WEST DAVIS
CORRIDOR

Technical Memorandum 30: Southern Connection to I-15 and Legacy Parkway Section 404(b)(1) Practicability Analysis

in support of the
Environmental Impact Statement
and Clean Water Act Section 404 Permit

West Davis Corridor Project

Federal Highway Administration
Utah Department of Transportation

UDOT Project No. S-0067(14)0

Prepared by
HDR, Inc.
2825 E. Cottonwood Parkway, Suite 200
Salt Lake City, UT 84121

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Executive Summary

Introduction

The Utah Department of Transportation (UDOT) and the Federal Highway Administration (FHWA) are proposing a project (the West Davis Corridor) to improve regional mobility in Davis and Weber Counties, Utah. These lead agencies, together called the West Davis Corridor (WDC) team, are preparing the West Davis Corridor Environmental Impact Statement (EIS), which will evaluate different alternatives for meeting the purpose of the project. All of the WDC action alternatives advanced in the EIS that propose a new roadway facility have a southern interchange with Interstate 15 (I-15) and Legacy Parkway.

Since the start of the EIS process, the WDC Team has received numerous comments regarding potential alternative connections in Farmington and Kaysville (referred to in this document as southern alignment options). The WDC Team considered these various southern alignment options as part of the alternatives-evaluation process for the Draft EIS. At that time, the WDC Team concluded that only the Shepard Lane and Glovers Lane Options were reasonable and practicable. After the Draft EIS was published in May 2013, the WDC Team updated the EIS traffic analysis according to the Wasatch Front Regional Council's (WFRC) 2015–2040 Regional Transportation Plan (RTP) and the associated 2016 travel demand model (version 8.1). The WDC Team also began a more detailed evaluation of the Shepard Lane and Glovers Lane interchange options in accordance with FHWA's review process for modifying access to the interstate system. This analysis was compiled in an Interstate Access Change Request that evaluated whether the Shepard Lane and Glovers Lane Options met FHWA's requirements for access to the interstate system.

In its review, FHWA concluded that the Shepard Lane Option could not satisfy its Interstate Access Policy because the option would adversely affect the safety and operations of I-15 and does not meet design standards. FHWA, therefore, could not approve the Shepard Lane Option. Because this option did not comply with FHWA's interstate access requirements, it is not considered practicable under the U.S. Army Corps of Engineers (USACE) Clean Water Act Section 404(b)(1) guidelines nor reasonable under the National Environmental Policy Act (NEPA). This evaluation is described in the *Draft Shepard Lane Interchange Section 404(b)(1) Practicability and NEPA Reasonable Alternative Analysis* (WDC Team 2017). Based on its review, FHWA also concluded that the Glovers Lane Option complied with its Interstate Access Policy as detailed in the Interstate Access Change Request. Consequently, the Glovers Lane Option is still considered a reasonable and practicable option.

The WDC team has prepared this analysis to reconsider the other southern alignment options that were considered and rejected during the Draft EIS stage, given that the Shepard Lane Option was eliminated from consideration and that WFRC's RTP and travel demand model have since been updated. This analysis will help FHWA determine whether options eliminated from consideration during the Draft EIS process are now reasonable options based on new information and should be carried forward for detailed study in the Final EIS.

Reconsideration of the Southern Alignment Options

Using WFRC's travel demand model version 8.1, recent 2016 aerial photographs, and 2016 wetland survey data, the WDC team reconsidered the southern alignment options that were evaluated in the Draft EIS. The reconsideration process included the following suggestions:

- Commenters on the Draft EIS from Farmington City and other commenters requested a reconsideration of three southern options (Kaysville Rest Area Option, Kaysville 200 North Option, and Layton Parkway Option). The Draft EIS comments requested that additional capacity be added to I-15 between the Legacy Parkway/I-15 interchange and the location where the southern terminus of the WDC southern option would have a system-to-system interchange with I-15 to determine whether this additional I-15 capacity would allow the options to meet the WDC's purpose and need.
- Comment from a member of the public recommending a revised Shepard Lane Option that would potentially allow the interchange to perform better.
- Comments regarding tunneling, bridging wetlands, and alignment shifts to Glovers Lane.
- Reconsidering the Denver & Rio Grande Western Railroad (D&RG) Option, which was eliminated during the Draft EIS Level 2 screening process because of substantially more impacts to homes, businesses, and wetlands compared to the Glovers Lane and Shepard Lane Options. With elimination of the Shepard Lane Option, the WDC team decided to reconsider the D&RG Option in Farmington using two different connections to I-15.

Based on the input from the public and agencies, the following southern options were reconsidered and are shown in Figure S-1:

- Layton Parkway Option with and without I-15 Widening
- Kaysville 200 North Option with and without I-15 Widening
- Kaysville Rest Area Option with and without I-15 Widening
- Shepard North Option
- Shepard Lane Tunnel Option
- Public Comment 876, Modified Shepard Lane Option
- Burke Lane Option
- Denver & Rio Grande Western Railroad (D&RG) Option with Connection at 200 West
- D&RG Option with Connection at Glovers Lane
- Glovers Lane Farther South and West Option

Figure S-1. Southern Alignment Options Reconsidered

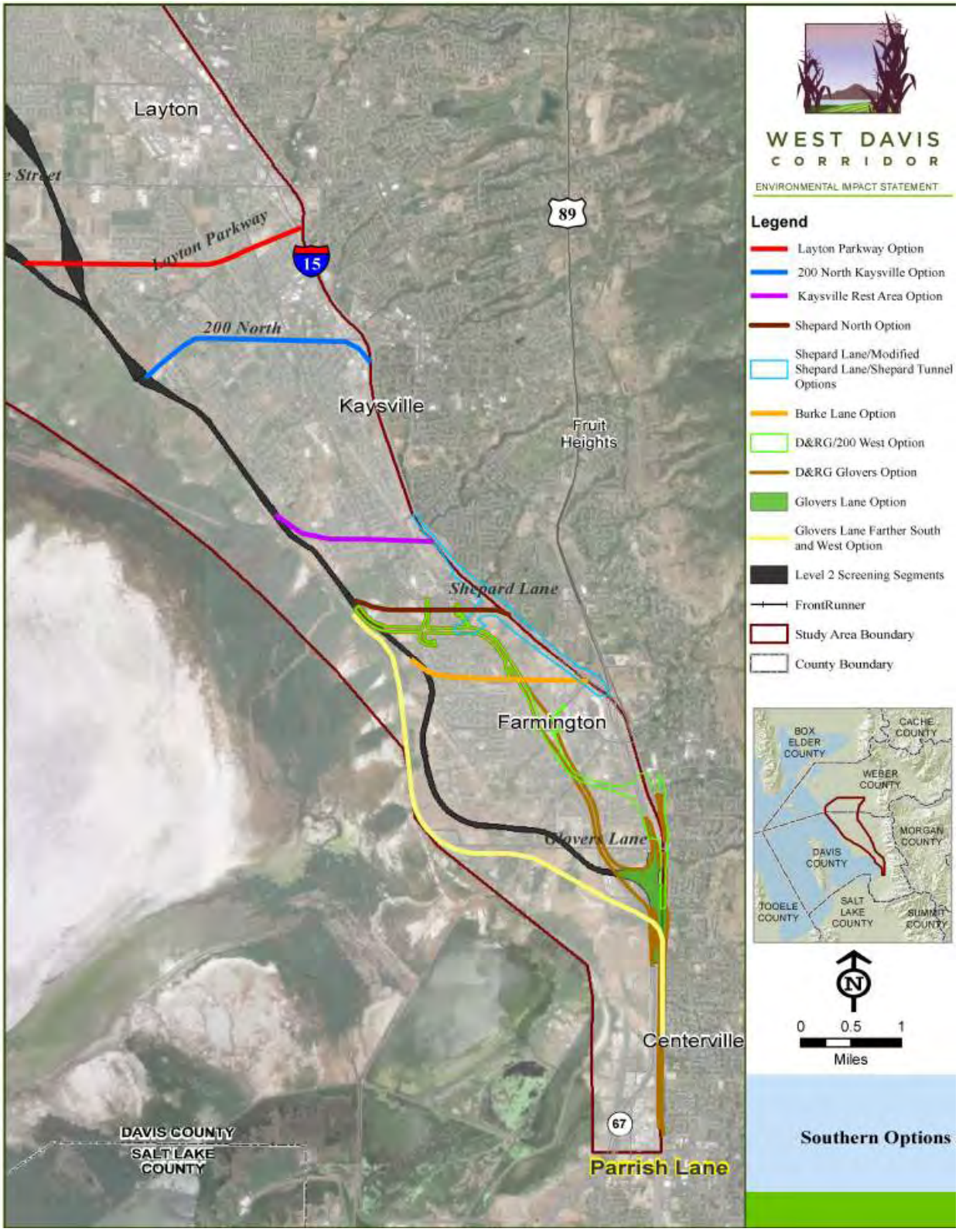

Table S-1 summarizes the Section 404(b)(1) practicability determinations that were made as a result of the current reconsideration of the other southern alignment options (that is, other than the Glovers Lane Option) evaluated for the WDC Project. As shown in Table S-1, all of these southern alignment options were determined to be not practicable under the Section 404(b)(1) guidelines (for more information, see Section 1.1, Requirements of the Clean Water Act).

Table S-1. Results of the Reconsideration of the Southern Alignment Options

Option	Section 404(b)(1) Determination
Shepard Lane[a]	**Eliminated** – Does not meet FHWA and UDOT design standards.
Layton Parkway	**Eliminated** – Does not meet the overall project purpose and need.
Kaysville 200 North	**Eliminated** – Does not meet the overall project purpose and need.
Kaysville Rest Area[a]	**Eliminated** – Does not meet FHWA and UDOT design standards.
Shepard North[a]	**Eliminated** – Does not meet FHWA and UDOT design standards.
Shepard Lane Tunnel[a]	**Eliminated** – Does not meet FHWA and UDOT design standards.
Public Comment 876, Modified Shepard Lane[a]	**Eliminated** – Does not meet FHWA and UDOT design standards.
Burke Lane	**Eliminated** – Does not meet FHWA and UDOT design standards.
D&RG/200 West[a]	**Eliminated** – Does not meet FHWA and UDOT design standards.
D&RG/Glovers Lane	**Eliminated** – Could not be implemented by UDOT and FHWA given applicable legal and practical constraints, safety considerations and costs.
Glovers Lane South/West	**Eliminated** – High wetland and wildlife impacts. Impacts to Farmington Bay Waterfowl Management Area.

[a] Would not satisfy FHWA's Interstate Access Policy because the option would adversely affect the safety and operations of I-15 and does not meet design standards including those in the *Manual on Uniform Traffic Control Devices*, or *MUTCD*.

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1.0 Introduction

The Utah Department of Transportation (UDOT) and the Federal Highway Administration (FHWA) are proposing a project (the West Davis Corridor) to improve regional mobility in Davis and Weber Counties, Utah. These lead agencies, together called the West Davis Corridor (WDC) team, are preparing the West Davis Corridor Environmental Impact Statement (EIS), which will evaluate different alternatives for meeting the purpose of the project. All of the WDC action alternatives advanced in the EIS that propose a new roadway facility have a southern interchange with Interstate 15 (I-15) and Legacy Parkway. See Figure 1-1 for a map of the project study area.

What is the WDC team?

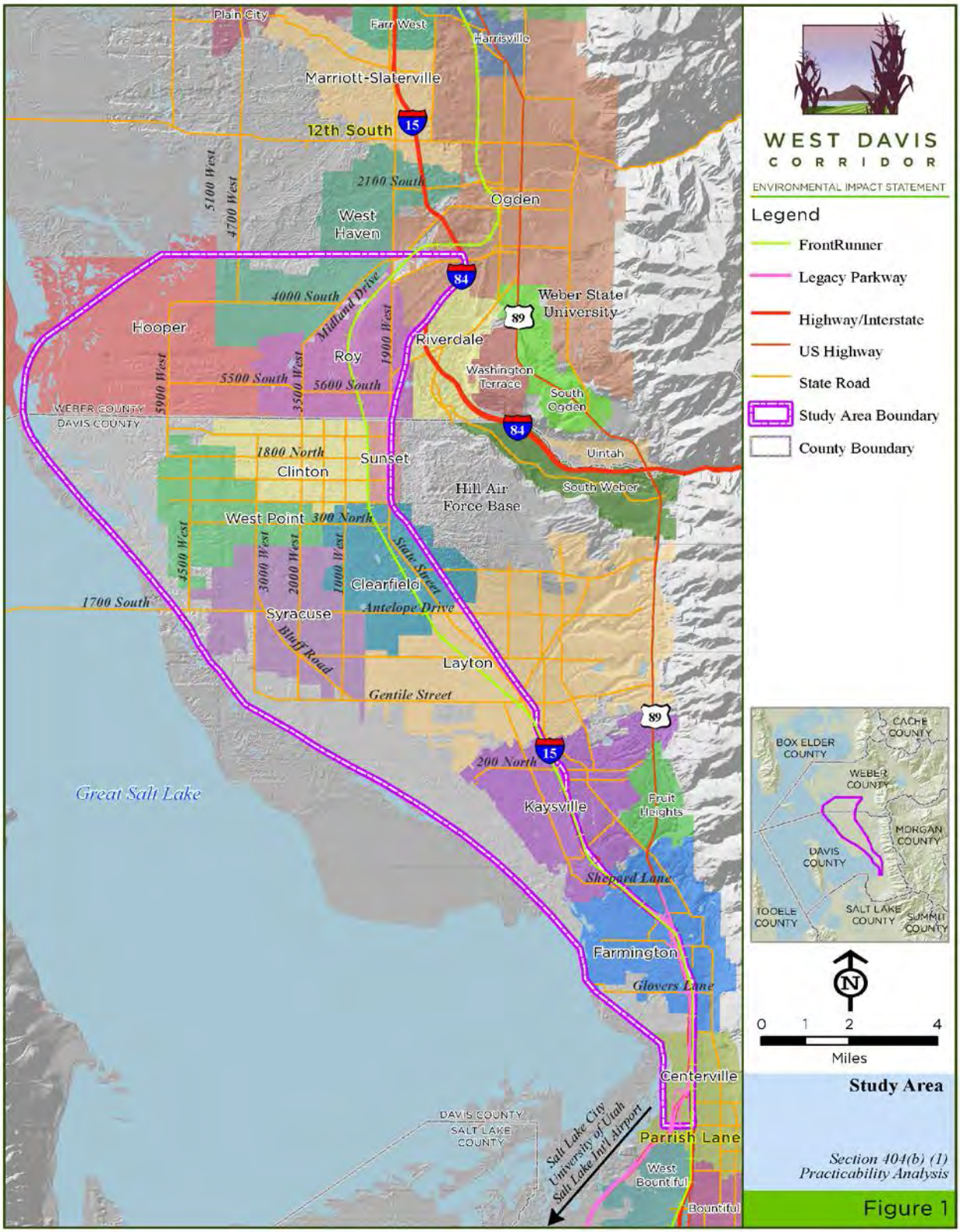
The *WDC team* consists of the lead agencies for the WDC Project (Federal Highway Administration and Utah Department of Transportation).

Since the start of the EIS process, the WDC Team has received numerous comments regarding potential alternative connections in Farmington and Kaysville (referred to in this document as southern alignment options). The WDC Team considered these various southern alignment options as part of the alternatives-evaluation process for the Draft EIS. At that time, the WDC Team concluded that only the Shepard Lane and Glovers Lane Options were reasonable and practicable because the other options considered did not meet design standards or were similar alternative concepts with substantially higher impacts to the natural and built environments.

After the Draft EIS was published in May 2013, the WDC Team updated the EIS traffic analysis according to the Wasatch Front Regional Council's (WFRC) 2015–2040 Regional Transportation Plan (RTP) and the associated 2016 travel demand model (version 8.1). The WDC Team also began a more detailed evaluation of the Shepard Lane and Glovers Lane interchange options in accordance with FHWA's review process for modifying access to the interstate system. This analysis was compiled in an Interstate Access Change Request that evaluated whether the Shepard Lane and Glovers Lane Options met FHWA's requirements for access to the interstate system.

In its review, FHWA concluded that the Shepard Lane Option could not satisfy its Interstate Access Policy because the option would adversely affect the safety and operations of I-15 and does not meet design standards. FHWA, therefore, could not approve the Shepard Lane Option. Because the option could not be approved by FHWA, it could not be built, and thus it is not practicable under the Clean Water Act Section 404(b)(1) guidelines.

Figure 1-1. Study Area



Therefore, the WDC team is preparing this Section 404(b)(1) practicability analysis for reconsidering other southern alignment options to provide information to FHWA and the U.S. Army Corps of Engineers (USACE). For FHWA, this analysis will help FHWA determine whether options eliminated from consideration during the Draft EIS process are now reasonable options based on new information and should be carried forward for detailed study in the Final EIS. For USACE, this analysis will help USACE ensure, based on Section 404 of the Clean Water Act, that the least environmentally damaging practicable alternative is carried forward for detailed study in the Final EIS.

Section 1.1 discusses the requirements of the Section 404(b)(1) guidelines of the Clean Water Act. Section 1.2 discusses the requirements of Section 6002 of SAFETEA-LU (the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users) that pertain to this practicability analysis.

1.1 Requirements of the Clean Water Act

Since USACE makes official determinations under the Section 404(b)(1) guidelines of the Clean Water Act, the WDC team considered the requirements of the Clean Water Act as part of the evaluation of alternatives during the EIS process. The Section 404(b)(1) guidelines state that "no discharge of dredged or fill material [to Section 404–regulated waters] shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences" [40 Code of Federal Regulations (CFR) Section 230.10(a)].

USACE must prepare a Section 404(b)(1) practicability analysis in connection with its decision whether to grant a Clean Water Act permit for the selected WDC alternative. The Section 404(b)(1) guidelines require USACE to consider "practicable" alternatives for avoiding or minimizing harm to waters of the U.S. USACE's regulations recommend that applicants for individual permits, such as those that would be required for the WDC Project, engage in pre-application consultation with USACE to discuss the level of National Environmental Policy Act (NEPA) review required, the information needed for decision-making, other agency reviews and approvals needed, and the overall process to be followed.

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 to the placement of fill in "special aquatic sites." The level of analysis and proof required varies depending on the project and the nature of the anticipated effects of the project.

1.2 Requirements of SAFETEA-LU

Section 6002 of SAFETEA-LU established an environmental review process that must be followed when FHWA prepares an EIS for a highway project. In addition to NEPA compliance, the environmental review process under Section 6002 must include the "process for and completion of any environmental permit, approval, review, or study required for a project under any Federal law other than [NEPA]." Thus, USACE's permitting actions must be addressed as part of the Section 6002 process.

What are participating and cooperating agencies?

A participating agency is a federal or non-federal agency that might have an interest in the project. A cooperating agency is one that has jurisdiction by law or that has special expertise regarding the evaluation of the project.

The process requires an "opportunity for involvement" by participating agencies and the public at two milestones: defining the purpose of and need for the project and determining the range of alternatives to be studied. For the WDC EIS, USACE is a cooperating agency because it would need to issue a permit for impacts to wetlands from the project.

The lead agencies (FHWA and UDOT) are also required, as part of the environmental review process, to determine, in collaboration with the participating agencies, the appropriate methodologies to be used and the level of detail required in the analysis of alternatives. The SAFETEA-LU Environmental Review Process Final Guidance says that "collaboration means a cooperative and interactive process. It is not necessary for the lead agency to reach consensus with the participating agencies on these issues; the lead agency must work cooperatively with the participating agencies and consider their views, but the lead agency remains responsible for decision-making." The FHWA guidance states that the lead agencies should solicit public and agency input regarding what methodologies will be used to evaluate important issues.

2.0 Section 404(b)(1) Practicability Methodology

This section explains how the WDC team evaluated whether the southern alignment options are practicable under the Clean Water Act Section 404(b)(1) guidelines. 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." In working with USACE and the U.S. Environmental Protection Agency (EPA), the WDC team focused this practicability analysis on logistical considerations, although cost also played a role in specific circumstances.

There is no definition of *logistics* in the Clean Water Act, nor have USACE or EPA issued guidance defining the term. Given the nature of this transportation project and this practicability analysis, it is reasonable that the meaning of *logistics* is the planning, implementation, and coordination of an operation.

In light of the above, the WDC team evaluated the practicability of the southern alignment options based primarily on the following logistical considerations:

1. Whether the option would meet the project purpose and need
2. Whether the option could be designed to meet the minimum design standards required by FHWA and UDOT for safety, operation, and traffic performance
3. Whether the option could be implemented by UDOT and FHWA given applicable legal constraints and authorities

3.0 Background on the Southern Alignment Options

3.1 Consideration of the Southern Alignment Options in the Draft EIS

The WDC Draft EIS was released in May 2013 and included an evaluation of other southern alignment options in addition to the Shepard Lane and Glovers Lane Options. The other southern alignment options were developed based on comments provided by the public during the EIS scoping and alternatives-evaluation processes.

What is Level 1 screening?

Level 1 screening identifies 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 or to not be feasible were not carried forward for further analysis in Level 2 screening.

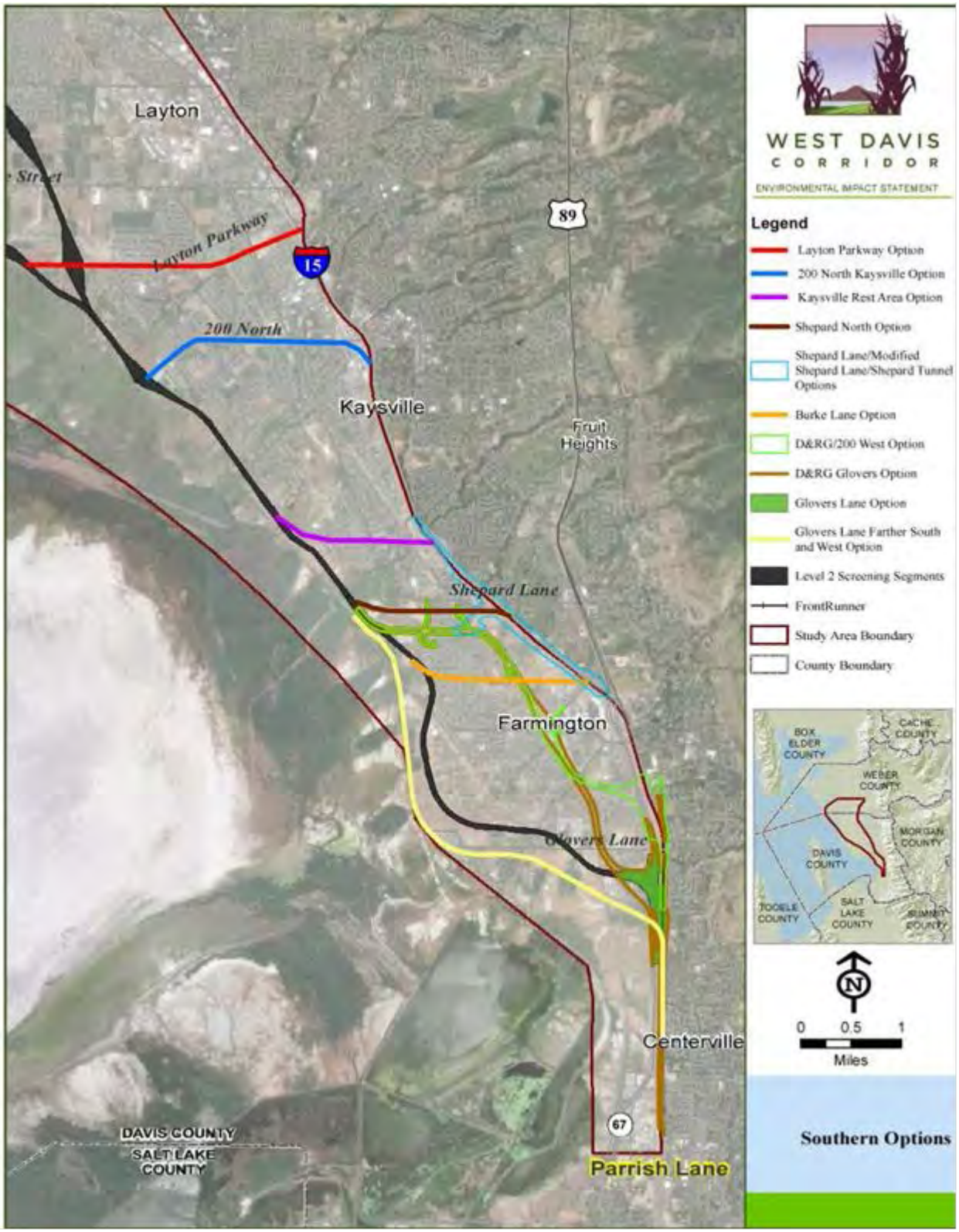
The results of this evaluation were described in Section 3.3.4, Southern Termini for New Roadway Alternatives, of *Technical Memorandum 15: Alternatives Screening Report*, dated October 14, 2012. This memorandum was made available for public review on the project website and was summarized in the Draft EIS. In that memorandum, the WDC team found that some options would not be feasible to design and thus did not meet the project purpose and need.

Table 3-1 lists the southern alignment options that were eliminated from further consideration as part of the Draft EIS Level 1 screening process because they could not meet design standards or meet the Level 1 screening criteria measures of effectiveness. Figure 3-1 shows the locations of the southern alignment options.

Table 3-1. 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 U.S. Highway 89 (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.
Connection to I-15 in Kaysville near the rest stop (I-15 at milepost [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.
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.
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.
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. 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 3-1. Southern Alignment Options Reconsidered



3.2 Consideration of the Southern Alignment Options in the Final EIS

3.2.1 Overview

During the development of the Final EIS, the WDC team decided to reconsider the southern alignment options considered in the Draft EIS primarily based on the following:

- ***New WFRC 2015–2040 RTP and Travel Demand Model.*** After the Draft EIS was published in May 2013, WFRC released a new RTP and travel demand model in 2015. The WDC team decided that, because of substantial changes to the model compared to the model used for the Draft EIS, all travel demand modeling conducted for the Final EIS would be updated using the new model (version 8.1; version 7 was used for the Draft EIS modeling).

What is a travel demand model?

A travel demand model is a computer model that predicts the number of transportation trips (travel demand) in an area at a given time. This prediction is based on the expected population, employment, household, and land-use conditions in the area. The travel demand model used for the WDC Project is maintained by WFRC.

- ***FHWA Interstate Access Change Request Process.*** Also after the Draft EIS was published, the WDC Team began a more detailed evaluation of the Shepard Lane and Glovers Lane interchange options in accordance with FHWA's review process for modifying access to the interstate system. UDOT cannot add points of access to, or exits from, an interstate without approval from FHWA. FHWA has an interest in ensuring that the National Highway System provides the "highest level of service in terms of safety and mobility." FHWA's decision to approve new or revised access points to the National Highway System must be supported by substantiated information justifying and documenting that the proposed designs maintain the safety and performance of the highway system. This information was compiled in an Interstate Access Change Request that evaluated whether the Shepard Lane and Glovers Lane Options met FHWA's requirements for access to the interstate system.

  In its review, FHWA concluded that the Shepard Lane Option could not satisfy its Interstate Access Policy because it would adversely affect the safety and operations of I-15 and does not meet design standards. One of the deficiencies of the Shepard Lane design was that it does not comply with the *Manual on Uniform Traffic Control Devices*, or *MUTCD*. This is a federal standard used by highway officials nationwide to install and maintain traffic-control devices on all streets and highways open to public travel. The *MUTCD* is published by FHWA under 23 CFR Part 655, Subpart F (UDOT 2011). Noncompliance with the *MUTCD* ultimately can result in loss of federal-aid funds and would be in violation of Utah code and standards.

  Because the Shepard Lane Option does not meet the *MUTCD* and other design standards, FHWA could not approve the Shepard Lane Option. Because this option

did not comply with FHWA's interstate access requirements, it is not considered practicable under the USACE Section 404(b)(1) guidelines nor reasonable under NEPA. This evaluation is described in the *Draft Shepard Lane Interchange Section 404(b)(1) Practicability and NEPA Reasonable Alternative Analysis* (WDC Team 2017). Based on its review, FHWA also concluded that the Glovers Lane Option complied with its Interstate Access Policy. Consequently, the Glovers Lane Option is still considered a reasonable and practicable option.

Based on the elimination of the Shepard Lane interchange option and the updated travel demand model, the WDC team decided to reconsider previously evaluated southern alignment options and new options brought up in comments on the Draft EIS to determine whether any of the options would be a practicable or reasonable option in addition to the Glovers Lane Option.

3.2.2 Purpose and Need Screening Criteria

In this memorandum, some alternatives are eliminated because they do not meet the Level 1 (overall purpose) screening criteria called *measures of effectiveness* (MOEs). In order to determine whether the preliminary WDC action alternatives would substantially reduce congestion and delay in the study area, the WDC team calculated the following MOEs for each preliminary action 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 ≥ 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 ≥ 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 ≥ 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.

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.

- **Vehicle-hours traveled (VHT) with V/C ≥ 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.

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 preliminary action alternatives and the No-Action Alternative. 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 overall purpose 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.

4.0 Reconsideration of the Southern Alignment Options

Using WFRC's travel demand model 8.1, recent 2016 aerial photographs, and 2016 wetland survey data, the WDC team reconsidered the southern alignment options that were evaluated in the Draft EIS. The reconsideration process included the following suggestions:

- Commenters on the Draft EIS from Farmington City and other commenters requested a reconsideration of three southern options (Kaysville Rest Area Option, Kaysville 200 North Option, and Layton Parkway Option). The Draft EIS comments requested that additional capacity be added to I-15 between the Legacy Parkway/I-15 interchange and the location where the southern terminus of the WDC southern option would have a system-to-system interchange with I-15 to determine whether this additional I-15 capacity would allow the options to meet the WDC's purpose and need.
- Comment from a member of the public recommending a revised Shepard Lane Option that would potentially allow the interchange to perform better.
- Comments regarding tunneling, bridging wetlands, and alignment shifts to Glovers Lane.
- Reconsidering the D&RG Option, which was eliminated during the Draft EIS Level 2 screening process because of substantially more impacts to homes, businesses, and wetlands compared to the Glovers Lane and Shepard Lane Options. With elimination of the Shepard Lane Option, the WDC team decided to reconsider the D&RG Option in Farmington using two different connections to I-15.

The updated description and results for the southern alignment options are presented below. The Level 1 screening data for the Layton Parkway, Kaysville 200 North, and Kaysville Rest Area Options are included in Appendix A, Data Sheet.

As with all alternatives evaluated during the EIS process, an alternative must pass the Level 1 screening process. 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 overall 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.

The reconsideration and determination for each southern alignment option are included in a subsection below. These options are listed in order from north to south (see Figure 3-1 above, Southern Alignment Options Reconsidered).

- Layton Parkway Option with and without I-15 Widening
- Kaysville 200 North Option with and without I-15 Widening
- Kaysville Rest Area Option with and without I-15 Widening
- Shepard North Option
- Shepard Lane Tunnel Option
- Public Comment 876, Modified Shepard Lane Option
- Burke Lane Option
- D&RG Option with Connection at 200 West
- D&RG Option with Connection at Glovers Lane
- Glovers Lane Farther South and West Option

4.1 Layton Parkway Option with and without I-15 Widening

A few commenters suggested that the WDC should connect to I-15 at or near the Layton Parkway interchange on I-15 at milepost 330.

Description. The Layton Parkway Option with and without I-15 Widening would connect the WDC to I-15 south of Layton Parkway. The Layton Parkway connection to I-15 would require a system-to-system interchange similar to the Shepard Lane Option's connection but would need to maintain the Layton Parkway as a local arterial and maintain the Layton Parkway local interchange on I-15.

The WDC team considered two Layton Parkway Options:

- One with no additional widening on I-15
- One that included widening on I-15 to add one general-purpose lane in each direction between milepost 324.5 (Legacy Parkway on ramp) and milepost 330 (Layton Parkway interchange)

Transportation System Impacts. The Layton Parkway Option with and without I-15 Widening did not pass Level 1 screening because it does not have MOE values better than (less than) the first-quartile value for at least three of the five MOEs (the option had only one value better than the first quartile with or without I-15 widening). The Level 1 screening data for this option are included in Appendix A, Data Sheet. Because this option would not pass Level 1 screening and thus would not meet the overall project purpose, it is not considered practicable under the Section 404(b)(1) guidelines.

4.2 Kaysville 200 North Option with and without I-15 Widening

This option would connect the WDC to I-15 in Kaysville at or near the 200 North/State Route (SR) 273 interchange at milepost 328.5.

Description. The Kaysville 200 North Option with and without I-15 Widening would connect the WDC to I-15 south of 200 North/SR 273. The Kaysville 200 North Option with and without I-15 Widening's connection to I-15 would require a system-to-system interchange similar to the Shepard Lane Option's connection, but it would need to maintain 200 North/ SR 273 as a local arterial and would need to maintain the existing I-15/200 North local interchange.

The WDC team considered two Kaysville 200 North Options:

- One with no additional widening on I-15
- One that included widening on I-15 to add one general-purpose lane in each direction between milepost 324.5 (Legacy Parkway on ramp) and milepost 328.5 (Kaysville 200 North interchange)

Transportation System Impacts. The Kaysville 200 North Option with or without I-15 Widening did not pass Level 1 screening because it does not have MOE values better than (less than) the first-quartile value for at least three of the five MOEs (the option had only two values better than the first quartile with I-15 widening and one without I-15 widening). The Level 1 screening data for this option are included in Appendix A, Data Sheet. Because this option would not pass Level 1 screening and thus would not meet the overall project purpose, it is not considered practicable under the Section 404(b)(1) guidelines.

4.3 Kaysville Rest Area Option with and without I-15 Widening

This option would connect the WDC to I-15 in Kaysville at or near the rest area at milepost 326.5.

Description. Figure 4-1 shows the Kaysville Rest Area Option with and without I-15 Widening. The connection to I-15 for the Kaysville Rest Area Option with and without I-15 Widening would require a system-to-system interchange similar to the Shepard Lane Option's connection and a new east-west road to be constructed in residential areas in Kaysville.

Figure 4-1. Kaysville Rest Area Option with and without I-15 Widening

The WDC team considered two Kaysville Rest Area Options:

- One with no additional widening on I-15 (Figure 4-2)
- One that included widening on I-15 to add one general-purpose lane in each direction between milepost 324.5 (Legacy Parkway on ramp) and milepost 326.5 (Kaysville rest area) (Figure 4-3)

Transportation System Impacts. The Kaysville Rest Area Option with I-15 Widening to Park Lane does not pass Level 1 screening because it does not have MOE values better than (less than) the first-quartile value for at least three of the five MOEs (the option had only two values better than the first quartile). The Level 1 screening data for this option are included in Appendix A, Data Sheet.

However, the WDC team found that the Kaysville Rest Area Option without I-15 Widening did pass Level 1 screening (Figure 4-2). The WDC team further investigated the modeling results because having fewer travel lanes on I-15 should have increased congestion instead of decreasing it. The WDC team found that, in the modeling, traffic that would have used I-15 was instead using Main Street in Kaysville and Farmington to avoid congestion on I-15, thereby causing Main Street to fail (that is, operate at a level of service of LOS F). Main Street is a local arterial that goes through the town center of these two communities. Because Main Street is outside the WDC study area, the traffic delay was not being picked up in the Level 1 screening analysis. Main Street is a main commercial and residential corridor that is not designed to handle high volumes of through traffic.

The Kaysville Rest Area Option with and without I-15 Widening is about 0.5 mile north of the Shepard Lane interchange option and would require a similar collector-distributor layout as that option because of the proximity to the US 89/Legacy Parkway/I-15 interchange and the local service interchanges at Park and Shepard Lanes. The WDC team's review of the Kaysville Rest Area Option with and without I-15 Widening found that, similar to the Shepard Lane Option, this option would have 20 violations of the *MUTCD* standards and guidance (Table 4-1 on page 18). These *MUTCD* violations resulted in a determination by FHWA that the Kaysville Rest Area Option (either with or without I-15 widening) was not practicable under the Section 404(b)(1) guidelines using the same rationale that was used by FHWA to eliminate the Shepard Lane Option.

Figure 4-2. Kaysville Rest Area Option without I-15 Widening

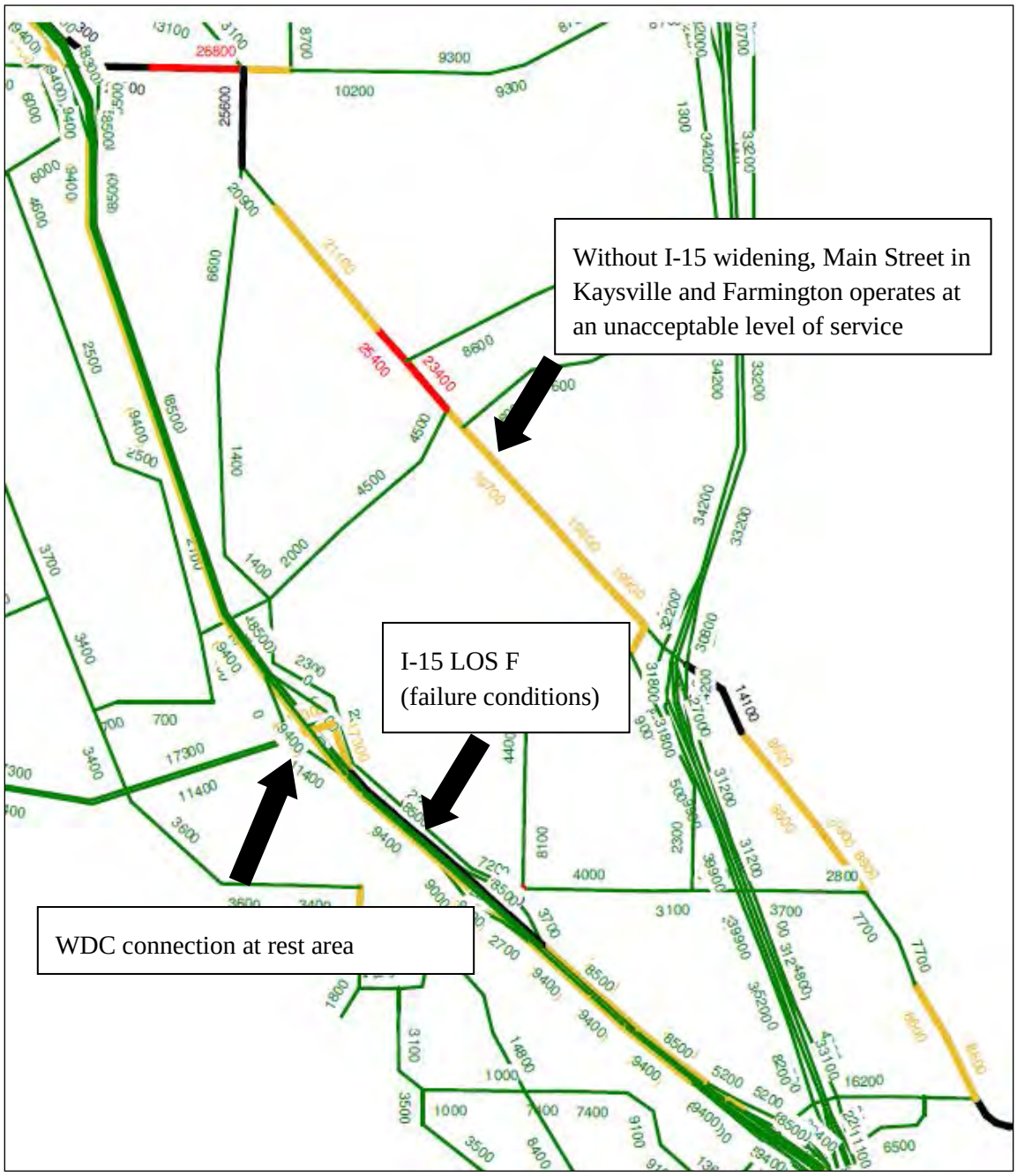


Figure 4-3. Kaysville Rest Area Option with I-15 Widening

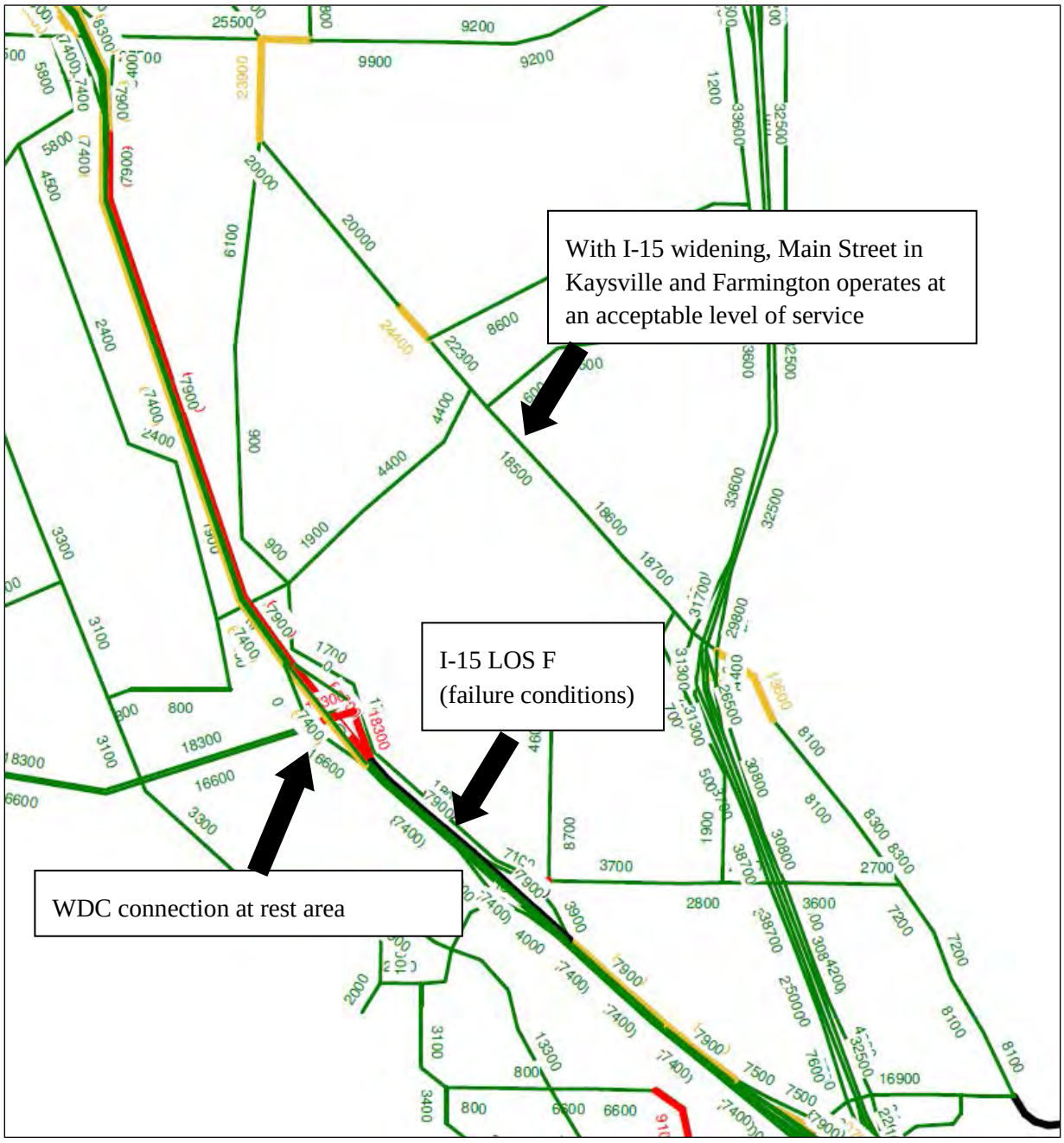


Table 4-1. *MUTCD* Violations of the Kaysville Rest Area Option with and without I-15 Widening

Sign Number (s)	Approximate Location	Sign Description	Issue(s)	Reference(s) from 2009 Utah *MUTCD*
1/2	Northbound I-15	Assembly: Ogden / Shepard Lane – West Davis Corridor 3/4 Mile	Sign not able to be placed at 1 mile.	2E.21r.02r, 2E.21r.05a
5	Northbound I-15	Arrow per lane: Ogden – West Davis Corridor – Shepard Lane	Not at 1/2 mile. There is no way to alert drivers to be in the right lane to then merge two more lanes over to exit to Shepard Lane. Two merges would be required for some drivers. Drivers might not expect to have to make this maneuver, and they would have 1/2 mile to do it. Guidance violation: 3 destinations on sign display; maximum is 1 per sign. This is considered 2 signs, therefore 2 maximum destinations.	2E.21r.05a, 2E.10.01r
6	Northbound I-15	Arrow per lane: Ogden – West Davis Corridor – Shepard Lane	3 destinations on sign display; maximum is 1 per sign. This is considered 2 signs, therefore 2 maximum destinations.	2E.10.01r
7/8/9	Northbound collector-distributor (CD) road	Assembly: West Davis Corridor 1 1/4 Miles – Ogden – Shepard Lane 1/2 Mile	There is no room available for the 1-mile advance guide sign for Shepard Lane; this 1/2-mile assembly is the first advance guide sign for this split. This is the first sign from Legacy Parkway that lets drivers know that they need to merge left for the WDC, and there is less than 1/2 mile to do so. There is not enough room to put appropriate arrows over the left 2 lanes to indicate to drivers which lanes to be in for I-15 North.	2E.21r.05A, 2E.21r.07r
7	Northbound CD road	Ogden Left 2 Lanes	Unable to center down arrows over the left two lanes because of the number of signs on the structure.	2E.19
9	Northbound CD road	Shepard Lane 1/2 Mile	This is the first advance guide sign for the actual Shepard Lane exit (not the CD road); the 1-mile sign does not exist for drivers entering from I-15.	2E.33.02
38/39/40	Northbound ramp from Legacy Parkway	Assembly: West Davis Corridor 1 1/4 Miles – Ogden – Shepard Lane 1/2 Mile	This is the first advance guide sign for the WDC and I-15 North exit from Legacy Parkway northbound; both exits would require an additional lane change farther downstream. Unable to provide enough warning as to which lane drivers would need to use.	2E.33.02
41	Northbound ramp from Legacy Parkway	Ogden – West Davis Corridor – Shepard Lane	Mixes street and city names; 3 destinations; maximum is 1 per sign in this display.	2E.10.00n, 2E10.01r
41/42	Northbound ramp from Legacy Parkway	Assembly: Ogden – West Davis Corridor – Shepard Lane / Park Lane	4 destinations on display; maximum is 1 per sign or 3 on display.	2E.10.01r
43	Northbound ramp from Legacy Parkway	Ogden – West Davis Corridor – Shepard Lane	Mixes street and city names; 3 destinations; maximum is 1 per sign in this display.	2E.10.00n, 2E10.01r
43/44	Northbound ramp from Legacy Parkway	Assembly: Ogden – West Davis Corridor – Shepard Lane / Park Lane	4 destinations on display; maximum is 1 per sign or 3 on display.	2E.10.01r
45	Northbound Legacy Parkway	Arrow per lane: South Ogden / Ogden – West Davis Corridor – Shepard Lane / Park Lane	Right sign – mixes street and city names; 4 lines of copy – maximum is 3; 3 destinations – maximum is 1 per partition (sign).	2E.10.00n, 2E10.01r

Table 4-1. *MUTCD* Violations of the Kaysville Rest Area Option with and without I-15 Widening

Sign Number (s)	Approximate Location	Sign Description	Issue(s)	Reference(s) from 2009 Utah *MUTCD*
46	Northbound Legacy Parkway	Arrow per lane: South Ogden / Ogden – West Davis Corridor – Shepard Lane / Park Lane	Right sign – mixes street and city names; 4 lines of copy – maximum is 3; 3 destinations –- maximum 1 per partition (sign).	2E.10.00n, 2E10.01r
47/48	Northbound Legacy Parkway	Assembly: South Ogden 1/2 Mile / Ogden – West Davis Corridor – Shepard Lane – Park Lane 1 1/4 Mile	5 destinations in display; maximum is 1 per sign or 3 total.	2E.10.01r
48	Northbound Legacy Parkway	Advanced guide signs: Ogden – West Davis Corridor – Shepard Lane – Park Lane	4 destinations; maximum is 1 per sign in this display. Mixes city and street names.	2E.10.00n, 2E10.01r
49/50	Northbound Legacy Parkway	Assembly: South Ogden 1 Mile / Ogden – West Davis Corridor – Shepard Lane – Park Lane 1 3/4 miles	5 destinations in display; maximum is 1 per sign or 3 total.	2E.10.01r
50	Northbound Legacy Parkway	Advanced guide signs: Ogden– West Davis Corridor – Shepard Lane – Park Lane	4 destinations; maximum is 1 per sign in this display. Mixes city and street names.	2E.10.00n, 2E10.01r
54	Northbound I-15	Sequence sign	4 lines of text; maximum is 3.	2E.10.01r
55	Northbound I-15	Sequence sign	4 lines of text; maximum is 3.	2E.10.01r
56	Northbound I-15	Sequence sign	4 lines of text; maximum is 3.	2E.10.01r

Color key: Violation of *MUTCD* Standard
Violation of *MUTCD* Guidance

4.4 Shepard North Option

The Shepard North Option is similar to the Shepard Lane Option evaluated in the Draft EIS but would be located about 100 feet north of the Shepard Lane Option. The Shepard North Option would have the same system-to-system interchange as the Shepard Lane Option. As with the Shepard Lane Option, the Shepard North Option is also in violation of *MUTCD* standards. Therefore, the Shepard North Option is not considered practicable under the Section 404(b)(1) guidelines.

4.5 Shepard Lane Tunnel Option

A few commenters suggested that the Shepard Lane Option should be placed in a tunnel under the 146-foot preserved corridor between the Quail Crossing and Hunters Creek subdivisions to reduce noise, visual impacts, and community cohesion impacts. The Shepard Lane Tunnel Option would have the same system-to-system interchange as the Shepard Lane Option. The Shepard Lane Option with or without the tunnel is in violation of *MUTCD* standards and thus is not a practicable or reasonable option.

4.6 Public Comment 876, Modified Shepard Lane Option

During the Draft EIS public comment period, a comment was received (comment 876) providing detailed drawings regarding how the Shepard Lane Option could be redesigned to improve traffic flow by elevating and adding some bridges north of Park Lane. However, the basic concept of this Shepard Lane Option would remain the same, with a collector-distributor system at the same location on I-15.

Similar to the Draft EIS Shepard Lane Option, the option provided in comment 876 would not work because of the proximity of the northbound collector-distributor ramps to the US 89/Legacy Parkway/I-15 system-to-system interchange. Because the alignment described in comment 876 is in the same location as the Shepard Lane Option, it would violate the same Utah *MUTCD* standards as that option. Therefore, FHWA does not consider this option to be a reasonable or practicable option.

4.7 Burke Lane Option

A few commenters suggested a Burke Lane Option, which would move the Shepard Lane Option south to use an alignment near Burke Lane in Farmington. The WDC Team determined that the engineering design of the Burke Lane Option was not feasible because it would not be possible to design the WDC to connect directly to I-15 at the existing US 89/ Legacy Parkway/I-15 system-to-system interchange. This system-to-system interchange could not be reconfigured to accommodate the additional connection of the WDC because of the short distance between the Burke Lane Option and the existing US 89/Legacy Parkway/ I-15 system-to-system interchange. If the interchange could be designed, it would be located immediately adjacent to the US 89/Legacy Parkway/I-15 system-to-system interchange and, similar to the Shepard Lane Option and the D&RG Option with Connection at 200 West

discussed below, the Burke Lane Option would be in violation of *MUTCD* standards. Because the Burke Lane Option would be south of the Shepard Lane Option and north of the D&RG Option with Connection at 200 West, the *MUTCD* violations for the Burke Lane Option would be similar to the *MUTCD* violations for the Shepard Lane Option and the D&RG Option with Connection at 200 West (see Table 4-2, *MUTCD* Violations of the D&RG Option with Connection at 200 West). Therefore, the Burke Lane Option is not considered practicable under the Section 404(b)(1) guidelines.

Alternately, instead of the D&RG Option connecting to I-15 at Burke Lane, a route south down the D&RG alignment was developed that would connect to Legacy Parkway and I-15 at 200 West or Glovers Lane. See the D&RG Option discussion below for details regarding these options.

4.8 Denver & Rio Grande Western (D&RG) Option

As described in Section 3.3.4, Southern Termini for New Roadway Alternatives, of *Technical Memorandum 15: Alternatives Screening Report*, the WDC team also considered a southern connection in Farmington on the D&RG corridor during the WDC alternatives-development and screening process. In Level 2 screening for the Draft EIS, the WDC team determined that the D&RG connection would have substantially more impacts to wetlands, residences, and community facilities than would the Shepard Lane and Glovers Lane Options and therefore was eliminated in Level 2 screening for the Draft EIS. After the release of the Draft EIS, the Shepard Lane Option was eliminated for violating FHWA design and safety standards; therefore, the WDC team decided to reconsider the D&RG option based on 2016 data. For the D&RG Option, two variations were considered: one with an interchange on I-15 at 200 West and the other with an interchange on I-15 at Glovers Lane.

4.8.1 D&RG Option with Connection at 200 West

Description

The D&RG Option with Connection at 200 West would connect to I-15 and Legacy Parkway about 0.5 mile south of the US 89/Legacy Parkway/I-15 system-to-system interchange in Farmington (Figure 4-4).

Transportation System Impacts

Because of the D&RG Option with Connection at 200 West's close proximity to the US 89/Legacy Parkway/I-15 system-to-system interchange, there would be numerous weave movements for vehicles to navigate in a short distance. The WDC team's review of the D&RG Option with Connection at 200 West found that the option would have 16 violations of the *MUTCD* standards and guidance (Table 4-2). These *MUTCD* violations resulted in the D&RG Option with Connection at 200 West being considered not practicable under the Section 404(b)(1) guidelines using the same rationale that was used by FHWA for elimination of the Shepard Lane Option.

Figure 4-4. D&RG Option with Connection at 200 West

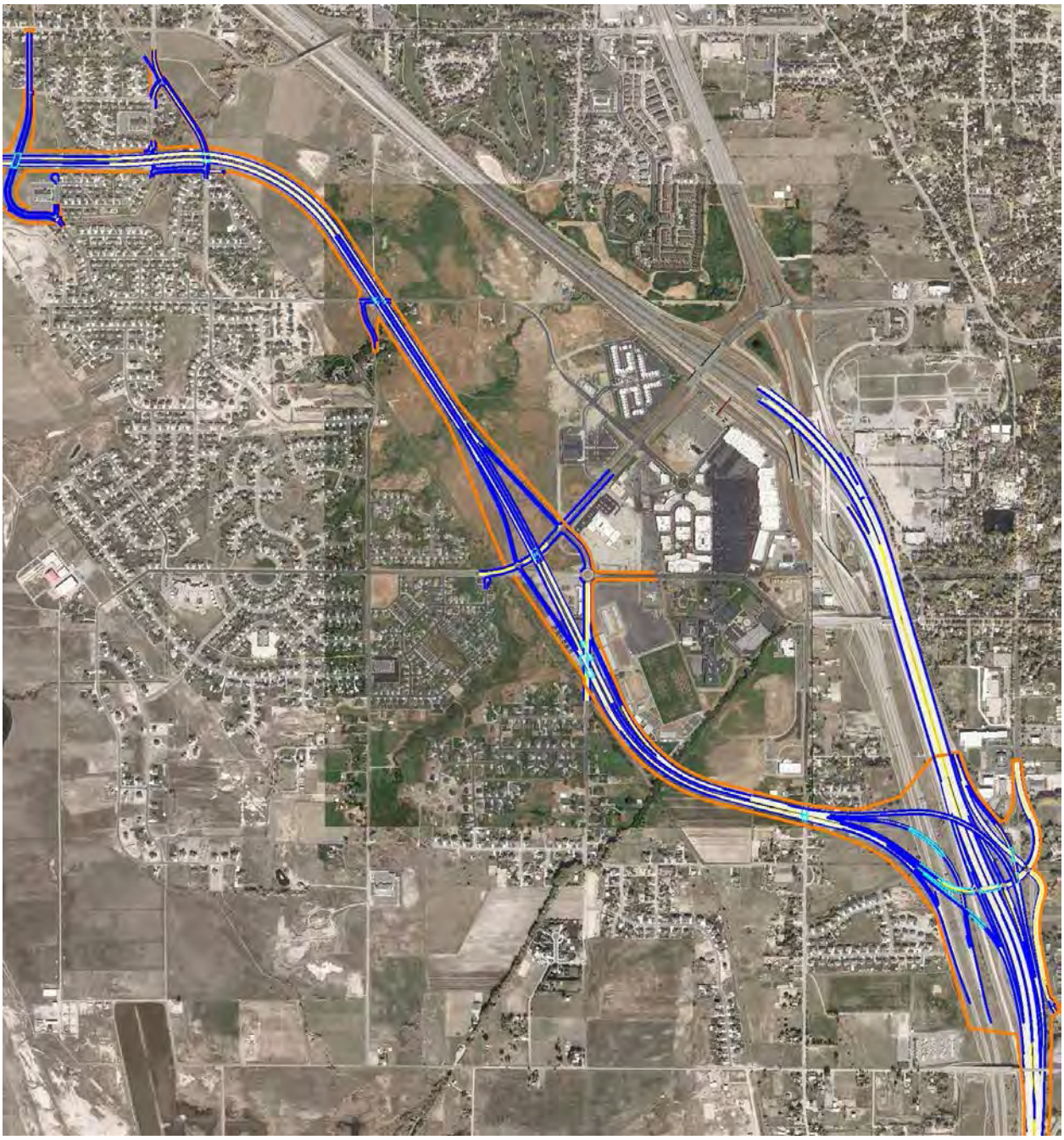


Table 4-2. *MUTCD* Violations of the D&RG Option with Connection at 200 West

Sign Number(s)	Approximate Location	Sign Description	Issue(s)	Reference(s) from 2009 Utah *MUTCD*
1/2	Northbound I-15	Arrow per lane: Ogden – 200 West – West Davis Corridor – Lagoon Drive	4 destinations on sign display; maximum is 1 per sign or 3 on display.	2E.10.01r
2	Northbound I-15	Advanced guide sign: 200 West – West Davis Corridor – Lagoon Drive	3 destinations; maximum is 2 destinations. Includes 2 street names; maximum is 1 street name.	2E.10.00n
3/4	Northbound I-15	Arrow per lane: Ogden – 200 West – West Davis Corridor – Lagoon Drive	4 destinations on sign display; maximum is 1 per sign or 3 on display.	2E.10.01r
4	Northbound I-15	Advanced guide sign: 200 West – West Davis Highway – Lagoon Drive	3 destinations; maximum is 2 destinations. Includes 2 street names; maximum is 1 street name.	2E.10.00n
5	Northbound I-15	Arrow per lane: Ogden – 200 West – West Davis Corridor – Lagoon Drive	4 destinations; maximum is 1 per sign or 3 on display. This is considered 2 signs. Right partition – 3 destinations; maximum is 2 destinations. Includes 2 street names; maximum is 1 street name.	2E.10.00n, 2E10.01r
6	Northbound I-15	Arrow per lane: Ogden – 200 West – West Davis Corridor – Lagoon Drive	4 destinations; maximum is 1 per sign or 3 on display. This is considered 2 signs. Right partition – 3 destinations; maximum is 2 destinations. Includes 2 street names; maximum is 1 street name.	2E.10.00n, 2E10.01r
7	Northbound CD road	200 West Exit Direction	Insufficient spacing to 200 West exit ramp. There is no 1/2- or 1-mile advance guide sign for the actual exit from the CD road; this is the first one. There is no advance notice to drivers exiting I-15 to immediately exit to the left for 200 West.	2E.33.02
17/18	Southbound I-15	Assembly: Salt Lake City – West Davis Corridor – 200 West 1/2 Mile	There is no room available for the 1-mile advance guide sign after the US 89 merge; this 1/2-mile assembly is the first advance guide sign for merging traffic from US 89 southbound.	2E.21r.05A
29/30	Northbound I-15	Arrow per lane: Ogden – 200 West – West Davis Corridor – Lagoon Drive	4 destinations on sign display; maximum is 1 per sign or 3 on display.	2E.10.01r
30	Northbound I-15	Advanced guide sign: 200 West – West Davis Corridor – Lagoon Drive	3 destinations; maximum is 2 destinations. Includes 2 street names; maximum is 1 street name.	2E.10.00n
33	Southbound I-15	Sequence sign	4 lines of text; maximum is 3.	2E10.01r
34	Southbound I-15	Sequence sign	4 lines of text; maximum is 3.	2E10.01r
35	Southbound I-15	Sequence sign	4 lines of text; maximum is 3.	2E10.01r
36	Northbound I-15	Sequence sign	5 lines of text; maximum is 3.	2E10.01r
37	Northbound I-15	Sequence sign	5 lines of text; maximum is 3.	2E10.01r
38	Northbound I-15	Sequence sign	5 lines of text; maximum is 3.	2E10.01r

Color key: Violation of *MUTCD* Standard
Violation of *MUTCD* Guidance

4.8.2 D&RG Option with Connection at Glovers Lane

Description

The D&RG Option with Connection at Glovers Lane (Figure 4-5) would connect to I-15 and Legacy Parkway at the same location as the Glovers Lane Option evaluated in the Draft EIS. Like the Glovers Lane Option, the interchange at I-15 and Glovers Lane under this option would meet the project purpose and FHWA's design and safety standards.

North of the interchange, this option stays parallel to the D&RG corridor on the east side until crossing to the west near the Farmington–Kaysville boundary where a portion of the alignment under the Shepard Lane Option would be located. Traffic modeling identified the need for a local interchange on Park Lane as part of this option to provide access to Farmington. For more information regarding UDOT's consideration of the D&RG Option, including an evaluation of local interchanges in Farmington, see Appendix C, Supplemental Information for the D&RG Option.

The D&RG corridor has been converted to a regional trail. The Utah Transit Authority (UTA) has an agreement with Union Pacific Railroad to use the right-of-way as a potential future transit corridor. Currently, the D&RG corridor is under a Notice of Interim Trail Use and is subject to reactivation for freight use. The corridor is also subject to the Prospective Purchaser Agreement with the Utah Department of Environmental Quality and the U.S. Environmental Protection Agency that allows the right-of-way to be used for rail or trail use only. UTA intends to use the D&RG right-of-way as a future transit corridor, and therefore this right-of-way is not available for UDOT to use as part of any of its roadway alternatives. For these reasons, the D&RG Option with Connection at Glovers Lane was located on the east side of the D&RG corridor and would cross the corridor once, using a bridge, in the area where it would bend west and follow the Shepard Lane Option's alignment near 950 North with a bridge.

Transportation System Impacts

The D&RG Option with Connection at Glovers Lane would connect to I-15 and Legacy Parkway in the same location as the Glovers Lane Option evaluated in the Draft EIS and would have similar transportation performance. Therefore, the D&RG Option with Connection at Glovers Lane would meet the project purpose and would meet FHWA's safety and design standards.

Figure 4-5. D&RG Option with Connection at Glovers Lane

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Reconsideration

As shown in Figure 4-5 above, the D&RG Option with Connection at Glovers Lane would bisect western Farmington, thereby impacting residential, public, and commercial developments. The two most significant impacts would be to the Davis County Fairgrounds Legacy Event Center and the Avenues at the Station townhomes.

Davis County Fairgrounds (and Legacy Events Center)

Facilities and Characteristics

The Davis County Fairgrounds is a County-owned, 53-acre multipurpose facility and is the home of the Davis County Fair. As a publicly owned recreational area, this facility qualifies under Section 4(f) of the U.S Department of Transportation Act as a significant Section 4(f) resource.

In addition to the county fair, the Fairgrounds hosts sporting activities such as wrestling tournaments, gymnastics, BMX races, motorsports, and mixed-martial-arts bouts. Other events include equestrian shows, car shows, and gun shows. According to Davis County staff, the Fairgrounds hosts around 1,000 events per year. The main indoor arena is 38,400 square feet with fixed stadium seating for 2,200 people. This building also has a flooring system that can accommodate events requiring dirt or a hard surface. Adjacent to the main arena are multiple exhibit buildings adaptable for trade shows, animal shows, boutiques, and family or corporate gatherings. There is also an outdoor arena with lights and sound that seats 2,900.

The Fairgrounds also features several acres of groomed grass, making it a popular venue for many national and regional dog shows. Located next to the open turf is a recreational vehicle (RV) park with modern hookups providing affordable lodging options and easy access for vendors and exhibitors. Located on the east side of the Fairgrounds are four collegiate-size soccer fields which are used for local and regional championship tournaments. An access road surrounds the property, providing vehicular access to all venues.

Table 4-3 and Figure 4-6 provide an overview of the Fairgrounds. In addition to the Fairgrounds' facilities, numerous gas and petroleum pipelines are within easements under the Fairgrounds. As shown in Figure 4-6, all of the Fairgrounds property is used for events. The D&RG Option with Connection at Glovers Lane would impact about 11.5 acres of the western part of the Fairgrounds. As shown in Table 4-3 and Figure 4-6, these impacts include the Legacy Events Center indoor arena, buildings 1 and 2 and their associated parking lots, the RV park, the dog park, and soccer fields in the southwest part of the property. Davis County has concluded that the degree of impact to the Fairgrounds would render it inoperable.

Table 4-3. Davis County Fairground Facilities and Impacts from the D&RG Option with Connection at Glovers Lane

Facility Description	Impacted by D&RG Option with Connection at Glovers Lane?
Legacy Events Center • 38,000 square feet • 2,200 permanent seating capacity • Full-service concessions and in-house catering • 5,000-square-foot balcony is perfect for events with vendors and/or banquet needs • 1,400 paved parking stalls • Used for equestrian, BMX, and car shows	Yes, entire building would be impacted.
Stall Barns • Used for equestrian events	No.
Building 1 • 2,695 square feet • Commonly used for trade shows, parties, weddings, karate lessons, craft shows, trainings, and meetings • Includes adjacent parking lot	Yes, entire building and adjacent parking lot would be impacted.
Buildings 2 and 3 • Buildings 2 and 3 are the same size • 10,000 square feet each • These buildings work well for trade shows, craft shows, exhibits, training events, animal shows, parties, weddings, and soccer training • Include adjacent parking lot	Yes, building 2 and the adjacent parking lot for both buildings would be impacted.
Soccer and Sports Fields • 15 acres of playable grass • Field painting available • Outdoor vendor pad with electricity and water • Commonly used for lacrosse, soccer, sports tournaments, marathons, dog shows, and outdoor events • Four collegiate-size soccer fields, which will soon be ready for local and regional championship tournaments	No.
Outdoor Grand Stand Arena • Fixed stadium seating for 2,900; includes outdoor lights and sound system	No.
Large Pavilion • Outdoor events • Includes bunny barn and hen house buildings	No.
Dog Park and Outdoor Sport Fields • Dog park for Farmington residents • Soccer field • Athletic field	Yes, dog park and both sports fields would be impacted.
Recreational Vehicle (RV) Park • 24-space RV park	Yes, 16 of the 24 RV parking spaces would be impacted.

Figure 4-6. Davis County Fairgrounds Facilities

Relocation of Impacted Facilities within the Fairgrounds Property

The WDC Team considered whether it would be feasible to relocate the impacted facilities elsewhere on the existing Fairgrounds property. However, little if any room is available elsewhere on the site, since it is already fully developed for its current operations. The County has stated that parking is at capacity for the county fair, rodeos, and other major events. Also, because of the types of events held, large vehicles with trailers need to access various venues within the Fairgrounds. This limits the ability to rearrange venues and parking

areas while providing space for all activities and access. In addition, the underground gas and petroleum pipelines and associated easements restrict the available space for structures.

The WDC team concluded, based on the above factors, that the impacted facilities could not be relocated within the existing Fairgrounds property. Expanding the existing property is not possible because of the surrounding development and because the Farmington City Regional Park is being constructed to the east. Therefore, the D&RG Option with Connection at Glovers would require relocating the entire Fairgrounds to another location.

Relocation of the Fairgrounds Elsewhere in Farmington

The Fairgrounds was sited in its current location because Farmington is the county seat of Davis County and has a central location in Davis County. County Representatives have said that the current location is very desirable and provides tremendous benefit to groups using and visiting the Fairgrounds because of the easy access to public transportation and the synergies that are created with adjacent and surrounding venues such as Station Park and the Lagoon Amusement Park. In addition, Davis County is starting a master plan study of the Fairgrounds to determine how to further enhance the area. According to the County, it would not be possible to relocate the Fairgrounds to anywhere in Davis County that has the same access, allure, and amenities that the current site provides.

The County has stated that the Fairgrounds is a highly significant and unique resource in the county, and that the County would not willingly sell it to UDOT (for a letter from the Davis County Commission, see Appendix B, Supporting Data). In light of these circumstances, UDOT's ability to acquire this facility through condemnation is highly questionable. Utah condemnation law recognizes the doctrine of "more necessary public use"; that is, that property already appropriated to a public use may not be taken by another public entity unless that entity's public use is proven to be "more necessary" (see Utah Code Annotated 78B-6-504). Given that the EIS has identified a WDC alternative (Glovers Lane Alternative) that does not use the Fairgrounds and that provides the same or better public use and benefit for transportation, and given the very substantial public use and benefit that the Fairgrounds currently provides, UDOT does not believe it could successfully condemn the Fairgrounds.

UDOT's likely inability to condemn the Fairgrounds represents a major logistical constraint with respect to the D&RG Option with Connection at Glovers Lane. An additional constraint is the lack of available locations on which to relocate the Fairgrounds if UDOT did have the ability to condemn it. At the request of the USACE, UDOT evaluated available land in Farmington, being the county seat, on which to relocate the Fairgrounds. Only three areas of open land are large enough: an area immediately west of I-15 and north of Station Park, an area east of US 89, and areas north of Glovers Lane along 1525 West in western Farmington (Figure 4-7).

Figure 4-7. Options Considered for Relocating the Davis County Fairgrounds

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North Station Park Option. The North Station Park area has enough open land to house the Fairgrounds, but it is currently being developed. The Park Lane Commons mixed-use development project was approved by Farmington City and has two facilities currently under construction. Three other developments in this area are currently being processed for approval (the Chartwell and Evans mixed-use developments and the Avanti Assisted Living Center). These properties are entitled, meet zoning requirements, and are planned to be built prior to construction of the WDC. Advanced acquisition of these properties is not possible because UDOT does not have the available corridor preservation funding (see the section titled Corridor Preservation in Appendix C, Supplemental Information for the D&RG Option). UDOT would not be able to condemn these properties until after this option has been studied, selected, and funded.

Current UDOT projections for WDC funding would not allow purchase of the North Station Park property until the latter half of 2020, which would be well after much of this development has been constructed. Additionally, neither Davis County nor Farmington City have the authority nor financial ability to condemn the properties or prevent these developments from being built. Therefore, the North Station Park property is not available to relocate the Fairgrounds.

US 89 Option. Another possible area that would accommodate the size of the Fairgrounds is an area east of US 89 and north of Park Lane. Similar to the Fairgrounds property, this land is currently zoned as agricultural. However, unlike with the Fairgrounds property, Farmington City has planned this area for commercial mixed uses in its General Plan. This zoning is currently being implemented, as two projects have already been approved and are under construction: the Utah Cardiology Center and Cube Self Storage. Within the last 2 years, an office park and a Mercedes-Benz auto dealership have also been constructed in this area. The City expects development to continue on the remaining 11 buildable parcels, which will pre-date the timeframe when UDOT will have funding, as stated above in the discussion of the North Station Park option.

Another challenge with this area is the presence of the Spring Creek drainage and natural springs to the south and a major open drainage channel to the north. These have created wet areas that are unfit to develop and reduce the available land acreage to less than what is needed to house the Fairgrounds.

A further challenge with this property is its limited access. On the west side, traffic along US 89 is in one direction only, which allows only right-in, right-out access to the site. The east-side route, SR 106, is a narrow, two-lane road lined with houses. The south-side access would be shared with multiple other businesses and is a major access to the Lagoon Amusement Park. For these reasons, this area would likely not be available nor be a suitable replacement property for the Fairgrounds.

1525 West Option. The properties east and west of 1525 West, north of Glovers Lane, are large enough to house the Fairgrounds facility. However, this area's current and planned zoning of very low-density residential and agricultural would not allow the uses typical of Fairground activities. Because of the surrounding rural residential areas, Farmington City is strongly opposed to changing zoning designations to allow such uses. This area also does not

have the utility infrastructure, such as sewer, culinary water, or fire protection, to support the Fairgrounds. Providing this infrastructure would require new water-delivery systems as well as sewer lift stations, both of which would be very costly capital improvements and would place an increased long-term maintenance burden on Farmington City and the Central Davis Sewer District. For these reasons, Farmington City has established a development restriction line at elevation 4,218 feet, which applies to a portion of these properties.

This area is also served by residential streets that are not capable of handling traffic associated with the major Fairgrounds events and that would require substantial improvements. Heavy traffic during major events at the Fairgrounds would severely restrict access to and from the surrounding residential areas. Further complicating the use of these properties is a high-voltage power line corridor that runs diagonally through these properties. Considering all of the above, these properties do not provide a feasible location on which to relocate the Fairgrounds.

In addition, given that the Fairgrounds is a significant Section 4(f) resource, UDOT has a legal obligation to avoid or, if avoidance is not possible to fully mitigate the impact. FHWA's Section 4(f) regulations require that impacts to Section 4(f) properties be mitigated by replacement of land and/or facilities of comparable value and function. Thus, under the Section 4(f) regulations, UDOT would be required to replace all of the existing functions of the current Fairgrounds if it were to be relocated. The properties along 1525 West could not meet this requirement.

Summary of Davis County Fairgrounds Reconsideration

The D&RG Option with Connection at Glovers Lane would have substantial direct right-of-way impacts to the buildings and operations of Davis County Fairgrounds (and the Legacy Events Center), a significant Section 4(f) resource, requiring it to be relocated. Since Davis County would not willingly sell the Fairgrounds, UDOT would be forced to condemn. However, UDOT does not believe it would succeed in condemning the Fairgrounds based on the doctrine in Utah law of "more necessary public use". Even if UDOT could condemn the Fairgrounds, there are no available suitable locations on which to relocate the Fairgrounds. Therefore, UDOT could not meet its legal obligation to fully mitigate the impact to this important Section 4(f) resource. These legal limitations are significant logistical constraints.

Avenues at the Station Townhomes

Site Characteristics

As shown above in Figure 4-5, D&RG Option with Connection at Glovers Lane, the D&RG Option with Connection at Glovers Lane would also require relocating the residents of the Avenues at the Station townhomes. UDOT does not believe it that can meet its legal obligations for relocating these residents under the Uniform Relocation Assistance and Real Property Acquisition Policies Act.

The 128-unit Avenues at the Station development (oakwoodhomesco.com/communities/avenues-at-the-station) provides a housing option and location that are unique in Davis County. Eighty-eight of the units are owner-occupied townhome units, which range in size

from 1,500 to 3,000 square feet with two to four bedrooms and are listed between $275,000 and $1,000,000. This is a maintenance-free housing development that is part of a walkable community close to employment, retail businesses, a medical clinic, restaurants, and the FrontRunner commuter-rail transit station. No other development in Davis County offers a similar townhome housing option and setting.

Relocation of Residents

Public law 91-646, the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, commonly called the Uniform Act and codified at 42 U.S.C. Chapter 61, is the primary law for acquisition and relocation activities associated with federal or federally assisted projects and programs. The basic regulation governing acquisition and relocation activities associated with all federal and federally assisted programs and projects is 49 Code of Federal Regulations (CFR) Part 24, the Uniform Act government-wide regulation. FHWA is the lead agency for the Uniform Act and is responsible for the promulgation and maintenance of the government-wide regulation.

The regulations at 49 CFR Part 24 and 42 U.S.C Chapter 61 have specific requirements regarding providing replacement housing for people whose homes would be acquired as a result of a transportation project. These requirements include:

- 42 USC Chapter 61
    - Minimizing the adverse impact of displacement is essential to maintaining the economic and social well-being of communities.
    - Ensuring that the unique circumstances of any displaced person are taken into account.
    - Ensuring that a person shall not be required to move from a dwelling unless the person has had a reasonable opportunity to relocate to a comparable replacement dwelling.
    - No person shall be required to move from his [or her] dwelling on account of any program or project undertaken by a federal agency or with federal financial assistance, unless the head of the displacing agency is satisfied that comparable replacement housing is available to such person.
- 49 CFR Part 24
    - The term *comparable replacement dwelling* means a dwelling that is:
        - Decent, safe, and sanitary;
        - Functionally equivalent to the displacement dwelling. The term *functionally equivalent* means that it performs the same function and provides the same utility. While a comparable replacement dwelling need not possess every feature of the displacement dwelling, the principal features must be present;
        - Adequate in size to accommodate the occupants;
        - In an area not subject to unreasonable adverse environmental conditions;

- In a location generally not less desirable than the location of the displaced person's dwelling with respect to public utilities and commercial and public facilities, and reasonably accessible to the displaced person's place of employment;
- On a site that is typical in size for residential development with normal site improvements;
- Currently available to the displaced person on the private market; and
- Within the financial means of the displaced person.

Summary of Avenues at the Station Reconsideration

UDOT does not believe that it could meet the above requirements of the Uniform Act for the relocation of the residents at 88 townhomes at the Avenues at the Station development. A real estate search performed on February 7, 2017 (utahrealestate.com and zillow.com) found only 20 townhome units of over 1,500 square feet available in Davis County. Of these, only seven were less than 10 years old, and only one was within walking distance of a transit station.

The UDOT Right of Way Division does not consider a single-family home on a building lot in a suburban neighborhood to be functionally equivalent to the Avenues at the Station townhomes. Because there is a substantial shortage of comparable replacement dwellings in Davis County, UDOT does not believe that it can meet its legal obligations for relocating these residents.

Bridging or Tunneling to Avoid Impacts from the WDC

Given that it is not feasible for UDOT to condemn and relocate the Davis County Fairgrounds or the Avenues at the Station development, the WDC team considered the options of bridging or tunneling to avoid these facilities.

Bridging

This section analyzes a bridging option over the Davis County Fairgrounds and the Avenues at the Station development. The analysis is based on the practicability analysis for a bridge over the Utility Trailer manufacturing plant that was provided to the agencies in 2012. That analysis concluded that a 600-foot-long bridge over a commercial building was not practicable for similar reasons as described below.

Spanning without Supports

Spanning the Davis County Fairgrounds and Avenues at the Station development without touching the buildings and other facilities would require a bridge with a span of 1,300 feet over the Fairgrounds and 1,000 feet over the townhomes. The only types of bridges that can span distances larger than 600 feet are cable stay bridges and suspension bridges (similar to the Golden Gate Bridge). The industry standard practice is for cable stay and suspension bridges to be built over only bodies of water or canyons, not over developed, inhabited areas. Current crane technology is incapable of constructing a suspension bridge over the

Fairgrounds or the Avenues at the Station development without affect buildings, parking, and other amenities.

Unconventional construction techniques would be necessary to construct suspension bridges of this size. None of the construction companies in Utah have the experience to perform longitudinal or segmental launching techniques. Additionally, even if these technologies were available, the cost of such a bridge would be roughly $205 million, which would not be a practicable cost for UDOT.

Spanning with Supports

Besides a suspension bridge, the next-longest unsupported span bridge is a steel girder bridge. A steel girder bridge can have unsupported spans up to about 500 feet, which would require deep haunched girders. Such as bridge would cost about $70 million to construct. To bridge over the Fairgrounds and townhomes, at least three bridge supports would need to be placed within these properties, thereby affecting parking and potentially buildings. To go over the 30-foot-high tops of the buildings at the Fairgrounds and the townhomes development, the roadway would need to be about 50 feet high. In order to achieve this elevation, the roadway would transition at a 5% grade on the northbound and southbound approaches over a distance of about 1,000 feet in each direction. These sections would require extensive fill placement and very high retaining walls. Embankments this high would present several constructability risks and long-term stability concerns. The added cost for this work is about $5.5 million, for a total bridge cost of $75.5 million.

Any bridge over a business, home, or public area used for events also presents numerous operational, safety, and liability issues. Debris or errant vehicles could fall from the bridge onto the buildings, parking area, or arena during public events. Snow removal would be costly and difficult because snow could not be pushed off the bridge, due to safety considerations, requiring it to be plowed long distances or hauled away. This would require road closures that would disrupt traffic. A large-span structure with inefficient snow removal would also increase the likelihood of icing, which further increases safety risks. For these reasons, UDOT does not place structures over businesses or dwellings.

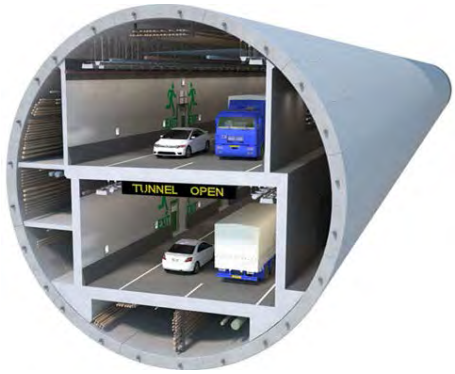
Tunneling

Design

This option would place a tunnel under the Davis County Fairgrounds and the Avenues at the Station development. The WDC team consulted a tunnel specialist to develop the tunnel concept. Two tunnel options were considered:

- **Double Bore.** Double-bore tunnels would include two multiple-lane tunnels, one for northbound and the other for southbound traffic. Each tunnel would need to be about 42 feet in diameter.
- **Single Bore.** A single-bore tunnel would have the north- and southbound lanes stacked on top of one another (Figure 4-8). This would require a single tunnel about 58 feet in diameter. This diameter of tunnel is currently about the maximum size for the state of the art, with the only example currently being constructed in the United States as part of the Alaskan Way Viaduct Replacement Project in Seattle.

Figure 4-8. Single-Bore Double-Stack Tunnel



After reviewing the two tunnel options, the WDC team decided to consider the single-bore tunnel instead of building two separate tunnels, which would have increased maintenance and operation costs. In preparing this analysis, The WDC team used information from the Alaskan Way Viaduct Replacement Project because the number of lanes and approximate length would be similar to that required for the D&RG option (9,100 feet for the Alaskan Way Viaduct and 8,800 feet for the D&RG tunnel concept).

The tunnel would need to be about 70 to 100 feet deep under the Fairgrounds and Avenues at the Station properties to allow enough soil above the tunnel to develop soil arching above the tunnel. Soil arching minimizes subsidence and surface settlement of the overlying and adjacent infrastructure. With a tunnel of this depth, the buildings above the tunnel are anticipated to settle up to several inches, assuming the appropriate use of state-of-the-art tunneling techniques and diligent construction operations. To minimize this surface subsidence, compaction grouting above the tunnel would be installed, and grout would be injected as tunneling proceeds to compensate for the loss of ground due to the tunneling process and to minimize ground subsidence and the resulting surface settlement.

The tunnel would be about 3,100 feet long. To reach the tunnel at that depth (and to minimize the roadway length and approach cuts), the WDC would need to be put at a maximum grade of about 5%, which would extend the overall length needed for the tunnel by about 5,700 feet, for a total length of the tunnel of 8,800 feet. This length would also allow the north- and southbound lanes to be transitioned on top of one another before they enter the tunnel.

Construction Cost

The WDC team based the construction cost of the D&RG tunnel on the construction cost estimate for the Alaskan Way Viaduct tunnel. This project was used because the tunnel diameter and tunnel requirements would be about the same as for the D&RG tunnel. In 2012, the cost estimate for the Alaskan Way Viaduct tunnel was $1.35 billion[1] for the 9,100-foot tunnel, or about $148,352 per linear foot. This cost includes all elements to construct the Alaskan Way Viaduct tunnel. Because the WDC Project would not likely start construction until 2018 or later, the WDC team used cost index inflation rates from the *Engineering News-Record* to escalate the 2012 construction cost estimate to 2018 values. Based on this cost escalation, the 2018 cost of the D&RG tunnel would be about $165,000 per linear foot. Based on the total length of the D&RG tunnel and the cost per linear foot, the D&RG tunnel is estimated to cost about $1.452 billion.

Operation and Maintenance Cost

Tunnels require additional operation and maintenance cost compared to a highway. Operation cost includes a tunnel crew to monitor the tunnel 24 hours a day, specialized emergency response vehicles and crew, energy cost (for lighting and exhaust fans), and routine maintenance for electrical, structure, and cleaning. In addition, the steep entrance and exit grades slow the traffic speed, especially when trucks are in the tunnel, and increase the ventilation requirements to maintain acceptable air quality in the tunnel (Poole, Robert W., and Yuzo Sugimoto, 1993)

For the 9,100-foot Alaskan Way Viaduct tunnel, annual operation and maintenance cost was estimated at about $5.3 million per year (Gutierrez 2011). The WDC team expects that the operation and maintenance cost for the D&RG tunnel would be similar, since the lengths of the Alaskan Way Viaduct and the D&RG tunnels are similar.

[1] Based on the 2012 construction estimate. The Washington State Department of Transportation's revised budget is $2.05 billion for the tunnel portion of the project, as stated on the project website accessed on February 3, 2017 (www.wsdot.wa.gov/Projects/Viaduct/Budget).

Summary of D&RG Option with Connection at Glovers Lane Reconsideration

Based on the above factors, the D&RG Option with Connection at Glovers Lane is not considered practicable. An at-grade configuration would have substantial direct right-of-way impacts to the buildings and operations of Davis County Fairgrounds (and the Legacy Events Center), a significant Section 4(f) resource, requiring it to be relocated. Since Davis County would not willingly sell the Fairgrounds, UDOT would be forced to condemn. However, UDOT does not believe it would be successful in condemning the Fairgrounds based on the doctrine in Utah law of "more necessary public use." Even if UDOT could condemn the Fairgrounds, there are no available suitable locations on which to relocate the Fairgrounds. Therefore, UDOT could not meet its legal obligation to fully mitigate the impact to this important Section 4(f) resource. The 128-unit Avenues at the Station development would also be directly impacted. Eighty-eight of these units are owner-occupied townhomes, for which replacement housing is not available in the Farmington area. This limitation prevents UDOT from meeting the relocation requirements of the Uniform Act.

Tunneling or bridging to avoid the impacts above is also not practicable. The cost to construct and maintain a tunnel under the Fairgrounds and the Avenues at the Station development would be substantially higher than industry norms, and bridging over a public-use facility and private dwellings would cause safety concerns associated with falling debris. Placing bridge supports in Fairgrounds facilities and within a high-density residential development would also cause safety, maintenance, and liability issues.

Because of the above factors, FHWA determined that the D&RG Option with Connection at Glovers Lane is not practicable under the Section 404(b)(1) guidelines based on cost and logistical constraints.

4.9 Glovers Lane Farther South and West Option

During the comment period for the alternatives-development process, several comments suggested that the Glovers Lane Option be moved farther south and west in Farmington to reduce impacts to the community. The comments also suggested that, if the Glovers Lane Farther South and West Option would affect wetlands, this option could be built on a bridge over the wetlands to reduce impacts. Below is a consideration of the three versions of the Glovers Lane Farther South and West Option.

4.9.1 Move the Glovers Lane Option South of Glovers Lane

The Glovers Lane Option is located on an alignment that minimizes both home impacts and wetland impacts along the east-west segment between I-15 and western Farmington. Moving the Glovers Lane Option farther south of Glovers Lane in this area would avoid a city park and would place the WDC farther from an elementary school and neighborhoods, but it would have substantially more impacts to wetlands, historic properties, and the Farmington Bay Waterfowl Management Area (WMA). Figure 27-4, Section 4(f) Resources (4 of 30); Figure 27-5, Section 4(f) Resources (5 of 30); and Figure 14-2, Wetlands by Overall Quality Rating (2 of 2), in the Draft EIS show the following resources south of Glovers Lane:

- One historic property
- UTA wetland mitigation property
- Farmington Bay WMA
- Wetlands

Both the historic property and the Farmington Bay WMA are considered Section 4(f) properties. Affecting these properties would be a direct use and would require developing an avoidance alternative under the U.S. Department of Transportation's Section 4(f) requirements. In order to skirt the boundary of the Farmington Bay WMA, the avoidance alternative would have to go farther south, which would push the WDC alignment into the Legacy Nature Preserve. A prudent and feasible avoidance alternative to an alternative south of Glovers Lane would be to keep the WDC alternative just north of Glovers Lane, where it is currently proposed.

Additionally, the U.S. Fish and Wildlife Service, USACE, and the Utah Division of Wildlife Resources raised substantial concerns over any alternative farther south in Farmington because of potential direct impacts (taking of additional wildlife habitat) and indirect impacts (noise, light, and visual impacts) caused by the WDC to important wetland and wildlife habitat.

Based on the increased wetland and wildlife impacts, and impacts to the Farmington Bay WMA, FHWA determined that an alignment of the Glovers Lane Option farther south of Glovers Lane is not the least damaging practicable alternative.

4.9.2 Move the Glovers Lane Option Farther West in Western Farmington

To reduce community impacts to western Farmington, some commenters suggested moving the Glovers Lane Option farther west of conservation easements and the Rocky Mountain Power transmission line corridors in western Farmington. Locating the Glovers Lane Option farther west in Farmington would fill at least 38 acres of wetlands compared to 7.8 acres of wetlands filled by the current Glovers Lane Option (that is, the acres of wetland impacts from the Draft EIS Glovers Lane Option).

The U.S. Fish and Wildlife Service, USACE, and the Utah Division of Wildlife Resources raised substantial concerns over any alternative farther west in Farmington because of potential direct impacts (taking of additional wildlife habitat) and indirect impacts (noise, light, and visual impacts) caused by the WDC to important wetland and wildlife habitat.

Based on the increased wetland and wildlife impacts, FHWA determined that an alignment of the Glovers Lane Option farther west is not the least damaging practicable alternative.

4.9.3 Place a Farther West Glovers Lane Option on Structures in Wetlands

Other commenters suggested shifting the Glovers Lane Option farther west and placing the WDC on bridges to avoid filling wetlands. This concept would require constructing two bridges with structure lengths of 4,819 feet and 1,300 feet to avoid the wetlands. The cost of these structures for the Glovers Lane Option would be about $42 million per mile (Wheeler 2011). Therefore, the cost of the two structures would be about $38 million and $10 million, respectively, for a total cost of $48 million. For comparison, the cost for roadway construction in these locations would be about $9 million. In addition to increased construction costs, long-term maintenance costs are also higher for bridges than for roads.

Long bridges also present more safety concerns, since structures over moist wetlands would be more likely to develop ice. Snow removal and drainage on long bridges is difficult because of the presence of safety barriers, which are required to keep vehicles from leaving the bridge. It would also be very difficult to keep the roadway runoff and snow out of the wetland areas below the structures.

Because of the substantially higher cost, safety concerns related to increased icing, and drainage and snow-removal issues, the WDC team determined that it is not reasonable to construct bridges over the wetlands in the Farmington area when other reasonable, less-expensive alternatives ($39 million less) with no structures could be built in the same area.

The U.S. Fish and Wildlife Service, USACE, and the Utah Division of Wildlife Resources raised substantial concerns over any alternative farther west in Farmington because of potential direct impacts (taking of additional wildlife habitat) and indirect impacts (noise, light, and visual impacts) caused by the WDC to important wetland and wildlife habitat.

Because of the substantial increase in cost, safety concerns with icing, water quality concerns with wetlands, and substantial indirect and direct impacts to wetlands and wildlife habitat, FHWA determined that an alignment of the Glovers Lane Option farther west on a structure is not the least damaging practicable alternative.

5.0 Conclusion

Table 5-1 summarizes the Section 404(b)(1) practicability determinations that were made as a result of the current reconsideration of the other southern alignment options (that is, other than the Glovers Lane Option) evaluated for the WDC Project. As shown in Table 5-1, all of these southern alignment options were determined to be not practicable under the Section 404(b)(1) guidelines.

Table 5-1. Results of the Reconsideration of the Southern Alignment Options

Option	Section 404(b)(1) Determination
Shepard Lane[a]	**Eliminated** – Does not meet FHWA and UDOT design standards.
Layton Parkway	**Eliminated** – Does not meet the overall project purpose and need.
Kaysville 200 North	**Eliminated** – Does not meet the overall project purpose and need.
Kaysville Rest Area[a]	**Eliminated** – Does not meet FHWA and UDOT design standards.
Shepard North[a]	**Eliminated** – Does not meet FHWA and UDOT design standards.
Shepard Lane Tunnel[a]	**Eliminated** – Does not meet FHWA and UDOT design standards.
Public Comment 876, Modified Shepard Lane[a]	**Eliminated** – Does not meet FHWA and UDOT design standards.
Burke Lane	**Eliminated** – Does not meet FHWA and UDOT design standards.
D&RG/200 West[a]	**Eliminated** – Does not meet FHWA and UDOT design standards.
D&RG/Glovers Lane	**Eliminated** – Could not be implemented by UDOT and FHWA given applicable legal and practical constraints, safety considerations, and costs.
Glovers Lane South/West	**Eliminated** – High wetland and wildlife impacts. Impacts to Farmington Bay WMA.

[a] Would not satisfy FHWA's Interstate Access Policy because the option would adversely affect the safety and operations of I-15 and does not meet design standards including those in the *MUTCD*.

6.0 References

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WDC Team

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Appendix A. Data Sheet

West Davis Corridor EIS
Southern Termini MOE Summary - TDM v8.1
8/17/2016

Description	Daily Total Delay (Hr)	North-South Road Lane-Miles with PM Period in Congestion	East-West Road Lane-Miles with PM Period in Congestion	Vehicle Miles Traveled (VMT) with PM Period in Congestion	Vehicle Hours Traveled (VHT) with PM Period in Congestion
NO ACTION	18,310	116.2	30.5	642,000	20,770
MEAN	15,340	102.9	23.0	559,600	17,050
1st QUARTILE	13,860	90.0	18.4	464,200	14,470

Alt.	Facility Type	Description					
11A-G9	Freeway	Alternative 11A ending at Antelope Drive then 2-Lane Grade Separated Hwy to 1800 North (4100 West Option)	13,490	86.5	14.9	441,900	13,470
11A-G13	Freeway	Alternative 11A-G with the southern terminus at the rest stop just north of Shepard Lane.	14,360	83.6	16.2	447,300	13,940
11A-G14	Freeway	Alternative 11A-G with the southern terminus at 200 North Kaysville.	14,790	93.4	16.8	507,600	15,470
11A-G15	Freeway	Alternative 11A-G with the southern terminus at Layton Parkway.	15,690	96.8	17.9	522,100	16,350
11A-G16	Freeway	Alternative 11A-G with the southern terminus at the rest stop just north of Shepard Lane; I-15 added GP lane both directions from WDC to Park Lane.	13,470	92.0	15.5	485,700	14,480
11A-G17	Freeway	Alternative 11A-G with the southern terminus at 200 North Kaysville; I-15 added GP lane both directions from WDC to Park Lane.	13,840	93.6	16.2	501,300	15,030
11A-G18	Freeway	Alternative 11A-G with the southern terminus at Layton Parkway; I-15 added GP lane both directions from WDC to Park Lane.	14,340	103.7	17.0	548,400	16,220

Appendix B. Supporting Data

WEST DAVIS
CORRIDOR

Davis County Commission

Commissioner P. Bret Millburn Commissioner James E. Smith Commissioner Randy Elliott

January 10, 2017

Mr. Randy Jefferies
UDOT Project Manager
West Davis Corridor
166 West Southwell Street
Ogden, UT 84404

Dear Mr. Jefferies,

Thank you for your inquiry regarding the Davis County Fairgrounds and Legacy Events Center.

The Davis County Fairgrounds, better known as the Legacy Events Center (LEC), is located in Farmington, which happens to be the County Seat and is easily accessible from all directions in the County. The existing location is the most desired location for several reasons. The County has made substantial investment into the facilities themselves and their marketing campaign. The current location is very desirable and provides tremendous benefit to those groups utilizing and visiting the LEC because of the easy access and the synergies that are created with adjacent and surrounding venues such as Station Park and Lagoon. In addition, Davis County is just engaging a master study of the LEC to determine how we can even further enhance the area as a whole.

It would be impossible to relocate the LEC to anywhere within Davis County that has the same access, allure and amenities the current site provides. Additionally, the financial costs of securing land and rebuilding from the ground up are not feasible, nor a wise use of tax payers' dollars.

If you need clarification or additional information regarding the County's position, please let me know.

Sincerely,

P. Bret Millburn
Commissioner

Davis County Administration Building ~ P O Box 618 ~ Farmington, Utah 84025
Telephone: 801-451-3200 ~ Fax: 801-451-3202 ~ TDD: 801-451-3228
E-mail: commissioners@daviscountyutah.gov ~ Website: www.daviscountyutah.gov

Davis County Commission

Commissioner James E. Smith Commissioner P. Bret Millburn Commissioner Randy B. Elliot

February 14, 2017

Randy Jeffries
UDOT
166 West Southwell Street
Ogden, UT 84404

Dear Mr. Jeffries,

Per your recent inquiry of Davis County seeking additional information regarding the Legacy Events Center (LEC), you will find our response outlined below:

1. *What is the assessed value/replacement value of the Legacy Events Center fairgrounds? How much money has the County invested into this site?*

   Best estimates given short time period to research:
   - Insured Replacement Value on Structures: $7.9 million
   - Other Land Improvements on the property: $1.75 million - (parking lots, curb and gutter, irrigation, utilities, etc.)
   - Land Value on approx. 56.58 acres: $12.7 M to $14.9 M - (range based on Agricultural Zoned value to Transit Mixed Use parcels in the immediate area)
   - All other associated equipment with the facility: $1.2 M

2. *As far as a public (Section 4f) resource, how significant are the LEC fairgrounds to the County?*

   Section 4(f) refers to the original section within the Department of Transportation (DOT) Act of 1966 which set the requirement for consideration of park and recreational lands, wildlife and waterfowl refuges, and historic sites in transportation project development. While significance is ultimately up to the County Commission at any particular time, the current Commission feels very strongly that the LEC is a very significant resource and venue to the County and all of our citizens. The LEC is a unique facility in the County as the County owns no other venue that provides the outdoor and indoor facilities that take place at this venue. In addition, it would be unfeasible on many levels to try to replace it via relocation.

Davis County Administration Building P.O. Box 618 • Farmington, Utah 84025
Telephone: 801-451-3200 • Fax: 801-451-3202 • TDD: 801-451-3228
E-mail: commissioners@daviscountyutah.gov • Website: www.daviscountyutah.gov

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3. *If the D&RG alternative were ultimately selected, would the County willingly sell the LEC property to UDOT?*

   NO! As stated above, the LEC is a unique resource to Davis County that would be impossible to replicate anywhere else in the County. In addition, splitting Farmington into thirds by another major transportation route would have tremendous negative impact to the whole area.

If you need further information, please do not hesitate to contact me.

Sincerely,

P. Bret Millburn

P. Bret Millburn

cc: Vincent Izzo, HDR, Inc.
2825 E. Cottonwood Parkway, Suite 200
Salt Lake City, UT 84121

FARMINGTON
HISTORIC BEGINNINGS • 1847

FARMINGTON CITY

City Council Memo

To: Honorable Mayor and City Council

From: Dave Millheim, City Manager

Date: January 5, 2017

SUBJECT: POTENTIAL LOSS OF BUSINESS PARK

PURPOSE

This memo has been prepared at the request of Randy Jefferies with UDOT regarding the West Davis Corridor EIS. UDOT has requested clarity from Farmington City as to the financial consequences (long term) to Farmington City if the WDC were to create a scenario which would cause the loss of our business park due to the placement of the proposed freeway. We have discussed this many times in the past. You know this business park is the result of many years of dedicated planning effort on the part of multiple City Councils, staff and property owners. You also know the business park is a key part of the City's financial plan.

This memo is not going to address the quality of life, environmental nor all the other planning aspects, etc., of the proposed WDC since that was not the specifics of the UDOT request. Farmington, as well have many others, have already made comments on the multitude of impacts associated with the proposed WDC and all those comments have been considered as part of the EIS process.

This memo will only address the financial impacts (as best we can project) of losing the business park due to the WDC and how those impacts directly affect the long term financial sustainability of Farmington City. We are asking UDOT to make this part of Farmington's additional comments related to the WDC.

BACKGROUND HISTORY ON THE BUSINESS PARK

Almost two decades ago, the City conducted a financial analysis of its then current revenue resources. The City was primarily residential with almost no commercial tax base. Residential growth was and still is very rapid. With little commercial tax base, the City was a net importer of sales tax based on the State distribution formula. This made

160 S MAIN • P.O. BOX 160 • FARMINGTON, UT 84025
PHONE (801) 451-2383 • FAX (801) 451-2747
www.farmington.utah.gov

the City heavily reliant on the property tax to pay for basic public services. Impact fees needed to pay for the infrastructure growth the City was experiencing were not keeping pace with that same growth rate.

Farmington is the 3rd oldest in the State with very old and deteriorating infrastructure in the older areas of our City. Many water and storm drain lines are either not adequate or in some cases nonexistent to handle the long term growth of the City. Many roads are significantly past their useful life and should be replaced. The financial study from years ago very vividly showed the City could not sustain itself without making some major adjustments. As a result of that study, Farmington made three significant changes to its general plan and capital facilities plans to better address its long term financial solvency.

The first major change was the City created a commercial center zone consistent with Transit Mixed Use planning principles. It sought and obtained funding and eventually participated in seeing constructed a Frontrunner transit stop at the I-15/Park Lane/US 89 interchange complex adjacent to Lagoon and abutting the large area planned for commercial development. Major roads were relocated or added as well as water and storm drainage systems were built or improved. More infrastructure is needed now but there are limits to the City's funding and taxing capacity. Over the past decade, those planning, infrastructure improvements and construction efforts have paid off. The City and greater area now enjoys the very successful Station Park commercial center. The City, County and School District invested heavily in infrastructure in a Redevelopment Project Area (RDA) to facilitate this project. The City is now a net sales tax exporter based on the State distribution formula. We are still paying off the debt (investment) we made in this area.

The financial analysis also showed that sales and property tax growth from the new commercial center area would not be enough to sustain the City over the long term. More would be needed to pay for and maintain the aging infrastructure. The second major adjustment made was the City started planning for a very large business park project in the area immediate north of Park Lane, east of and abutting the DRWG trail ROW, west of I-15 and south of Shepard Lane. Considerable planning efforts and market analysis went into figuring out how much revenue this area could generate which would then be used to meet the long term needs of the City. Unlike sales tax which at some point gets exported no matter how successful a commercial center becomes, property tax is a much more sustainable revenue resource since the City, County, School District and other smaller taxing agencies retain 100% of the property tax for use locally. It was realized that a business park at the intersection of three major highways would not only generate additional sales and property tax revenues – it would also insure the long term success of the neighboring commercial center by providing the needed daytime customers, thus ensuring a more sustainable long term project.

The last major adjustment was the City updated its Capital Facilities Plans (CFP) to more accurately reflect deferred projects as well as those required for both the commercial center and business park areas. We will discuss this important component later in this memo.

BUSINESS PARK FACTS AND PROJECTIONS

The business park area totals slightly over 300 acres. It includes 29 parcels and 20 different property owners. Ten (10) property owners represent over 92% of the total land area. One of those ten larger property owners is Farmington City since we purchased (years ago) ground immediately east of the DRWG trail area. This specific ground is critical to addressing the storm drainage needs of the City. The City will strongly resist any proposed highway alignments which impacts this parcel since if we cannot use it for storm drainage, it will exponentially drive up storm drainage costs throughout other areas of the City.

In 2015, total annual property tax revenues for all taxing entities being received from this area are $45,808. The City received $5,955 of this amount on an annual basis with the remainder going to the school district, county and smaller taxing entities. It is easy to see the potential for a huge increase in both assessed values and tax revenues if the property is converted to development. This was the primary reason for the creation of the business park area in the general plan.

The project area is three (3) times the size of Station Park in total acreage and over four (4) times the total in estimated future assessed property tax valuation. Consultants retained by the City estimate the build out assessed valuation for the project area when completed to total $853 million. This figure only included 267 acres of the area and did not include holdings of Millennium Real Estate nor E&H Land (Evans parcels) since those were excluded from that estimate due to pending site plan applications. When these two parcels are added to the analysis, **the estimated future assessed valuation will slightly exceed one billion dollars. At the City's current property tax level, that valuation would result in $2,226,000 additional property taxes annually to the City.**

Additional sales tax generated from the area is tough to estimate because there are so many variables involved. Using the estimates provided by the consultants, new sales tax from the area to the city could be from $3-5 million annually.

CAPITAL FACILITES PLANS IMPACTS FROM BUSINESS PARK

The City's current Capital Facilities Plans total $117,895,000 and is broken down as follows:

Streets	$ 48,202,000
Storm Drain	$ 24,387,000
Parks	$ 23,645,000
Water	$ 17,661,000
Fire	$ 4,000,000
TOTAL	$117,895,000

This is a huge number when compared to Farmington's current general fund budget of $10,076,040. Most of the general fund is personnel (police, fire, public works, parks, etc.,) so very little funds are available to transfer out to towards the CFP projects in our current financial state.

Much (but not all) of the CFP project costs comes from impact fees. Attached is a spreadsheet showing impact fees (in today's dollars) which would be received from the business park area over the life cycle of that project. This number is based on the current land use assumptions and pending applications the City has planned for over several years. **The impact fee total is $37,184,418 for the business park area and represents 31.5% of the total CFP dollars needed**. That is a very large percentage that without the City cannot meet its present and future CFP needs. There is a force multiplier from the business park when one adds in the resulting additional property taxes. If all of the additional property taxes obtained were used towards the unfunded CFP costs this will result in $2,226,000 more funds for needed infrastructure improvements and/or replacements. Taking that number out over a 20 year build out scenario yields the City $44,520,000. **If you add the estimated new impact fees and property taxes together, the City would achieve $81,704,418 towards completion of the Capital Facilities Plans. Without those funds the City cannot come close to or sustain the projects listed in the CFP.**

WDC FOOTPRINT IMPACTS TO BUSINESS PARK AREA

For many years, the City strongly opposed an earlier proposed alignment along the DRWG trail ROW for many reasons. Those reasons have not changed and have been analyzed in earlier EIS documentation. The City was greatly pleased when that alternative was removed from consideration as it allowed us to proceed with planning and development of the business park area which we were doing long before the EIS process had even begun.

The other business park area strongly impacted by the WDC would be the footprint of the future Shepard Lane / I-15 interchange. For many years the City's official position was wanting the Shepard Lane alternative for the WDC versus the Glovers Lane alternative. After several years of study, we recognize the possible Shepard Lane WDC alignment has considerable negative impacts. Without debating those impacts which are already discussed at length in the draft EIS, we do want to make mention of one of the larger negative impacts we see towards the business park area. The Shepard Lane / I-15 interchange versus the proposed Shepard Lane alternative for WDC requires very different size footprints. The future I-15 interchange will actually enhance and is consistent with the City's business park plans. The Shepard Lane WDC alignment alternative will destroy the business park concept as it is designed. It will relegate the abutting parcels to a much lower land use classification of industrial or storage areas consistent with that seen around other similar sized complexes.

WEST DAVIS
CORRIDOR

CONCLUSIONS

The City has planned for the business park and neighboring parcels for many years as a critical piece of our financial puzzle. It is properly located at the intersection of three major highways. **Any proposed WDC footprint which affects this area will have very negative effects on Farmington City in the long term. If the City loses the business park area or sees it significantly diminished as a result of the WDC, it will seriously affect the City's ability for long term financial sustainability.**

The City has had a difficult history with this proposed project as we are the City most affected by whichever alignment is ultimately selected. We have worked long and hard to deal professionally with a difficult project with UDOT staff, elected officials, consultants and our stakeholders. We look forward to seeing the alignment decision brought to closure in 2017 so we can continue to properly plan for our City.

Respectfully Submitted

Dave Millheim
City Manager

Cc: Randy Jefferies, UDOT

Farmington City Impact Fees Lost under WDC UTA r.o.w. Alignment Scenario
Prepared by Farmington City December 2016

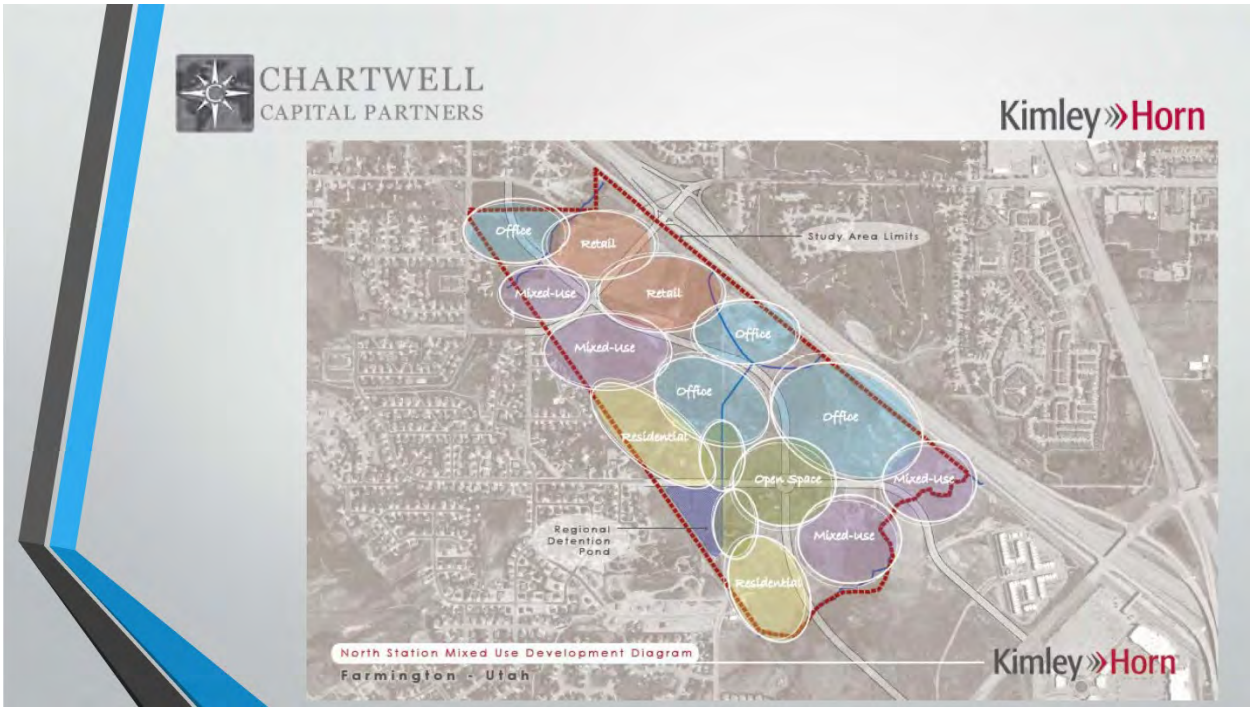
	Storm Water Drainage	Parks and Recreation	Fire Land & Building	Fire for Apparatus	Police Capital Facilities	Transportation	Water	Sewer*	Total
Residential	$ 1,212,068	$ 2,119,000	$ 98,534	$ 0	$ 197,067	$ 1,710,033	$ 2,275,806	$ 225,000	$ 7,837,508
Commerical	1,719,691	0	90,875	540,628	204,853	2,766,292	551,410	450,000	6,323,749
Office	5,681,606	0	193,048	1,144,975	499,262	10,521,123	2,383,146	2,600,000	23,023,161
Total	$ 8,613,365	$ 2,119,000	$ 382,456	$ 1,685,603	$ 901,183	$ 14,997,448	$ 5,210,362	$ 3,275,000	$ 37,184,418

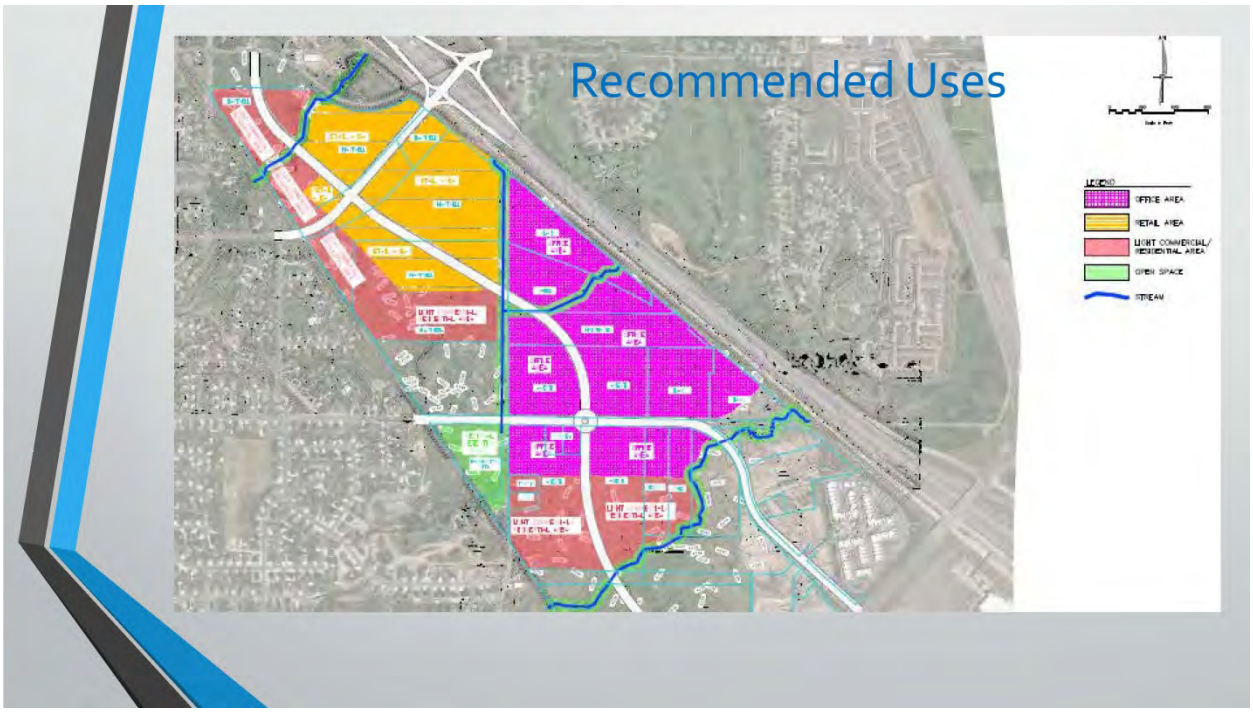
* Sewer impact fee is a Farmington City estimate not prepared by Central Davis Sewer District (CDSD)
** Does not include $1.6 million (plus) in building permit and other fees.

ILLUSTRATIVE PLAN

NORTH STATION MASTER PLAN | 1 DECEMBER 2016
FARMINGTON, UTAH

URBAN DESIGN ASSOCIATES


CHARTWELL
CAPITAL PARTNERS
Kimley»Horn
Office
Retail
Study Area Limits
Mixed-use
Retail
Office
Mixed-use
Office
Office
Residential
Open Space
Mixed-use
Regional
Detention
Pond
Mixed-use
Residential
North Station Mixed Use Development Diagram
Farmington - Utah
Kimley»Horn


Recommended Uses
OFFICE AREA
RETAIL AREA
OPEN SPACE
STREAM

Appendix C. Supplemental Information for the D&RG Option

Introduction

This appendix provides the following supplementary information regarding the Denver & Rio Grande Western Railroad (D&RG) Option through Farmington:

- Necessity of an interchange at Park Lane
- Information on pending developments in Farmington

Necessity of an Interchange at Park Lane

Interchange Requirements

To meet the transportation needs of its citizens, UDOT's standard practice is to provide access to each city along major highway corridors. By doing so, efficient access is provided to residents and businesses, and congestion on other roads is reduced by placing longer trips on the major highway. This would also be the case for the WDC, since it could meet its intended purpose of improving regional mobility only if access to the WDC is provided along the corridor. Interchange access also provides a significant benefit to public safety by fostering timely emergency response.

The WDC team FHWA and UDOT) considered several factors in determining the locations of interchanges in each city along the WDC alternatives. It was important that the cross streets were state routes or major roads, preferably with connections to I-15. Each interchange needed to be located to ensure proper distance between interchanges and where it would be compatible with local plans. Each interchange also needed to serve a minimum amount of traffic to warrant the cost, which was determined by the team to be 5,000 vehicles per day. Of course, the interchange would need to be designed to meet UDOT standards.

In the case of the D&RG Option in Farmington, an interchange is needed based on all of the above considerations. The need for the interchange is further supported by traffic modeling which shows that, without an interchange on the WDC in Farmington, the Park Lane I-15 interchange would not have enough capacity (Appendix D, Figure D-1). The lack of capacity would likely cause unsafe conditions because of ramp traffic backing up to I-15 mainline, which is observed already today. In reviewing interchanges along the D&RG Option in Farmington, UDOT identified two candidate locations: Shepard Lane and Park Lane (Figure C-1 and Figure C-2).

Both cross streets currently provide or are planned to provide access to I-15. Both interchanges draw significant traffic, with 11,200 vehicles using Shepard Lane and 16,000 using Park Lane per day. As the WDC team reviewed both locations, it identified some deficiencies at Shepard Lane and some advantages at Park Lane.

Figure C-1. D&RG Option with Shepard Lane Interchange

Figure C-2. D&RG Option with Park Lane Interchange

At Shepard Lane, the interchange on the WDC would be only about ¼ mile from the planned I-15 local interchange (Figure C-3). Based on UDOT's access-control standards, which require ¼ mile from an interchange to the nearest major intersection (Appendix D, Figure D-4), no road connection between these two interchanges would be allowed. The lack of a road would restrict access to and from the neighborhoods west of I-15, forcing traffic to reroute to the south, only to double back to the north, adding almost a mile to each trip. This would also increase emergency response times. This option would be able to provide only a single right-in, right-out driveway from Shepard Lane to access the master-planned North Station business park, likely rendering the business park infeasible.

Additionally, without a roadway connection distributing traffic between Shepard Lane and Park Lane, traffic modeling predicts that the Park Lane interchange on I-15 and the I-15 off ramp to US 89 would not have enough capacity (Appendix D, Figure D-2), again leading to safety concerns with backing ramp traffic. Also, the Shepard Lane interchange would be located on a minimum-radius curve in the WDC alignment, which is not preferred from a geometry standpoint. The location of the interchange, being north of the central part of Farmington, would also be less desirable and would require other local roads to be widened to accommodate the increase in traffic in that area.

Figure C-4 shows the design of a WDC interchange on Park Lane. With this scenario, traffic would be better distributed and would be within capacity at the Park Lane interchange at I-15 and the US 89 off ramp (Appendix D, Figure D-3). The distance to the first major intersection would be more than ¼ mile, which meets UDOT's access-control standards. A minor road would be 320 feet to the west of the Park Lane interchange, which would become a cul-de-sac to meet access-control standards. The Park Lane interchange would be centrally located in Farmington, providing convenient direct access to the Davis County Fairgrounds, the Station Park mixed-use development, the Urgent Care Clinic, the North Station business park, and the major residential areas to the west. This location facilitates efficient emergency response times. Another advantage of the Park Lane interchange is that it would be on a tangent segment of the alignment. Park Lane is also a major four-lane road that could easily handle the traffic.

In summary, an interchange in Farmington at Park Lane would be needed along the D&RG Option to provide access to residents and businesses, facilitate emergency response, and reduce congestion on other roads. The Park Lane interchange would be located where it would allow traffic to distribute evenly in the area, thereby preserving capacity at the Park Lane interchange at I-15 and the I-15 off ramp to US 89.

Figure C-3. WDC Interchange at Shepard Lane Details

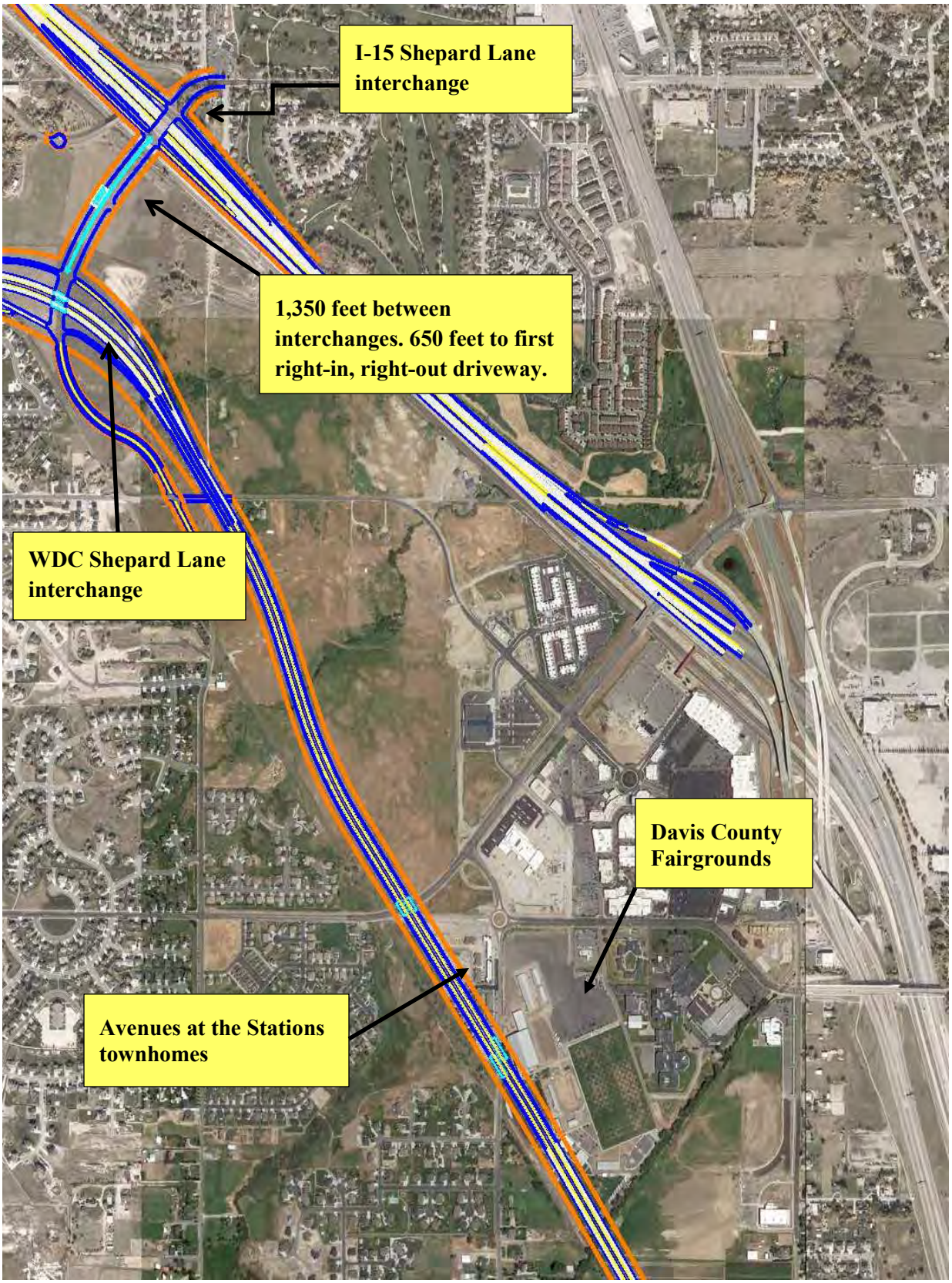


Figure C-4. WDC Interchange at Park Lane Details

Information on Pending Developments in Farmington

Three pending developments that would be directly impacted by the D&RG Option with Connection at Glovers Lane are currently seeking approvals from Farmington City. These developments are the North Station business park, the Avanti Assisted Living Center, and the Evans mixed-use development.

North Station Business Park

The North Station business park is a large proposed mixed-use development that would provide a transit-oriented, walkable community with office, retail, open space, and other uses (Figure C-5). The proposed development area is over 300 acres, which would be the largest and most significant mixed-use area in Farmington and south Davis County. The *Southern Connection Practicability Analysis* describes this development in more detail and includes a letter from Farmington City that explains how vital this development is to the City's long-term financial sustainability. Further discussions with the City have shed additional light on the planning effort and unique characteristics of this proposed development.

One of the challenges to the overall success of the development is that the area is composed of 29 parcels with 20 different property owners (Figure C-6). To ensure that the planning of this area would not be piecemeal but done in a consistent, cohesive manner, Farmington City requested and helped fund a market feasibility study, which was completed in April 2016. This study estimates that, when planned development is completed, the assessed valuation for the North Station area could be between $853 million and $1 billion.[2] It estimated that the North Station development could add over 10,000 jobs and result in $4.3 million in annual tax revenue for Farmington City. The current annual tax revenue generated from these properties is just under $50,000.

Chartwell Capital Partners is one of the major landowners of this area and has taken the lead in coordinating with the City and other property owners in planning this development. In December 2016, it paid for and hosted a 4-day planning charrette with all parties to help finalize the Project Master Plan, which has since been submitted to the City for review. The site has been a challenge from a planning standpoint due to the numerous property owners, two streams crossing the area, a critical Farmington detention basin to be used by the business park, and the ability to access the area effectively between I-15 and the D&RG rail trail.

One of the primary concerns expressed in the charrette was how to provide all property owners with access. To address this concern, a local road network concept was developed which follows property lines in order to provide all owners access. This concept was well-received by the property owners and is now part of the Project Master Plan. This favorable reception is an important consideration given that the alignment of the D&RG Option cuts diagonally through this area, impacting a third of the business park area, bisecting large parcels, and leaving several isolated or odd-shaped parcels (Figure C-6). This would require

[2] Kimley-Horn, North Station Mixed-Use Site Market Feasibility Study, April 2016.

the road network to be revised, further reducing the available land for development and decreasing the viability of the business park.

In recent discussions, Farmington City and Chartwell Capital Partners have strongly expressed their concerns that the North Station business park would not be viable with the D&RG Option. This was supported by Kimley-Horn's analysis, which concluded that the impacts from the Shepard Lane Option (which would be much less than from the D&RG Option) could eliminate the potential for prime commercial development.

The City has stated that, without this business park, the City would not be able to fund the projects in its $118-million Capital Facilities Plan. For many years, the City has been proactively planning this area and counting on revenues from this area in the City's General Plan for its financial stability. The location is ideal for a mixed-use walkable business park community, being adjacent to the Station Park mixed-use development, the FrontRunner commuter-rail station, I-15, multifamily housing, the D&RG trail network, the Davis County Fairgrounds, and other nearby amenities, all of which create a unique and valuable synergy that benefits the whole area. This synergy is key to the success of mixed-use developments. There is not a feasible option to relocate this development on another site in Farmington.

Upon approval of the Project Master Plan in the coming weeks, property owners will begin to prepare their detailed site plans as part of the building permit process. Two properties—the Avanti Assisted Living Center and the Evans mixed-use development—have already begun this process.

Avanti Assisted Living Center

The Avanti Assisted Living Center (avanti-sl.com/assisted-living) will begin construction this summer. This campus includes 128 residential suites, each with a kitchenette and dining area and up to two bedrooms. The campus features amenities such as a commercial kitchen, dining area, conference room, fitness center, theater, library, game room, craft room, nails and hair salon, doctors' offices, laundry, and interior and exterior courtyards with walking trails, natural streams, and green space (Figure C-7). This development is consistent with and has been included in the master planning of the North Station business park development.

The D&RG Option would require acquiring about half of this property and would require relocating the assisted living center and all 128 of its residents (Figure C-7). The property owners have expressed serious concerns with regard to this impact. They have been working on this development for over 2 years and have invested a considerable amount of money in wetland studies, geotechnical studies, market studies, and architectural services. Their Master Plan is currently in City review. Upon approval, they will be submitting the site plan for a building permit.

Figure C-5. North Station Park Development

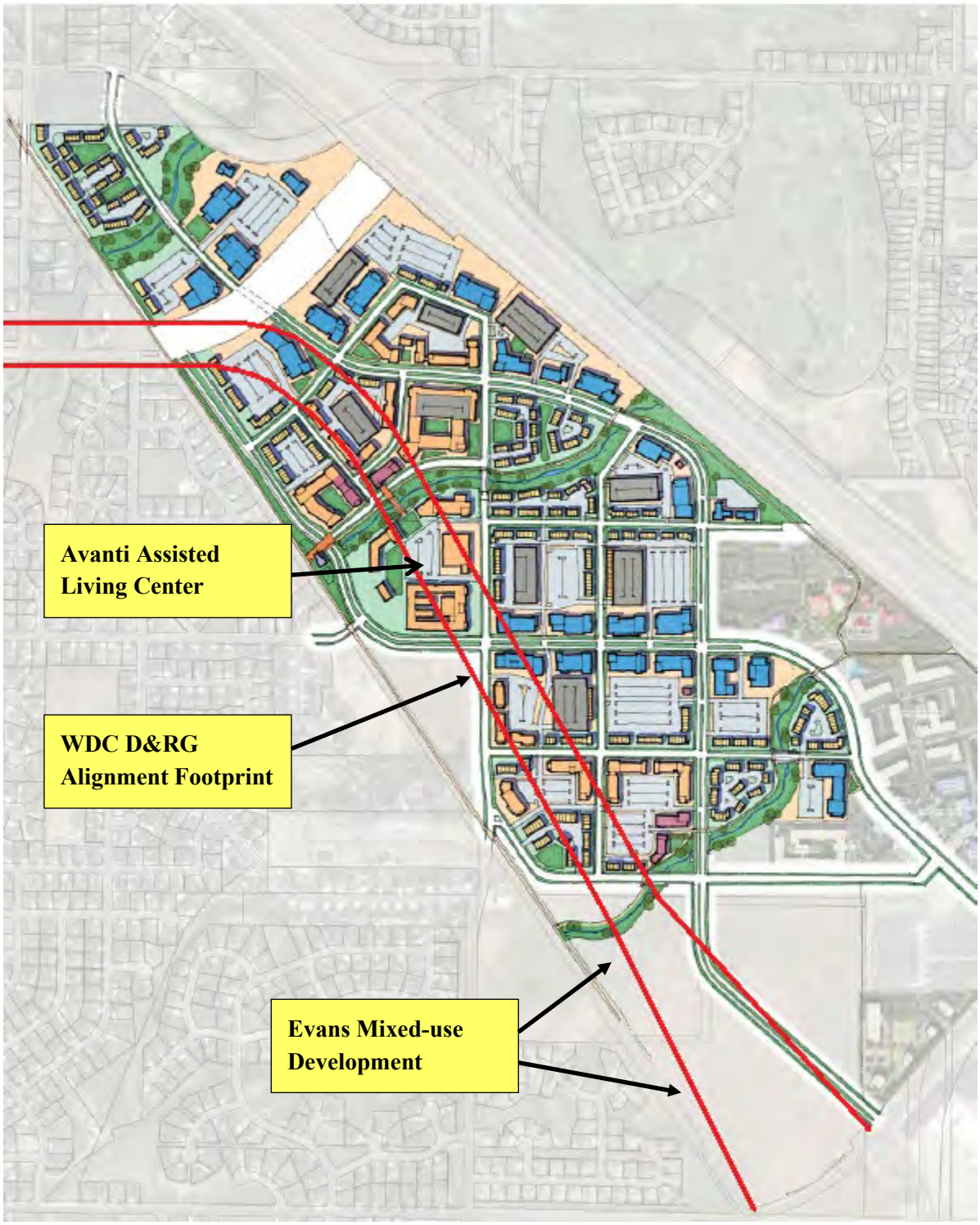


Figure C-6. North Station Park Development Property Owners

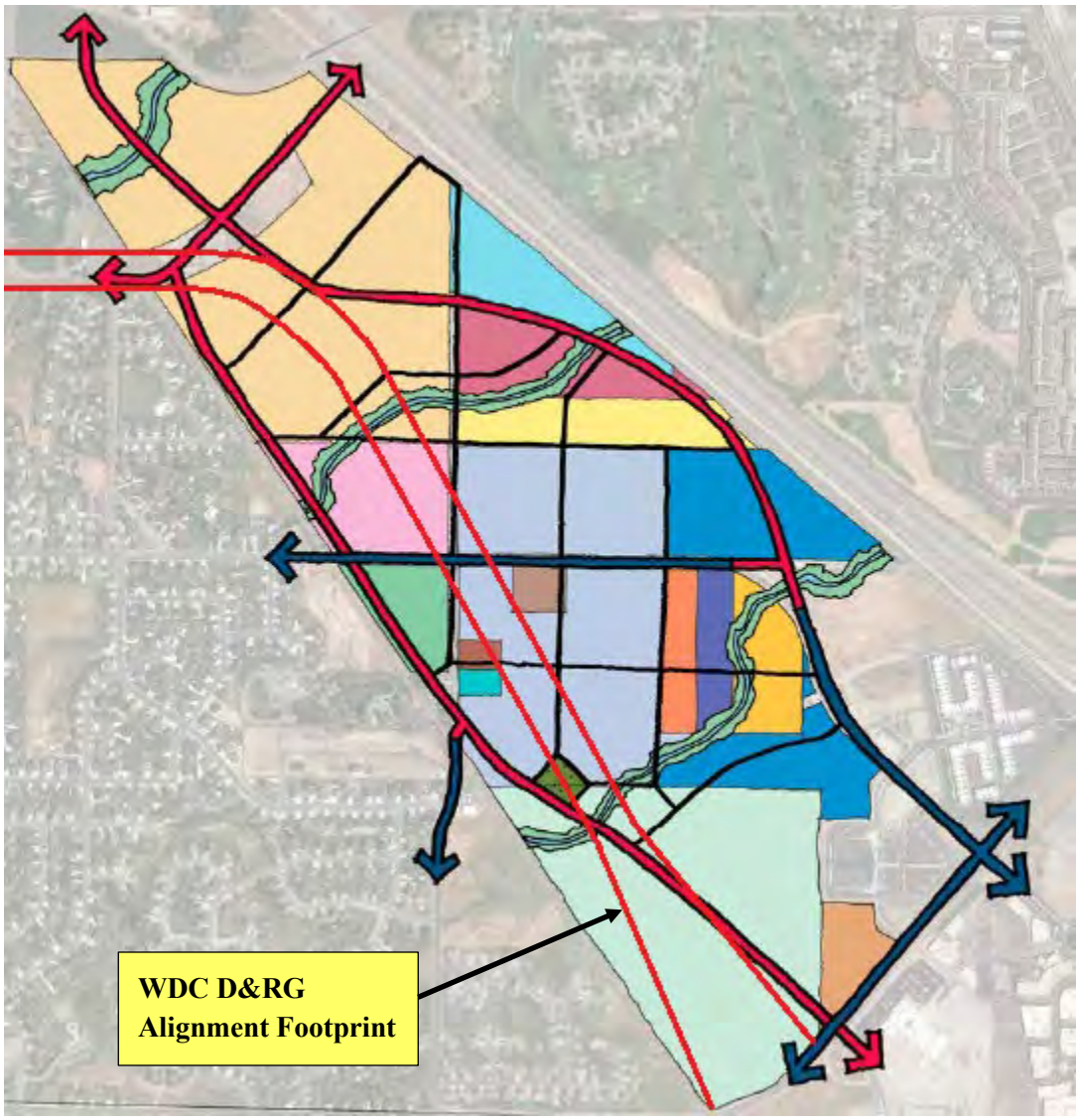
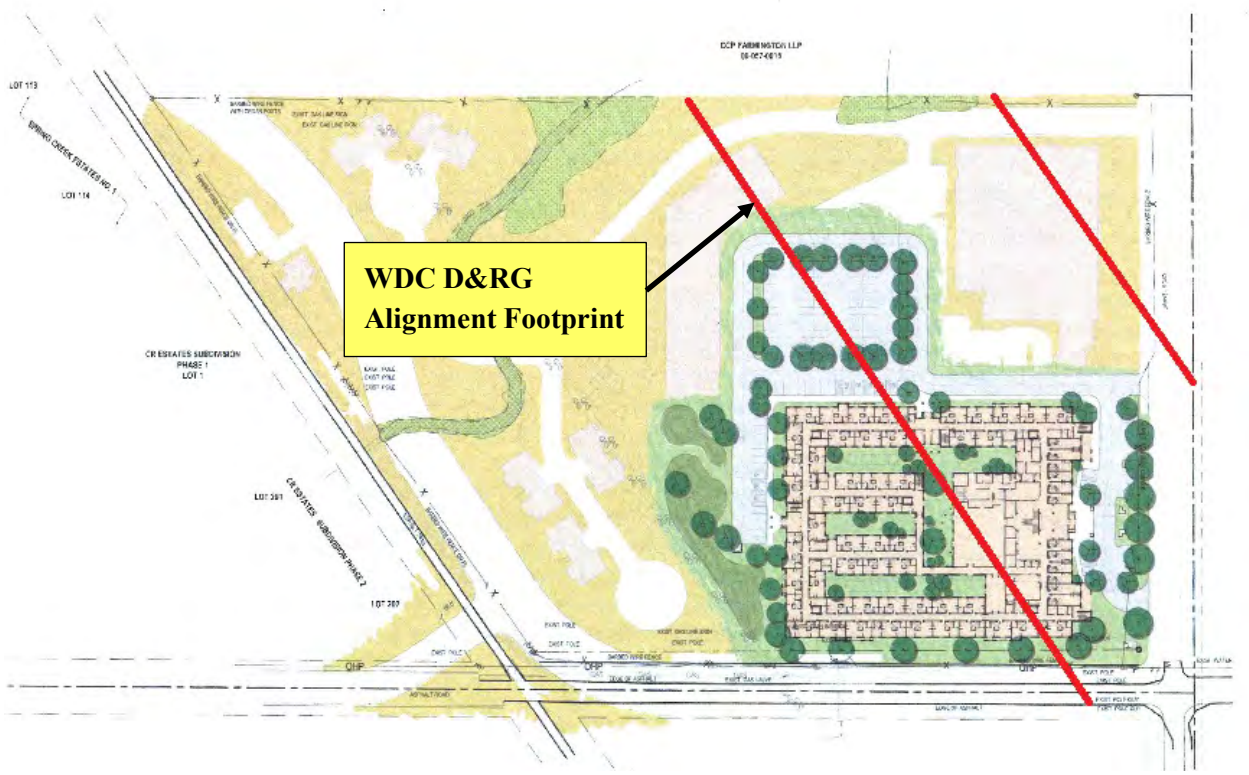


Figure C-7. Avanti Assisted Living Site Plan

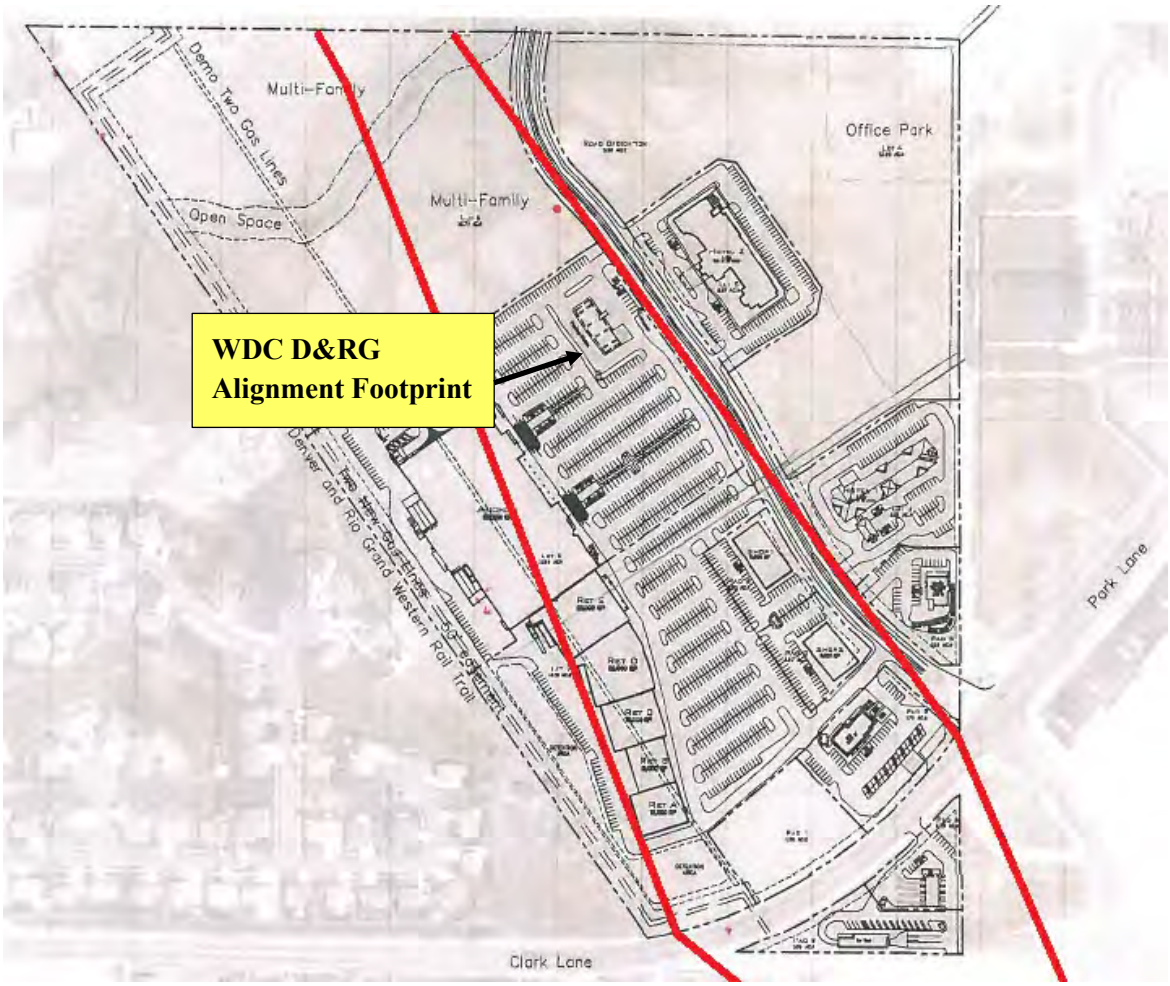


Evans Mixed-Use Development

The Evans mixed-use development has already submitted its site plan, has had a public hearing, and has received comments from the City. This is a 60-acre development that had initially proposed a "big-box" development. Based on the City's feedback, the site plan is being revised to be more consistent with mixed-use planning principles and will include office, retail, hotels, and multifamily housing. Based on feedback from the public hearing, the multifamily housing is being situated along the west side of the property along the D&RG trail as a buffer between the single-family residential use west of the D&RG trail and the proposed commercial uses to the east. The property owners are making revisions to their plans and will be seeking City approvals and tenants this year, expecting construction in 2018.

The D&RG Option would bisect this property, directly impacting 23 acres (Figure C-8). This type of impact would require numerous relocations of most of this development.

Figure C-8. Evans Mixed-Use Development



Corridor Preservation

The proposed developments discussed above are in process and fully supported by Farmington City. Much effort and expense has been expended by the property owners to reach this point in the planning process. The City expects that approvals will be obtained and construction will start this year and will continue over the next several years. Much of this construction will be completed prior to the funding and construction of the WDC.

During the WDC planning and environmental process, when developments have been proposed along potential WDC alignments, UDOT has been able to preserve potential corridors by purchasing property on a willing seller–willing buyer basis through the Statewide Corridor Preservation Program. This program is funded by the tax revenues generated by rental cars. Annually, about $5 million is generated, which is used on projects statewide. As projects become funded for construction, they pay back the fund. Because there is a perpetual list of corridor-preservation requests, the monthly balance of the fund is around $1 million.

The impacts from the D&RG Option to the properties discussed above would be substantial. About 50 acres are needed for the WDC footprint, another 24 acres would be isolated between the WDC alignment and the D&RG trail to the west, and another 46 acres of property on the east would be left on partially impacted parcels bisected by the alignment. The total area of impact to property owners amounts to about 120 acres. Considering that all of this property is currently zoned for mixed-use development, the estimated land value is $50 million.

Though the Statewide Corridor Preservation Program has been successful as individual developments are proposed over time, an advance purchase of this magnitude would far exceed the amount available in the fund. Additionally, because these purchases would be on a willing buyer–willing seller basis and since UDOT cannot compensate for lost business income potential, it is likely that some property owners will not be willing to sell their property. With these limitations, UDOT could not purchase these properties in advance and therefore would have no way of preserving the D&RG Option corridor. Given the imminent nature of these developments, UDOT believes that it is reasonable and prudent to consider these impacts in the consideration of the D&RG Option.

Appendix D. Level of Service Maps and Interchange Standards

Figure D-9. D&RG Option without Interchanges on the WDC in Farmington (3-Hour Peak-Period Level of Service)

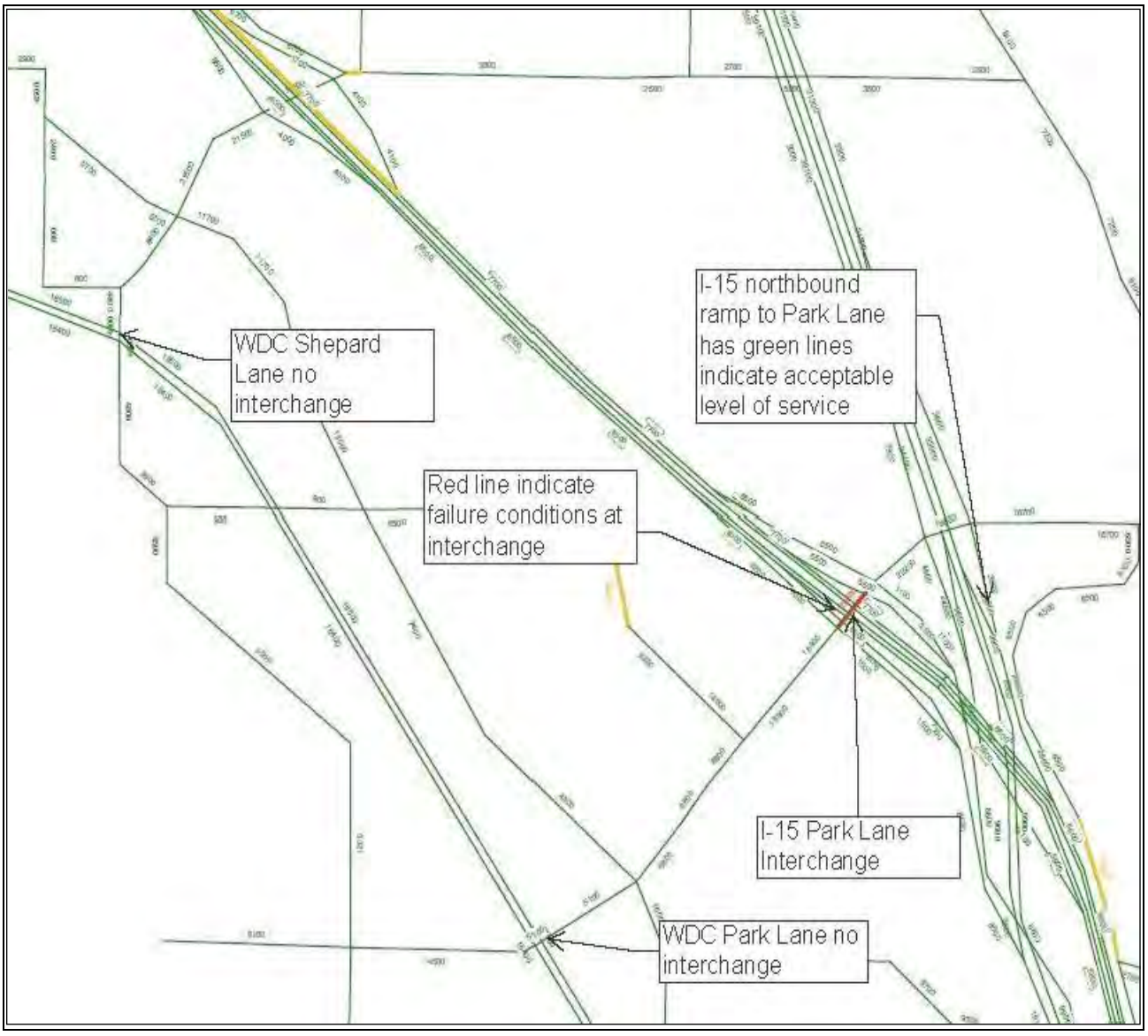


Figure D-10. D&RG Option with Shepard Lane Interchanges on the WDC in Farmington (3-Hour Peak-Period Level of Service)

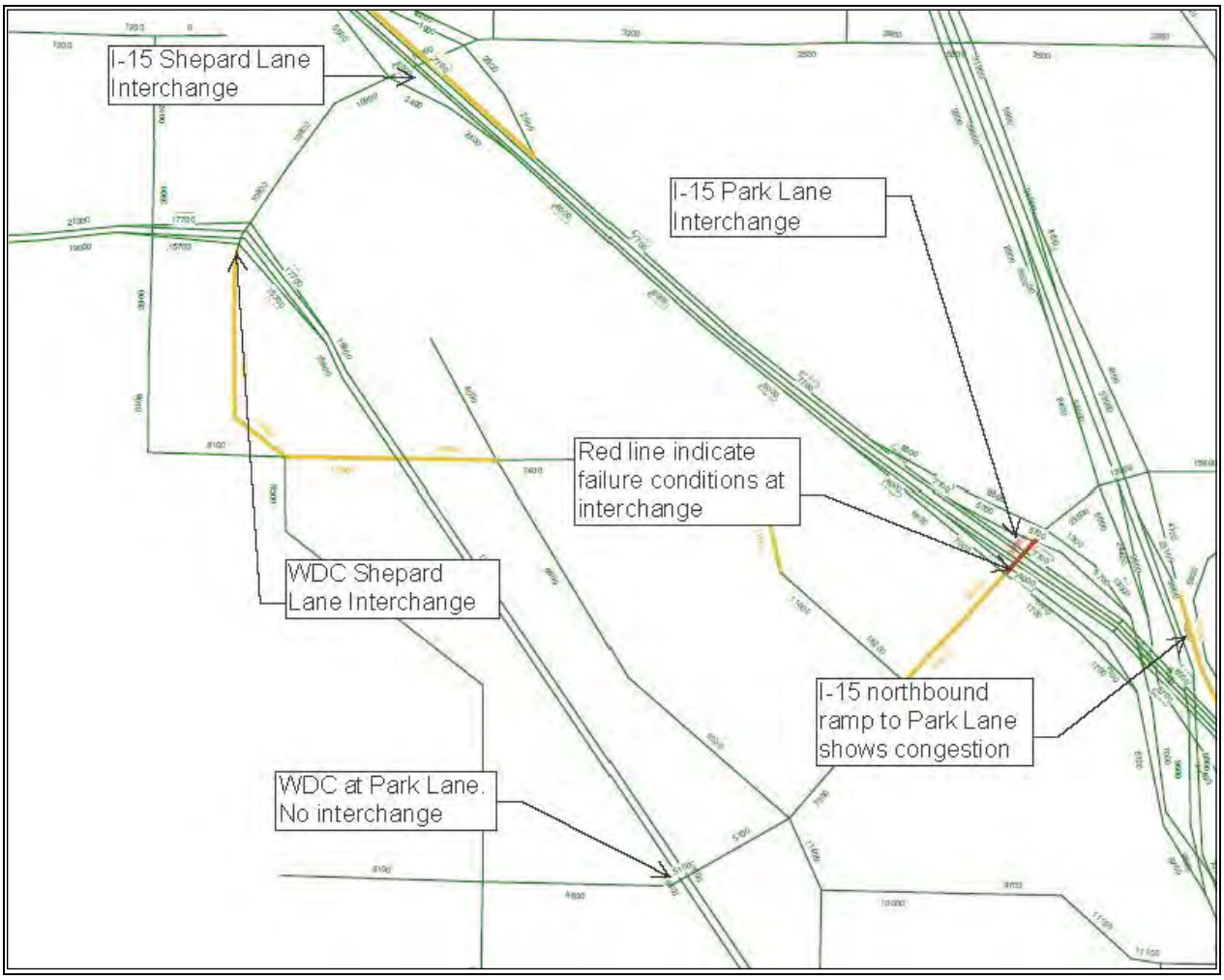


Figure D-11. D&RG Option with Park Lane Interchanges on the WDC in Farmington (3-Hour Peak-Period Level of Service)

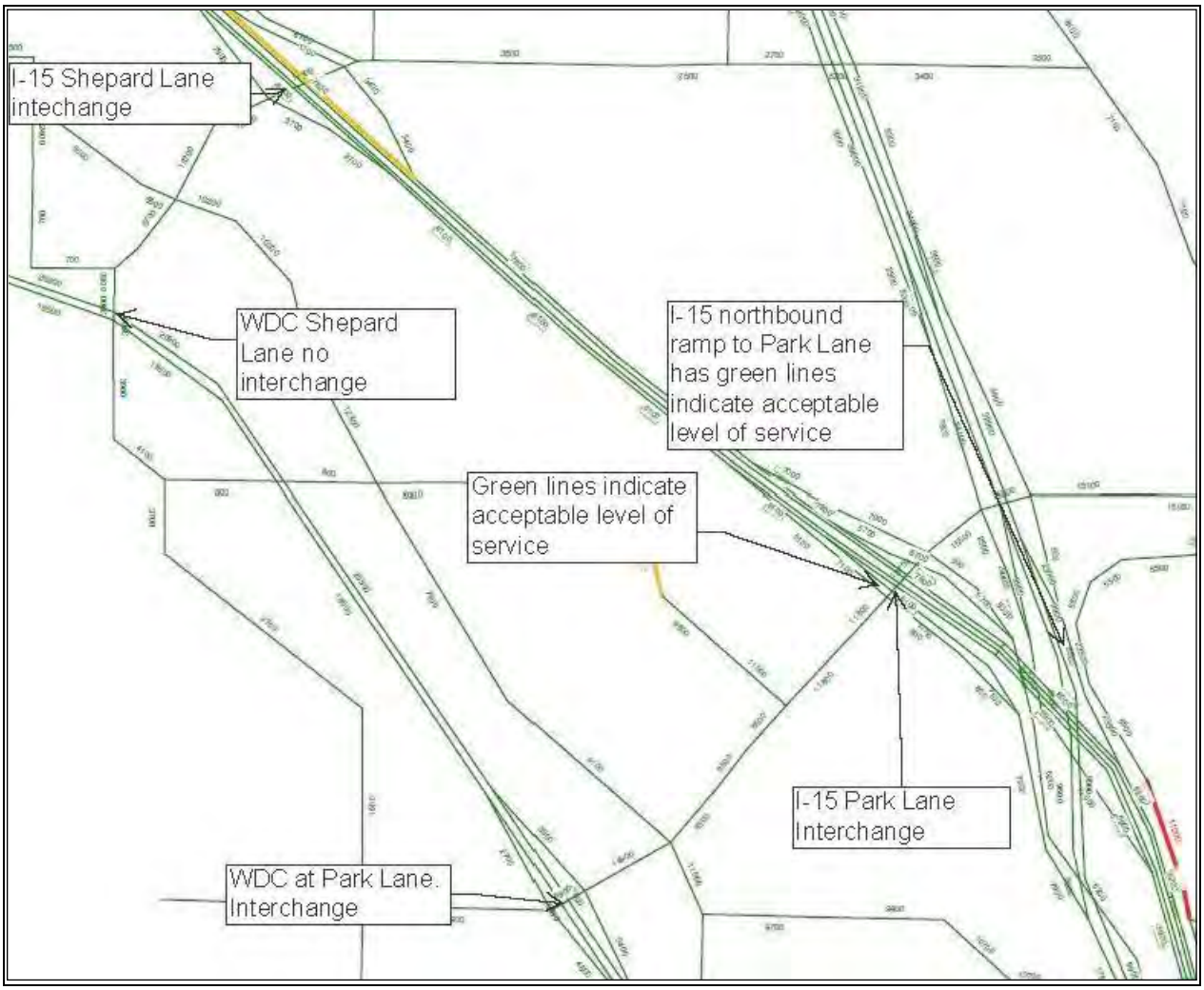


Figure D-12. UDOT Access-Control Standards

(iii) No access shall be allowed between an exit ramp and its downstream cross-street intersection or between an entrance ramp and its upstream cross-street intersection.

(iv) No access shall be permitted within 100 feet of the intersection of freeway ramp and one-way frontage road.

(3) Access placement requirements.

(a) **Spacing requirements.** Table 1 summarizes the minimum required signal spacing, street spacing, driveway spacing, and interchange crossroad access spacing for corresponding state highway access categories.

TABLE 1 - State Highway Access Management Spacing Standards

Category		Minimum Signal Spacing (feet)	Minimum Street Spacing (feet)	Minimum Driveway Spacing (feet)	Minimum Interchange to Crossroad Access Spacing		
					to 1st Right-in Right-out Driveway (feet)	to 1st Intersection (feet)	from Last Right-in Right-out Driveway (feet)
1	(I)	N/A	N/A	N/A	n-a	n-a	n-a
2	(S-R)	5,280	1,000	1,000	1,320	1,320	1,320
3	(S-U)	2,640	N/A	N/A	1,320	1,320	1,320
4	(R-S)	2,640	660	500	660	1,320	500
5	(R-PU)	2,640	660	350	660	1,320	500
6	(R-U)	1,320	350	200	500	1,320	500
7	(C-R)	1,320	300	150	n-a	n-a	n-a
8	(C-U)	1,320	300	150	n-a	n-a	n-a
9	(O)	1,320	300	150	n-a	n-a	n-a
10	(F-FR)	1,320	660	N/A	n-a	n-a	n-a

Highlighted are standards for interchange on WDC at Shepard Lane or Park Lane.

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