



# **Provo Westside Connector**

*Connecting Provo*

## **Draft Environmental Impact Statement and Section 4(f) Evaluation**

*Submitted Pursuant to 42 U.S.C. 4332(2)(c)  
and 49 U.S.C. 303*

*June 2010*





## Provo Westside Connector

Interstate-15/University Avenue/1860 South Interchange to 3110 West Street  
in Provo, Utah

UDOT Project No.: HPP-TI-LC49(47), PIN No.: 5502

## Draft Environmental Impact Statement and Section 4(f) Evaluation

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**by Joint Lead Agencies:**

U.S. Department of Transportation—Federal Highway Administration,  
Utah Department of Transportation, and Provo City, Utah

**and by Federal Cooperating Agencies:**

U.S. Army Corps of Engineers, U.S. Bureau of Land Management,  
U.S. Environmental Protection Agency, and U.S. Fish and Wildlife Service

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Date of Approval

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### Abstract:

The City of Provo, in conjunction with the Federal Highway Administration and the Utah Department of Transportation, proposes to improve roadway system linkage in southwest Provo by constructing a new arterial roadway between Provo Airport and the vicinity of the I-15/University Avenue/1860 South Interchange. Existing residential collector streets 500 West and 1150 West would also be extended from their current termini to intersect with the proposed arterial. Other improvements would include a 10-foot paved bicycle and pedestrian trail adjacent to the new arterial roadway and parking pull-outs to access the trail. Four alternatives were considered in detail, a No-Build Alternative and three alternative alignments for build alternatives. Build alternatives are: the 1860 South Alternative, the University Avenue A Alternative, and the University Avenue B Alternative. Environmental impacts and mitigation measures to reduce the levels of impacts for each build alternative are discussed. A Preferred Alternative will be identified after the Public Hearing has been held and all input from the hearing has been evaluated and incorporated into the Final Environmental Impact Statement.

Comments are due by August 10, 2010 and should be sent to the FHWA Utah Division at the above address.



# EXECUTIVE SUMMARY

## **PURPOSE AND NEED**

### **Project Background**

The City of Provo, in conjunction with the Federal Highway Administration (FHWA), and the Utah Department of Transportation (UDOT), proposes to improve roadway system linkage in southwest Provo by constructing a new arterial roadway between Provo Airport and the vicinity of the U.S. Interstate 15 (I-15) Interchange with University Avenue and 1860 South Street. (Proposed Project). This project is known as the “Provo Westside Connector” (PWC). An Environmental Impact Statement (EIS) is being prepared by Provo City, FHWA, UDOT, and their project consultants (collectively referred to as the EIS team).

The Project Area is located in southwest Provo. Southwest Provo is defined by three Provo neighborhoods (Provo Bay, Sunset, and Lakewood), which are generally located south of Center Street and west of I-15. The Provo Airport is located immediately west of the Project Area.

This Draft EIS (DEIS) discloses impacts of alternatives evaluated for meeting the purpose and need of the Proposed Project. This document was developed to inform the public and to assist Federal, State, and local decision makers in objectively evaluating alternative courses of action for meeting the purpose and need.

### **Purpose and Need of the Proposed Project**

The Proposed Project is a response to a variety of transportation needs, deficiencies, and planning objectives that have been identified in the Project

Area. The purpose of the Proposed Project is to improve roadway system linkage in southwest Provo, between Provo Airport and the vicinity of the I-15/University Avenue/1860 South Interchange, in a manner that would:

- provide a connection to the existing arterial and freeway transportation network to support planned residential development and land use changes in southwest Provo;
- provide a more direct roadway link between Provo Airport and the vicinity of the I-15/University Avenue/1860 South Interchange to support planned improvements at the Provo Airport and related commercial and industrial development in the vicinity of the airport; and
- provide a more direct roadway link between the residential areas west of I-15 and the commercial center of Provo east of I-15, including the Provo Towne Centre Mall, to support the continued economic viability of the commercial center of Provo.

Secondary needs and objectives of the Proposed Project include:

- maintaining residential street traffic volumes within Provo’s livability standards;
- improving emergency vehicle access and evacuation routes in southwest Provo;
- facilitating trail, walkway, and bicycle path connectivity in southwest Provo;
- accommodating access to recreation areas along the north shore of Provo Bay in Utah Lake; and
- supporting present and future public transportation service routes in southwest Provo.

## **RELATED ACTIONS, DOCUMENTS, AND STUDIES**

Development of this DEIS has been carried out in cooperation with other ongoing actions in the Provo vicinity. These include the following:

- Mountainland Association of Governments (MAG) Utah Valley 2006 metropolitan planning organization (MPO) Transportation Improvement Program (MAG 2006)
- MAG regional transportation plan 2007–2030 (MAG 2007)
- UDOT 2005–2009 Statewide Transportation Improvement Plan (UDOT 2005)
- Provo City General Plan (Provo City 2009)
- Utah County General Plan (Utah County 2007)
- I-15 Corridor EIS, Salt Lake and Utah Counties (FHWA 2008a)
- Mountain View Corridor EIS, Salt Lake and Utah Counties (FHWA 2008b)
- Geneva Road (SR114) EIS (FHWA 2009)
- Provo/Orem Rapid Transit Corridor Final Report 2005 (MAG 2005)
- Provo/Orem Bus Rapid Transit Environmental Assessment (UTA 2007)

## **ALTERNATIVE DEVELOPMENT AND SCREENING**

The EIS team sought to identify a broad range of alternatives in the early stages of the EIS process. Efforts to identify alternatives included monthly EIS team meetings, agency

consultations and meetings, public meetings and comment opportunities, and a stakeholder forum. Following the official scoping period and receipt of comments from all sources, a “master list” of potential project alternatives was assembled. The EIS team then considered appropriate screening criteria to aid in the alternative development and screening process. The approach selected by the EIS team involved a two-level screening process focusing on factors relevant to determining the reasonableness of alternatives under regulations for implementing procedural provisions of the National Environmental Policy Act (NEPA) (40 C.F.R. Parts 1500-1508). Consideration of the Clean Water Act (CWA) Section 404(b)(1) Guidelines (40 C.F.R. Part 230) were also considered in developing this screening process.

### **Level 1 Screening**

The purpose of Level 1 screening was to (1) determine which of the suggested alternatives had the potential to meet the primary needs of the Proposed Project and therefore warranted further development and (2) determine which alternatives should be eliminated because they clearly would not meet the primary needs. Based on the purpose and need of the Proposed Project, the EIS team screened 22 initially suggested project concepts for their ability to meet three criteria:

1. **Location of Termini:** Would the alternative serve southwest Provo and include a connection to the Provo Airport and the I-15/University Avenue/1860 South Interchange (either directly via a new connection to the interchange or indirectly via a connection to one of the other arterial roadways at a point near the interchange)?
2. **Facility Type:** Would the alternative provide an east-west arterial street consistent in functional characteristics with other arterial streets in Provo?

3. **Design Requirements:** Would the alternative meet applicable design standards for an arterial street and accommodate projected traffic volumes at an acceptable Level of Service (LOS) for a facility of its type?

Level 1 screening is summarized in Table ES-1. The four alternatives advanced from Level 1 screening were:

- **1860 South Alternative:** Build a new road on a new alignment from the I-15/University Avenue/1860 South Interchange to 3110 West.
- **The I-15 Overpass/Underpass Alternative:** Develop a new I-15 underpass or overpass and extend an east-west arterial road from this location to the project termini.
- **Lake Alignment Alternative:** Build an east-west causeway to the Provo Airport through Provo Bay from the I-15/University Avenue/1860 South Interchange to 3110 West.
- **No-Build Alternative:** This alternative was also advanced, providing a baseline future condition in which project needs are not met for comparison to the potential build alternatives.

### **Level 2 Screening**

For each Level 2 alternative, potential roadway alignment concepts were developed to more specifically and quantitatively assess how well each build alternative could meet the needs of the project. This process required considerable effort and involved developing multiple iterations of draft roadway alignments. The overall objective of this effort was to develop potential build alternatives to a higher level of design so that the reasonableness of each alternative could be evaluated.

The Level 2 screening step was completed to determine which of the build alternatives advanced from Level 1 were “reasonable alternatives” from the standpoint of the NEPA. Table ES-2 summarizes information assembled for Level 2 screening. Screening for “reasonableness” included an assessment of:

- ability to meet purpose and need;
- estimated construction costs;
- impacts on the natural environment including wetlands, floodplains, and habitat;
- impacts on communities, including relocations; and
- consistency with transportation and land use plans.

### **Consideration of Clean Water Act (CWA) Section 404(b)(1) Guidelines**

The EIS team determined that all of the build alternatives considered in Level 2 screening would have impacts to Waters of the United States, including wetlands. Any of these alternatives would require an individual permit from the U.S. Army Corps of Engineers (the Corps) under Section 404 of the CWA.

When deciding whether to issue a CWA Section 404 permit, the Corps must apply the CWA Section 404(b)(1) Guidelines, which are contained in 40 C.F.R. Part 230. The CWA Section 404 Guidelines prohibit the the Corps from issuing a permit (40 C.F.R. § 230.10 [a]) for a project 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.” This requirement means that an alternative must be selected if:

- it is “practicable,”
- would have “less adverse impact on the aquatic ecosystem,” and
- would not cause “other significant adverse environmental consequences.”

The CWA Section 404 Guidelines define “practicable” to mean “available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes” (40 C.F.R. § 230.10[a] [2]). The CWA Section 404 Guidelines establish a presumption, for non water-dependent projects such as roads, that practicable alternatives are available to avoid aquatic resources.

The CWA Section 404 Guidelines also contain several other requirements, including a requirement that the selected alternative would not cause a violation of other laws; would not cause or contribute to significant degradation of Waters of the United States; and includes appropriate and practicable steps to minimize harm to the aquatic ecosystem (see 40 C.F.R. § 230.10[b]-[d]).

As part of the screening process, the EIS team has considered the requirements of the CWA Section 404(b)(1) Guidelines, with the goal of ensuring that the alternatives analysis in the EIS can be used by the Corps as the basis for CWA Section 404 permit decision-making. Specifically, the EIS team considered each of the alternatives that was recommended for elimination in Level 2 of the screening process to determine whether its elimination is consistent with the CWA Section 404(b)(1) Guidelines. The EIS team has concluded that alternatives eliminated in Level 2 screening is consistent with the CWA Section 404(b)(1) guidelines. The EIS team will continue to work with the Corps and other permitting agencies to

develop the information needed to apply the CWA Section 404 Guidelines when selecting among the alternatives that have been advanced for detailed study in the DEIS. Additional refinements may be made to those alternatives as part of the CWA Section 404 permit process, including refinements to further avoid and reduce impacts to aquatic resources.

### **Alternatives Advanced for Detailed Analysis**

Based on the screening process described above, the EIS team decided to carry forward three build alternatives for detailed study in the DEIS. The first is the 1860 South Alternative. Two versions of the I-15 Overpass/Underpass Alternative, the University Avenue A Alternative and the University Avenue B Alternative, were also advanced. These three alternatives are illustrated in Figure ES-1. The No-Build Alternative is also analyzed in detail as required by regulations for implementing the NEPA.

## **ENVIRONMENTAL CONSEQUENCES**

A brief summary of the environmental impacts anticipated to result from the build alternatives for the Proposed Project is shown in Table ES-3. Complete evaluations of impacts are presented in Chapter 3.

## **SECTION 4(F) EVALUATION**

Section 4(f) refers to Section 4(f) of the 1966 Department of Transportation Act, which provides protection to public parks and recreation areas, wildlife and waterfowl refuges, and significant historic sites from impacts by Federal transportation actions. Any of the three build alternatives would have a *de minimis* impact on one Section 4(f) resource. This Section 4(f) resource is a historic canal and irrigation system. The irrigation system

Table ES-1. Suggested Alternatives and Level 1 Screening Outcomes.

SUGGESTED ACTION/ALTERNATIVE:	LEVEL 1 SCREENING:	MEET ALL THREE CRITERIA FOR PURPOSE AND NEED?
1. Expand bus service within the Project Area with connections to the Provo Airport and Utah Lake State Park	<b>Does not meet criterion 1 (location of termini) or criterion 2 (facility type).</b> As a project alternative, this action would not provide roadway connections to the Provo Airport or I-15/University Avenue/1860 South Interchange (the Interchange) and would not provide an east-west arterial street in the Project Area. However, supporting public transportation routes in southwest Provo is included as a secondary project need that may be addressed as a secondary benefit of the Proposed Project.	No
2. Develop a light-rail corridor to the Provo Airport	<b>Does not meet criterion 1 (location of termini) or criterion 2 (facility type).</b> For the Proposed Project, this action would not provide roadway connections to the Provo Airport or the Interchange and would not provide an east-west arterial street in the Project Area. As a part of regional mobility, the regional transportation plan (RTP) has evaluated the need for a light rail in Utah County and the Orem-Provo Bus Rapid Transit EA is underway.	No
3. Develop a ferry service to the Provo Airport	<b>Does not meet criterion 1 (location of termini) or criterion 2 (facility type).</b> For the Proposed Project, this action would not provide roadway connections to the Provo Airport or the Interchange and would not provide an east-west arterial street in the Project Area. The RTP has evaluated multimodal transportation options for Utah County; ferry service was not included as an option.	No
4. Develop "hovercraft" as a mode of transportation	<b>Does not meet criterion 1 (location of termini) or criterion 2 (facility type).</b> For the Proposed Project, this action would not provide roadway connections to the Provo Airport or the Interchange and would not provide an east-west arterial street in the Project Area. The RTP has evaluated multimodal transportation options for Utah County; hovercraft was not included in these options.	No
5. Implement Transportation System Management and Transportation Demand Management (TSM/TDM) methods to increase the person-capacity of the transportation system without adding pavement or travel lanes	<b>Does not meet criterion 1 (location of termini) or criterion 2 (facility type).</b> While they are part of the RTP and Provo City's Master Transportation Plan, TSM/TDM strategies do not meet the purpose of the Proposed Project as they would not provide the necessary system linkage and roadway connections. Therefore, TSM/TDM alternatives were not advanced for Level 2 screening.	No
6. Develop more mass transit options to address the transportation deficiencies	<b>Does not meet criterion 1 (location of termini) or criterion 2 (facility type).</b> Mass transit options are being expanded for Utah County as part of the RTP. The Utah Transit Authority commuter rail, Front Runner, is under construction. The RTP also identified multiple mass transit projects in Utah County. The Orem-Provo Bus Rapid Transit EA is underway. However, mass transit needs and projects were not identified in the RTP for the Project Area. As such, mass transit would not address the purpose of the Proposed Project and was not advanced for Level 2 screening.	No
7. Improve West Center Street from Geneva Road to 3110 West	<b>Does not meet criterion 1 (location of termini).</b> As a project alternative, this action would not provide roadway connections to the Provo Airport or the Interchange. Some improvement of Center Street west of Geneva Road may be done in the future as part of the Provo City Transportation Master Plan. However, because of the number of residential accesses along this segment, it is also inconsistent with the functional classification of an arterial street (criterion 2).	No
8. Develop an elevated expressway over existing Center Street	<b>Does not meet criterion 1 (location of termini) or criterion 2 (facility type).</b> This was suggested as a way to minimize potential impacts to historic properties on Center Street while creating new roadway capacity and an east-west arterial facility. This alternative would not meet the need for a connection to the Interchange. An expressway facility would also not provide connectivity to lower functional classification streets between the project termini.	No
9. Develop a center-lane expressway at Center Street (similar to State Route 92)	<b>Does not meet criterion 1 (location of termini) or criterion 2 (facility type).</b> This alternative would not meet the need for a connection to the Interchange. An expressway facility would also not provide connectivity to lower functional classification streets between the project termini.	No
10. Extend east-west collector roads to 3110 West (600 South, 920 South/1150 South, 1560 South)	<b>Does not meet criterion 1 (location of termini) or criterion 2 (facility type).</b> Extension of these roads as residential collector roads is included in the Provo City General Plan. This would not meet the need for a connection to the Interchange and would not provide the functional characteristics of an arterial street.	No
11. Improve east-west collector roads as higher-capacity roads (600 South, 920 South/1150 South, 1560 South)	<b>Does not meet criterion 1 (location of termini).</b> Improving these existing roads would not meet the need for a connection to the Provo Airport and the Interchange.	No
12. Improve and extend one or more east-west residential collector roads (600 South and 920/1150 South) as (a) higher capacity road(s)	<b>Does not meet criterion 1 (location of termini).</b> Improvement and extension of one or more of these roads as an arterial road from University Avenue to 3110 West could provide the functional characteristics of an arterial street (criterion 2) but would not provide an east-west connection to the Interchange.	No

Table ES-1. Continued.

SUGGESTED ACTION/ALTERNATIVE:	LEVEL 1 SCREENING:	MEET ALL THREE CRITERIA FOR PURPOSE AND NEED?
13. Extend north-south collector roads (2050 West, 1600 West, 1100 West, 500 West)	<b>Does not meet criterion 1 (location of termini) or criterion 2 (facility type).</b> Extension of these residential collector roads is included in the Provo City Master Transportation Plan but would not meet the need for a connection to the Interchange and would not provide an east-west arterial street.	No
14. Improve north-south collector roads as higher-capacity roads (2050 West, 1600 West, 1100 West, 500 West)	<b>Does not meet criterion 1 (location of termini).</b> Improving these existing roads would not provide an east-west arterial street with connections to the Provo Airport and the Interchange.	No
15. Build a road on a new alignment from the I-15/University Avenue/1860 South Interchange to 3110 West	<b>This idea does meet criterion 1 (location of termini). It could meet criterion 2 (facility type) and criterion 3 (design requirements), depending on its design.</b> This alternative is the most consistent with conceptual alignments in regional and local transportation planning documents (RTP, Utah County General Plan, and Provo City General Plan). It would include connections to the Provo Airport and to the Interchange. Additional design would be necessary to determine whether it would meet applicable design standards for an arterial road, provide the necessary connections for a roadway of this functional class, and accommodate projected traffic volumes at an acceptable LOS; therefore, it should be advanced for additional development and Level 2 screening. This alternative was named the "1860 South Alternative" because it would essentially function as an extension of 1860 South through the Interchange.	<b>Yes This alternative was advanced as the "1860 South Alternative"</b>
16. Develop a new I-15 underpass or overpass and extend an east-west arterial road from this location to the project termini	<b>This idea could potentially meet criterion 1 (location of termini), criterion 2 (facility type), and criterion 3 (design requirements), depending on its design.</b> Depending on its location, this alternative could potentially meet all of the project needs. Because this could not be determined without developing specific alignment concepts, this suggestion should be advanced for additional design and Level 2 screening. This alternative was named the "I-15 Overpass/Underpass Alternative."	<b>Yes This alternative was advanced as the "I-15 Overpass/Underpass Alternative"</b>
17. Develop a shorter connector – for example, 1600 West to the I-15/University Avenue/1860 South Interchange	<b>Does not meet criterion 1 (location of termini).</b> This would not meet the identified project needs for connectivity to the Provo Airport and the Interchange.	No
18. Combine a new alignment with existing roads – for example, by connecting the I-15/University Avenue/1860 South Interchange to the corner of 1560 South and 1600 West, follow existing 1600 West to 600 South, continue on 600 South to 3110 West	<b>Does not meet criterion 2 (facility type) and it would not meet criterion 3 (design requirements).</b> This was suggested as a way to reduce the amount of new roadway needed in currently undeveloped areas and reduce project cost. However, the portions of these existing roads do not satisfy arterial street design requirements. Some improvement of these streets as residential collector streets (rather than arterial) is already planned as part of the overall system linkage in southwest Provo. Without improvement to arterial standards, this alternative would not meet the purpose of the Proposed Project.	No
19. Build a north-south causeway through Provo Bay	<b>Does not meet criterion 1 (location of termini).</b> This roadway would serve different purposes than those identified for the Proposed Project. It would not serve the needs of southwest Provo for an east-west arterial street with connections to the Provo Airport and the Interchange.	No
20. Build a east-west causeway to the Provo Airport through Provo Bay from the I-15/University Avenue/1860 South Interchange to 3110 West	<b>This idea would meet criterion 1 (location of termini). It could meet criterion 2 (facility type) and criterion 3 (design requirements), depending on its design.</b> This roadway would provide connectivity to the project termini. Because of the amount of structure required, this alternative would likely prove cost prohibitive; however, additional design would be necessary to estimate cost, determine whether it would meet applicable design standards for an arterial road and accommodate projected traffic volumes at an acceptable LOS. Therefore, it should be advanced for additional development and Level 2 screening. This alternative was named the "Lake Alignment Alternative."	<b>Yes This alternative was advanced as the "Lake Alignment Alternative"</b>
21. Build a new road that connects the I-15 interchange at State Road 75 (Springville) to 3110 West	<b>Does not meet criterion 1 (location of termini).</b> This roadway would serve different purposes than those identified for the Proposed Project. It would not serve the needs of southwest Provo for an east-west arterial street with connections to the Provo Airport and the Interchange.	No
22. No-Build Alternative	This alternative is required by the NEPA and will disclose how the Project Area would be impacted by taking "no action" related to project needs. Even though it does not meet the purpose and need, this alternative was advanced in accordance with NEPA requirements.	No

Table ES-2. Information assembled for Level 2 screening of build alternatives.

DATA FOR NEPA REASONABLENESS SCREENING		1860 SOUTH ALTERNATIVE	I-15 OVERPASS/UNDERPASS ALTERNATIVE			LAKE ALIGNMENT ALTERNATIVE
			UNIVERSITY AVENUE ALIGNMENT	DOUBLE FLYOVER ALIGNMENT	EAST BAY BLVD. ALIGNMENT	
<b>Transportation Performance Indicators</b>	<b>System-wide signal delay (hours)<sup>a</sup></b> Total for signalized intersections weighted by intersection volume	183	211	169	195	183
	<b>East-west travel time (minutes)<sup>a</sup></b> Weighted travel times between 500 West and East Bay Boulevard/1860 South	3.6	3.7	2.8	4.5	3.6
	<b>I-15 access (minutes)<sup>a</sup></b> Weighted travel times between 500 West and I-15 on-/off-ramps	1.5	2.9	3.0	4.3	1.5
	<b>Total vehicles served<sup>a</sup></b> Total vehicles entering system	9,575	9,547	9,405	9,430	9,575
<b>Cost and Impact Indicators</b>	Estimated construction costs (millions)	\$57.2	\$58.7	\$78.6	\$81.9	\$187.0
	Wetland impact (acres of fill)	9.3	5.2	4.6	2.5	34.3
	Residential relocations	0	0	0	24	0
<b>Decision</b>	Commercial property take (square feet)	11,000	24,000	114,000	40,000	11,000
	<b>Advance for detailed analysis?</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>	<b>No</b>	<b>No</b>

<sup>a</sup> Transportation performance measures are based on year 2030 modeling of the evening peak hour traffic volume.

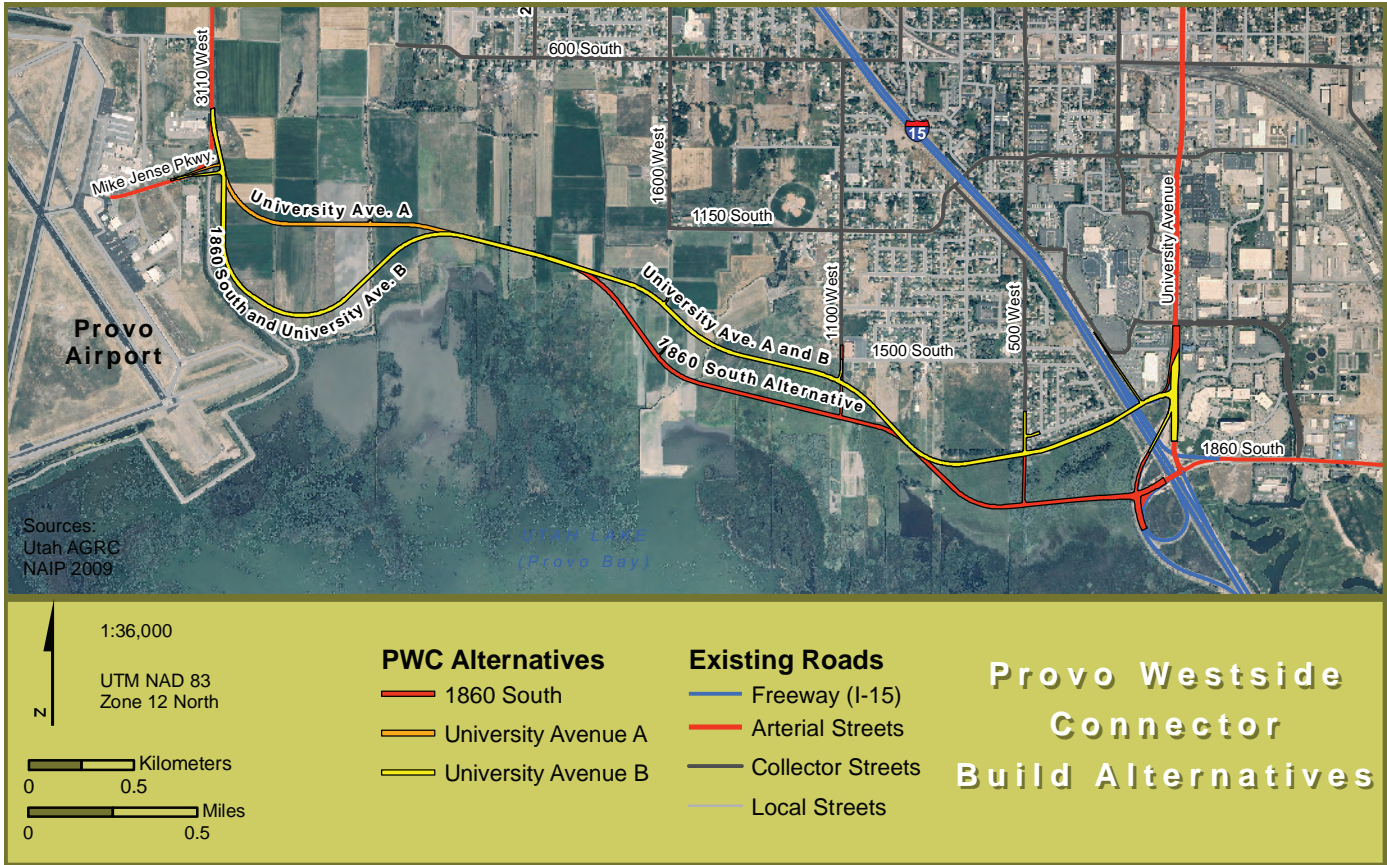


Figure ES-1. Build alternatives advanced for detailed analysis.

is constructed through much of the wetlands and low-lying agricultural lands located south of Center Street and between the eastern shoreline of Utah Lake and the I-15 corridor. Construction of the irrigation system began during the 1850s, shortly after settlement of the area, to facilitate farming. The Proposed Project would affect a relatively small portion of the overall site and would not substantially impact or alter the irrigation system as a whole or any of its character-defining features, which determined the site’s eligibility for the National Register of Historic Places. See Chapter 4: Section 4(f) Evaluation.

## AREAS OF CONTROVERSY

The need for public and agency input in the determination of Proposed Project needs, alternatives, and potential impacts was an

important factor in the decision to prepare a DEIS. Coordination with public and municipal, State, and Federal agencies has been ongoing. Coordinative efforts have helped the EIS team identify and anticipate controversial issues. Public input on the purpose and need for the Proposed Project and the range of alternatives to be evaluated was considered, which helped the EIS team determine public opinion in regards to issues and possible solutions. Details regarding key coordination points and events are summarized in Chapter 5: Consultation and Coordination.

## UNRESOLVED ISSUES

The FHWA, UDOT, and Provo City will continue to engage in discussions with the Corps and EPA regarding the Section 404(b)(1) Guidelines

**Table ES-3. Summary of environmental consequences.**

ENVIRONMENTAL ISSUE	NO-BUILD ALTERNATIVE	1860 SOUTH ALTERNATIVE	UNIVERSITY AVENUE A ALTERNATIVE	UNIVERSITY AVENUE B ALTERNATIVE
Land Use	No property acquisition required.	121.6 acres acquired for right-of-way (ROW).	108.5 acres acquired for ROW.	116.6 acres acquired for ROW.
	Ongoing conversion of agricultural land uses to residential and commercial land uses (urban development) would continue.	Indirect land use not impacted; anticipated development is equivalent to No-Build.		
	The pace of urban development may be slower than what would occur with implementation of a build alternative.	Development for some parcels may occur sooner than what would occur under No-Build (particularly those closer to the new roadway); however, this depends on individual landowner decisions, which are not known.		
Farmlands	No protected farmlands or Agricultural Protection Areas affected.			
Social Environment	Inconsistent with community planning goals.	Consistent with community planning goals.		
	No benefits for access and travel times for local residents.	Positive effects on access and travel times for local residents.		
	New recreation facility (North Bay Trail) not constructed.	New recreation facility (North Bay Trail).		
	No adverse effects on public safety.	No adverse effects on public safety.		
	No adverse effects on social interactions, relationships, or community cohesion.	No adverse effects on social interactions, relationships, or community cohesion.		

Table ES-3. Continued.

ENVIRONMENTAL ISSUE	NO-BUILD ALTERNATIVE	1860 SOUTH ALTERNATIVE	UNIVERSITY AVENUE A ALTERNATIVE	UNIVERSITY AVENUE B ALTERNATIVE
Economic Conditions	Project Area employment is expected to increase.	Project Area employment is expected to increase.		
	Potential commercial employment earnings would continue to increase while earnings from agricultural activities would decline.	Potential commercial employment earnings would continue to increase while earnings from agricultural activities would decline.		
	Economic growth could occur at a slower rate than if an arterial road provided increased access and increased area-wide mobility	Because impediments to travel in and out of the area would be reduced, the rate at which economic development occurs may be faster.		
	Inconsistent with local economic development strategies. Opportunities for economic development may diminish in number or scale, reflecting limited available transportation infrastructure.	Improved transportation infrastructure consistent with local economic development strategies.		
	No project-related construction employment or construction-related expenditures.	Positive impacts of construction employment and construction-related expenditures.		

Table ES-3. Continued.

ENVIRONMENTAL ISSUE	NO-BUILD ALTERNATIVE	1860 SOUTH ALTERNATIVE	UNIVERSITY AVENUE A ALTERNATIVE	UNIVERSITY AVENUE B ALTERNATIVE
Transportation	Segments of two streets would operate at Level of Service (LOS) F by 2030.	One segment of one street would operate at LOS E by 2030.		
	Segments of two streets exceed Provo City livability standards by 2030.	Segments of two streets exceed Provo City livability standards by 2030.		
	Response times from Fire Station 4 (closest to the Provo Airport) would approach or exceed the 4-minute initial-response standard at every time of day by 2030.	Slight improvement in emergency response times compared to No-Build Alternative.		
Pedestrians and Bicyclists	Planned North Bay Trail not constructed. Other planned trails constructed but reduced connectivity of trails.	North Bay Trail provides new facility and improved connectivity to other trails.		
Air Quality	No impact.			
Noise	No impact.	No impact.	Twenty-three residences would experience increases of at least 10 dBA or more above 66 dBA.	
Visual Resources	No impact.	<ul style="list-style-type: none"> <li>• 7 weak contrasts.</li> <li>• 3 moderate contrasts.</li> <li>• 1 strong contrast.</li> <li>• 22 imperceptible contrasts.</li> <li>• Overall weak contrasts for Lakewood neighborhood area.</li> </ul>	<ul style="list-style-type: none"> <li>• 5 weak contrasts.</li> <li>• 5 moderate contrasts.</li> <li>• 4 strong contrasts.</li> <li>• 19 imperceptible contrasts.</li> <li>• Overall strong contrasts for Lakewood neighborhood area.</li> </ul>	<ul style="list-style-type: none"> <li>• 6 weak contrasts.</li> <li>• 3 moderate contrasts.</li> <li>• 5 strong contrasts.</li> <li>• 19 imperceptible contrasts.</li> <li>• Overall strong contrasts for Lakewood neighborhood area.</li> </ul>

Table ES-3. Continued.

ENVIRONMENTAL ISSUE	NO-BUILD ALTERNATIVE	1860 SOUTH ALTERNATIVE	UNIVERSITY AVENUE A ALTERNATIVE	UNIVERSITY AVENUE B ALTERNATIVE
Cultural Resources	No impact.	No impact.	A prehistoric artifact scatter would be directly impacted by road construction and associated earth moving activities.	No impact.
Paleontological Resources	No impact.			
Wetlands	No wetland impacts.	9.3 acres of wetlands impacted.	5.2 acres of wetlands impacted.	5.3 acres of wetlands impacted.
	No stream crossings.	1,593.9 linear feet of stream crossings.	1,417.4 linear feet of stream crossings.	1,434.1 linear feet of stream crossings.
Water Resources	No impact.	<ul style="list-style-type: none"> <li>Incremental increase in total dissolved solids to Utah Lake, 0.0076%.</li> <li>Incremental increase in phosphorus to Utah Lake, 0.004%.</li> </ul>	<ul style="list-style-type: none"> <li>Incremental increase in total dissolved solids to Utah Lake, 0.0068%.</li> <li>Incremental increase in phosphorus to Utah Lake, 0.0036%.</li> </ul>	<ul style="list-style-type: none"> <li>Incremental increase in total dissolved solids to Utah Lake, 0.0073%.</li> <li>Incremental increase in phosphorus to Utah Lake, 0.0036%.</li> </ul>
		Incremental increase in metals to Utah Lake (copper, lead, zinc).		
Floodplain Impacts	No impact.	77.1 acres.	65.3 acres.	65.8 acres.
Threatened and Endangered Species	No impact.			

Table ES-3. Continued.

ENVIRONMENTAL ISSUE	NO-BUILD ALTERNATIVE	1860 SOUTH ALTERNATIVE	UNIVERSITY AVENUE A ALTERNATIVE	UNIVERSITY AVENUE B ALTERNATIVE
Wildlife and Fisheries	No impacts on habitat communities.	<ul style="list-style-type: none"> <li>• 93.0 acres mixed-use agriculture habitat.</li> <li>• 15.3 acres residential wildlife habitat.</li> <li>• 9.3 acres wetland habitat.</li> </ul>	<ul style="list-style-type: none"> <li>• 85.9 acres mixed-use agriculture habitat.</li> <li>• 13.1 acres residential wildlife habitat.</li> <li>• 5.2 acres wetland habitat.</li> </ul>	<ul style="list-style-type: none"> <li>• 93.7 acres mixed-use agriculture habitat.</li> <li>• 13.1 acres residential wildlife habitat.</li> <li>• 5.3 acres wetland habitat.</li> </ul>
Hazardous Materials	No impact.			
Geology and Soil	No impact.	121.6 acres Pavement and fill material over existing soils.	108.5 acres Pavement and fill material over existing soils.	116.6 acres Pavement and fill material over existing soils.
Utilities	No impact.	<ul style="list-style-type: none"> <li>• No regional power poles impacted.</li> <li>• 12-13 local utility poles moved or raised.</li> </ul>	<ul style="list-style-type: none"> <li>• 2-3 regional electric power poles moved or raised.</li> <li>• 1-3 local electric power poles moved or raised.</li> </ul>	<ul style="list-style-type: none"> <li>• 2-3 regional electric power poles moved or raised.</li> <li>• 1-3 local electric power poles moved or raised.</li> </ul>
Energy and Climate Change	No impact.			
Environmental Justice	No impact.			
Section 4(f) Resource Use	No Use	<i>de minimus</i> use of one resource (historic canal and irrigation system).		

including the project purpose and consideration of practicable alternatives.

### MITIGATION SUMMARY

Most of the impacts associated with Project construction and operation will be minimized by adherence to UDOT’s *Standard Specification for Road and Bridge Construction, Temporary Erosion*

*and Sediment Control Standards*, and *Temporary Water Pollution Control Standards*. Additionally, UDOT’s policy of compensation for Right of Way (ROW) acquisition will alleviate some of the major socioeconomic concerns for landowners. Additional mitigation measures are presented below by resource component. The majority of mitigative measures are appropriate under all build alternatives. Those measures specific to a certain

alternative are so indicated. Adherence to these measures during final design and construction would be assured by UDOT.

### **Land Use**

Direct impacts will be mitigated through the ROW acquisition process. In acquiring ROW, Provo City must comply with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (42 USC 4601 *et seq.*, as amended 1989). New or altered access to bisected private properties will be necessary for some parcels. If this access could not be provided, compensation will be provided in accordance with the acquisition process.

For any build alternative, vehicular and farm access for private property will be accommodated by providing adequate access from the new roadway and/or by providing access from a frontage road. Access to these lands could be temporarily restricted during some phases of project construction (see Section 3.20: Construction Impacts). Whenever practicable, Provo City, in coordination with UDOT, will maintain the access and productivity of existing agricultural lands by such means as purchasing and developing ROW easements for field entry, making minor alignment alterations to preserve access points and field integrity, and providing access to alternate water sources to replace any interrupted irrigation.

Access to the Federally owned parcel administered by the U.S. Bureau of Land Management (BLM) may be temporarily blocked during construction, but permanent administrative access will be provided after construction by building an access point or access road from the Provo Westside Connector as determined in the final design and in consultation with the BLM.

### **Noise**

If the University Avenue A or University Avenue B alternative is selected, a noise wall along the southern border of the Lakeview neighborhood appears to be reasonable and feasible in accordance with the UDOT Noise Abatement Policy. The final decision regarding construction of the wall would be determined by public balloting during final design of the roadway as stated in the UDOT Noise Abatement Policy.

### **Visual Resources**

For any build alternative, fill slopes will be vegetated as practicable to help blend the new roadway into the natural and agricultural landscape. Visual impacts for the University Avenue A or B Alternatives for the Lakewood Neighborhood would represent a permanent change in visual character of the neighborhood and cannot be fully mitigated, however the visual impacts could be softened for the residents that will be most affected by the retaining wall and possible noise barriers. Elements that could possibly be incorporated into the design include:

- *Neutral colors:* mimicking the palette of the natural landscape could be used for all hardscape features to aid in blending the retaining wall and hard surfaces into the background.
- *Plantings:* Landscape plantings that feature predominantly taller plants and trees along the base of the retaining wall and berms as appropriate. If possible in final design, maintaining some or all existing vegetation (trees along berm).
- *Landowner participation:* Landowners most affected by the proposed changes would have additional input opportunities regarding specific design elements of the roadway and possible noise wall.

## **Cultural Resources**

Because project construction for any build alternative would occur in the vicinity of cultural sites 42UT111 and 42UT1618, these sites will be fenced during project construction to ensure that construction staging areas or equipment do not inadvertently impact these sites.

Utah Department of Transportation Standard Specification 01355, Part 1.13 – Discovery Clause will be followed if any cultural resources are discovered during project construction.

## **Wetlands**

If a build alternative is selected, a CWA Section 404 Permit application will be required. Mitigation measures will be outlined in the CWA Section 404 Permit application and the approved Mitigation Plan from the Corps.

Mitigation measures for direct wetland impacts could include a combination of the restoration of historic wetland areas, the construction of new wetlands, and the enhancement of degraded existing wetlands. There are opportunities for these types of mitigation in the immediate Project Area and these would be stipulated in the Mitigation Plan and in the CWA Section 404 Permit application. The size of overall proposed wetland mitigation areas would depend on the type of mitigation performed.

Indirect wetland impacts can be minimized to the greatest extent practicable through the use of appropriate best management practices (BMPs). Specific BMPs include properly installed sediment fencing, sediment traps, and appropriate seeding to stabilize construction areas and eliminate sedimentation of surrounding wetlands. The possible loss of hydrologic connectivity between wetlands on opposite sides of the Provo Westside Connector will be minimized through the proper spacing and sizing of culverts or other water

conveyance structures; achieving this will require geotechnical investigations and geotechnical engineering oversight during construction (PB Americas 2007).

## **Water Resources**

If a build alternative is selected, additional geotechnical and hydrogeological investigation and analyses will be completed as part of designing the roadway to address potential adverse impacts to the road from groundwater, potential subsurface soil compression, and to design drainage layers to convey shallow groundwater beneath the roadway. These engineered drainage layers will be designed to ensure that groundwater in the shallow unconfined aquifer will continue to supply water to existing wetlands and to Utah Lake. The investigations would include borings, cone penetration testing, and the installation of piezometers (PB Americas 2007). The roadway design may need to include elements for returning any groundwater intercepted by trenches or similar features back to the subsurface.

Surface water quality impacts will be mitigated through proper installation, use, and maintenance of appropriate BMPs. A Storm Water Pollution Prevention Plan (SWPPP) would be required as part of the application for a construction Utah Pollution Discharge Elimination System (UPDES) permit. The SWPPP will also detail the BMPs that will be used to control stormwater during active construction.

Stormwater detention structures are the primary form of long-term stormwater management control. Preliminary designs for all build alternatives include 8–10 stormwater detention/infiltration ponds. The ponds will hold the equivalent of the 50-year storm. Where appropriate, infiltration structures will also be considered to further reduce pollutant loads. Other design items would include a grassy or vegetated buffer swale/strip to filter sediment

and overland flow along the road. Combined runoff from sideslopes and pond discharge would be less than peak flows estimated from an area of equivalent size to the road footprint (PB Americas 2009). Detention/infiltration structures will mitigate the sediment and suspended solids fraction of the water quality constituents. However, the dissolved portion, primarily total dissolved solids, would remain in the discharge.

The final roadway design will accommodate access to wells, ditches, pipes, and other conveyance structures. If a well would need to be relocated, Provo City and UDOT would purchase the water right or the land associated with the right or negotiate an agreement with the water right owner to replace the well. Affected wells will be abandoned by a licensed well driller in accordance with Utah Administrative Code Section 655-4-12. The driller must contact the State Engineer and provide an abandonment log when the closure is completed. Neat cement grout, sand cement grout, unhydrated bentonite, or bentonite grout will be used to abandon wells and boreholes (UAC R655-4).

### ***Floodplains***

To prevent impacts to floodplains, the final design for a build alternative will allow for free movement of floodwater to the north side of the roadway. Procedures outlined in Executive Order 11988 must be completed in coordination with Federal Emergency Management Agency prior to initiation of project construction.

### ***Threatened and Endangered Species***

Final design of the roadway will include appropriate structures at Big Dry Creek that will allow fish to potentially swim upstream.

Specific BMPs during construction previously discussed for wetlands resources (Section 3.12)

are to include properly installed sediment fencing, sediment traps, and appropriate seeding to stabilize construction areas and eliminate sedimentation of surrounding wetlands. The possible loss of hydrologic connectivity between wetlands on opposite sides of the Provo Westside Connector will be mitigated through the proper spacing and sizing of culverts or other water conveyance structures; achieving this will require geotechnical investigations and geotechnical engineering oversight during construction (PB Americas 2007).

As discussed for Water Resources (Section 3.13), if a Build Alternative is selected, additional geotechnical and hydrogeological investigation and analyses will be completed as part of designing the roadway to address potential adverse impacts to groundwater, from potential subsurface soil compression, and to design drainage layers to convey shallow groundwater beneath the roadway. These engineered drainage layers will be designed to ensure that groundwater in the shallow unconfined aquifer will continue to supply water to existing wetlands and to Utah Lake. The investigations will include borings, cone penetration testing, and the installation of piezometers (PB Americas 2007). The roadway design will include elements for returning any groundwater intercepted by trenches or similar features back to the subsurface.

Surface water quality impacts will be mitigated through proper installation, use, and maintenance of appropriate BMPs. A SWPPP will be required as part of the application for a construction Utah Pollution Discharge Elimination System (UPDES) permit. The SWPPP will also detail the BMPs that will be used to control stormwater during active construction.

### ***Wildlife and Fisheries***

Impacts of build alternatives to habitat fragmentation and wildlife mortality are

expected to be minor and are expected to occur under any project alternative, including the No-Build Alternative. Impacts to wetland/open water habitats from implementation of a Build Alternative are also expected to be minor and will be mitigated pursuant to CWA Section 404 permitting from the Corps for the Proposed Project (see Section 3.12: Wetland Impacts). Final design of the roadway will include appropriate structures at Big Dry Creek that would allow fish to potentially swim upstream.

### **Hazardous Materials and Hazardous Waste Sites**

No known hazardous materials or hazardous waste sites were identified for properties that would be acquired or partially acquired for ROW. Should construction workers encounter previously undocumented soil contamination or other hazardous waste during construction, the contractor will follow UDOT Standard Specification 01355. Under this specification, construction activity will cease until the hazard is evaluated and appropriate protection measures are implemented.

### **Geology and Soils**

Development of a SWPPP and implementation of BMPs will minimize any soil transport to waterways (see Section 3.13: Water Resources). Mitigation will include implementation of UDOT's *Standard Specifications for Road and Bridge Construction, Temporary Erosion and Sediment Control Standards*, and *Temporary Water Pollution Control Standards* to minimize impacts to soils.

In final design, a pavement subsurface drainage system will be planned in any areas where subsurface water conveyance would be a concern during the life of the roadway. To facilitate proper engineering design and to accommodate soil features and groundwater that could impact the

roadway, a site-specific geotechnical evaluation will be required as part of the final design. Geotechnical engineering oversight during construction will also occur (PB Americas 2007). Monitoring of these implementations and instituting remedial measures will ensure continued effectiveness.

Temporary erosion- and sediment-control devices will be installed as described in UDOT's *Temporary Erosion and Sedimentation Control Drawings*. Actions to minimize environmental impacts during construction include:

- stabilizing all cut and fill slopes to prevent erosion and slope instability;
- installing silt fences or other sediment-retention devices, as needed, around the base of disturbed areas adjacent to Project Area streams and ditches;
- performing major construction in the drier months;
- avoiding ponding;
- addressing moisture-sensitive soils;
- limiting heavy equipment travel on subgrade; and
- using crushed rock or geosynthetic material to protect subgrade surfaces.

### **Utilities**

Utility pole relocations could be potentially reduced with project design modifications during final design. Coordination with electrical utility service providers will be necessary prior to and during project construction.

## **OTHER REQUIRED GOVERNMENTAL ACTIONS**

***Storm Water General Permit for Construction Activities.*** A Storm Water General Permit, which grants authorization to discharge under the Utah Pollutant Discharge Elimination System, is required for projects that disturb more than one acre of surface area during construction. If a build alternative is selected, a Storm Water General Permit would be required. As part of the requirements for this permit, a SWPPP will be developed and incorporated into the final design of the preferred build alternative. A Notice of Intent form will be submitted to the Utah Division of Water Quality prior to any construction. Upon completion of the Proposed Project, a Notice of Termination will be submitted to the same agency.

***Section 404 of the CWA- Wetland Permit.*** The Proposed Project must comply with the CWA Section 404(b)(1) Guidelines. A CWA Section 404 Permit is required for discharging any material or dredging below the ordinary high-water mark in waters of the United States, including wetlands. Some wetlands would be impacted by any of the proposed build alternatives. If a build alternative is selected, an Individual Permit would be necessary from the Corps prior to construction.

***State of Utah Stream Alteration Permit (General Permit 40).*** If a build alternative is selected, a Stream Alteration Permit would be required from the Utah Department of Natural Resources, Division of Water Rights, for all activities that affect the bed or banks of natural streams. The State's permit is subject to approval from the Corps.

***Air Quality Permit for Construction Activities.*** An Air Quality Permit to gauge air-quality impacts during construction is required to control fugitive dust and emissions. This permit would be obtained from the Utah Department of Air Quality by the

contractor prior to the start of construction if a build alternative is selected.

***Cultural Requirement.*** In accordance with Section 106 of the National Historic Preservation Act, if the University Avenue A Alternative is selected, a Memorandum of Agreement (MOA) would be required between the FHWA, UDOT, the State Historic Preservation Officer, and the Advisory Council on Historic Preservation (should they desire to be included). The purpose of the MOA would be to resolve adverse effects to historic properties. If any other build alternative or the No-Build alternative is selected, a MOA would not be required.

***Interchange Justification Report Approval.*** Section 111 of Title 23, United States Code, requires that proposed new or revised interstate access must be approved by the FHWA before such access modifications can be made.

***Federal Land Transfer (Easement).*** Preliminary designs for build alternatives do not cross the BLM-administered Federal property in the Project Area and no impacts are anticipated. However, should the final design of a selected alternative cross the property, a Federal land transfer request, pursuant to 23 USC § 317, would be initiated by the FHWA on behalf of Provo City.

***Conformity with the BLM Resource Management Plan (RMP).*** All of the build alternatives have been determined to be in conformance with the terms and conditions of the Pony Express Resource Management Plan approved January 12, 1990 as required by 43 Code of Federal Regulations (CFR) § 1610.5. The relevant discussion is found on page 56 of the RMP under Transportation and Utility Corridors decision 1 (BLM 1990).

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