



WEST DAVIS
CORRIDOR

Technical Memorandum 14 – Level 2 Screening Process

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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1.0 Introduction

This technical report explains how the West Davis Corridor (WDC) Environmental Impact Statement (EIS) Team will conduct Level 2 screening. This report incorporates the screening process in the Utah Department of Transportation's (UDOT) *Alternative Development Engineering Guidance for Use in Preparing Environmental Documents* (August 2007).

The purpose of Level 2 screening is to determine which reasonable alternatives will be evaluated in detail in the EIS. The reasonable alternatives will be 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, the impacts to the natural and built environment, the estimated project costs, logistical considerations, and overall feasibility.

This report reviews the following topics:

1. What criteria will be used in Level 2 screening?
2. What screening process will be used?
3. What right-of-way widths and typical sections will be used in the screening process?
4. How will screening be conducted for the Power Corridor Alternatives?
5. How will screening be conducted for the Widen Existing Roads Alternatives?
6. How will the WDC team determine if I-15 and/or Legacy Parkway I-15 interchanges are possible?
7. How will Level 2 screening results be compared?

1.1 What Criteria Will Be Used in Level 2 Screening?

Table 1 below lists the Level 2 screening criteria.

Table 1. Level 2 Screening Criteria

Criterion	Measure
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.
Support for local growth objectives	<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 (APAs) 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). •
Extent to which the alternative meets the purpose and need	<ul style="list-style-type: none"> • Relative effectiveness of 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.

Table 1. Level 2 Screening Criteria

Criterion	Measure
^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 <i>Section 404(b)(1) Practicability Analysis</i> .
^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.

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1.2 What Screening Process Will Be Used?

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To conduct Level 2 screening, the WDC team will use geographic information systems (GIS) software to estimate how each alternative would affect the resources identified in Table 1 above. The amount of impacts will be determined based on the right-of-way needed for each potential alternative (see Section 1.3, What Right-of-Way Widths and Typical Sections Will Be Used in the Screening Process?). The following process will be used:

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1. The team will develop basic alignments and footprints, including rights-of-way, for the alternatives carried forward from Level 1 screening. During this step, the team will try 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)

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2. Project engineers will review the alignments to make sure they meet basic requirements for roadway design.

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3. The alternatives’ footprints will be rendered as digital GIS files, and a GIS analysis will be performed to determine the amount of impacts for each alternative.

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4. The alternatives’ affects on the resources listed in Table 1 will be compared to determine the reasonable alternatives that will be advanced for detailed analysis in the Draft EIS.

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Process for Determining Property Relocations. GIS analysis will be used to determine all impacts including property relocations. Residential and commercial properties were

digitized adjacent to alternatives. If the alternative right-of-way impacted the structure it was considered a relocation. If only the property would be within an alternative’s right-of-way, this will not be considered a relocation. To ensure consistency QC will be conducted by reviewing the alternatives on-line with Google Earth imagery.

Platted developments were collected from the cities and counties in June 2010. If a platted development is impacted it will be counted as a property relocation. Platted developments will be documented separately.

1.3 What Right-of-Way Widths and Typical Sections Will Be Used in the Screening Process?

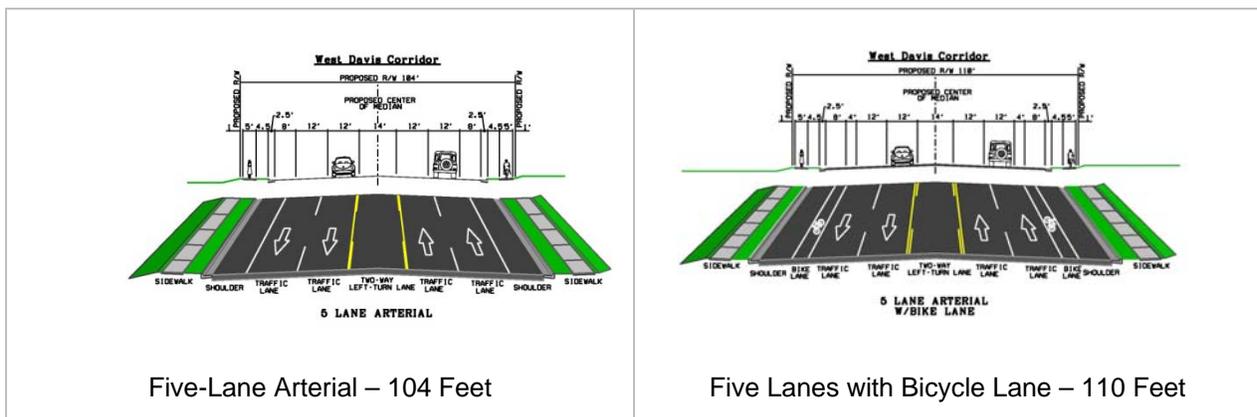
Determining the right-of-way of each alternative is part of the first step in determining its impacts. The right-of-way that will be used in the Level 2 screening process is based on the roadway geometric standards in *A Policy on the Geometric Design of Highways and Streets* from the American Association of State Highway Transportation Officials (AASHTO 2004). UDOT uses these standards as general guidelines in planning roadway projects. For the four-lane divided highway the right-of-way included space for potential detention basins and to account for additional cut and fill that may be required for highway curves and accommodating interchanges and side streets.

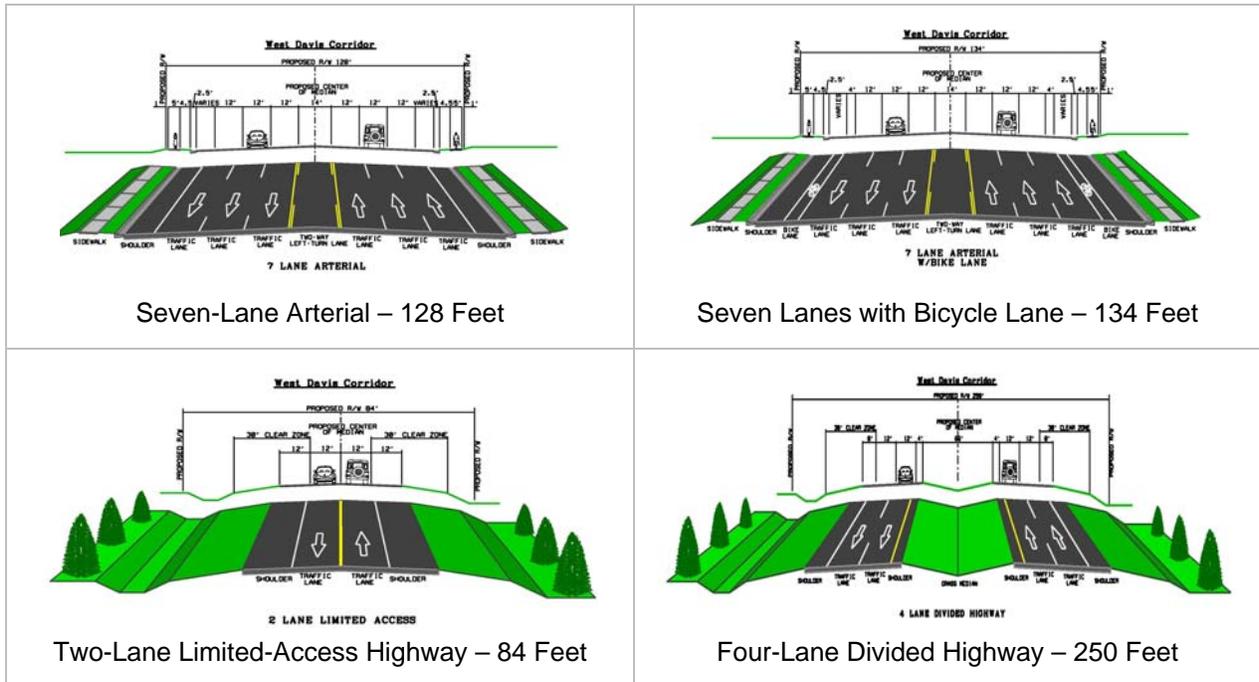
1.3.1 Right-of-Way Widths for New Roadway Alternatives

Figure 1 below shows the right-of-way widths and typical sections that will be used for Level 2 screening.

Figure 1. Right-of-Way Widths and Typical Sections Used in Level 2 Screening

(See Appendix A for detailed drawings.)





1 **1.3.2 Right-of-Way Widths for Frontage Roads**

2 In some areas, UDOT will have to maintain access to businesses and residential properties. In
3 these areas, additional right-of-way will be evaluated to accommodate a frontage road.

4 **1.3.3 Right-of-Way Widths for Interchanges**

5 The WDC team considered tight diamond interchanges for the four-lane divided highway
6 alternatives. This type of interchange would require about 500 feet of right-of-way 1,500 feet
7 from both sides of the center of the interchange. The WDC team developed a standard right-
8 of-way for a typical interchange that could be used on the project.

9 **1.3.4 Right-of-Way Width for a Trail**

10 The team did not consider a trail during the alternative screening process. If a trail is added to
11 an alignment, it would be designed to avoid impacts to natural resources and the built
12 environment. Depending on the locations of other connecting trails, the WDC trail might not
13 be within the UDOT right-of-way.

14 **1.4 How Will Screening Be Conducted for the Power Corridor
15 and Canal Alternatives?**

16 Several of the alternatives that were carried forward into Level 2 screening include the use of
17 the power corridor and canals. The power corridor has four high-voltage transmission lines.
18 UDOT understands how to evaluate potential alternatives in power corridors based on its

1 experience with the recently completed Mountain View Corridor (MVC) EIS. During the
2 MVC EIS process, the power company that owned the high-voltage transmission lines stated
3 that placing these lines underground was not feasible and that the current amount of right-of-
4 way in the corridor had to be maintained. Therefore, the alternatives developed had to
5 consider the right-of-way for both the roadway and the transmission lines.

6 The power corridor in the WDC project area is about 300 feet wide. To determine impacts,
7 the WDC team will place the roadway right-of way next to the power corridor on the side that
8 would result in the least amount of impacts.

9 For the canals the WDC team will place the roadway right-of way next to the canal and
10 assume the canal can be placed in the roadway shoulder. The alignment will be placed on the
11 side of the canal that would result in the least amount of impacts.

12 **1.5 How Will Screening Be Conducted for the Widen Existing** 13 **Roads Alternative?**

14 Two of the alternatives that were carried forward into Level 2 screening proposed to widen
15 existing roads (Alternatives 05 and 08). This widening would be beyond what is considered
16 in the Wasatch Front Regional Council's 2040 Regional Transportation Plan. For the WDC
17 project, this would consist of widening the existing roads listed in Alternatives 05 and 08 by
18 an additional lane in each direction. For example, if the road is a five-lane arterial in the
19 Regional Transportation Plan, it would be a seven-lane arterial for the WDC project.

20 Impacts will be measured by calculating the difference between the five-lane arterial and the
21 seven-lane arterial using the right-of-way width listed in Figure 1 above. The team will use
22 aerial photographs during the process to minimize impacts to the community and natural
23 resources by shifting the alignment if possible.

24 **1.6 How Will the WDC Team Determine if I-15 and/or Legacy** 25 **Parkway Interchanges Are Possible in Farmington?**

26 Potential interchanges at Shepard Lane and Glovers Lane will be considered. UDOT will
27 review cost, engineering standards/constraints, and impacts to the natural and built
28 environment in determining which alternative to consider in the Draft EIS. A separate
29 evaluation memorandum of the alternative interchange designs will be prepared.

30 **1.7 How Will Level 2 Screening Results Be Compared?**

31 After the alternative alignments are rendered as digital GIS files, a GIS evaluation will be
32 conducted to determine the alternatives' impacts. The project team will collectively evaluate
33 the reasonable alternatives for their ability to meet the project's purpose as well as their
34 impacts, costs, logistical considerations, and so on. If an alternative is determined to have
35 substantially higher impacts or costs without having substantially higher benefits than a
36 similar alternative, it will be considered unreasonable for the purposes of the National

1 Environmental Policy Act (NEPA) and will not be carried forward for detailed analysis in the
2 EIS. Similarly, alternatives that have substantially higher costs, logistical difficulties,
3 technical issues, or other substantial adverse impacts will be considered not practicable for
4 the purposes of Clean Water Act Section 404(b)(1), and alternatives with substantial Section
5 4(f) uses could be eliminated for similar reasons.

6 Although public and agency involvement is critical throughout the entire screening process, it
7 will be especially important during Level 2 screening since several of the Level 2 criteria
8 focus on local and community elements. Input received during the Stakeholder Working
9 Group, SAFETEA-LU, and public open house meetings held during the Level 2 process will
10 be critical to this phase.

11 The alternatives that pass Level 2 screening will be further refined and carried forward for
12 detailed study in the EIS. The results will be presented in a memorandum that also describes
13 the process and outcomes of each phase.