Chapter 1: Purpose of and Need for Action

1.1 Introduction

This Environmental Impact Statement (EIS) for the West Davis Corridor (WDC) has been prepared according to the provisions of the National Environmental Policy Act (NEPA); the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU; Public Law 109-059); the Moving Ahead for Progress in the 21st Century Act (MAP-21; Public Law 112-141); and corresponding regulations and guidelines of the Federal Highway Administration (FHWA), the lead federal agency. This document also conforms to the requirements of the Utah Department of Transportation (UDOT), the project sponsor and lead state agency.

What are the lead agencies for the WDC Project?

The Federal Highway Administration (FHWA) is the lead federal agency, and the Utah Department of Transportation (UDOT) is the project sponsor and lead state agency.

As the lead agencies, FHWA and UDOT are responsible for preparing the WDC EIS (as required by 23 Code of Federal Regulations [CFR] 771 and 40 CFR 1500–1508).

Section 6002 of SAFETEA-LU (now codified in 23 CFR 139) also requires lead agencies to identify and involve cooperating and participating agencies, develop coordination plans, provide opportunities for the public and participating agencies to be involved in defining the purpose and need statement and determining the range of alternatives, and collaborate with participating agencies to determine methodologies and the level of detail for analyzing alternatives. Lead agencies must also provide oversight with regard to managing the NEPA process and resolving issues.

What are cooperating and participating agencies?

A cooperating agency is any federal agency, other than a lead agency, that has jurisdiction by law or special expertise with respect to any environmental impact involved in a proposed project or project alternative (40 CFR 1508.5).

A participating agency is a federal, state, tribal, regional, or local government agency that might have an interest in the WDC Project (23 USC 139(d).

Table 1-1 below lists the cooperating and participating agencies for the WDC EIS.

Table 1-1. Cooperating and Participating Agencies for the WDC EIS

Agency or Government	Type of Involvement[a]
Federal Agencies	
Advisory Council on Historic Preservation	P
U.S. Army Corps of Engineers	C, P
U.S. Department of Agriculture, Natural Resources Conservation Service	P
U.S. Department of Homeland Security, Federal Emergency Management Agency	P
U.S. Department of the Interior, Bureau of Indian Affairs	P
U.S. Department of the Interior, Bureau of Reclamation	P
U.S. Department of the Interior, Fish and Wildlife Service	C, P
U.S. Environmental Protection Agency	C, P
Utah Reclamation, Mitigation, and Conservation Commission	C, P
Tribal Governments[b]	
None	
State Agencies[c]	
Governor's Office of Management and Budget, Resource Development Coordinating Committee (RDCC)	P
Department of Environmental Quality, Division of Air Quality	P
Department of Environmental Quality, Division of Water Quality	P
Department of Natural Resources, Division of Wildlife Resources	P
Utah Division of State History, State Historic Preservation Officer	P
Regional Governments and Agencies	
Utah Transit Authority	P
Wasatch Front Regional Council	P
Local Governments[d]	
Davis County	P
Weber County	P
Centerville City	P
Clearfield City	P
Clinton City	P
Farmington City	P
Hooper City	P
Kaysville City	P
Layton City	P
Marriott-Slaterville City	P
Ogden City	P
Roy City	P
Syracuse City	P
West Haven City	P
West Point City	P

[a] C = cooperating agency; P = participating agency

[b] Several tribes were invited to participate, but none responded to the invitation. Tribal representatives will also be contacted as part of the Native American consultation process associated with this EIS.

[c] This is not a complete list of state departments and divisions. All state agency participation will be coordinated through the RDCC, which is listed as a participating agency in this table.

[d] The Cities of Farr West, Plain City, Riverdale, and Sunset were also invited to become participating agencies but did not respond to the invitation.

1.2 Description of the Needs Assessment Study Area

This section provides information about the study area that was used to evaluate the need for the WDC. The study areas for specific human and natural resources are based on the direct and indirect impacts of the WDC and might be different from the study area for the transportation and traffic needs assessment described in Section 1.7, Needs Assessment. These other study areas are identified in each resource chapter.

The study area for assessing the need for the WDC consists of an area of about 79,450 acres (about 124 square miles) west of Interstate 15 (I-15) in Davis and Weber Counties. The study area contains parts of 14 incorporated cities in Davis and Weber Counties as well as unincorporated land in each county. The specific boundaries of the study area, which are shown in Figure 1-1, West Davis Corridor Needs Assessment Study Area, in Volume IV are:

- Northern boundary: 3000 South in Hooper and West Haven
- Southern boundary: about Parrish Lane in Centerville
- Western boundary: just east of the Great Salt Lake
- Eastern boundary: I-15

The limits of the study area for the needs assessment were developed using the projected travel demand in 2040. For the Draft EIS, the travel demand in this area was developed using version 7.0 of the Wasatch Front Regional Council's (WFRC) travel demand model, which is based on the expected population, employment, household, and land-use conditions in 2040 as described in the Wasatch Front Regional Transportation Plan (RTP) 2011–2040 (WFRC 2011).

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 certain time in the future. This prediction is based on the expected population, employment, household, and land-use conditions in the area.

The study area was verified after the release of the Draft EIS using version 8.1 of WFRC's travel demand model, which was made available in early 2016. The verification confirmed that the study area used in the Draft EIS was appropriate (West Davis Corridor Team 2016). See Section 1.7.2.1, Changes to the Travel Demand Model between the Draft and Final EISs, regarding changes to the travel demand model between the release of the Draft and Final EISs.

Using population information from the Utah Governor's Office of Management and Budget and using the UrbanSim program as an analytical tool, WFRC generated population, employment, and household projections for about 1,000 traffic zones in Weber, Davis, and Salt Lake Counties. These projections distributed population, employment, and households on the basis of the adopted *Wasatch Choices 2040: A Four County Land-Use and Transportation Vision* (WFRC and others, no date) (see Section 1.3.4, *Wasatch Choices 2040*). The socioeconomic projections were reviewed by community planners, engineers, and locally elected officials. This review allowed adjustments to be made in this input to the 2015–2040 RTP process.

Northern Boundary. The WDC team established the northern boundary of the needs assessment study area based on the projections of growth, development, and related travel in the region in 2040. The WFRC travel projections for 2040 indicate that, north of 4000 South in Hooper and West Haven, the travel demand on the road system will operate with an acceptable level of service of LOS D or better, and there will be no need for transportation improvements beyond the planned improvements listed in the WFRC RTP north of 4000 South.

What is the WDC team?

The WDC team consists of the lead agencies for the WDC Project (FHWA and UDOT).

Although 4000 South is the northern boundary for the area that will need a transportation improvement, the northern boundary for the needs assessment study area was set at about 3000 South to ensure that the boundary captured any roadway design, level of service, and safety standards that could influence the need for the WDC.

What is level of service?

Level of service (LOS) is a method of measuring the vehicle-carrying capacity and performance of a street, freeway, or intersection. For more information, see Section 1.7.2.2, Level of Service.

The initial northern boundary for the WDC EIS study area—12th South in Weber County—was identified in the January 2010 Notice of Intent and the May 2010 release to the public of the project's draft purpose and need statement. The WDC team developed this boundary using version 6.0 of the travel demand model maintained by WFRC. In June 2011, WFRC released version 7.0 of the travel demand model and released a new RTP that includes transportation-related improvements out to the year 2040.

UDOT used version 7.0 of the travel demand model to conduct a sensitivity analysis to determine whether the decisions about the boundaries of the needs assessment study area, which were made with version 6.0 of the travel demand model, were still valid with version 7.0 of the travel demand model. Based on the sensitivity analysis, the northern boundary of the study area was amended from 12th South to about 3000 South as shown in the Draft EIS. For more information, see the Summary section of *Technical Memorandum 15: Alternatives Screening Report* (West Davis Corridor Team 2012).

For this Final EIS, UDOT confirmed this boundary using the May 2015 WFRC RTP 2015–2040 and version 8.1 of the travel demand model that was released after the Draft EIS. The results of this analysis are provided in *Technical Memorandum 3: EIS Transportation Need Study Area* (West Davis Corridor Team 2016).

Southern Boundary. The WDC team established the southern boundary of the needs assessment study area using WFRC's travel projections for 2040, which show that the transportation needs south of this boundary would be met by the planned improvements to the existing transportation system (I-15, Legacy Parkway, U.S. Highway 89 [US 89], and the FrontRunner commuter-rail system). In addition, this boundary would allow the southern end of any improvement to connect logically into the planned transportation system.

Western Boundary. The western boundary of the needs assessment study area is based on the location of the Great Salt Lake and the sensitive habitats associated with the lake.

Eastern Boundary. The eastern boundary of the needs assessment study area is I-15 (including I-15 and the FrontRunner commuter-rail line) and is based on the projected transportation system and travel demand in the region in 2040. I-15 is the eastern boundary because transportation improvements east of this highway, such as improvements to US 89, would have little effect on north-south or east-west travel west of I-15. For more information about the boundaries of the needs assessment study area, see *Technical Memorandum 3: EIS Transportation Need Study Area* (West Davis Corridor Team 2016).

1.3 Background of the West Davis Corridor

The idea of a north-south transportation facility west of I-15 between Salt Lake County and Weber County was first conceptualized in the 1960s. Since that time, UDOT and WFRC have conducted several planning studies in western Weber and Davis Counties to evaluate and plan for future transportation needs. These studies made recommendations for the location and type of facility, and many of these studies have been adopted by the local municipalities in their plans and are considered in the alternatives-development process for the WDC Project. The WDC team is aware of these studies and their recommendations. A summary of these previous planning processes is provided below.

1.3.1 1995–1998 *Western Transportation Corridor Major Investment Study* (*WTC-MIS*)

In response to rapidly increasing congestion on I-15, in 1995 the Utah legislature appropriated funds for a *Western Transportation Corridor Major Investment Study* (*WTC-MIS)*. The purpose of the *WTC-MIS* was to assess transportation alternatives and to determine whether a major investment of public funds was warranted (WFRC 2001a).

The *WTC-MIS* study area included the area between I-15 and the Great Salt Lake and was bounded on the south by Interstate 80 (I-80) in Salt Lake County and on the north by 12th South in Weber County. In late 1996, Governor Mike Leavitt announced a long-range plan to build a "Legacy Highway" through western Weber, Davis, Salt Lake, and Utah Counties. By this time, the *WTC-MIS* Steering Committee had concluded that a north-south highway in southern Davis County would be part of a "locally preferred alternative." UDOT then began working on an EIS for the southern Davis County segment.

The *WTC-MIS* final report identified a need to preserve a 200-foot-wide transportation corridor throughout the length of the study area. The *WTC-MIS* identified the locally preferred alternative based on public and agency input and an analysis of various alternatives. This preferred alternative included the following elements:

- Construction of a new road (identified as a principal arterial throughout its length in Davis and Weber Counties)
- Preservation of an eastern commuter-rail corridor for multimodal purposes
- Increased commuter bus service

In 2008, UDOT finished construction of the southern Davis County segment that was identified as the principal arterial in the study. This segment, which connects Salt Lake County and Farmington in Davis County, is now called Legacy Parkway. The Utah Transit Authority (UTA) finished construction of its FrontRunner commuter-rail line along the eastern rail corridor between Salt Lake City and Ogden in 2007 and began service in 2008. For more information about improvements to the transit system in the study area, see Section 1.7.4, Transit Network.

1.3.2 *North Legacy Transportation Corridor Study*

WFRC sponsored a study in 2001 to refine the north-south corridor concept west of I-15 that was presented in the *WTC-MIS*. Although no actual designs were developed, the 2001 study evaluated options that could connect to Legacy Parkway and extend north into Weber County (WFRC 2001b).

The 2001 *North Legacy Transportation Corridor Study* identified a preferred option for Davis County. The Davis County segments made up the "Bluff Road Alternative," and the Davis County communities generally agreed on a preferred corridor. In Weber County, the local governments agreed on a corridor from the county border to 12th South. However, they disagreed on a corridor north of 12th South, so the 2001 study report does not discuss a corridor north of 12th South.

What is the difference between an EIS and a corridor study?

Corridor studies review potential transportation solutions but don't involve detailed environmental evaluations. Corridor studies are prepared mainly to identify a transportation corridor for preservation. An EIS is required to evaluate transportation solutions in detail and is required to obtain federal environmental clearance and permits before construction can start.

In 2009, WFRC and UDOT revisited the Weber County portion of the 2001 study. This supplemental study succeeded in identifying a preferred corridor for the Weber County communities west of I-15 (Hooper, West Haven, and Plain City) and for the unincorporated areas of Weber County (WFRC 2009).

1.3.3 *North Legacy to Legacy Connection Corridor Preservation Study*

In 2007, UDOT completed a study of a connection between the existing Legacy Parkway and the future North Legacy corridor studied by WFRC in 2001. The study was called the *North Legacy to Legacy Connection Corridor Preservation Study* (Horrocks Engineers 2007).

The study reviewed four options for the connector: (1) the Denver & Rio Grande Western Railroad (D&RGW) rail corridor with split interchange configurations at I-15 and Legacy Parkway, (2) an alignment west of the developed area of Farmington, (3) an alignment along the D&RGW rail corridor using a combined interchange with I-15 and Legacy Parkway on the south end, and (4) an alignment that parallels I-15 closely and that has a combined interchange with I-15 and Legacy Parkway on the south end. In the study, option 3 was identified as the preferred option.

UDOT received comments from the local community that UDOT's study and the preferred option needed to consider a full range of alternatives, impacts, and issues important to Farmington residents. For these reasons, Farmington City commissioned an independent assessment of the study in 2007. The independent assessment reviewed UDOT's projected traffic volumes based on its traffic model as well as corridor alignment options. The assessment also identified and assessed additional corridor alignment options. The assessment concluded that the City should wait to adopt UDOT's preferred option until either an Environmental Assessment or EIS could be prepared and a thorough technical analysis and an established public process could be provided. Farmington City continued to study regional transportation issues through its master transportation planning process and, in 2009, amended its Master Transportation Plan to reflect the City's preferred alignment area.

1.3.4 *Wasatch Choices 2040*

During 2005, WFRC teamed with Utah County's Mountainland Association of Governments (MAG), UDOT, FHWA, UTA, and Envision Utah to complete *Wasatch Choices 2040: A Four County Land-Use and Transportation Vision* (WFRC and others, no date). MAG is the metropolitan planning organization for Utah County. The study, which included extensive public involvement, was intended to support an update of WFRC's and MAG's RTPs. The study identified goals or principles for the future growth along the Wasatch Front, reviewed how land use and transportation interact, developed a "vision" for the future, and identified strategies to implement that vision.

Four initial scenarios were developed: Business as Usual, Transit Station Villages, Interconnected Network of Complete Streets, and Centers of Employment. Based on these scenarios, a Vision Scenario was developed that was a blend of the four initial scenarios. The Vision Scenario included a balanced variety of transportation modes including walking and bicycling, auto travel, and transit. The Vision Scenario presents strategies for local governments to consider when planning their communities.

The *Wasatch Choices 2040* report specifically identifies a north-south expressway as part of the Vision Scenario for the needs assessment study area. This north-south expressway is in the same location as the corridor shown in WFRC's 2001 study (the *North Legacy Transportation Corridor Study*).

1.3.5 *Davis Weber East-West Transportation Study Legislative Report*

In September 2008, UDOT published the *Davis Weber East-West Transportation Study Legislative Report* in response to a request in the 2007 Utah state legislature's House Bill 108 to help communities study future east-west transportation needs. The report stated that population growth in north Davis and Weber Counties shows no signs of slowing, and therefore Davis and Weber Counties must plan for a variety of transportation facilities to accommodate the anticipated growth. The results of the study included a Preferred Transportation Package for improved east-west mobility projects (road, transit, and trails) in north Davis and Weber Counties to be included in WFRC's Long-Range Transportation Plan. The Preferred Transportation Package included the WDC Project (identified as "SR-67

extension") as a new six-lane expressway (InterPlan 2008). The results of the Davis Weber East-West Transportation Study were used to develop the Wasatch Front RTP 2015–2040, previously described in Section 1.2, Description of the Needs Assessment Study Area.

1.4 Summary of Purpose and Need

1.4.1 Purpose of the Project

The purpose of the WDC Project consists of both primary purposes and secondary objectives. The WDC team used the primary purposes as criteria to screen or eliminate alternatives that were not reasonable or practicable. In other words, if an alternative would not achieve the project's primary purposes, it was eliminated from further consideration.

What is regional mobility?

Regional mobility is based on the flow of through traffic, typically between cities or counties, versus local traffic that accesses neighborhoods or shopping centers. Improvements to regional mobility typically involve providing transportation facilities, such as highways and commuter rail, that allow longer-distance trips.

The team used the secondary objectives to further compare and refine the project alternatives (for example, to make minor shifts to the alignments), but these secondary objectives were not used to determine whether an alternative was reasonable or practicable.

The WDC is intended to achieve the following purposes:

What are peak periods?

Peak periods are the periods of the day with the greatest amounts of traffic. The AM (morning) peak period is from 6 AM to 9 AM, and the PM (afternoon) peak period is from 3 PM to 6 PM. Peak periods are looked at by transportation officials when examining the need for a transportation improvement.

- **Improve Regional Mobility.** Improve regional mobility in the WDC needs assessment study area for automobile, transit, and freight trips by substantially reducing user delay on the road system compared to the No-Action conditions through the consideration of all transportation modes. (For more information about the No-Action conditions, see Section 1.7, Needs Assessment.)
- **Enhance Peak-Period Mobility.** Substantially enhance mobility in the WDC needs assessment study area during the AM and PM peak periods for the main travel direction (north-south) to help accommodate the projected travel demand in the needs assessment study area in 2040. (For a detailed discussion of the peak-period travel direction, see Section 1.7.3, Travel Patterns.)

The WDC Project will also evaluate the following secondary objectives:

- **Increase the Interconnection between Transportation Modes.** Improve regional mobility in the WDC needs assessment study area by improving the connections between transportation modes such as automobile, transit, bicycle, and pedestrian travel compared to the No-Action conditions.
- **Support Local Growth Objectives.** Support the objectives of the adopted local land-use and transportation plans for communities west of I-15 in Weber and Davis Counties.
- **Increase Bicycle and Pedestrian Options.** Increase bicycle and pedestrian options consistent with the adopted local and regional plans in the parts of the needs assessment study area in Weber and Davis Counties.

Chapter 2, Alternatives, lists the elements of the project's purpose and objectives and the measures that were used to help develop and screen the project alternatives. For more information about the need for the WDC, see Section 1.7, Needs Assessment.

1.4.2 Need for the Project

The major transportation needs in the needs assessment study area are a result of the rapidly growing population and employment projected for this area. The existing road network in the study area and the transportation network to the west primarily consist of arterial streets that are not intended to accommodate a high volume of long-distance trips, freight movements, or efficient transit (bus) use.

These No-Action conditions will result in the following deficiencies in the needs assessment study area in 2040:

- Decreased mobility and increased traffic congestion in the AM and PM peak-period travel period (inadequate roadway capacity).
- Lack of adequate north-south transportation capacity to serve the main travel direction (north to south) in the AM and PM peak-period travel period. This will lead to increased east-west congestion.
- Increased user delay and lost productivity.
- Inadequate interconnection of transportation modes.
- Lack of continuous pedestrian/bicycle facilities.

These principal deficiencies were identified by comparing present and future levels of transportation service in the study area and reviewing the goals and objectives of the WFRC 2015–2040 RTP (WFRC 2015). The deficiencies would occur even with all other anticipated 2040 transportation improvements (except the WDC) in the study area that are identified in the RTP (see Section 1.6.1, Regional Transportation Planning by WFRC).

In addition, the need for transportation improvements is recognized by regional and local transportation and land-use plans (see Section 1.6, Regional and Local Transportation Planning). The WFRC RTP documents the need for additional travel capacity in the study

area. Furthermore, local community land-use plans in the study area as well as regional land-use and transportation plans show major planned transportation facilities in the study area.

The remainder of this chapter presents data that document the need for the WDC. The need for the project was determined by quantifying the change in anticipated travel demand and land use between existing (2015) and forecasted (2040) conditions in terms of measurements such as the amount of projected traffic, user delay, and lost productivity.

1.5 Growth Trends

Population, employment, and household growth are all important factors in determining travel demand. Large increases in any of these factors over an extended period can cause substantial increases in future travel. This section summarizes the expected growth in the needs assessment study area and in Weber and Davis Counties by 2040.

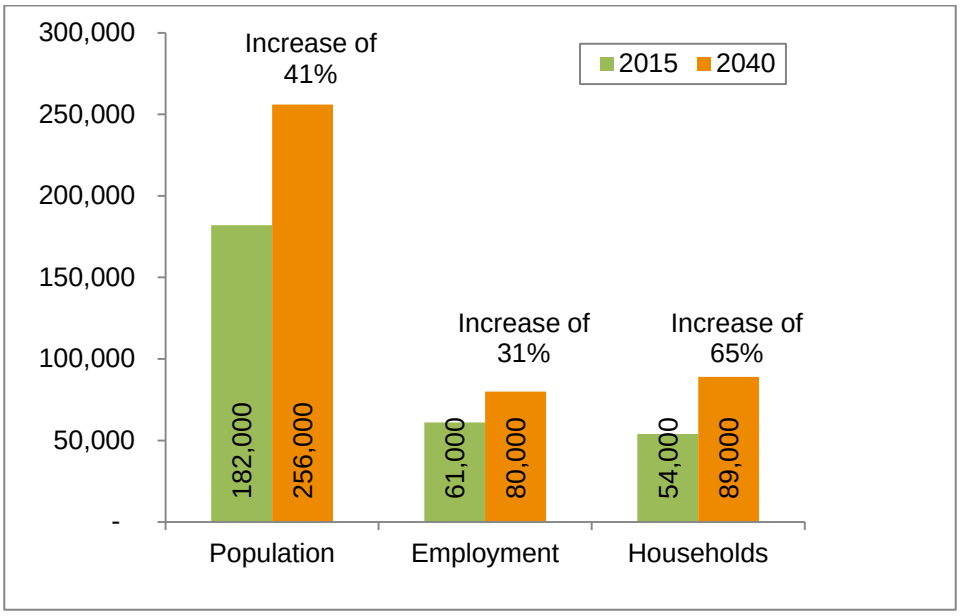
Data show that, by 2040, population and households are expected to increase by greater percentages in the study area than in the surrounding areas of Weber and Davis Counties, which are primarily developed.

The population, employment, and household projections in the following sections were obtained from the WFRC regional travel demand model (version 8.0), which is based on projections provided by the Governor's Office of Management and Budget. Section 1.7.2.1, Changes to the Travel Demand Model between the Draft and Final EISs, discusses the difference in the project need between the release of the Draft EIS and the Final EIS based on the revised population, employment, and household projections. For a more detailed discussion of changes in population and employment under the No-Action and Action alternatives by 2040 see Chapter 23, Indirect Effects.

1.5.1 Population Growth

By 2040, population in Davis and Weber Counties is expected to increase by 28% and 43%, respectively, while population in the study area is expected to increase from 182,000 in 2015 to 256,000 in 2040 (an increase of 41%). Figure 1-2, Percent Population Growth 2015–2040, in Volume IV shows the percent population growth expected in the study area between 2015 and 2040, and Figure 1-3, Total Population Growth 2015–2040, in Volume IV shows the absolute population growth. Chart 1-1 below shows the projected population, employment, and household growth in the study area.

Chart 1-1. Population, Employment, and Household Growth in the Needs Assessment Study Area



1.5.2 Employment Growth

Between 2015 and 2040, overall employment in Davis and Weber Counties is expected to increase by 24% and 40%, respectively. In the study area, employment growth is expected to increase from 61,000 in 2015 to 80,000 in 2040 (an increase of 31%). Figure 1-4, Percent Employment Growth 2015–2040, in Volume IV shows the percent employment growth expected in the study area, and Figure 1-5, Total Employment Growth 2015–2040, in Volume IV shows the absolute employment growth.

In the Davis County part of the study area, the main employers and employment areas are Lifetime Products, Smith's Marketplace Distribution Center, Davis Hospital and Medical Center, and Utility Trailer Manufacturing Company (see Figure 1-4 in Volume IV). In addition, Hill Air Force Base, another large employer, is just east of the study area. In the Weber County part of the study area, the major employers are Autoliv, Focus Services, and William International Company (Utah Department of Workforce Services 2009).

1.5.3 Household Growth

Between 2015 and 2040, the number of households in Davis and Weber Counties is expected to increase by 46% and 57%, respectively. In the study area, household growth is expected to be higher and is projected to increase from 54,000 to 89,000 (an increase of 65%).

1.6 Regional and Local Transportation Planning

The anticipated growth in population, employment, and households by 2040 (see Section 1.5, Growth Trends) has led WFRC, the Counties, and the Cities to develop transportation and land-use plans that consider this growth. These plans identify specific transportation projects as well as general concepts about how the Cities expect their transportation network to operate. This section describes how planning officials considered the need for a north-south transportation facility in the needs assessment study area to help address population, employment, and household growth.

1.6.1 Regional Transportation Planning by WFRC

WFRC is the metropolitan planning organization for the project region and develops the RTP for the region. WFRC's area of responsibility is Davis, Salt Lake, and Weber Counties. WFRC's most recent RTP, which was adopted in 2015, includes the WDC in Davis and Weber Counties (WFRC 2015).

This regional plan is a financially constrained, 20-to-30-year plan of the anticipated highway and transit projects that would be needed to meet travel demand in the WFRC planning area. Transportation needs are based on projected and planned socioeconomic factors and land use within a region. Under federal law, WFRC must update its RTP every 4 years. In general terms, *fiscally constrained* means that a metropolitan planning organization can approve a plan only if it is determined (and FHWA concurs) that sufficient funding is reasonably anticipated to carry out the projects included in the plan.

The 2015–2040 RTP identifies three timeframes, or phases, for construction:

- Phase 1: 2015 to 2024
- Phase 2: 2025 to 2034
- Phase 3: 2035 to 2040

WFRC's current RTP includes a WDC in the needs assessment study area as follows:

- **Davis County.** Right-of-way acquisition (Phase 1) from the Weber County border to Antelope Drive, new construction of a four-lane road (Phase 1) from I-15 to Antelope Drive, and new construction of a four-lane road (Phase 2) from Antelope Drive to the Weber County border
- **Weber County.** Right-of-way acquisition (Phase 1) from 4000 South to the Davis County border and new construction of a four-lane road (Phase 2) from the Davis County border to 4000 South

Table 1-2 summarizes the other projects listed in the WFRC 2015–2040 RTP that are in the study area.

Table 1-2. Transportation Projects in the Needs Assessment Study Area

Project Type	Project Location	Phase(s)
	WFRC RTP Projects: 2015 to 2040	
I-15 Corridor		
New construction	1200 North (Layton): Overpass; 4 lanes	1
Widening	Davis/Weber County border to Hill Field Road: add high-occupancy/toll (HOT) lane each direction	1
Widening	Interstate 84 (I-84) to Davis/Weber County border: add HOT lane each direction	1
Interchange upgrade	Parrish Lane (Centerville), Antelope Drive (Layton), 650 North (Clearfield), 5600 South (Roy), State Route (SR) 193 (Clearfield), and 24th Street (Ogden)	1
New interchange	1800 North (Sunset) including overpass of I-15	1
New interchange	Shepard Lane (Farmington)	1
Managed motorways	Incorporate managed motorways to improve I-15 travel flow	1
Davis County		
Widening	US 89: Antelope Drive (Layton) to I-15 (Farmington) (out of study area) from 4 to 6 lanes	2
Widening	1800 North (SR 37 in Clinton): SR 126 (Sunset) to 2000 West	1
Widening	1800 North (SR 37 in Clinton): 2000 West to WDC	2
New construction	SR 193 Extension (West Point): 2000 West to 3000 West; 4 lanes	1
New construction	SR 193 Extension (West Point): 3000 West to WDC; 4 lanes	2
Widening	West Hill Field Road (Layton): 2200 West to 3650 West from 2 to 4 lanes	2
New construction	Layton Parkway (Layton): 1700 West to WDC; 4 lanes	1
Widening	200 North (Kaysville): I-15 to WDC from 2 to 4 lanes	1
Widening	2000 West (SR 108 in Syracuse, West Point, Clinton, Roy, and West Haven): Weber County border to Antelope Drive from 2 to 4 lanes	1
New construction	3000 West (West Point): 6000 South to 2300 North; 2 lanes	1
New construction	3650 West (Layton): 700 North to Gentile Street; 2 lanes	3
New construction	2700 West (Layton): 650 North to Layton Parkway; 4 lanes	3
Widening	Gentile Street (Layton): Main Street to Fairfield Road from 2 to 4 lanes	2
New construction	500 West (Clearfield): Antelope Drive to 1980 South; 2 lanes	1
New construction	Shepard Lane (Farmington): I-15 to WDC; 2 lanes	2
Widening	2000 West: Antelope Drive to WDC from 2 to 4 lanes	3
Widening	Antelope Drive (Syracuse): WDC to 4500 West from 2 to 4 lanes	3
Widening	Antelope Drive (Syracuse): 2000 West to WDC from 2 to 4 lanes	1
New construction	Church Street Extension (Layton): I-84 to SR 193; 2 lanes	3
New construction	Gordon Avenue (Layton): 1600 East to US 89; 2 lanes	2

(*continued on next page*)

Table 1-2. Transportation Projects in the Needs Assessment Study Area

Project Type	Project Location	Phase(s)
Weber County		
Widening	4000 South (SR 37 in West Haven): Midland Drive to WDC from 2 to 4 lanes	1
New construction	4000 South (West Haven): railroad crossing at 2500 West	1
New construction	Midland Drive (SR 108): I-15 to 1900 West (West Haven); 4 lanes	1
Widening	Midland Drive (SR 108): 1900 West (Roy) to Hinckley Drive (West Haven) from 2 to 4 lanes	2
Widening	3500 West/Midland Drive (Roy): 4275 South (Roy) to Davis County border from 2 to 4 lanes	1
Widening	1900 West (SR 126 in Roy): 5600 South to Riverdale Road from 4 to 6 lanes	1
Widening	5500/5600 South: 1900 West (SR 126 in Roy) to WDC (Hooper) from 2 to 4 lanes	2
Widening	5600 South (Roy): I-15 to 1900 West (SR 126) from 5 to 6 lanes	1
New construction	4700 West (West Haven): 4600 South to 4800 South; 2 lanes	1
New construction	Falcon Hill Road Connector: I-15 to 1150 West; 2 lanes	3
Transit in Davis and Weber Counties		
Bus rapid transit	North Ogden to downtown Salt Lake City	1,2
Bus rapid transit	Ogden Intermodal Center (Ogden) to Layton FrontRunner station (Layton)	1,2
FrontRunner	Positive train control	3
Local Transportation Projects Included in City Master Plans		
New construction	2675 West (Roy): 4800 South to 4000 South; 2 lanes	NA[a]
New construction	4700 West (Hooper/Clinton): 5500 South to 1800 North; 2 lanes	NA
New construction	1800 North (Sunset): Frontage Road to I-15 for Hill Air Force Base; 4 lanes	NA
New construction	Falcon Hill Frontage (Sunset): 5600 South to 650 North; 4 lanes	NA
Widening	Shepard Lane (Farmington): Frontage Road to 1875 West from 2 to 4 lanes	NA
New construction	1100 West (Farmington): Shepard Lane to 100 North; 4 lanes	NA
New construction	1875 West (Farmington): 1525 West to 675 North; 2 lanes	NA
Widening	1100 West (Farmington): 100 North to 175 South from 2 to 4 lanes	NA

Source: WFRC 2015

[a] NA = not applicable

1.6.2 Local Transportation Planning

Utah state law directs Cities and Counties to set land-use and transportation policy in their jurisdictions. WFRC uses the city and county land-use plans, forecasts of employment and population, and planned transportation networks in preparing inputs into the travel demand model. The future distribution of population and employment forecasts is based on the land use in the *Wasatch Choices 2040* Vision Scenario adopted by WFRC (WFRC and others, no date). This Vision Scenario was developed in cooperation with Cities and Counties, which considered their current land-use plans and expectations for development as they provided input.

The RTP is also developed in close cooperation with the Cities and Counties. Often, Cities and Counties will incorporate into their local transportation plans recommended

transportation improvements that are identified in the RTP, if those improvements are not already incorporated.

This section describes how some Cities in the study area have included segments of a new major north-south transportation facility in their transportation plans based on the 2001 *North Legacy Transportation Corridor Study*. The information in city transportation plans shows what the Cities anticipate for a future transportation network, but inclusion in a transportation plan does not necessarily mean that a project will be constructed.

1.6.2.1 Davis County

Unincorporated Land in Davis County. This area accounts for about 17% of the land in the study area. Most of this land is along the shore of the Great Salt Lake, and the County and WFRC have not planned for the construction of any major transportation corridors through this sensitive area.

In their transportation plans, the Cities of Farmington, Kaysville, Layton, Syracuse, West Point, and Clinton have identified segments of the 2001 North Legacy Corridor in the study area. However, the Cities of Centerville, Clearfield, and Sunset do not identify any new major north-south corridors in the study area.

Farmington. The Farmington City Master Transportation Plan Addendum (Farmington City 2009) shows a "North Legacy Connector" starting at Legacy Parkway and Glovers Lane. The proposed connector follows the east-west-running Glovers Lane to about 1525 West. At about 1525 West, the connector begins to angle northwest toward Kaysville.

Kaysville. The Kaysville Transportation and Traffic Circulation Plan (Kaysville City 2016) shows "SR 67" as a principal arterial following a Glovers Lane alignment through Farmington. SR 67 travels along the western edge of the city parallel to the shore of the Great Salt Lake into Layton.

Layton. The Layton City Master Street Plan (Layton City 2016) shows a "proposed expressway" running along the western edge of the city, also parallel to the shore of the Great Salt Lake, from Layton in the south to Syracuse on the north.

Syracuse. The Syracuse Right-of-Way Master Plan (Syracuse City 2015) shows a "proposed parkway" along Bluff Road from Gentile Street to just north of Antelope Drive (SR 108). North of Antelope Drive, the parkway would continue northwest along Bluff Road into West Point.

West Point. The West Point General Plan Land Use Map (West Point City 2013) shows a north-south corridor for Legacy Parkway along Bluff Road/Old Bluff Road from Syracuse (about 700 South) to 300 North (SR 107). The parkway then travels parallel to and just west of 4000 West between 300 North and the northern city limit at about 2000 North.

Clinton. The 2006 Clinton City Transportation Master Plan map (Clinton City 2006) shows a short segment of a "future road" between the West Point–Clinton city boundary and the Clinton–Hooper city boundary. This segment runs north-south to the east of 4500 West.

1.6.2.2 Weber County

The Davis County–Weber County border is situated between Clinton and Hooper. In Weber County, the study area includes unincorporated areas as well as incorporated cities. Most of the unincorporated area is within the county's West Central Weber County planning area (Weber County 2003). The General Plan shows "planned improvements" along 4700 West (between about 3300 South in Hooper and 1500 North in Plain City) and along 5100 West (between about 3300 South in Hooper and 1150 South in Weber County).

The Cities of Hooper and West Haven have identified segments of the 2001 North Legacy Corridor in their transportation plans. Roy City does not identify any new major north-south corridors in the study area.

Hooper. The Hooper City Draft Transportation Master Plan 2005–2025 (J-U-B Engineers 2008) identifies a future "Legacy Corridor." The plan states that "5100 West is upgraded to the Legacy Highway, which is projected to be a four-lane, limited-access, divided highway from the south city limits to 5325 South. From that point north, the road will become a three-lane roadway that has more open access."

West Haven. The General Plan of West Haven City land-use map (West Haven City 2015) identifies 5100 West as the future "highway corridor" between 5100 South (Hooper) and 2900 South (unincorporated area of Weber County).

1.7 Needs Assessment

The regional and local plans in Section 1.6, Regional and Local Transportation Planning, have identified a need for a north-south transportation facility in the needs assessment study area. This section evaluates that need based on growth projections, travel demand data, and current transit and pedestrian facilities in the study area.

2040 No-Action Conditions. This needs assessment is based on the No-Action conditions for the road and transit system in the study area in 2040 if no WDC is built. The No-Action travel demand conditions used in this EIS are based on version 8.1 of WFRC's regional travel demand model, as described in the Wasatch Front RTP 2015–2040 (WFRC 2015). The WFRC travel demand model is a state-of-the-practice tool that allows transportation analysts to input various land-use and growth scenarios to test road and transit networks with the expected traffic for each scenario. The travel demand model includes all roadway and transit projects identified in the plan to 2040.

For the 2040 No-Action conditions, the WDC team assumed that all funded transit and roadway projects in the 2015–2040 RTP would be in place (see Table 1-2 above, Transportation Projects in the Needs Assessment Study Area), with the only exception being a major transportation corridor in western Davis and Weber Counties (identified as both West Davis Corridor and North Legacy in the RTP). Figure 1-6, Future (2040) No-Action Transportation Network, in Volume IV shows the planned 2040 No-Action roadway and transit network in the study area.

Planning Horizon. To be consistent with the 2015–2040 RTP, the WDC team decided to use 2040 as the planning horizon for the development of the study area, the project's purpose and need, and the project alternatives. For more information about the planning horizon used in this EIS, see *Technical Memorandum 1: EIS Planning Horizon* (UDOT 2016).

1.7.1 Transportation Network and Modal Relationships

Figure 1-7, Current (2015) Transportation Network, in Volume IV shows the existing transportation system linkages and modal relationships in the study area and the adjacent transportation facilities that play a role in the overall system. Some of the existing major roads in the study area are currently congested or will be congested by 2040.

What are modal relationships?

The term *travel modes* refers to different methods of travel, such as travel by bus, commuter rail, bicycle, and automobile. An analysis of modal relationships looks at how the modes interact to provide an efficient transportation network.

According to traffic projections from the WFRC regional travel demand model (version 8.1), work-based trips (trips between home and work during the morning and evening commutes) generated in the study area will increase from about 98,000 in 2015 to 150,000 in 2040—an increase of 53%—as a result of the growth in population, employment, and households described in Section 1.5, Growth Trends. In general, increased travel demand will result in congestion in the study area and user delays. In addition, much of the road network in the study area west of I-15 was designed primarily for local traffic. The numerous intersections and business and residential driveways on the arterials increase congestion.

The major transportation facilities in the study area are I-15, Legacy Parkway, and FrontRunner commuter rail. These facilities provide north-south travel in the eastern part of the study area between major employment centers including Salt Lake City, Ogden, and Hill Air Force Base. Express bus service also uses I-15 to provide a north-south connection between these employment centers. In addition, the facilities provide access to the Salt Lake City International Airport, which is south of the study area. Traffic in the study area travels east-west on local streets and arterials to access the major north-south transportation facilities.

The transportation network in the study area is used to move a substantial amount of freight. Each year, over 200 million tons of freight are shipped by or received by Utah manufactures and businesses, with trucks accounting for 70% of the freight movement. These numbers do not reflect the considerable tonnage that passes through Utah (WFRC 2015). Within the study area, I-15 is the main trucking corridor. Near I-15 are several freight shipping centers such as the Smith's Marketplace Distribution Center in Layton and Freeport Center in Clearfield. Freeport Center is a major manufacturing, warehousing, and distributing center with roughly 7 million square feet of warehousing in 78 buildings.

1.7.2 Regional Road Network

This section summarizes the needs assessment for the regional road network in the study area with the No-Action Alternative. To evaluate the road network, the WDC team reviewed data about level of service, user delay, and lost productivity. For this assessment, the "regional road network" includes roads classified as freeways, arterials, or collectors [for definitions of these terms, see Figure 1-7, Current (2015) Transportation Network, in Volume IV]. These classifications of roads typically provide more regional travel for longer through trips between cities and counties than local residential traffic by improving access to reduce travel times. Information regarding the regional transportation network and data used in this section was obtained from the WFRC regional travel demand model (version 8.1).

1.7.2.1 Changes to the Travel Demand Model between the Draft and Final EISs

For the Draft EIS released in May 2013, the WDC team used version 7.0 of the WFRC regional travel demand model to conduct the needs assessment. In May 2015, WFRC released a new RTP and travel demand model (version 8.0). WFRC subsequently updated this model in early 2016 to version 8.1, which incorporates the recently adopted "managed motorways" projects and includes the most recent transit evaluation module.

What is managed motorways?

Managed motorways is a traffic-management concept that involves actively monitoring a freeway and dynamically controlling speeds, adding capacity, and informing road users of conditions on the roadway network with the objective of optimizing traffic and safety performance.

The WDC team reviewed the model socioeconomic data and 2040 No-Action roadway conditions and determined that there were enough changes between versions 7 and 8.1 of the model that all modeling conducted for the Final EIS would be updated with version 8.1.

Additionally, during the Draft EIS comment period, UDOT received comments on version 7 of the travel demand model stating that the model should have used a 2012 household survey instead of an outdated 1992 survey, did not account for younger and older drivers (life cycle variable), and did not account for younger and older populations shifting away from single-family homes. Version 8.1 of the WFRC model included the following refinements (Table 1-3 below), which addressed many of the comments about the model that were submitted during the Draft EIS comment period.

Table 1-3. WFRC Travel Demand Model Version 8.1 Updates from Version 7.0

Model Update	Description
Recalibration using the 2012 Utah household and travel survey	The model was recalibrated using the 2012 Utah household and travel survey, trip distance by trip type, and mode choice preference.
Addition of a life cycle variable	Households in the model are now categorized into three groups: (1) working with no children, (2) working with children, and (3) retired, with or without children.
New freight module	The freight module now allows more-detailed and robust forecasting of commercial trips, including the ability to forecast long-haul, short-haul, and light-duty commercial trips.
K–12 school trips now explicitly modeled	Trips to and from K–12 (kindergarten through 12th grade) schools were previously included in the "home-based other" category. These trips are now explicitly included in the model, with sensitivity to elementary versus secondary schools.
Expansion of employment categories from 3 to 11	The model previously had only retail, industrial, and other categories. It now has retail, food, manufacturing, wholesale, office, government/education, healthcare, other, mining, agriculture, and construction. This expansion allows the model to be more sensitive to the different trip-generation characteristics of these differing employment centers.
Updating of freeway capacities	Freeway capacities were lowered by 10–20% in order to reflect the operational capacity of these facilities. WFRC found that the "true" capacity is sustained for only a short period before conditions break down and the throughput drops by 10–20%. Switching to the operational capacity is an attempt to replicate real-world traffic conditions over the course of the entire peak period.
Upgrading of transit module	Version 8.1 of the model was one of the first in the United States to incorporate an updated transit submodule. This submodule allows more-robust analysis of transit scenarios, such as providing the ability to test distance-based fare scenarios.
Integration with the Utah Statewide Travel Model	The model is now set up to take advantage of UDOT's Statewide Travel Model. This allows for improved forecasts of trips entering, leaving, or passing through the WFRC model area.

To account for shifts in younger and older populations away from single-family homes, WFRC included denser and more-compact land use near I-15 and fewer single-family homes in western Davis and Weber Counties. Provided in this section are the revised needs assessment roadway condition and user delay numbers using version 8.1 of WFRC's travel demand model. Chart 1-2 through Chart 1-5 below illustrate the change in roadway conditions from the baseline conditions (2009 for version 7 and 2015 for version 8.1 of the WFRC travel demand models) to the 2040 No-Action Alternative conditions using version 7.0 from the Draft EIS and version 8.1 in this Final EIS.

Chart 1-2. Comparison of Change in PM Peak Lane-Miles of Congestion between WFRC Travel Demand Models Version 7 (2009–2040) and Version 8 (2015–2040)

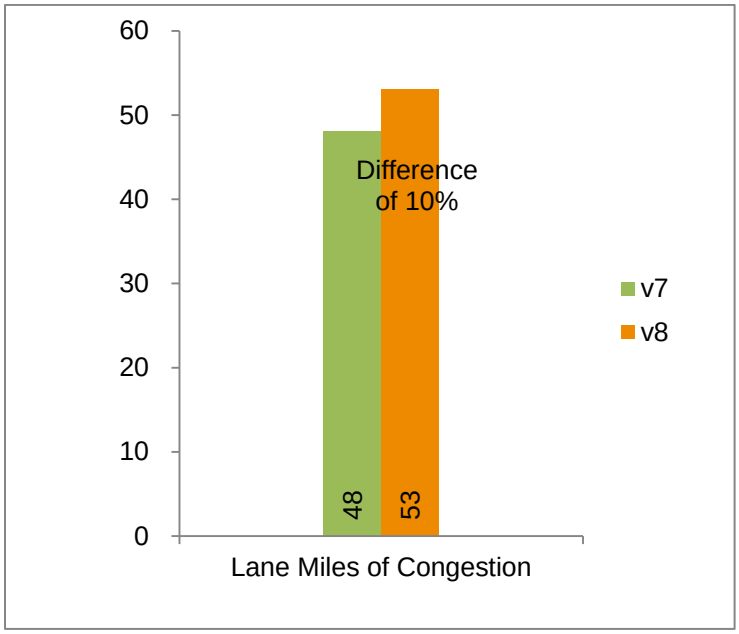


Chart 1-3. Comparison of Change in PM Peak Vehicle-Miles Traveled in Congestion between WFRC Travel Demand Models Version 7 (2009–2040) and Version 8 (2015–2040)

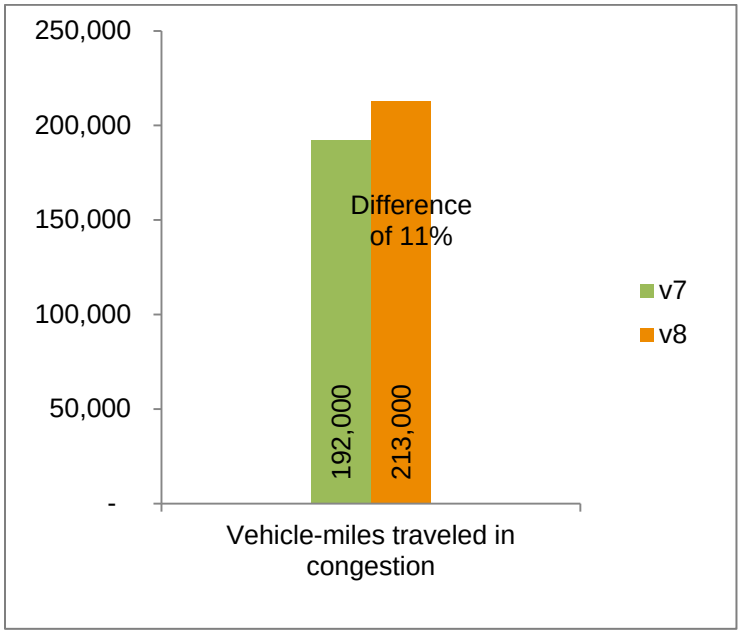


Chart 1-4. Comparison of Change in User Delay between WFRC Travel Demand Models Version 7 (2009–2040) and Version 8 (2015–2040)

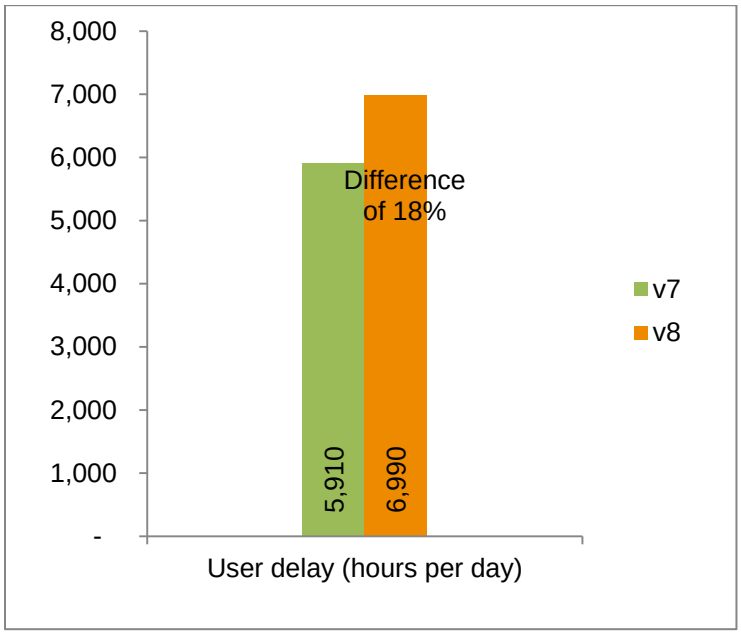
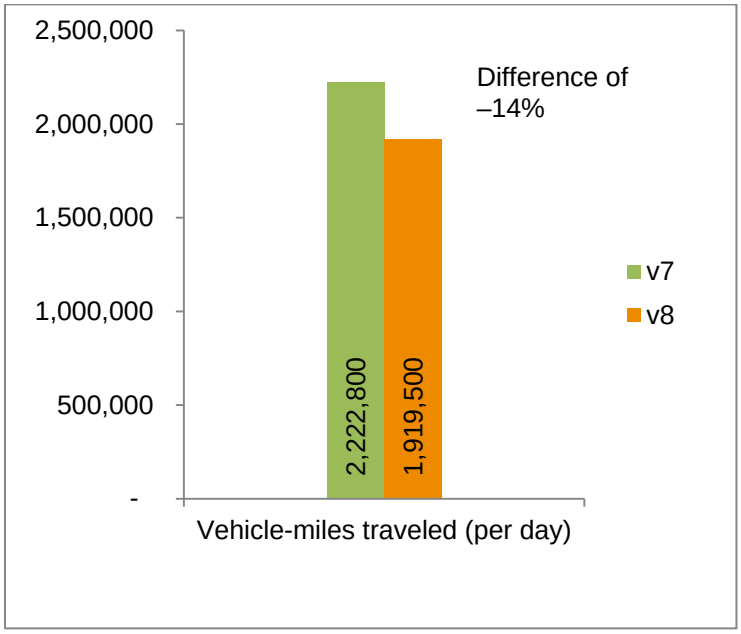


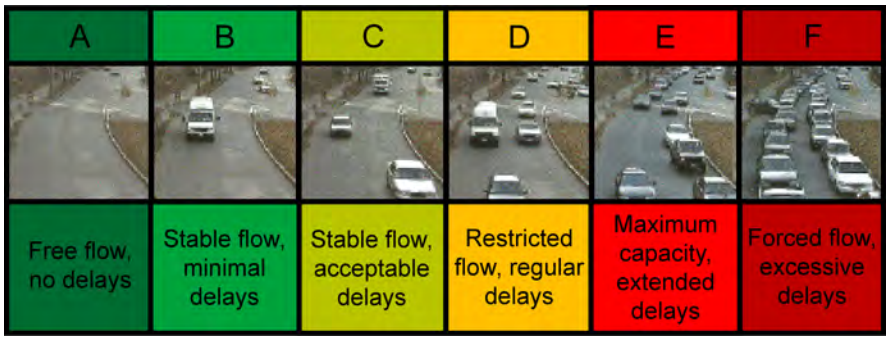
Chart 1-5. Comparison of Change in Vehicle-Miles Traveled between WFRC Travel Demand Models Version 7 (2009–2040) and Version 8 (2015–2040)



1.7.2.2 Level of Service

Level of service (LOS) is a method of measuring the vehicle-carrying capacity and performance of a street, freeway, or intersection. When the capacity of a road is exceeded, the result is congestion, delay, and a poor level of service. Level of service is represented by a letter "grade" ranging from A for excellent conditions (free-flowing traffic and little delay) to F for failure conditions (extremely congested, stop-and-go traffic and excessive delay). LOS B through LOS E describe progressively worse traffic conditions. Typically, in urban areas, LOS E and F are considered unacceptable operating conditions and LOS D and above are considered acceptable operating conditions (see Chart 1-6).

Chart 1-6. Level of Service Categories



As shown in Table 1-4 below, some of the major north-south and east-west roads in the study area currently operate at LOS E or F in the PM peak period. By 2040, the congestion on these roads is projected to increase, even with the more than 30 planned roadway improvements identified in the WFRC RTP for the study area [see Table 1-2 above, Transportation Projects in the Needs Assessment Study Area, and Figure 1-6, Future (2040) No-Action Transportation Network, in Volume IV].
Table 1-4 and Chart 1-7 below summarize the total lane-miles of freeway, principal and minor arterials, and collector roads that are projected to operate at LOS E or F during the PM peak period in 2015 and 2040 in the study area under the No-Action Alternative (that is, without the WDC). Figure 1-8, Current (2015) Level of Service Deficiencies, in Volume IV shows current road segments that operate at LOS E or F in the study area, and Figure 1-9, Future (2040) Level of Service Deficiencies, in Volume IV shows future road segments that are projected to operate at LOS E or F.

As shown in the figures, the number of lane-miles operating at LOS E or F is projected to increase by 56% from existing (2015) to future (2040) conditions. The main percentage increase in the number of lane-miles operating at LOS E and F (congested, stop-and-go traffic) would be in the east-west direction, with a projected increase of 288% between 2015 and 2040. Much of the east-west congestion shown in the figures is a result of commuters from the west part of the study area having to travel east to the major north-south transportation facilities (FrontRunner commuter rail, I-15, and Legacy Parkway) on the east boundary of the study area.

Table 1-4. Roadway Conditions and Daily User Delay in the PM Peak Period in the Needs Assessment Study Area under No-Action Conditions

Need Element	2015	2040	Percent Change
Total lane-miles of congestion[a]	94	147	56%
East-west	8	31	288%
North-south	86	116	35%
Vehicle-miles traveled in congestion[b]	429,200	642,000	50%
Average speed (miles per hour)	35	34	–2%
User delay (hours per day)	11,320	18,310	62%
Lost productivity (per day)[c]	$292,056	$472,398	62%
Vehicle-miles traveled (per day)	4,170,900	6,090,400	46%

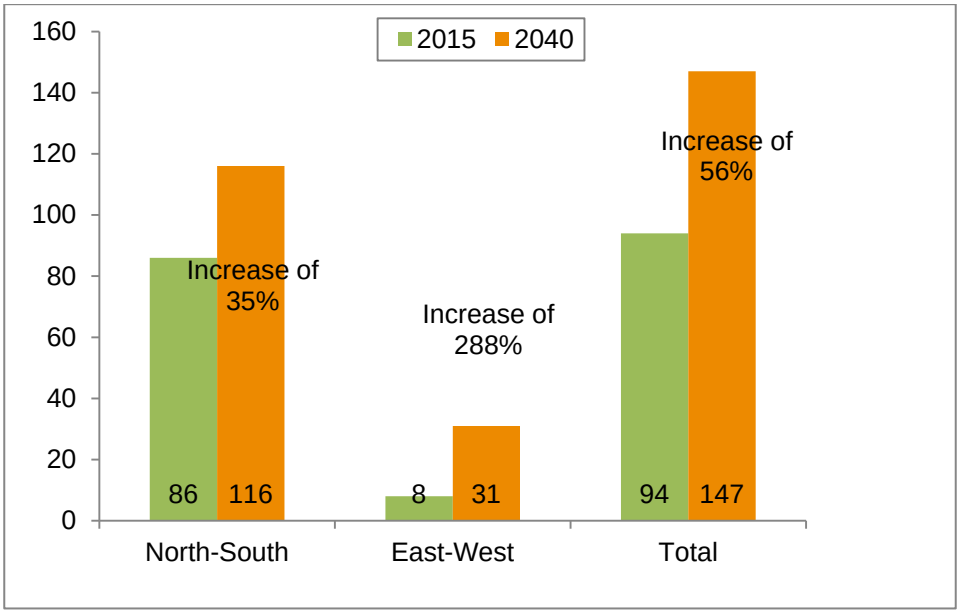
Source: Results from the 2015 WFRC regional travel demand model (version 8.1)

[a] Includes roads with a volume-to-capacity ratio of greater than 0.90 (LOS E and F) during the PM peak period (between 3 PM and 6 PM). Roads include freeways (I-15), ramps with greater than 1.2 minutes of delay, principal and minor arterials, and collectors in the study area. (For an explanation of volume-to-capacity ratio, see Table 2-17, Comparison of Regional Delay and Congestion Benefits from the WDC Action Alternatives.)

[b] Includes vehicle-miles traveled on roads with a volume-to-capacity ratio of greater than 0.90 (LOS E and F) during the PM peak period (between 3 PM and 6 PM). Roads include freeways (I-15), principal and minor arterials, and collectors in the study area.

[c] Lost productivity is based on an aggregate user rate of $25.80 using $15.50/hour for passenger vehicles, $56.00/hour for box trucks, and $102.00/hour for tractor trailer trucks. Assuming an average traffic composition of 86% passenger vehicles, 4% box trucks, and 10% tractor trailer trucks, the average cost is $25.80/hour for travel time (Rasband 2010).

Chart 1-7. No-Action Lane-Miles of Congestion during the PM Peak Period in the Needs Assessment Study Area



As shown in Chart 1-8, the amount of miles that vehicles travel in congestion in the study area is projected to increase from 429,200 miles in 2015 to 642,000 miles in 2040, an increase of 50%. These data show that there is a need to relieve roadway congestion and improve the level of service and mobility on the regional road network. The north-south congestion is a result of travel to main employment centers on major roads such as I-15. The east-west congestion is traffic traveling from I-15 west on arterials that service the western part of the study area.

Chart 1-8. No-Action Vehicle-Miles Traveled in Congestion during the PM Peak Period in the Needs Assessment Study Area

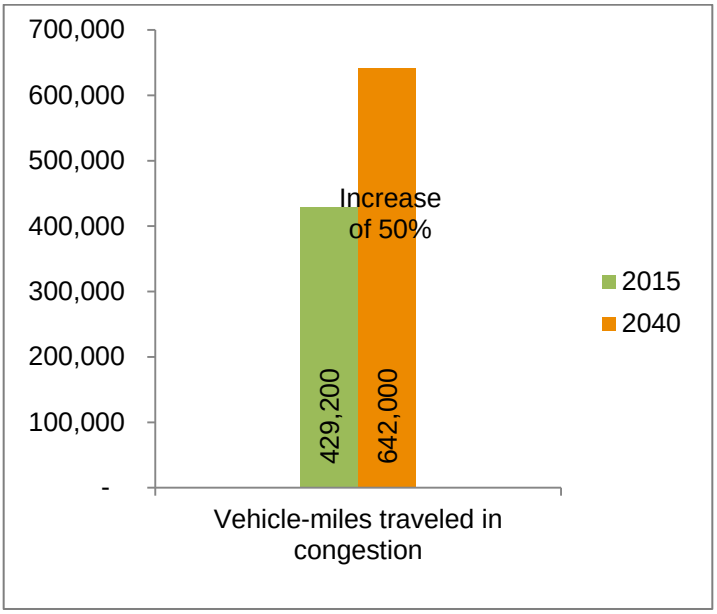
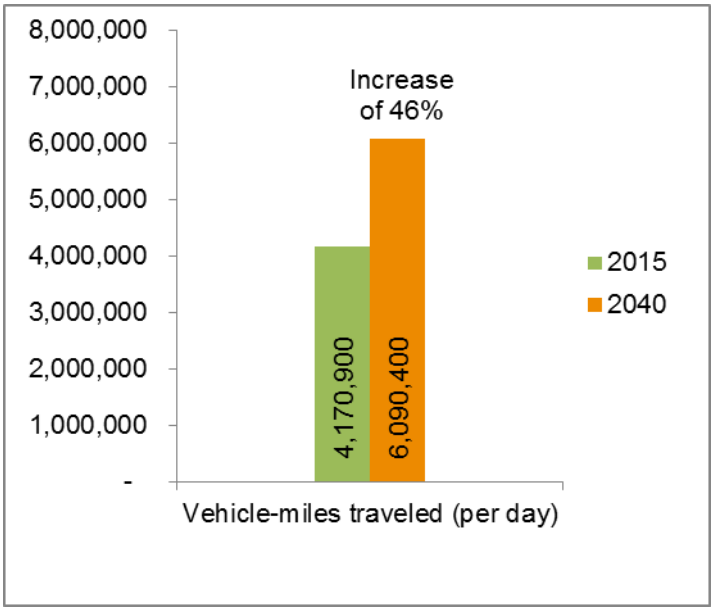


Chart 1-9 shows that, between 2015 and 2040, the daily vehicle-miles traveled in the study area are projected to increase by 46% or about 1.7% per year, which would increase the congestion on the road system. As a comparison, vehicle-miles traveled in Davis and Weber Counties from 2003 to 2013 increased by 2.5% and 1.5% per year, respectively, Within a 3-year period (2012–2014), the growth in vehicle-miles traveled slowed in Davis and Weber Counties, increasing by 1% per year (UDOT 2015).

Chart 1-9. No-Action Daily Vehicle-Miles Traveled in the Needs Assessment Study Area

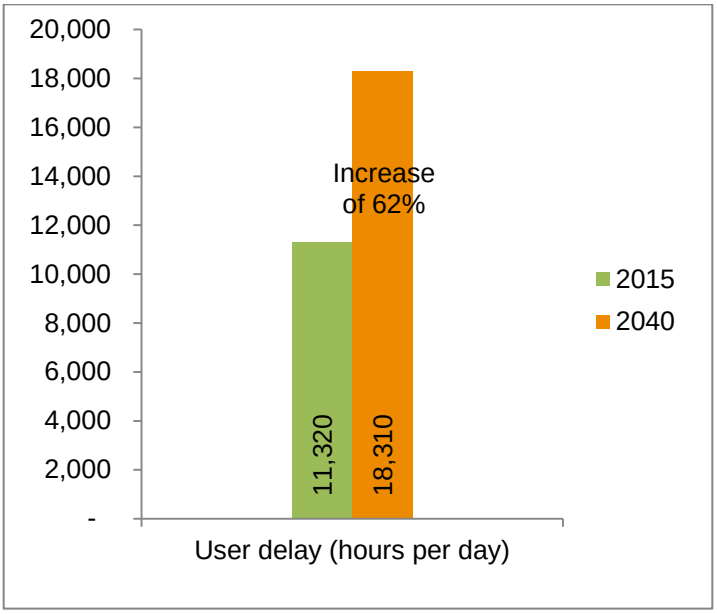


1.7.2.3 Travel Time and Lost Productivity (Regional Mobility)

Regional mobility addresses the need to develop a transportation system that improves access by reducing travel times for all transportation modes. The need for improved regional mobility is demonstrated by the increases in user delay and forecasted travel times in 2040, which are projected to increase compared to 2015.

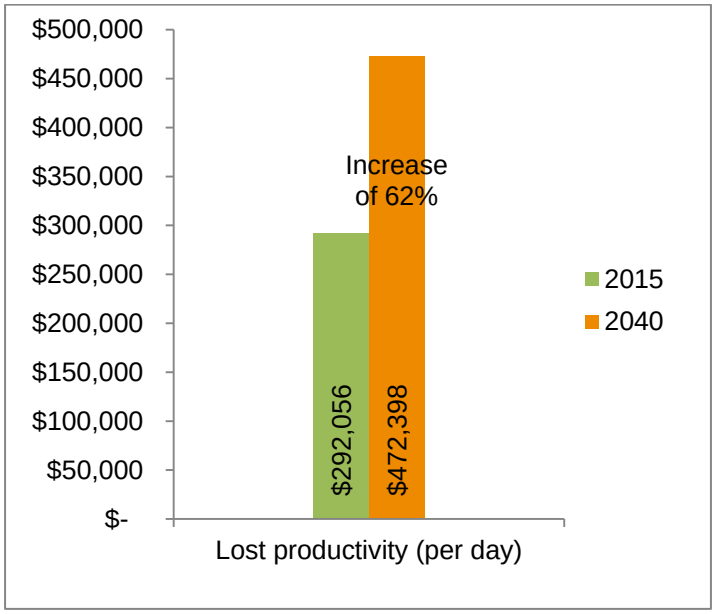
Table 1-4 above, Roadway Conditions and Daily User Delay in the PM Peak Period in the Needs Assessment Study Area under No-Action Conditions, and Chart 1-10 below provide the projected user delay in the study area and the resulting cost in terms of congestion delay for roadway users in the study area under No-Action conditions. The delay, measured in hours, is the additional time it takes to travel under congested traffic conditions compared to free-flowing traffic conditions. A cost of $25.80 per hour is assigned to the delay to arrive at the total lost productivity.

Chart 1-10. No-Action Daily User Delay in the Needs Assessment Study Area



The user delay in the study area resulted in lost productivity of $292,056 per day in 2015 (because of residents and commercial/freight vehicles spending time in traffic) and is expected to result in total lost productivity of $472,398 per day in 2040, an increase of 62% (in 2015 dollars; see Chart 1-11).

Chart 1-11. No-Action Daily Lost Productivity in the Needs Assessment Study Area



In additional to total delay, Table 1-5 shows the PM peak period (3 PM to 6 PM) travel time for specific trips from Salt Lake City to the study area in 2040 under No-Action conditions compared to the travel time with no roadway congestion. Figure 1-10, West Davis Corridor Specific Trip Travel Time (2040), in Volume IV shows the location of each trip.

Table 1-5. 2040 Travel Time in Minutes for Specific Trips into the Needs Assessment Study Area in the PM Peak Period under No-Action Conditions

in minutes

From	To	Trip ID	2040 Travel Time with No Congestion	2040 Actual Travel Time	Percent Difference
South Temple St. and Main St. in downtown Salt Lake City	West end of 100 North, Farmington[a]	Trip A	22	34	54%
	Bluff Road and Antelope Drive, Syracuse	Trip B	35	66	89%
	5900 West and 5500 South, Hooper	Trip C	40	71	78%
	5100 West and 4000 South, West Haven	Trip D	42	73	74%

Source: Results from the 2015 WFRC regional travel demand model (version 8.1)

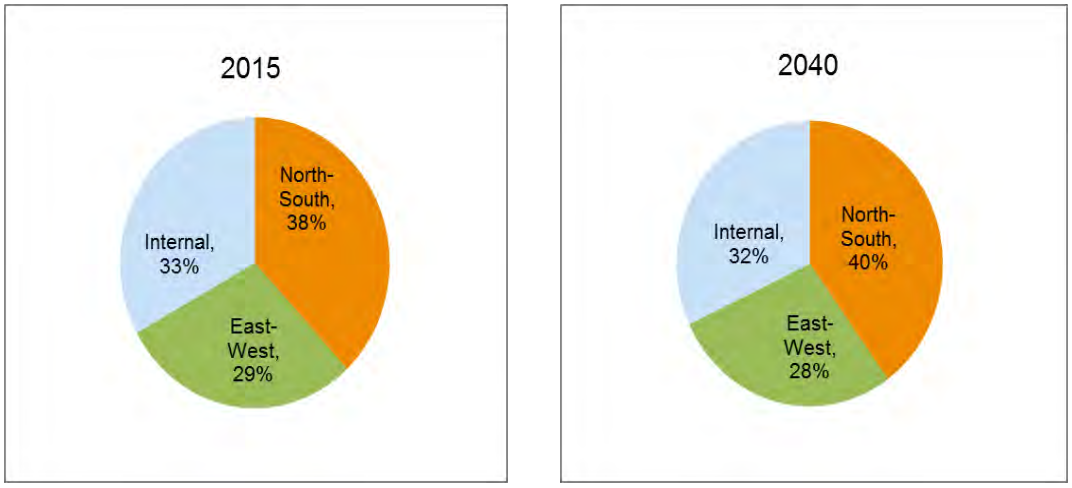
[a] See Figure 1-10, West Davis Corridor Specific Trip Travel Time (2040), in Volume IV for the location of each trip.

1.7.3 Travel Patterns

The WDC team conducted origin-destination travel demand modeling using the WFRC regional travel demand model to further evaluate the direction of travel in the study area (see Figure 1-1, West Davis Corridor Needs Assessment Study Area, in Volume IV) and to confirm whether the principal need for transportation improvements in Davis and Weber Counties is in the north-south direction as indicated by previous studies (WFRC 2001a, 2001b, 2007, 2009, 2011, 2015).

The most important periods to examine for trip modeling are the periods of the morning and evening work commutes, since these are the most congested travel times during the day. The morning and evening commutes are referred to as *home-based work trips*. Chart 1-12 below compares the travel patterns in 2015 and 2040 for home-based work trips. Figure 1-11, Home-Based Work Trips Originating in the Needs Assessment Study Area in 2040, in Volume IV shows the major work-based travel patterns in the study area.

Chart 1-12. No-Action Travel Patterns for Daily Home-Based Work Trips in the Needs Assessment Study Area



As Chart 1-12 above shows, the majority of work trips in 2015 and in 2040 are in a north-south direction, with 38% and 40% of the trips being in this direction, respectively. East-west trips in the study area accounted for 29% of trips in 2015 and are projected to be 28% of trips in 2040. The reason that the north-south travel percentage is higher than the east-west travel percentage is that the main AM and PM peak commuter travel movements in the area are in a north-south direction on major roads such as I-15 to main employment centers including Salt Lake City, Ogden, and Hill Air Force Base. Internal trips within the study area accounted for 33% of the work trips in 2015 and are projected to be 32% of trips in 2040.

These numbers show that the highest percentage of work trips originating in the study area are oriented north-south.

1.7.4 Transit Network

Current transit service in the study area consists of regular bus service, express and intercity bus service, commuter rail, and special services. Table 1-6 below and Figure 1-12, Current (2015) Transit Network, in Volume IV summarize the transit routes and services that are available in the study area. UTA provides all transit services in the area.

Table 1-6. Transit Service in the Needs Assessment Study Area

Type of Service	Route
Commuter rail	Salt Lake City to Ogden FrontRunner
Express bus	UTA Route 456: Ogden to Rocky Mountain Power (Salt Lake City)
Intercity bus	UTA Route 470: Ogden to Salt Lake City Commuter
Express bus	UTA Route 472: Golden Spike Express (Ogden to Salt Lake City)
Express bus	UTA Route 473: Salt Lake City to Ogden Highway 89 Express
Regular bus service	UTA Route 477: PARC Center–Davis County Shuttle
Regular bus service	UTA Route 604: West Ogden–Roy
Regular bus service	UTA Route 606: Enable Industries–Monroe Boulevard (Ogden)
Regular bus service	UTA Route 626: West Roy–Weber State University
Regular bus service	UTA Route 640: Layton Hills Mall–Weber State Ogden Campus
Special service	Paratransit (arranged through UTA)
Special service	Seniors on the Go (arranged through UTA)

Source: UTA 2015

The transit system in Davis and Weber Counties also includes a series of park-and-ride lots along the commuter-rail line and some bus routes.

Within the study area, there is an extensive network of north-south transit service. This includes express and regular bus service routes that provide access to major employment centers between Ogden and Salt Lake City or to educational institutions such as Weber State University and the University of Utah (see Figure 1-1, West Davis Corridor Needs Assessment Study Area, in Volume IV). Many of the express routes use I-15 and have limited stops at stations along the highway.

Many of these stations also serve the FrontRunner commuter-rail line that parallels I-15. The FrontRunner commuter-rail line, which provides service between Ogden and Salt Lake City, began operation in 2008. In the second quarter of 2014 (April to June), the FrontRunner line carried an average of about 15,000 passengers per weekday. Ridership increased 18% during the quarter (American Public Transportation Association 2014). Additional capacity can be added to this existing north-south transit network by adding additional express buses or rail cars to FrontRunner.

The study area does not have any transit routes that run only east-west. However, segments of some routes provide access to areas between I-15 and the Great Salt Lake. These routes include:

- Route 477, which provides access as far west as the PARC School at about Main Street and 700 South in Clearfield
- Route 604, which provides access as far west as 3500 West between 4800 South and 5600 South in Roy
- Route 626, which provides access as far west as 2000 West (SR 108) between Antelope Drive in Syracuse and 6600 South in Roy
- Route 640, which provides access as far west as 1000 West between 1800 North and 200 South in northern Davis County

WFRC's RTP does not include any light-rail projects in the study area. The only transit enhancements in the RTP are enhanced bus service along SR 108 in Davis County and southern Weber County, and bus rapid transit on SR 26 in Weber County and SR 126 in Davis County.

UTA is currently studying the long-term transit needs in southern Davis County (south of Farmington). Because Salt Lake City is expected to remain a significant regional employment center for south Davis County residents, travel between Davis and Salt Lake Counties will continue to increase. Similarly, because Ogden is also a major employment center, travel demand between parts of Davis and Weber Counties and Ogden will also increase over time.

Table 1-7 shows the home-based work transit trips in the study area. The 2015 and 2040 home-based work transit trips were predicted using the WFRC regional travel demand model (version 8.1). Within the study area, home-based work transit trips are 1.72% of the trips in 2015 and 4.35% of the projected trips in 2040.

Table 1-7. No-Action Home-Based Work Transit Trips in 2015 and 2040

Area	2015	2040	Percent Change
Weber County	4,300	16,500	284%
Davis County	4,600	24,000	422%
Study area	2,600	10,300	296%

Source: Results from the 2015 WFRC regional travel demand model (version 8.1)

Because of the lack of convenient east-west transit service and transit infrastructure such as park-and-ride lots, travelers in the western part of the study area who want to access the north-south transit network must drive to the transit stations. With the expected increases in travel demand, particularly for work trips, there will be an increase in congestion and associated travel time for those commuters who want to access transit at FrontRunner

stations. For this reason, increasing the interconnections between transportation modes has been included as a secondary objective of the WDC Project.

WFRC's RTP states that the most appropriate design for a public transportation facility balances the mobility needs of the people (motorists, pedestrians, bicyclists, or transit users) using the facility with the physical constraints of the corridor within which the facility is located.

1.7.5 Pedestrian and Bicycle Facilities

The existing pedestrian and bicycle facilities in the study area consist of bicycle lanes (Class 2 and 3 trails), multi-use paths (Class 1 trails), and sidewalks. Sidewalks are constructed as part of residential developments and are not generally planned on a regional basis. Many of the cities also have pedestrian and bicycle facilities within their city limits. However, bicycle lanes and multi-use paths often serve more than one neighborhood and, in many cases, travel through more than one city. The Denver and Rio Grande Western Trail is the only continuous north-south trail in the study area. Currently there are no east-west pedestrian/bicycle facilities through the study area.

Expanded trail facilities are included in the WFRC RTP [see Figure 1-13, Current (2015) and Future (2040) Bicycle and Pedestrian Trails, in Volume IV]. The RTP states that there is a need to incorporate pedestrian and bicycle facilities into transportation projects to balance the mobility needs of people using the facility. UDOT also considers adding trails or pedestrian facilities in order to be consistent with the adopted RTP. Based on results from the WFRC regional travel demand model (version 8.1), predicted non-motorized trips (bicycle and walking trips) accounted for 3.44% of the 2015 daily home-based work trips in the study area. By 2040, non-motorized trips are predicted to account for 3.47% of the daily home-based work trips.

1.8 Public and Agency Involvement in Developing the Project's Purpose and Need

1.8.1 Draft EIS

The project's purpose and need included in the Draft EIS incorporated input from the public and various other sources during the EIS scoping process. Numerous commenters said that roads in the study area are congested, and commenters supported both roadway and transit improvements to alleviate the congestion.

What is scoping?

Scoping is an early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action.

Prior to release of the Draft EIS in May 2013, FHWA and UDOT published a draft of the project purpose and need document for review by the cooperating and participating agencies listed in Table 1-1, Cooperating and Participating Agencies for the WDC EIS, on May 5, 2010, and for review by the public on May 7, 2010. The WDC team gathered comments on the draft document

through June 7, 2010. Members of the public and agencies were encouraged to provide comments by e-mail, the project website, and U.S. mail. The team received 47 comment submissions on the draft purpose and need document.

The draft purpose and need document was also discussed at a combination SAFETEA-LU Agency–Stakeholder Working Group meeting on May 19, 2010.

In general, the comments on the project's purpose and need focused on the following subjects:

- General agreement or disagreement that the WDC is needed
- Opinion that project goals should consider both transportation and environmental values
- Accuracy of assumptions about the future transportation system
- Accuracy of population and employment forecasts and associated assumptions
- Accuracy of land-use assumptions
- Transit and other needs for alternate transportation choices
- Corrections regarding the project history
- Local growth objectives
- Accuracy of the traffic modeling results
- Air quality

Most comment submissions focused on project alternatives. These comments were considered as the WDC team began developing alternative concepts (see Chapter 2, Alternatives).

UDOT and FHWA made changes to the draft purpose and need document in response to these comments and provided the revised purpose and need document to the agencies and to the public on the project website at www.udot.utah.gov/westdavis. The WDC team did not receive any comments that resulted in major changes to the information supporting the project need or to the project purpose presented in this chapter.

In June 2011, WFRC released version 7.0 of the travel demand model and a new RTP. The May 5, 2010, draft purpose and need document provided to the public was based on the 2007 RTP and version 6.0 of the travel demand model. In the summer of 2011, UDOT used version 7.0 of the travel demand model to conduct a sensitivity analysis to determine whether the decisions about the boundaries of the needs assessment study area and the project purpose and need, which were made with version 6.0 of the travel demand model, were still valid with version 7.0 of the travel demand model (for more information, see Section 1.2, Description of the Needs Assessment Study Area).

As stated in Section 1.2, Description of the Needs Assessment Study Area, based on the sensitivity analysis, the northern limits of the study area changed from 12th South to 3000 South in Weber County. The revised study area boundary was provided to the public for comment in November 2011 as part of the release of *Technical Memorandum 15: Alternatives Screening Report* (West Davis Corridor Team 2012). No public or agency comments were received on the revised study area boundary. The sensitivity analysis revised the study area boundary but did not change the overall purpose of and need for the project.

1.8.2 Final EIS

For this Final EIS, the WDC team updated the purpose and need using version 8.1 of the WFRC travel demand model. The model updates addressed many comments on the Draft EIS regarding the purpose of and need for the project (see Section 1.7.2.1, Changes to the Travel Demand Model between the Draft and Final EISs) such as using the 2012 household survey and more-recent transit data. The update to the purpose of and need for the Final EIS revised the data but did not change the overall purpose of and need for the WDC Project as stated in the Draft EIS. The needs assessment study area did not change between the release of the Draft EIS and the Final EIS.

1.9 Conclusion

The needs assessment study area is projected to experience substantial growth in the next 25 years with a 41% increase in population, a 31% increase in employment, and a 65% increase in households. This growth will cause some of the major north-south and east-west roads in the study area to operate at LOS E or F (see Table 1-4, Roadway Conditions and Daily User Delay in the PM Peak Period in the Needs Assessment Study Area under No-Action Conditions, on page 1-24) and will cause a 50% increase in the number of vehicle-miles traveled in congestion between 2015 and 2040. This congestion will cause a 62% increase in user delay, with the associated total lost productivity projected to increase from $292,056 per day in 2015 to $472,398 per day in 2040. To accommodate the expected growth and resulting congestion, most of the state, regional, and local transportation and land-use plans in the study area identify a need for an improved transportation system.

With the expected increases in travel demand, particularly for work trips, there is a need to provide additional mobility and capacity in the study area, particularly in the north-south direction. The local road network in the study area was designed primarily for local traffic. The numerous intersections and business and residential driveways on the principal arterials increase congestion. In addition, most of these roads were not developed to accommodate multiple transportation modes such as buses and bicycles.

Based on the above facts, transportation improvements are needed in the needs assessment study area to meet the project purpose identified in Section 1.4.1, Purpose of the Project.

WEST DAVIS CORRIDOR

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