 4500 South. The 4700 West Option then widens 4700 West to a five-lane arterial from 4500 South to its northern terminus at 4000 South/4700 West.

5.3 Alternative B (formerly Alternative 11A)

Figure 5-4 below shows the facility type, interchange locations, alignment, and options for Alternative B.

Facility Type. Alternative B is a four-lane divided highway from I-15 in Farmington to 6000 South in Weber County. From 6000 South to 5500 South in Weber County, it is a five-lane arterial. There are two southern options in Farmington and two northern options from 300 North/4300 West (Davis County) to 5500 South/5100 West (Weber County).

Interchange Locations. Interchanges are proposed at 200 North in Kaysville, the future 2700 West in Layton, 2000 West in Syracuse, Antelope Drive (SR 127), and 1800 North (SR 37).

Alignment. From south to north, the alignment of Alternative B uses one of the two southern options in Farmington, then follows the 2001 alignment from Farmington to Gentile Street in Syracuse. From Gentile Street, the alignment goes west, then turns north at about 3200 West and stays north, crossing Antelope Drive just west of 3000 West. The alignment stays west of the Glen Eagle Golf Course, then turns northwest and stays northwest to about 300 North/4300 West in West Point. From this point, the alignment follows one of the two northern options to its northern terminus at 5500 South/5100 West in Weber County.

Southern Options. In Farmington, Alternative B can follow either the Shepard Lane Option or the Glovers Lane Option.

The Shepard Lane Option connects to I-15 with a system interchange between Shepard Lane and Park Lane in Farmington and follows an alignment on the Kaysville-Farmington line to a point southwest of the Central Davis Sewer Facility, where it turns northwest on the east side of the Rocky Mountain Power corridor.

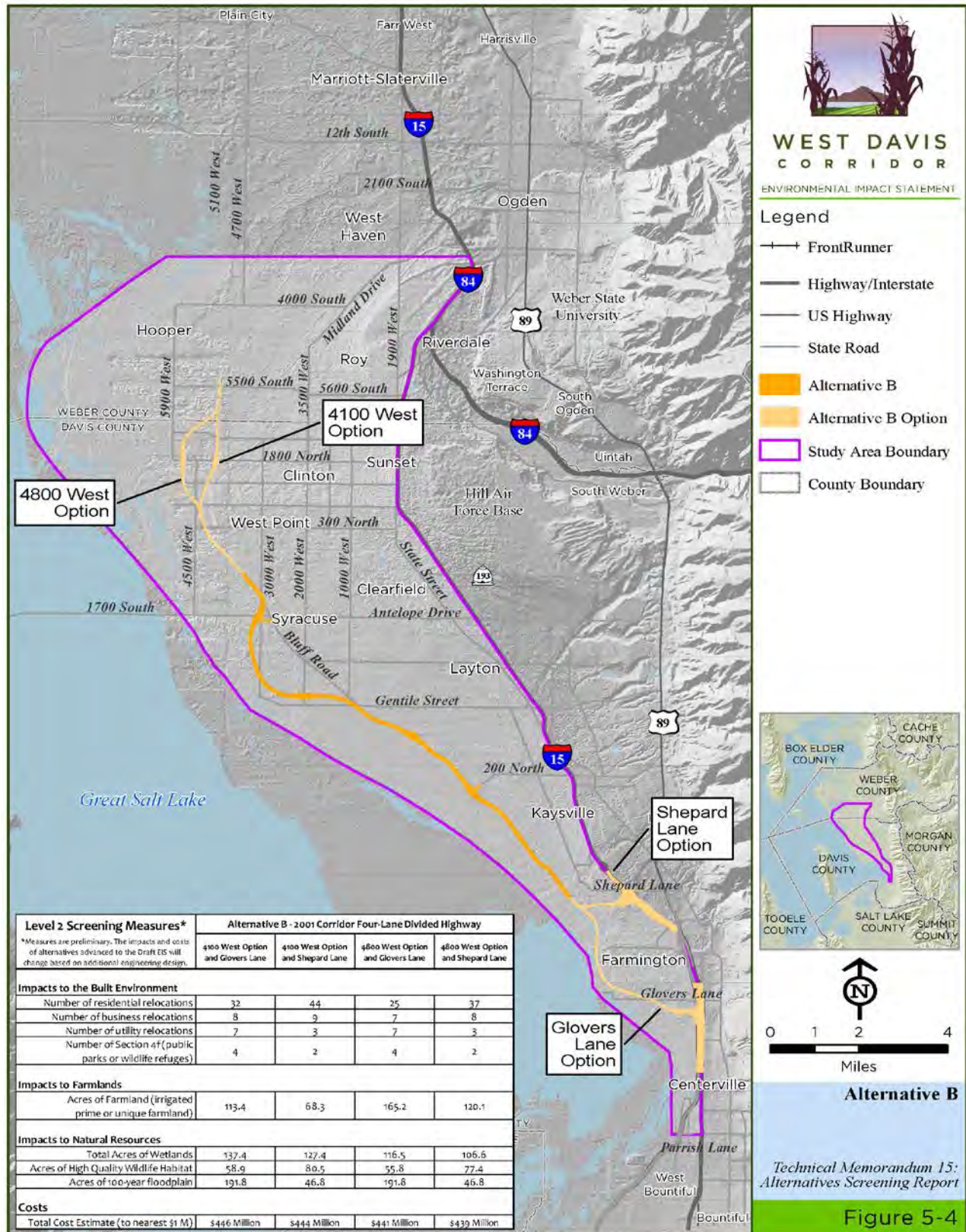
The Glovers Lane Option connects to I-15 with a system interchange south of Glovers Lane in Farmington and goes northwest, crossing Glovers Lane at 1200 West, then turning north near 2000 West, then staying north until reaching a point southwest of the Central Davis Sewer Facility, where it turns northwest on the east side of the Rocky Mountain Power corridor.

Northern Options. From about 300 North/4300 West in West Point to 5500 South/5100 West in Weber County, Alternative B can follow either the 4800 West Option or 4100 West Option.

The 4800 West Option goes northwest, crossing the Layton Canal, 800 North, and 4500 West, then turns north to cross 1800 North at about 4800 West. The 4800 West Option then turns northeast, crossing 2425 North and 4500 West, then transitioning to a five-lane arterial at about 6000 South (Weber County) before crossing 5900 South (Weber County) and widening 5100 West (Weber County) to a five-lane arterial from about 5800 South to the northern terminus at 5500 South/5100 West.

From 300 North/4300 West, the 4100 West Option goes north, staying parallel to the Layton Canal on the east side between 300 North and 1300 North, then goes northeast, crossing 1800 North at 4100 West. The 4100 West Option then goes north, transitioning to a five-lane arterial at about 6000 South (Weber County) before crossing 5900 South (Weber County) and widening 5100 West (Weber County) to a five-lane arterial from about 5900 South to the northern terminus at 5500 South/5100 West.

Figure 5-4. Alternative B



6.0 Draft EIS Considerations

The two action alternatives, which each have two northern options and two southern options as described in Section 5.0, Alternatives Advanced to the Draft EIS, will be further refined through preliminary engineering before detailed impact analyses begin for the EIS. This preliminary engineering will include details such as the number of lanes, horizontal and vertical alignments, potential transit stations or mode transfer locations, intersections, interchanges, and potential drainage designs. Both alternatives will be designed to a similar level of detail.

During the preliminary engineering process, the WDC team will try to further minimize impacts to the natural and built environment while following all applicable engineering standards. Once the preliminary design work is complete, more-detailed impact analyses will be performed to identify and compare the expected effects of each alternative at an equal level of detail in the Draft EIS.

Because the alternatives will undergo a more rigorous engineering design and more-detailed impact analyses, the impact numbers for the alternatives as presented in the Draft EIS will likely vary (positively or negatively) from what has been presented for the Level 2 screening process.

The 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 process, it will be subject to the same screening process as all of the other alternatives.

7.0 References

[AASHTO] American Association of State Highway and Transportation Officials

2004 A Policy on the Geometric Design of Highways and Streets.

Davis County Office of the Assessor

2011 2010 Annual Assessment Summary Report. www.daviscountyutah.gov/assessor/documents/davis_county_assessor_annual_report_2010.pdf. Accessed August 11, 2011.

Envision Utah

2002 Wasatch Front Transit-Oriented Development Guidelines. www.envisionutah.org/Wasatch%20Front%20Transit%20Oriented%20Development%20Guidelines_2002.pdf. Accessed October 5, 2010.

Transportation Research Board

2008 Transit Cooperative Research Program (TCRP) Report 128: Effects of TOD on Housing, Parking, and Travel. onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_128.pdf. Accessed October 5, 2010.

[WFRC] Wasatch Front Regional Council

2011 Technical Report 50: 2011-2040 Regional Transportation Plan (RTP). www.wfrc.org/cms/index.php?option=com_content&view=article&id=134:draft-2011-2040-regional-transportation-plan&catid=22&Itemid=38. Accessed August 18, 2011.

Appendix A. Spring 2011 Public Involvement Summary

Stakeholder Comment Report on Level 2 Screening Alternatives (February–March 2011)

From February 1, 2011, through March 25, 2011, the Level 2 screening criteria and maps of the Level 2 screening alternatives for the West Davis Corridor were made available for public and agency review. These materials were posted on the study website (www.udot.utah.gov/westdavis) on February 1, 2011. Open houses were held February 8, 9, and 10, 2011, in West Point, Farmington, and West Haven. Opportunities were available for the public to comment through hand-written comments, a court reporter, and comments typed directly in the study database.

Collectively, about 3,000 people attended the open houses. Written comments were received via open house comment forms, mail, e-mail, and the project website. Comments were also received on the study's telephone hotline. During the comment period, the WDC team received about 4,500 public or agency comments. Due to the high volume of public input, the comment period was extended from March 8, 2011, to March 25, 2011, to give the public more time to review the alternatives and provide detailed comments. The team received both comments that expressed support for and comments that expressed opposition to the Level 2 screening alternatives that were presented at the public open houses.

The WDC team has reviewed all of the comments received to date. Public comments stating a preference for a particular alternative have been included in the project record for consideration. These comments, as well as suggestions for new or modified alternatives, comments on the process, and general comment themes, are summarized below.

New or Modified Alternatives Suggested by the Public

- Connection to I-15 at 200 North exit that goes west through Kaysville to connect with the WDC alignment west of Kaysville near Schick Lane.
- Connection to I-15 near the Kaysville rest stop that goes west through Kaysville to connect with the WDC alignment west of Kaysville near Angel Street.
- Connection to I-15 and Legacy Parkway near Station Park that goes west through the Farmington Meadows subdivision south of Burke Lane.
- Shift the Glovers Lane Option farther west and south by building structures over wetlands.
- Expand and make better use of existing roads, including US 89, SR 193, Antelope Drive, and 300 North rather than build new highway.
- Move the WDC alignment west of the Rocky Mountain Power corridor in Kaysville.

- Have the WDC share right-of-way with power lines or relocate them.
- Split the WDC on either side of the power corridor.
- Expand the right-of-way from 250 feet to 450 feet for the Shepard Lane Option.
- Construct a bridge at 2000 West in Farmington for the Shepard Lane Option.
- Depress the roadway under 2000 West in Farmington for the Shepard Lane Option.
- Shift the Glovers Lane Option farther south and west.
- Different roads should be used for the West Haven alternatives.
- Public transit should be expanded instead of investing in a new highway.
- Go as far west as possible in Farmington, Kaysville, and Layton.

Comments on Process

- The project has not been thoroughly thought out.
- Animals and environmental resources should not be considered more important than humans.
- Humans and homes should receive equal representation or rights as wetlands and wildlife.
- UDOT should be listening to the wants and needs of the taxpayers.
- The process has been fair and transparent.

General Comment Themes

- Quit talking about a future facility—choose an alignment and build something. A new corridor has been discussed for many years.
- Desire for a facility to be built, but want it located as close as possible to the 2001 Wasatch Front Regional Council preferred alternative (Bluff Road).
- The Shepard Lane Option will bisect a close-knit community.
- The Shepard Lane Option will create a bottleneck on I-15 and defeat the purpose of relieving congestion.
- The Glovers Lane Option will separate communities in Farmington.
- Build a future facility as far west as possible.
- Concern for the safety of children playing and walking to school.
- Impacts to agricultural land will affect the livelihood of farmers and the local agricultural economy.



- The value of homes adjacent to a future facility will decrease or the homes might become difficult to sell.
- Mass transit and trails should be part of the WDC.
- Keep the WDC alignment on 5100 West in Weber County.
- Do not build the WDC.
- The WDC should avoid impacts to golf courses.
- Concerns over air quality, pollution, and noise impacts.
- Concern that the WDC will not be aesthetically appealing.
- Concern about the impact of the WDC on residences (property values, noise, air pollution, etc.).
- Homes should not be acquired in order to protect wetlands.



Appendix B. List of SAFETEA-LU Agencies

SAFETEA-LU Cooperating Agencies

- U.S. Environmental Protection Agency (EPA)
- U.S. Army Corps of Engineers (USACE)
- U.S. Fish and Wildlife Service (USFWS)
- Utah Reclamation Mitigation and Conservation Commission (URMCC)

SAFETEA-LU Participating Agencies

- Advisory Council on Historic Preservation (ACHP)
- Bureau of Indian Affairs (BIA)
- Bureau of Reclamation
- Natural Resources Conservation Service (NRCS)
- Federal Emergency Management Agency (FEMA)
- Utah Governor's Office of Planning and Budget, Resource Development Coordinating Committee (RDCC)
- Utah Division of Air Quality
- Utah Division of State History
- Utah Division of Water Quality
- Utah Division of Wildlife Resources
- Utah Transit Authority (UTA)
- Wasatch Front Regional Council (WFRC)
- Davis County
- Weber County
- Centerville City
- Clearfield City
- Clinton City
- Farmington City
- Hooper City
- Kaysville City
- Layton City
- Marriott-Slaterville City
- Ogden City
- Roy City
- Syracuse City
- West Haven City
- West Point City

Appendix C. List of Stakeholder Working Group Members

- Federal Highway Administration
- Utah Department of Transportation
- Bureau of Reclamation
- U.S. Environmental Protection Agency
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- Advisory Council on Historic Preservation
- Federal Emergency Management Agency
- Natural Resources Conservation Service
- Bureau of Indian Affairs
- Eastern Shoshone Tribe of the Wind River Reservation
- Paiute Indian Tribe of Utah
- Cedar Band of the Paiutes
- Confederated Tribes of the Goshute Indian Reservation
- Skull Valley Band of Goshute Indians
- The Ute Indian Tribe of the Uintah and Ouray Reservation
- The Shoshone-Bannock Tribes
- Northwestern Band of Shoshone Nation
- Utah Governor’s Office of Planning and Budget
- Utah Reclamation Mitigation and Conservation Commission
- Utah Department of Environmental Quality
- Utah Division of State History
- Utah Division of Water Resources
- Utah Division of Wildlife Resources
- Utah Transit Authority
- Wasatch Front Regional Council
- Davis County
- Weber County
- Centerville City
- Clearfield City
- Clinton City
- Farmington City
- Farr West City
- Hooper City
- Kaysville City
- Layton City
- Marriott-Slaterville City
- Ogden City
- Plain City
- Riverdale City
- Roy City
- Sunset City
- Syracuse City
- West Haven City
- West Point City
- Utah Farm Bureau
- Davis County Farm Bureau
- Weber County Farm Bureau
- Utah Physicians for a Healthy Environment
- Utahns for Better Transportation
- Breathe Utah
- Friends of the Great Salt Lake
- Great Salt Lake Audubon
- Wasatch Audubon Society
- Sierra Club, Utah Chapter
- Utah Council of Trout Unlimited
- Ducks Unlimited
- The Nature Conservancy



Appendix D. Combinations of Alternatives

In Table D-1 below, Alternative 09A is shaded because it is the one alternative that passed Level 1 screening when combined with Alternative 04.

Table D-1. Consideration of Combining WDC EIS Alternatives

Alternative	Facility Type	Description	Alternative Combination Consideration
No-Action	Not applicable	No action taken other than the projects in WFRC's current RTP minus the WDC project.	Not applicable.
TDM/TSM	Not applicable	Improve roadway operations by 10% by using systemwide mobility improvements on Hinckley Drive, 4000 South, 5500/5600 South, 1800 North, SR 193, Antelope Drive, SR 126, and SR 108. WFRC has determined that a 10% operational improvement is the maximum reasonable improvement that could be expected from TSM/TDM projects.	Worse than average on 4 of 5 criteria. Mobility improvements would need to be implemented with one of the "widen existing road" alternatives that passed Level 1 screening.
01	Transit	<i>Ultimate Transit:</i> In addition to the transit projects in the RTP, add light-rail transit along 4000 South and Antelope Drive, add bus rapid transit along 1800 North and in Layton, and reduce FrontRunner headway times to 30 minutes.	Worse than average on 4 of 5 criteria and worse than the No-Action alternative on 1 of 5 criteria. The best transit alternative would carry about 1.3% of the total daily trips in 2040. This level combined with any of the alternatives below would not change the Level 1 screening results for that alternative. Potential transit options as part of the alternatives that will be carried forward for detailed study are being coordinated with UTA.
02	Transit	Assumes the same transit projects listed in Alternative 01 with reduced household size for the socioeconomic data. <i>Reduce household size:</i> The socioeconomic data assumed a reduced household size for the population in the study area. The assumption of reduced household size had the net effect of reducing population in the study area by 15,500 compared to the 2040 No-Action Alternative socioeconomic conditions. This change to the socioeconomic data was based on findings by Envision Utah that found higher transit use was correlated with smaller household sizes in some areas of the United States (2002).	Worse than average on 4 of 5 criteria and worse than the No-Action alternative on 1 of 5 criteria. This transit alternative would carry about 1.3% of the total daily trips in 2040. This level combined with any of the alternatives below would not change the Level 1 screening results for that alternative. Potential transit options as part of the alternatives that will be carried forward for detailed study are being coordinated with UTA.
04	Widen existing roads	<i>Widen Existing East-West Roads beyond RTP:</i> Widen Hinckley Drive, 4000 South, 5500/5600 South, 1800 North, SR 193, and Antelope Drive. All east-west roads are widened from I-15 to SR 37 (Weber County) or SR 110 (Davis County).	Worse than average on 3 of 5 criteria. Alternative modified to Alternative 05, which passed Level 1 screening.
05	Widen existing roads	<i>Widen Existing East-West Roads beyond RTP plus I-15 Widening:</i> Widen Hinckley Drive, 4000 South, 5500/5600 South, 1800 North, SR 193, and Antelope Drive. All east-west roads are widened from I-15 to SR 37 (Weber County) or SR 110 (Davis County). Include I-15 widening to add one more general-purpose lane in each direction (MP 324/SR 225 to MP 342/SR 79).	Passed Level 1 screening.

Table D-1. Consideration of Combining WDC EIS Alternatives

Alternative	Facility Type	Description	Alternative Combination Consideration
06	Widen existing roads	<i>Widen Existing North-South Roads beyond RTP:</i> Widen SR 126 (Layton Parkway to Hinckley Drive) and SR 108 (Antelope Drive to Hinckley Drive).	Worse than average on 5 of 5 criteria. Alternative modified to Alternative 07, which did not pass Level 1 screening. However, Alternative 07 was combined with Alternative 05 to become Alternative 08, which passed Level 1 screening.
07	Widen existing roads	<i>Widen Existing North-South Roads beyond RTP plus I-15 Widening:</i> Widen SR 126 (Layton Parkway to Hinckley Drive) and SR 108 (Antelope Drive to Hinckley Drive). Include I-15 widening to add one more general-purpose lane in each direction (MP 324/SR 225 to MP 342/SR 79).	Worse than the No-Action Alternative on 1 criterion. Alternative 07 was combined with Alternative 05 to become Alternative 08, which passed Level 1 screening.
08	Widen existing roads	<i>Widen Existing East-West and North-South Roads beyond RTP plus I-15 Widening:</i> Combine Alternatives 05 and 07.	Passed Level 1 screening.
09A	New four-lane freeway	Begin at Farmington, merge to D&RG corridor, and stay on D&RG corridor to 4000 South. Interchanges at 5600 South, 1800 North, SR 193, Antelope Drive, Hill Field Road, Layton Parkway, 200 North, and Shepard Lane.	Worse than average on 1 of 5 criteria. After Level 1 screening, Alternative 09A was combined with Alternative 04, which could pass Level 1 screening (D&RG plus east-west widening).
09B	New two-lane, limited-access highway	Same alignment as 09A. At-grade intersections at minimum 1-mile spacing.	Worse than average on 2 of 5 criteria and worse than the No-Action alternative on 3 of 5 criteria. Alternative 09A in combination with Alternative 04 is similar, which did pass Level 1 screening.
09C	New five-lane arterial	Same alignment as 09A. At-grade intersections at minimum 0.5-mile spacing.	Worse than average on 5 of 5 criteria. Alternative 09A in combination with Alternative 04, is similar which did pass Level 1 screening.
10A	New four-lane freeway	Begin at Farmington, follow 2001 alignment to 2000 West in Layton, merge to power corridor, and stay on power corridor to 4000 South. Interchanges at 5600 South, 1800 North, SR 193, Antelope Drive, Hill Field Road, Layton Parkway, 200 North, and Shepard Lane.	Passed Level 1 screening.
10B	New two-lane, limited-access highway	Same alignment as 10A. At-grade intersections at minimum 1-mile spacing.	Worse than average on 3 of 5 criteria and worse than the No-Action alternative on 2 of 5 criteria. Alternative modified to become Alternative 10A, which passed Level 1 screening.
10C	New five-lane arterial	Same alignment as 10A. At-grade intersections at minimum 0.5-mile spacing.	Worse than average on 5 of 5 criteria. Alternative modified to become Alternative 10A, which passed Level 1 screening.
11A	New four-lane freeway	Begin at Farmington, follow 2001 alignment to 4000 South. Interchanges at 5500 South, 1800 North, SR 193, Antelope Drive, 2000 West, 2700 West (Layton), 200 North, and Shepard Lane.	Passed Level 1 screening.

Table D-1. Consideration of Combining WDC EIS Alternatives

Alternative	Facility Type	Description	Alternative Combination Consideration
11B	New two-lane, limited-access highway	Same alignment as 11A. At-grade intersections at minimum 1-mile spacing.	Worse than average on 4 of 5 criteria and worse than the No-Action Alternative on 1 of 5 criteria. Alternative modified to become Alternative 11A, which did pass Level 1 screening.
11C	New five-lane arterial	Same alignment as 11A. At-grade intersections at minimum 0.5-mile spacing.	Worse than average on 4 of 5 criteria. Alternative modified to become Alternative 11A, which did pass Level 1 screening.
12A	New four-lane freeway	Begin at Farmington, follow 2001 alignment to Gentile Street, swing far west crossing Antelope Drive west of 4500 West, stay west of existing development in West Point crossing the Davis County–Weber County line near 6500 West (Weber County), follow 6500 West in Hooper to 4600 South, then cut northeast to 4000 South at 5900 West. Interchanges at 5500 South, 1800 North, SR 193, Antelope Drive, 2000 West, 2700 West (Layton), 200 North, and Shepard Lane.	Worse than 1st quartile for 3 of 5 criteria. Alternative 13A, a more eastern version of Alternative 12A, passed Level 1 screening.
12B	New two-lane, limited-access highway	Same alignment as 12A. At-grade intersections at minimum 1-mile spacing.	Worse than average on 5 of 5 criteria. Alternative 12A, the best-performing option of Alternative 12, did not pass Level 1 screening. Alternative 13A, a more eastern version of Alternative 12A, passed Level 1 screening.
12C	New five-lane arterial	Same alignment as 12A. At-grade intersections at minimum 0.5-mile spacing.	Worse than average on 5 of 5 criteria. Alternative 12A, the best-performing option of Alternative 12, did not pass Level 1 screening. Alternative 13A, a more eastern version of Alternative 12A, passed Level 1 screening.
13A	New four-lane freeway	Begin at Farmington, follow 2001 alignment to Gentile Street, swing west crossing Antelope Drive west of 4000 West, stay west of 4000 West in West Point crossing 4500 West near 800 North and the Davis County–Weber County line near 5700 West (Weber County), then cut northeast to 4000 South. Interchanges at 5500 South, 1800 North, SR 193, Antelope Drive, 2000 West, 2700 West (Layton), 200 North, and Shepard Lane.	Passed Level 1 screening.
13B	New two-lane, limited-access highway	Same alignment as 13A. At-grade intersections at minimum 1-mile spacing.	Worse than average on 5 of 5 criteria. Alternative modified to become Alternative 13A, which did pass Level 1 screening.
13C	New five-lane arterial	Same alignment as 13A. At-grade intersections at minimum 0.5-mile spacing.	Worse than average on 5 of 5 criteria. Alternative modified to become Alternative 13A, which did pass Level 1 screening.

Appendix E. Level 2 Screening Alternative – Segment Cross-Reference Table

Alternative	Note/Desc.	Segments			
Alternative 05	Widen I-15 & East-West Arterials	I-15	Widen E-W		
Alternative 08	Widen I-15, East-West Arterials, and North-South Arterials	I-15	Widen E-W	Widen N-S	
Alternative 09A+04	D&RG freeway & e-w widening	"01"	"03"	"05"	Widen E-W

Farmington Options (2)

Alternative 10A (4 combos)	Original Option with Glovers Lane Option	01+02	"08"	10	29	31
	Original Option with Shepard Lane Option	06+07	"08"	10	29	31
	Modified Option with Glovers Lane Option	01+02	"08"	10	29	30 32 33
	Modified Option with Shepard Lane Option	06+07	"08"	10	29	30 32 33

Farmington Options (2)

Syracuse Options (4)

West Point Options (6)

Alternative 11A (48 combos)	Glovers Lane Option	01+02+08+09	+	Option 1	12	15	+	Option 1	23	36	45
	OR			Option 2	12	16		17	Option 2a	24	46
	Shepard Lane Option	06+07+08+09		Option 3	11	17		Option 2b	22	46	
				Option 4	13	17		Option 3	26		
						Option 4	25				
						Option 5	27	33			

West Point/Weber County Options (10)

Alternative 13A (20 Combos)	(20 Combos)		+	Option 1	5100 West	18	35	43
				Option 2	4700 West	18	34	44
				Option 3	5100 West	18	36	39 41 43
				Option 4	4700 West	18	36	40 42 44
				Option 5	5100 West	20	37	41 43
				Option 6	4700 West	20	38	42 44
				Option 7	5100 West	19	37	41 43
				Option 8	4700 West	19	38	42 44
				Option 9	5100 West	21	47	43
				Option 10	4700 West	21	48	44

Appendix F. Level 2 Screening Data for WDC Segments

Level 2 Screening Measures*																			
*Measures are preliminary. The impacts and costs of alternatives advanced to the Draft EIS will change based on additional engineering design.																			
	Widen EW Roads	Widen NS Roads	Widen I15	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Impacts to the Built Environment																			
Total Number of Res. Or Bus. Relocations	275	280	2	1	2	14	4	818	6	10	2	1	2	4	0	12	21	15	8
Number of residential relocations	213	200	0	0	0	14	4	740	3	9	2	0	1	4	0	12	21	12	7
Number of business relocations	62	80	2	1	2	0	0	78	3	1	0	1	1	0	0	0	0	3	1
Number of utility relocations	19	1			4						3								
Number of parks	3	3	2	2		1	1	5	2	2		1	1	0	0	1	2	0	
Number of community facilities	3	4						3											
Number of Section 4f (public parks or wildlife refuges)	3	3	1	2	0	1	0	5	0	0	0	2	1	0	0	1	1	0	0
Number of 6f	0																		
Potential for Impacts to Low-Income or Minority Populations (Env. Justice)																			
Number of areas with high density of historic properties	10	14	6					7					1						
Number of archaeological sites	35	4	14	8	2	3	2	31	7	2		1					1		
Impacts to Farmlands																			
Acres of Farmland (irrigated prime or unique farmland)	7.5	2.0		38.1	7.0	4.2	93.7						57.6	65.2	8.5	2.0	2.5	77.7	7.3
Number of APAs		4																8	3
Acres of APAs		0.7																33.3	41.8
Impacts to Natural Resources																			
Total Acres of Wetlands	0.1	0.0	2.5	4.0	20.6	9.3	1.9	8.6	13.0	1.7	7.3	16.3	7.6	40.3	22.6	45.1	6.6	26.8	21.8
Acres of wetlands by quality																			
High Quality					0.5							8.7	0.2	10.3	7.5	7.5			
Medium Quality			0.0	0.1	10.1				3.5		4.3	4.5	4.3	20.8	14.4	32.6	3.2	24.0	16.9
Low Quality	0.0	0.0	0.0	0.8	8.1	0.0	0.4	0.5	8.5	0.8	2.1	3.0	3.0	1.7	0.6	5.0	2.9	2.8	4.8
Other	0.1	0.0	2.5	3.2	1.9	9.3	1.5	8.1	1.0	0.9	0.9	0.2	0.2	7.6	0.0	0.0	0.4	0.0	0.1
Acres of wildlife habitat by quality																			
Acres of High Quality Wildlife Habitat					13.3		2.5	7.4	32.2	2.7	0.1	21.5	9.4	34.8	21.0	23.8	2.6		
Acres of Medium Quality Wildlife Habitat	1.0	0.0	1.8	6.8	35.3	26.3	0.5	9.8	2.5	5.5	38.2	0.2	0.0	37.4	5.0	43.0	32.3	31.6	53.0
Acres of Low Quality Wildlife Habitat	10.5	4.8	0.8	41.3	74.7	25.0	12.4	166.6	41.2	8.8	65.8	68.1	79.3	25.3	18.2	16.0	143.5	115.7	18.5
Acres of 100-year floodplain	0.0		19.2	43.3	119.8	0.2	0.8	15.4	2.3	15.7	27.6	1.1	1.1						
Number of water crossings	2		6		1	1		4	1		1	1	1						
Costs																			
Total Cost Rounded	\$339,000,000	\$337,000,000	\$478,000,000	\$78,000,000	\$49,000,000	\$40,000,000	\$10,000,000	\$700,000,000	\$109,000,000	\$16,000,000	\$51,000,000	\$49,000,000	\$41,000,000	\$65,000,000	\$21,000,000	\$68,000,000	\$97,000,000	\$95,000,000	\$50,000,000

Level 2 Screening Measures*																			
*Measures are preliminary. The impacts and costs of alternatives advanced to the Draft EIS will change based on additional engineering design.																			
	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Impacts to the Built Environment																			
Total Number of Res. Or Bus. Relocations	35	5	5	3	13	9	8	8	19	12	20	263	201	22	469	23	21	7	8
Number of residential relocations	33	5	5	3	12	9	8	8	18	11	19	236	185	22	461	22	19	7	8
Number of business relocations	2	0	0	0	1	0	0	0	1	1	1	27	16	0	8	1	2	0	0
Number of utility relocations												2	53	4	46				
Number of parks		0			1				1	1	1	1			1	1	1		1
Number of community facilities		1										1			1				
Number of Section 4f (public parks or wildlife refuges)	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0	0	1
Number of 6f												1			1				
Potential for Impacts to Low-Income or Minority Populations (Env. Justice)																			
Number of areas with high density of historic properties												1	2		2	1			
Number of archaeological sites		2	1	2	3	4	3	3	3	3		1	1	2	5	1	3	3	0
Impacts to Farmlands																			
Acres of Farmland (irrigated prime or unique farmland)		25.7	0.1	0.1	0.1	0.8	26.4	0.8	1.4	1.4	14.6	94.4	77.8	14.0	59.9	73.2	20.8	23.2	23.4
Number of APAs															2	5		2	2
Acres of APAs															15.2	16.9		4.3	4.3
Impacts to Natural Resources																			
Total Acres of Wetlands	10.0	7.6	3.8	15.2	28.7	14.7	18.2	26.4	39.7	73.0	4.2	0.1	2.2	0.0	14.3	0.0	5.7	0.6	0.6
Acres of wetlands by quality																			
High Quality						7.3	7.3	7.3	7.3	2.7	1.3								
Medium Quality	9.7	6.6	2.7	10.4	14.6	6.5	10.3	14.7	18.4	42.4	2.9				14.3		1.3		
Low Quality	0.4	0.2	0.5	4.0	9.5	0.5	0.2	4.0	9.5	25.7	0.0	0.0	0.0	0.0	0.0	0.0	3.7	0.0	0.0
Other	0.0	0.2	0.7	0.8	4.6	0.4	0.4	0.4	4.6	2.2	0.0	0.1	2.2	0.0	0.0	0.0	0.7	0.6	0.5
Acres of wildlife habitat by quality																			
Acres of High Quality Wildlife Habitat					3.1				3.1						1.6				
Acres of Medium Quality Wildlife Habitat	0.0	36.4	24.7	26.1	68.0	47.0	57.0	48.5	95.3	104.0	7.4	0.8	0.0	0.9	28.2	0.0	47.7	0.0	0.0
Acres of Low Quality Wildlife Habitat	34.3	43.6	30.2	29.6	29.3	21.5	33.4	20.2	30.5	30.3	27.6	110.4	91.0	13.8	124.7	90.6	33.0	112.1	95.9
Acres of 100-year floodplain																			
Number of water crossings		4	3	4	4	4	4	4	6	5					4		4	3	1
Costs																			
Total Cost Rounded	\$52,000,000	\$53,000,000	\$29,000,000	\$28,000,000	\$72,000,000	\$41,000,000	\$65,000,000	\$41,000,000	\$103,000,000	\$105,000,000	\$24,000,000	\$223,000,000	\$211,000,000	\$17,000,000	\$379,000,000	\$57,000,000	\$69,000,000	\$63,000,000	\$59,000,000

Level 2 Screening Measures*													
*Measures are preliminary. The impacts and costs of alternatives advanced to the Draft EIS will change based on additional engineering design.	36	37	38	39	40	41	42	43	44	45	46	47	48
Impacts to the Built Environment													
Total Number of Res. Or Bus. Relocations	0	32	36	0	5	24	25	21	7	4	35	27	32
Number of residential relocations	0	32	36	0	5	23	25	21	7	4	35	25	30
Number of business relocations	0	0	0	0	0	1	0	0	0	0	0	2	2
Number of utility relocations													
Number of parks						1			2			2	1
Number of community facilities													
Number of Section 4f (public parks or wildlife refuges)	0	0	0	0	0	1	0	0	2			1	
Number of 6f													
Potential for Impacts to Low-Income or Minority Populations (Env. Justice)													
Number of areas with high density of historic properties													
Number of archaeological sites		2	2	1	1	1	3	3	1	2	3	1	3
Impacts to Farmlands													
Acres of Farmland (irrigated prime or unique farmland)	26.4	1.6	1.9			4.2	2.7	0.3		0.46	3.70	4.70	0.96
Number of APAs				1	1			2		1			
Acres of APAs				1.3	1.3			0.3		1.3			
Impacts to Natural Resources													
Total Acres of Wetlands	0.7	6.7	6.7	0.0	0.0	0.2	2.0	0.4	1.2	0.0	6.9	0.5	2.4
Acres of wetlands by quality	-	-	-	-	-	-	-	-	-	-	-	-	-
High Quality								0.2				0.00	0.00
Medium Quality		2.3	2.2		0.0		2.0				2.28	0.00	1.92
Low Quality	0.0	3.4	3.4	0.0	0.0	0.0	0.0	0.1	0.5	0.0	3.4	0.0	0.0
Other	0.7	1.1	1.1	0.0	0.0	0.2	0.0	0.1	0.7	0.0	1.2	0.5	0.4
Acres of wildlife habitat by quality	-	-	-	-	-	-	-	-	-	-	-	-	-
Acres of High Quality Wildlife Habitat												0.00	0.00
Acres of Medium Quality Wildlife Habitat	0.0	32.9	34.2	0.0	0.0	0.0	12.7	0.0	0.0	0.0	33.5	6.7	18.9
Acres of Low Quality Wildlife Habitat	42.0	14.0	14.5	13.4	15.6	33.2	34.4	5.7	4.7	20.7	21.0	35.1	33.7
Acres of 100-year floodplain										0.0	0.0	0.0	0.0
Number of water crossings	3	2	2	1	1	1	1	4	3	3	4	2	2
Costs													
Total Cost Rounded	\$13,000,000	\$47,000,000	\$52,000,000	\$4,000,000	\$9,000,000	\$52,000,000	\$47,000,000	\$22,000,000	\$21,000,000	\$18,000,000	\$62,000,000	\$58,000,000	\$57,000,000

Appendix G. Comparison Table for Range of Preliminary Alternatives

Table G-1. Comparison Table and Cross-Reference for Range of Preliminary Alternatives

Original 2010 Alternative Name or Number	Facility Type	Description of Original 2010 Alternative	Revised 2011 Alternative Name or Number	Facility Type	Description of Revised 2011 Alternative	Changes or Comments
No-Action	Not applicable	No action taken other than the projects in WFRC's current (2030) Regional Transportation Plan (RTP) minus the North Legacy project.	No-Action	Not applicable	No action taken other than the projects in WFRC's current (2040) Regional Transportation Plan (RTP) minus the West Davis Corridor and North Legacy projects.	Updated for 2040 WFRC RTP.
01	Transit	<i>Ultimate Transit:</i> In addition to the transit projects in the RTP, add light-rail transit along 4000 South and Antelope Drive, add bus rapid transit along 1800 North and in Layton (all lines would connect to existing FrontRunner stations), and reduce FrontRunner headway times to 30 minutes.	01	Transit	<i>Ultimate Transit:</i> In addition to the transit projects in the RTP, add light-rail transit along 4000 South and Antelope Drive, add bus rapid transit along 1800 North and in Layton (all lines would connect to existing FrontRunner stations), and reduce FrontRunner headway times to 30 minutes.	No changes to transit improvements. 2011 Revised Alternative 01 used unmodified socio-economic data. The original 2010 Alternative 01 used modified socioeconomic data.
02	Upgrade existing streets	<i>Widen Existing East-West Streets beyond RTP:</i> Widen Antelope Drive, SR 193, 1800 North, 5500/5600 South, Hinckley Drive, and 12th Street.	04	Upgrade existing roads	<i>Widen Existing East-West Roads beyond RTP:</i> Widen Hinckley Drive, 4000 South, 5500/5600 South, 1800 North, SR 193, and Antelope Drive. All east-west roads are widened from I-15 to SR 37 (Weber County) or SR 110 (Davis County).	12 th Street widening was removed in 2011. 4000 South widening was added in 2011.
03	Upgrade existing streets	<i>Widen Existing East-West Streets beyond RTP plus I-15 Widening:</i> Widen Antelope Drive, SR 193, 1800 North, 5500/5600 South, Hinckley Drive, 4000 South, and 12th Street. Include I-15 widening to add one more general-purpose lane in each direction.	05	Upgrade existing roads	<i>Widen Existing East-West Roads beyond RTP plus I-15 Widening:</i> Widen Hinckley Drive, 4000 South, 5500/5600 South, 1800 North, SR 193, and Antelope Drive. All east-west roads are widened from I-15 to SR 37 (Weber County) or SR 110 (Davis County). Include I-15 widening to add one more general-purpose lane in each direction (Milepost [MP] 324/SR 225 to MP 342/SR 79).	12 th Street widening was removed in 2011. The northern limit of I-15 widening was revised to be at Hinckley Drive instead of 1200 South.
03B	Upgrade existing streets	Same as 03 except widen 3300 South instead of 4000 South.	NA	NA	NA	03B was not modeled in 2011, as 3300 South was outside of the study area in 2011. Revised 2011 Alternative 05 modeled the best I-15 & East-West arterial widening alternative.
04A	Upgrade existing streets	<i>Widen Existing North-South Streets beyond RTP:</i> Widen SR 108 to 3500 West and SR 126.	06	Upgrade existing roads	<i>Widen Existing North-South Roads beyond RTP:</i> Widen SR 126 (Layton Parkway to Hinckley Drive) and SR 108 (Antelope Drive to Hinckley Drive).	Revised 2011 Alternative 06 modeled widening SR 108 & SR 126. The northern limits of SR 126 and SR 108 widening were revised to end at Hinckley Drive instead of 1200 South.
04B	Upgrade existing streets	<i>Widen Existing North-South Streets beyond RTP:</i> Widen SR 108 to I-15 and SR 126.	06	Upgrade existing roads	<i>Widen Existing North-South Roads beyond RTP:</i> Widen SR 126 (Layton Parkway to Hinckley Drive) and SR 108 (Antelope Drive to Hinckley Drive).	Revised 2011 Alternative 06 modeled widening SR 108 & SR 126. The northern limits of SR 126 and SR 108 widening were revised to end at Hinckley Drive instead of 1200 South.
05A	Upgrade existing streets	<i>Widen Existing North-South Streets beyond RTP plus I-15:</i> Widen SR 108 to 3500 West and SR 126. Include I-15 widening to add one more general-purpose lane in each direction.	07	Upgrade existing roads	<i>Widen Existing North-South Roads beyond RTP plus I-15 Widening:</i> Widen SR 126 (Layton Parkway to Hinckley Drive) and SR 108 (Antelope Drive to Hinckley Drive). Include I-15 widening to add one more general-purpose lane in each direction (MP 324/SR 225 to MP 342/SR 79).	The northern limits of SR 126, SR 108, and I-15 widening were revised to end at Hinckley Drive instead of 1200 South.
05B	Upgrade existing streets	<i>Widen Existing North-South Streets beyond RTP:</i> Widen SR 108 to I-15 (along Midland Drive) and SR 126. Include I-15 widening to add one more general-purpose lane in each direction.	07	Upgrade existing roads	<i>Widen Existing North-South Roads beyond RTP plus I-15 Widening:</i> Widen SR 126 (Layton Parkway to Hinckley Drive) and SR 108 (Antelope Drive to Hinckley Drive). Include I-15 widening to add one more general-purpose lane in each direction (MP 324/SR 225 to MP 342/SR 79).	The northern limits of SR 126, SR 108, and I-15 widening were revised to end at Hinckley Drive instead of 1200 South.
06A	New four-lane divided highway	Begin at existing Legacy Parkway, parallel I-15 to Shepard Lane, merge to D&RG corridor, and stay on D&RG corridor to I-15 at 24th Street.	09A	New four-lane divided highway	Begin at Farmington, merge to D&RG corridor, and stay on D&RG corridor to 4000 South.	As the previous and updated traffic modeling showed that the Farmington connection did not make a substantial difference in the alternatives' traffic performance, the different Farmington connections with the same northern corridors were not modeled as separate alternatives in 2011. All D&RG corridor alignments were modeled as part of Revised Alternatives 09A, 09B, or 09C in 2011. The northern terminus was revised to end at 4000 South instead of 1200 South.

Table G-1. Comparison Table and Cross-Reference for Range of Preliminary Alternatives

Original 2010 Alternative Name or Number	Facility Type	Description of Original 2010 Alternative	Revised 2011 Alternative Name or Number	Facility Type	Description of Revised 2011 Alternative	Changes or Comments
06B	New two-lane, limited-access highway	Same alignment as 06A.	09B	New two-lane, limited-access highway	Same alignment as 09A.	As the previous and updated traffic modeling showed that the Farmington connection did not make a substantial difference in the alternatives' traffic performance, the different Farmington connections with the same northern corridors were not modeled as separate alternatives in 2011. All D&RG corridor alignments were modeled as part of Revised Alternatives 09A, 09B, or 09C in 2011. The northern terminus was revised to end at 4000 South instead of 1200 South.
06C	New five-lane arterial	Same alignment as 06A.	09C	New five-lane arterial	Same alignment as 09A.	As the previous and updated traffic modeling showed that the Farmington connection did not make a substantial difference in the alternatives' traffic performance, the different Farmington connections with the same northern corridors were not modeled as separate alternatives in 2011. All D&RG corridor alignments were modeled as part of Revised Alternatives 09A, 09B, or 09C in 2011. The northern terminus was revised to end at 4000 South instead of 1200 South.
07A	New four-lane divided highway	Begin at existing Legacy Parkway (without I-15 connection), parallel I-15 to Shepard Lane, merge to 2001 Alignment, and stay on 2001 Alignment to 12th Street.	11A	New four-lane divided highway	Begin at Farmington, follow 2001 alignment to 4000 South.	As the previous and updated traffic modeling showed that the Farmington connection did not make a substantial difference in the alternatives' traffic performance, the different Farmington connections with the same northern corridors were not modeled as separate alternatives in 2011. All 2001 corridor alignments were modeled as part of Revised Alternatives 11A, 11B, or 11C in 2011. The northern terminus was revised to end at 4000 South instead of 1200 South.
07A-2	New four-lane divided highway	Begin at existing Legacy Parkway (with I-15 connection), parallel I-15 to Shepard Lane, merge to 2001 Alignment, and stay on 2001 Alignment to 12th Street.	11A	New four-lane divided highway	Begin at Farmington, follow 2001 alignment to 4000 South.	As the previous and updated traffic modeling showed that the Farmington connection did not make a substantial difference in the alternatives' traffic performance, the different Farmington connections with the same northern corridors were not modeled as separate alternatives in 2011. All 2001 corridor alignments were modeled as part of Revised Alternatives 11A, 11B, or 11C in 2011. The northern terminus was revised to end at 4000 South instead of 1200 South.
07B	New two-lane, limited-access highway	Same alignment as 07A.	11B	New two-lane, limited-access highway	Same alignment as 11A.	As the previous and updated traffic modeling showed that the Farmington connection did not make a substantial difference in the alternatives' traffic performance, the different Farmington connections with the same northern corridors were not modeled as separate alternatives in 2011. All 2001 corridor alignments were modeled as part of Revised Alternatives 11A, 11B, or 11C in 2011. The northern terminus was revised to end at 4000 South instead of 1200 South.
07C	New five-lane arterial	Same alignment as 07A.	11C	New five-lane arterial	Same alignment as 11A.	As the previous and updated traffic modeling showed that the Farmington connection did not make a substantial difference in the alternatives' traffic performance, the different Farmington connections with the same northern corridors were not modeled as separate alternatives in 2011. All 2001 corridor alignments were modeled as part of Revised Alternatives 11A, 11B, or 11C in 2011. The northern terminus was revised to end at 4000 South instead of 1200 South.
08A	New four-lane divided highway	Begin at Legacy Parkway south of Glovers Lane, merge to D&RG corridor, and stay on D&RG corridor to I-15 at 24th Street.	09A	New four-lane divided highway	Begin at Farmington, merge to D&RG corridor, and stay on D&RG corridor to 4000 South.	As the previous and updated traffic modeling showed that the Farmington connection did not make a substantial difference in the alternatives' traffic performance, the different Farmington connections with the same northern corridors were not modeled as separate alternatives in 2011. All D&RG corridor alignments were modeled as part of Revised Alternatives 09A, 09B, or 09C in 2011. The northern terminus was revised to end at 4000 South instead of 1200 South.

Table G-1. Comparison Table and Cross-Reference for Range of Preliminary Alternatives

Original 2010 Alternative Name or Number	Facility Type	Description of Original 2010 Alternative	Revised 2011 Alternative Name or Number	Facility Type	Description of Revised 2011 Alternative	Changes or Comments
08B	New two-lane, limited-access highway	Same alignment as 08A.	09B	New two-lane, limited-access highway	Same alignment as 09A.	As the previous and updated traffic modeling showed that the Farmington connection did not make a substantial difference in the alternatives' traffic performance, the different Farmington connections with the same northern corridors were not modeled as separate alternatives in 2011. All D&RG corridor alignments were modeled as part of Revised Alternatives 09A, 09B, or 09C in 2011. The northern terminus was revised to end at 4000 South instead of 1200 South.
08C	New five-lane arterial	Same alignment as 08A.	09C	New five-lane arterial	Same alignment as 09A.	As the previous and updated traffic modeling showed that the Farmington connection did not make a substantial difference in the alternatives' traffic performance, the different Farmington connections with the same northern corridors were not modeled as separate alternatives in 2011. All D&RG corridor alignments were modeled as part of Revised Alternatives 09A, 09B, or 09C in 2011. The northern terminus was revised to end at 4000 South instead of 1200 South.
09A	New four-lane divided highway	Begin at Legacy Parkway south of Glovers Lane, follow D&RG corridor to Shepard Lane, merge to 2001 Alignment to Schick Lane, merge to power corridor, and stay on power corridor to 12th Street.	10A	New four-lane divided highway	Begin at Farmington, follow 2001 alignment to 2000 West in Layton, merge to power corridor, and stay on power corridor to 4000 South.	As the previous and updated traffic modeling showed that the Farmington connection did not make a substantial difference in the alternatives' traffic performance, the different Farmington connections with the same northern corridors were not modeled as separate alternatives in 2011. All power corridor alignments were modeled as part of Revised Alternatives 10A, 10B, or 10C in 2011. The northern terminus was revised to end at 4000 South instead of 1200 South.
09B	New two-lane, limited-access highway	Same alignment as 09A.	10B	New two-lane, limited-access highway	Same alignment as 10A.	As the previous and updated traffic modeling showed that the Farmington connection did not make a substantial difference in the alternatives' traffic performance, the different Farmington connections with the same northern corridors were not modeled as separate alternatives in 2011. All power corridor alignments were modeled as part of Revised Alternatives 10A, 10B, or 10C in 2011. The northern terminus was revised to end at 4000 South instead of 1200 South.
09C	New five-lane arterial	Same alignment as 09A.	10C	New five-lane arterial	Same alignment as 10A.	As the previous and updated traffic modeling showed that the Farmington connection did not make a substantial difference in the alternatives' traffic performance, the different Farmington connections with the same northern corridors were not modeled as separate alternatives in 2011. All power corridor alignments were modeled as part of Revised Alternatives 10A, 10B, or 10C in 2011. The northern terminus was revised to end at 4000 South instead of 1200 South.
10A	New four-lane divided highway	Begin at Legacy Parkway south of Glovers Lane, follow D&RG corridor to Shepard Lane, merge to 2001 Alignment, and stay on 2001 Alignment to 12th Street.	11A	New four-lane divided highway	Begin at Farmington, follow 2001 alignment to 4000 South.	As the previous and updated traffic modeling showed that the Farmington connection did not make a substantial difference in the alternatives' traffic performance, the different Farmington connections with the same northern corridors were not modeled as separate alternatives in 2011. All 2001 corridor alignments were modeled as part of Revised Alternatives 11A, 11B, or 11C in 2011. The northern terminus was revised to end at 4000 South instead of 1200 South.
10B	New two-lane, limited-access highway	Same alignment as 10A.	11B	New two-lane, limited-access highway	Same alignment as 11A.	As the previous and updated traffic modeling showed that the Farmington connection did not make a substantial difference in the alternatives' traffic performance, the different Farmington connections with the same northern corridors were not modeled as separate alternatives in 2011. All 2001 corridor alignments were modeled as part of Revised Alternatives 11A, 11B, or 11C in 2011. The northern terminus was revised to end at 4000 South instead of 1200 South.

Table G-1. Comparison Table and Cross-Reference for Range of Preliminary Alternatives

Original 2010 Alternative Name or Number	Facility Type	Description of Original 2010 Alternative	Revised 2011 Alternative Name or Number	Facility Type	Description of Revised 2011 Alternative	Changes or Comments
10C	New five-lane arterial	Same alignment as 10A.	11C	New five-lane arterial	Same alignment as 11A.	As the previous and updated traffic modeling showed that the Farmington connection did not make a substantial difference in the alternatives' traffic performance, the different Farmington connections with the same northern corridors were not modeled as separate alternatives in 2011. All 2001 corridor alignments were modeled as part of Revised Alternatives 11A, 11B, or 11C in 2011. The northern terminus was revised to end at 4000 South instead of 1200 South.
11A	New four-lane divided highway	Begin at Legacy Parkway south of Glovers Lane, follow Farmington Western Alignment to Shepard Lane, follow 2001 Alignment to Schick Lane, merge to power corridor, and stay on power corridor to 12th Street.	10A	New four-lane divided highway	Begin at Farmington, follow 2001 alignment to 2000 West in Layton, merge to power corridor, and stay on power corridor to 4000 South.	As the previous and updated traffic modeling showed that the Farmington connection did not make a substantial difference in the alternatives' traffic performance, the different Farmington connections with the same northern corridors were not modeled as separate alternatives in 2011. All power corridor alignments were modeled as part of Revised Alternatives 10A, 10B, or 10C in 2011. The northern terminus was revised to end at 4000 South instead of 1200 South.
11B	New two-lane, limited-access highway	Same alignment as 11A.	10B	New two-lane, limited-access highway	Same alignment as 10A.	As the previous and updated traffic modeling showed that the Farmington connection did not make a substantial difference in the alternatives' traffic performance, the different Farmington connections with the same northern corridors were not modeled as separate alternatives in 2011. All power corridor alignments were modeled as part of Revised Alternatives 10A, 10B, or 10C in 2011. The northern terminus was revised to end at 4000 South instead of 1200 South.
11C	New five-lane arterial	Same alignment as 11A.	10C	New five-lane arterial	Same alignment as 10A.	As the previous and updated traffic modeling showed that the Farmington connection did not make a substantial difference in the alternatives' traffic performance, the different Farmington connections with the same northern corridors were not modeled as separate alternatives in 2011. All power corridor alignments were modeled as part of Revised Alternatives 10A, 10B, or 10C in 2011. The northern terminus was revised to end at 4000 South instead of 1200 South.
12A	New four-lane divided highway	Begin at Legacy Parkway south of Glovers Lane, follow Farmington Western Alignment to Shepard Lane, and follow 2001 Alignment to 12th Street.	11A	New four-lane divided highway	Begin at Farmington, follow 2001 alignment to 4000 South.	As the previous and updated traffic modeling showed that the Farmington connection did not make a substantial difference in the alternatives' traffic performance, the different Farmington connections with the same northern corridors were not modeled as separate alternatives in 2011. All 2001 corridor alignments were modeled as part of Revised Alternatives 11A, 11B, or 11C in 2011. The northern terminus was revised to end at 4000 South instead of 1200 South.
12B	New two-lane, limited-access highway	Same alignment as 12A.	11B	New two-lane, limited-access highway	Same alignment as 11A.	As the previous and updated traffic modeling showed that the Farmington connection did not make a substantial difference in the alternatives' traffic performance, the different Farmington connections with the same northern corridors were not modeled as separate alternatives in 2011. All 2001 corridor alignments were modeled as part of Revised Alternatives 11A, 11B, or 11C in 2011. The northern terminus was revised to end at 4000 South instead of 1200 South.
12C	New five-lane arterial	Same alignment as 12A.	11C	New five-lane arterial	Same alignment as 11A.	As the previous and updated traffic modeling showed that the Farmington connection did not make a substantial difference in the alternatives' traffic performance, the different Farmington connections with the same northern corridors were not modeled as separate alternatives in 2011. All 2001 corridor alignments were modeled as part of Revised Alternatives 11A, 11B, or 11C in 2011. The northern terminus was revised to end at 4000 South instead of 1200 South.

Table G-1. Comparison Table and Cross-Reference for Range of Preliminary Alternatives

Original 2010 Alternative Name or Number	Facility Type	Description of Original 2010 Alternative	Revised 2011 Alternative Name or Number			Changes or Comments
			Facility Type	Description of Revised 2011 Alternative		
13A	New four-lane divided highway	Begin at Legacy Parkway south of Glovers Lane, follow Farmington Western Alignment to Shepard Lane, follow 2001 Alignment to Gordon Avenue, and follow SR 108/3500 West to 12th Street.	NA	NA	NA	Original 2010 Alternative 13A was not modeled in 2011. A new four-lane divided highway on the power corridor, which is less than a half mile away from SR 108 north of Antelope Drive, was modeled as part of Revised 2011 Alternative 10A. Widening SR 108 was also considered as part of Revised 2011 Alternatives 06, 07 and 08 in 2011.
13B	New two-lane, limited-access highway	Same alignment as 13A.	NA	NA	NA	Original 2010 Alternative 13B was not modeled in 2011. A new two-lane, limited-access highway on the power corridor, which is less than a half mile away from SR 108 north of Antelope Drive, was modeled as part of Revised 2011 Alternative 10B. Widening SR 108 was also considered as part of Revised 2011 Alternatives 06, 07 and 08 in 2011.
13C	New five-lane arterial	Same alignment as 13A.	NA	NA	NA	Original 2010 Alternative 13C was not modeled in 2011. A new five-lane arterial highway on the power corridor, which is less than a half mile away from SR 108 north of Antelope Drive, was modeled as part of Revised 2011 Alternative 10C. Widening SR 108 was also considered as part of Revised 2011 Alternatives 06, 07 and 08 in 2011.
14A	New four-lane divided highway	Begin at Legacy Parkway south of Glovers Lane, follow Farmington Western Alignment to Shepard Lane, follow 2001 Alignment to Gentile Street, swing far west of developed land in Syracuse and West Point, rejoin 2001 Alignment at 3300 South, and follow 5100 West to 12th Street.	12A	New four-lane divided highway	Begin at Farmington, follow 2001 alignment to Gentile Street, swing far west crossing Antelope Drive west of 4500 West, stay west of existing development in West Point crossing the Davis County–Weber County line near 6500 West (Weber County), follow 6500 West in Hooper to 4600 South, then cut northeast to 4000 South at 5900 West.	The far western alignments were modeled as part of Revised Alternatives 12A, 12B, or 12C in 2011. The northern terminus was revised to end at 4000 South instead of 1200 South.
14B	New two-lane, limited-access highway	Same alignment as 14A.	12B	New two-lane, limited-access highway	Same alignment as 12A.	The far western alignments were modeled as part of Revised Alternatives 12A, 12B, or 12C in 2011. The northern terminus was revised to end at 4000 South instead of 1200 South.
14C	New five-lane arterial	Same alignment as 14A.	12C	New five-lane arterial	Same alignment as 12A.	The far western alignments were modeled as part of Revised Alternatives 12A, 12B, or 12C in 2011. The northern terminus was revised to end at 4000 South instead of 1200 South.
15A	New four-lane divided highway	Begin at Legacy Parkway south of Glovers Lane, follow Farmington Western Alignment to Shepard Lane, follow 2001 Alignment to 3300 South, swing northwest to 6500 West and follow 6500 West to 12th Street.	NA	NA	NA	Original 2010 Alternatives 15A, 15B, and 15C modeled the 2001 corridor alignment in Davis County with a connection in Weber County on the 2009 North Legacy Transportation Corridor Supplemental Study alignment north of 4000 South. As there was no need for the WDC north of 4000 South in 2011, this alignment was not considered in 2011. The 2001 corridor alignment was modeled as Revised 2011 Alternatives 11A, 11B, or 11C in 2011.
15B	New two-lane, limited-access highway	Same alignment as 15A.	NA	NA	NA	Original 2010 Alternatives 15A, 15B, and 15C modeled the 2001 corridor alignment in Davis County with a connection in Weber County on the 2009 North Legacy Transportation Corridor Supplemental Study alignment north of 4000 South. As there was no need for the WDC north of 4000 South in 2011, this alignment was not considered in 2011. The 2001 corridor alignment was modeled as Revised 2011 Alternatives 11A, 11B, or 11C in 2011.
15C	New five-lane arterial	Same alignment as 15A.	NA	NA	NA	Original 2010 Alternatives 15A, 15B, and 15C modeled the 2001 corridor alignment in Davis County with a connection in Weber County on the 2009 North Legacy Transportation Corridor Supplemental Study alignment north of 4000 South. As there was no need for the WDC north of 4000 South in 2011, this alignment was not considered in 2011. The 2001 corridor alignment was modeled as Revised 2011 Alternatives 11A, 11B, or 11C in 2011.

Table G-1. Comparison Table and Cross-Reference for Range of Preliminary Alternatives

Original 2010 Alternative Name or Number	Facility Type	Description of Original 2010 Alternative	Revised 2011 Alternative Name or Number	Facility Type	Description of Revised 2011 Alternative	Changes or Comments
16A	New four-lane divided highway	Begin at Shepard Lane interchange, merge to D&RG corridor, and stay on D&RG corridor to I-15 at 24th Street.	09A	New four-lane divided highway	Begin at Farmington, merge to D&RG corridor, and stay on D&RG corridor to 4000 South.	As the previous and updated traffic modeling showed that the Farmington connection did not make a substantial difference in the alternatives' traffic performance, the different Farmington connections with the same northern corridors were not modeled as separate alternatives in 2011. All D&RG corridor alignments were modeled as part of Revised Alternatives 09A, 09B, or 09C in 2011. The northern terminus was revised to end at 4000 South instead of 1200 South.
17A	New four-lane divided highway	Begin at Shepard Lane interchange, merge to 2001 Alignment, and follow 2001 Alignment to 12th Street.	11A	New four-lane divided highway	Begin at Farmington, follow 2001 alignment to 4000 South.	As the previous and updated traffic modeling showed that the Farmington connection did not make a substantial difference in the alternatives' traffic performance, the different Farmington connections with the same northern corridors were not modeled as separate alternatives in 2011. All 2001 corridor alignments were modeled as part of Revised Alternatives 11A, 11B, or 11C in 2011. The northern terminus was revised to end at 4000 South instead of 1200 South.
18A	New four-lane divided highway	Begin at Legacy Parkway south of Glovers Lane, follow Farmington Western Alignment to Shepard Lane, follow 2001 Alignment to Gentile Street, swing west to 3000 West and reconnect to 2001 Alignment, and follow 2001 Alignment to 12th Street.	11A	New four-lane divided highway	Begin at Farmington, follow 2001 alignment to 4000 South.	As the previous and updated traffic modeling showed that the Farmington connection did not make a substantial difference in the alternatives' traffic performance, the different Farmington connections with the same northern corridors were not modeled as separate alternatives in 2011. All 2001 corridor alignments were modeled as part of Revised Alternatives 11A, 11B, or 11C in 2011. The northern terminus was revised to end at 4000 South instead of 1200 South.
19A	New four-lane divided highway	Begin at Legacy Parkway south of Glovers Lane, follow Farmington Western Alignment to Shepard Lane, follow 2001 Alignment to Gentile Street, follow Far Western Alignment to Antelope Drive, transition to 2001 Alignment, and follow 2001 Alignment to 12th Street.	13A	New four-lane divided highway	Begin at Farmington, follow 2001 alignment to Gentile Street, swing west crossing Antelope Drive west of 4000 West, stay west of 4000 West in West Point crossing 4500 West near 800 North and the Davis County–Weber County line near 5700 West (Weber County), then cut northeast to 4000 South.	The alignments of Revised Alternatives 13A, 13B, and 13C were revised to cross Antelope Drive near 4000 West instead of the Far Western Alignment (which crossed Antelope Drive near 4700 West). The northern terminus was revised to end at 4000 South instead of 1200 South. Two-lane limited access highway and five-lane arterial facilities were also modeled in 2011 as Revised Alternatives 13B and 13C, respectively.
20A	New four-lane divided highway	Begin at Legacy Parkway south of Glovers Lane, follow Farmington Western Alignment to Shepard Lane, follow 2001 Alignment to 2300 North, and follow Midland Drive to I-15 at 24th Street.	NA	NA	NA	Original 2010 Alternative 20A modeled the 2001 corridor alignment in Davis County with a connection to I-15 in Weber County on Midland Drive north of 4000 South. As there was no need for the WDC north of 4000 South in 2011, this alignment was not considered in 2011. The 2001 corridor alignment was modeled as Revised Alternatives 11A, 11B, and 11C in 2011.
21A	New four-lane divided highway	Begin at Legacy Parkway south of Glovers Lane, follow Farmington Western Alignment to Shepard Lane, follow 2001 Alignment to Gentile Street, follow Far Western Alignment to 2300 North, and follow Hooper Canal Alignment to I-15.	NA	NA	NA	Original 2010 Alternative 21A modeled the far western alignment (similar to Original Alternative 14A) in Davis County with a connection to I-15 in Weber County on the Hooper Canal alignment north of 4000 South. As there was no need for the WDC north of 4000 South in 2011, this alignment was not considered in 2011. The far western corridor alignment was modeled as Revised Alternatives 12A, 12B, and 12C in 2011.
22	Upgrade existing streets	<i>Widen Existing Streets beyond RTP. East-West:</i> Widen 12th Street, 4000 South, 5500/5600 South, 1800 North, Antelope Drive, Hinckley Drive, and SR 193. <i>North-South:</i> Widen SR 108 (following Midland Drive), SR 126, and I-15.	08	Upgrade existing roads	<i>Widen Existing East-West and North-South Roads beyond RTP plus I-15 Widening:</i> Combine Alternatives 05 and 07.	12 th Street widening was not included in the revised 2011 Alternative 08. The northern limits of SR 126, SR 108, and I-15 widening were revised to end at Hinckley Drive instead of 1200 South.

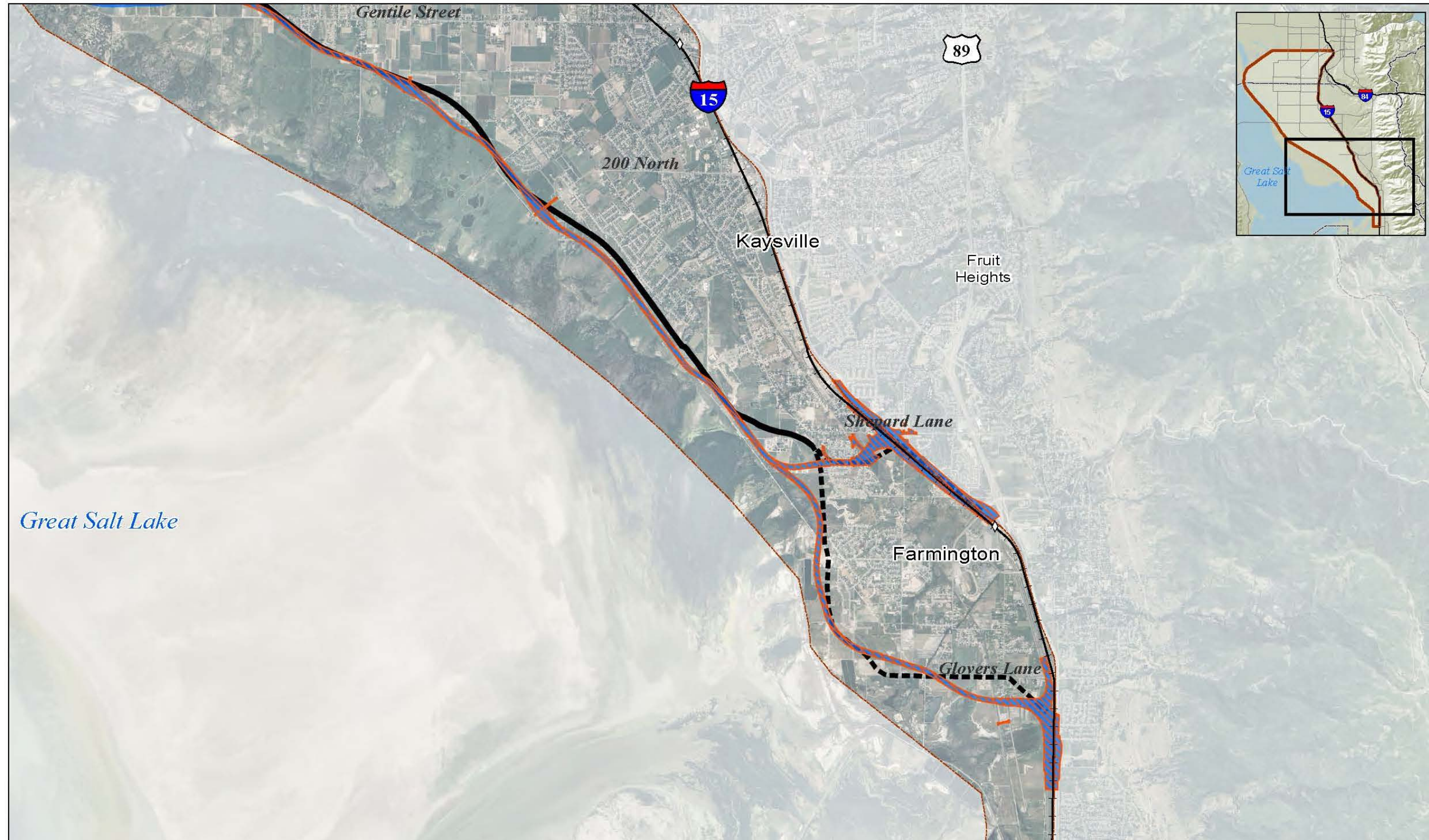
Table G-1. Comparison Table and Cross-Reference for Range of Preliminary Alternatives

Original 2010 Alternative Name or Number	Facility Type	Description of Original 2010 Alternative	Revised 2011 Alternative Name or Number	Facility Type	Description of Revised 2011 Alternative	Changes or Comments
23/USFWS Alternative	New four-lane divided highway	Begin at Legacy Parkway south of Glovers Lane, follow Farmington Western Alignment to Shepard Lane, follow 2001 Alignment to Schick Lane, merge to power corridor, and stay on power corridor alignment to 200 South in Clearfield, swing west to join the eastern refinement of the 2001 corridor study alignment around 3900 West in West Point, and then follow the eastern refinement of the 2001 corridor study alternative to 1200 South.	10A Modified	New four-lane divided highway	The modified option of Alternative 10A is on the following alignment. Begin at Farmington, follow 2001 alignment to 2000 West in Layton, merge to power corridor, stay on power corridor to 700 South in Clearfield, then go west to about 3800 West in West Point, turn north at 3800 West, then go to 4000 South in Weber County.	As the previous and updated traffic modeling showed that the Farmington connection did not make a substantial difference in the alternatives' traffic performance, the different Farmington connections with the same northern corridors were not modeled as separate alternatives in 2011. All power corridor alignments were modeled as part of Revised Alternatives 10A, 10B, or 10C in 2011. The northern terminus was revised to end at 4000 South instead of 1200 South.
Combination #1 (D&RG four-lane divided highway and east-west arterial widening)	New four-lane divided highway and upgrade existing streets	D&RG four-lane divided highway (Alternative 08A) with widening of east-west arterials	09A + 04	New four-lane divided highway and upgrade existing streets	D&RG four-lane divided highway (Alternative 09A) with widening of east-west arterials (Alternative 04).	The 2011 Revised Combination Alternative 09A+04 included a four-lane divided highway on the D&RG alignment with a northern terminus revised to end at 4000 South instead of 1200 South. East-west widening on 1200 South and 3300 South was not included in 2011 Revised Alternative 09A+04.
Combination #2 (SR 108 four-lane divided highway and east-west arterial widening)	New four-lane divided highway and upgrade existing streets	SR 108 four-lane divided highway (Alternative 13A) with widening of east-west arterials	NA	NA	NA	In 2011, the revised Level 1 screening analysis showed that a combination of a freeway on SR 108 and widening east-west arterials would not meet the Level 1 screening criteria for the project.
Combination #3 (Power Corridor five-lane arterial and east-west arterial widening)	New five-lane arterial and upgrade existing streets	Power corridor five-lane arterial (Alternatives 09C/11C) with widening of east-west arterials	NA	NA	NA	In 2011, the revised Level 1 screening analysis showed that a combination of a five-lane arterial on the power corridor and widening east-west arterials would not meet the Level 1 screening criteria for the project.
Combination #4 (2001 five-lane arterial and east-west arterial widening)	New five-lane arterial and upgrade existing streets	2001 Alignment five-lane arterial (Alternatives 10C/12C/17C) with widening of east-west arterials	NA	NA	NA	In 2011, the revised Level 1 screening analysis showed that a combination of a five-lane arterial on the 2001 alignment and widening east-west arterials would not meet the Level 1 screening criteria for the project.
NA	NA	NA	TSM/TDM	Not applicable	Improve roadway operations by 10% by using systemwide mobility improvements on Hinckley Drive, 4000 South, 5500/5600 South, 1800 North, SR 193, Antelope Drive, SR 126, and SR 108. WFRC has determined that a 10% operational improvement is the maximum reasonable improvement that could be expected from TSM/TDM projects.	The TSM/TDM alternative was added to the 2011 list of preliminary alternatives based on FHWA comments and regulations.
NA	NA	NA	02	Transit	Assumes the same transit projects listed in Alternative 01 with reduced household size for the socioeconomic data. <i>Reduce household size:</i> The socioeconomic data assumed a reduced household size for the population in the study area. The assumption of reduced household size had the net effect of reducing population in the study area by 15,500 compared to the 2040 No-Action Alternative socioeconomic conditions. This change to the socioeconomic data was based on findings by Envision Utah that found higher transit use was correlated with smaller household sizes in some areas of the United States (2002).	2011 Revised Alternative 02 includes the same transit improvements as 2011 Revised Alternative 01, but with reduced household size socioeconomic data assumptions.


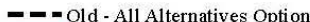
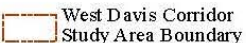
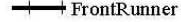
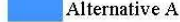
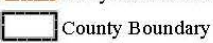
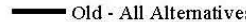
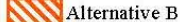
Cells shaded gray identify the original 2010 or revised 2011 alternatives that were advanced to Level 2 screening.

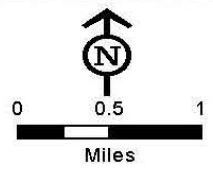
Appendix H. Comparison Maps for Alternatives Advanced to the Draft EIS

Figure H-1. West Davis Corridor Alternatives Advanced to the Draft EIS – Southern Alternatives



Legend

 FrontRunner Stop	 Old - All Alternatives Option	 West Davis Corridor Study Area Boundary
 FrontRunner	 Alternative A	 County Boundary
 Old - All Alternatives	 Alternative B	



West Davis Corridor
Alternatives Advanced
to the DEIS



Southern Alternatives WEST DAVIS
CORRIDOR

Figure H-2. West Davis Corridor Alternatives Advanced to the Draft EIS – Northern Alternative A

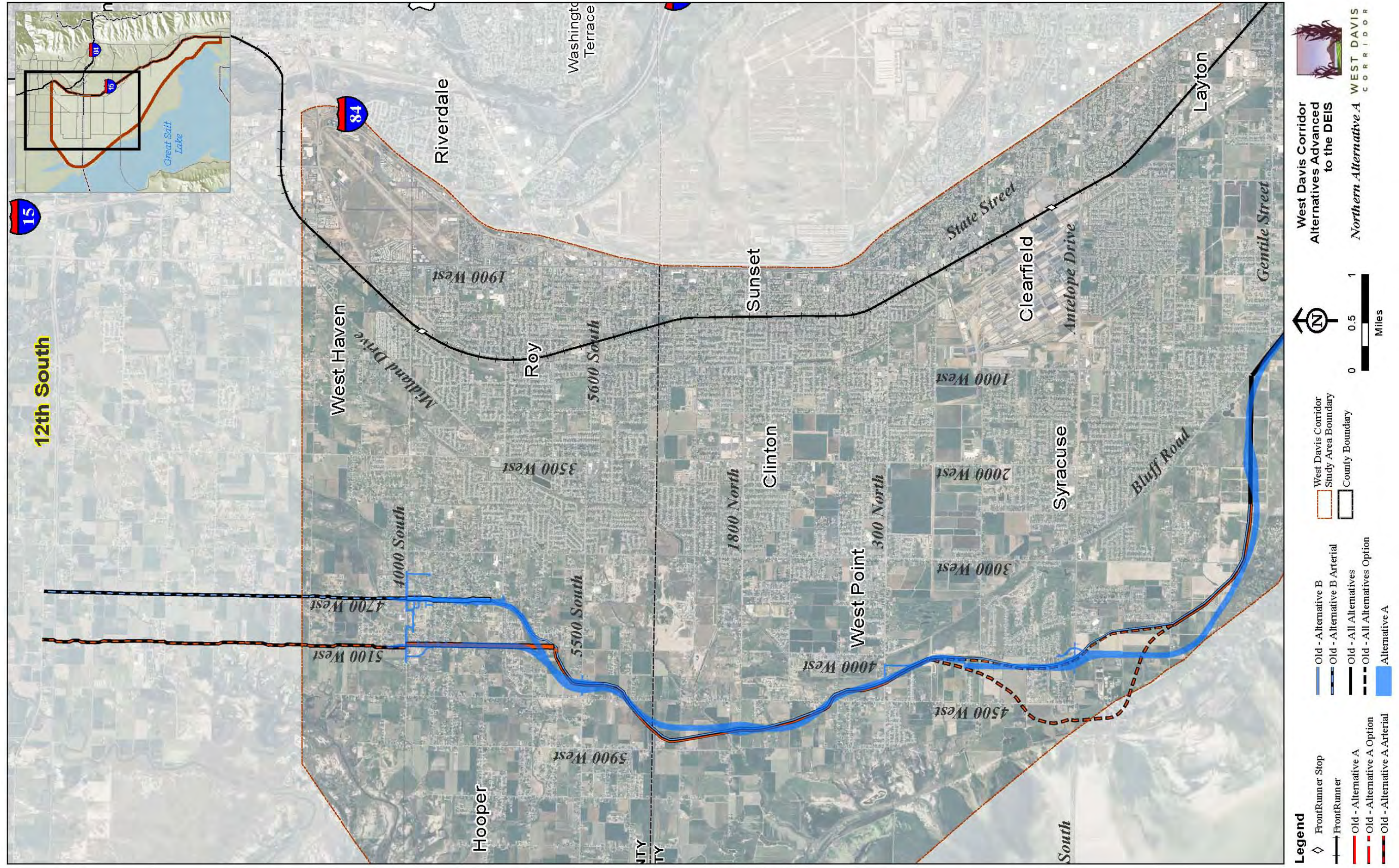
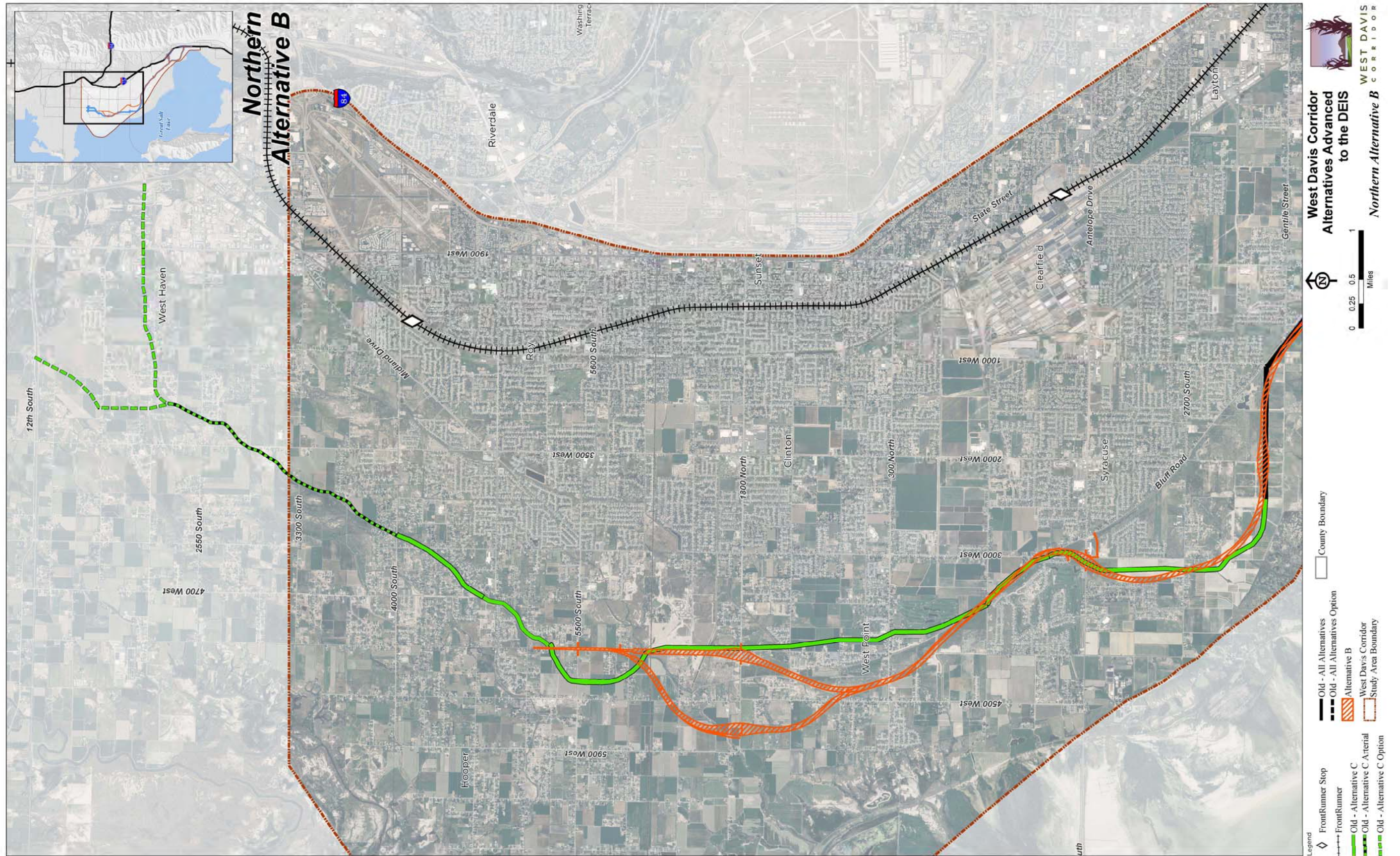


Figure H-3. West Davis Corridor Alternatives Advanced to the Draft EIS – Northern Alternative B



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