Chapter 23: Indirect Effects

23.1 Introduction

This chapter evaluates how the West Davis Corridor (WDC) alternatives identified in Chapter 2, Alternatives, could influence growth. For highway projects, particularly new corridors, the presence of a new highway could lead to changes in land use. This type of indirect effect typically involves changes in the rate, intensity, location, and/or density of land development. Other indirect effects that are not related to land use are evaluated in the relevant resource chapters in this Environmental Impact Statement (EIS).

What is the indirect effects impact analysis area?

The indirect effects impact analysis area is the area where the WDC action alternative would improve access (see Figure 23-1, Location of Potential Indirect Effects, in Volume IV).

Indirect Effects Impact Analysis Area. The indirect effects impact analysis area is the area where the WDC action alternative would improve access (see Figure 23-1, Location of Potential Indirect Effects, in Volume IV). Some studies have found that development effects from highways most often occur up to 1 mile around a freeway interchange and up to 2 to 5 miles along major feeder roads for the interchange (NCHRP 2002).

For western Davis and Weber Counties, Interstate 15 (I-15) on the east and the Great Salt Lake and associated conservation property on the west were used as the eastern and western limits of the indirect effects impact analysis area. Development to the east and immediately

west of I-15 would generally be influenced by I-15, and the potential influence of the WDC would be difficult to discern from that associated with I-15, which has been the dominant transportation facility and the primary influence for development in the area since the 1960s.

To help define the limits of the indirect effects impact analysis area, the WDC team used data on population growth (GOMB 2008) from the Governor's Office of Management and Budget (GOMB) and results from the Wasatch Front Regional Council's (WFRC) travel demand model to determine the influence of the WDC. The WDC team compared the modeled results from the No-Action Alternative with the modeled results from the WDC action alternatives to see how traffic patterns would change and which roads would have more traffic as a result of the WDC.

What is a travel demand model?

A travel demand model is a state-of-the-practice tool that allows transportation analysts to input various land-use and growth scenarios to predict the amount of traffic expected in the future and to test road and transit networks with this predicted traffic.

The WDC alternatives evaluated in this Final EIS have a northern terminus at either 1800 South (Alternatives A1, B1, and B2) or 5500 South (Alternative A2) in Weber County. The comparison of the modeled results between the No-Action Alternative and the WDC action alternatives showed that the WDC would not increase traffic by 2040 north of 4000 South in Weber County.

Additionally, planners with the Cities of Hooper and West Haven said the WDC would not increase the amount of development in their cities north of the highway's northern terminus (West Davis Corridor Team 2012a) because of this area's distance from major commercial centers and limited sewer availability. As a result, the WDC team set the northern limit of the indirect effects impact analysis area at 4000 South in Weber County.

The southern limit is the southern end of the WDC study area, which was selected since the WDC alternatives would connect with I-15 and Legacy Parkway.

What is the WDC study area?

The WDC study area is the area described in Section 1.2, Description of the Needs Assessment Study Area.

23.2 Regulatory Setting

The Council on Environmental Quality's (CEQ) regulations for implementing the National Environmental Policy Act (NEPA) require that an EIS analyze the direct and indirect effects of the proposed action. *Indirect effects* are defined by the CEQ regulations (40 Code of Federal Regulations [CFR] 1508.8) as effects

> which are caused by the [proposed] action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth-inducing effects and other effects related to the induced changes in the pattern of land use, population density, or growth rate, and related effects on air and water and other natural systems, including ecosystems.

What are indirect effects?

Indirect effects are effects that are caused by the proposed action but are later in time or farther removed in distance.

CEQ and the Federal Highway Administration (FHWA) have stated that there is no prescribed specific technique or method that must be used to analyze the indirect effects of transportation projects (FHWA 1992). A national survey of recently completed EISs (USDOT 2005) found that a wide range of methods are being used to evaluate indirect effects.

For this project, *indirect effects* are defined as effects that could result from the WDC beyond direct impacts to property and resources within the project right-of-way and the construction footprint. In this analysis, indirect effects are primarily the effects that could be caused by land development that is reasonably likely to occur due to the improved accessibility and mobility in the area. Indirect effects on natural resources would typically be caused when undeveloped and partially developed land that contains such natural resources is converted to residential, industrial, commercial, or governmental land uses.

23.3 Methodology

An indirect effects analysis involves evaluating how a given project could influence land-use patterns over a 20-to-30-year period. Land-use patterns are the product of interdependent decisions by numerous parties including local elected officials, local planning staff, developers, citizens, regional planning authorities, transportation agencies, and many other public and private entities. In addition, land-use patterns are strongly affected by economic and demographic forces that are beyond the control of government authorities.

What is scoping?

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

The WDC team analyzed whether the WDC could induce growth and change land use by reviewing population projections for the Wasatch Front area (GOMB 2008); reviewing the 2015–2040 Regional Transportation Plan developed by WFRC (2015); reviewing public and agency scoping comments; interviewing planning officials with the Cities of West Haven, Hooper, Clinton, West Point, Syracuse, Layton, Kaysville, and Farmington and the Counties of Weber and Davis regarding the indirect effects impact analysis area; conducting an independent review of market conditions; and using a Real Estate Market Model to forecast changes in land use with the action alternatives compared to the No-Action Alternative.

Interviews and a planning workshop with these planning officials were held on March 14, 2012 (West Davis Corridor Team 2012a). These interviews yielded specific information about planned land-development projects, reasonably foreseeable development patterns, the potential effects of transportation planning decisions on types of development, and the degree to which future development and real estate investment decisions were related to the WDC. In addition to the March 14, 2012, meeting, a follow-up meeting with Farmington City was held on April 23, 2012, to clarify information provided at the initial meeting.

These officials were asked how the impact analysis area would develop differently with the action alternatives compared to the No-Action Alternative. In general, the action alternatives would have similar influences on surrounding land uses, and, as a result, the indirect effects analysis does not evaluate each action alternative separately. However, where different action alternatives would cause changes to expected land use, these areas are discussed separately. The expected land uses with the No-Action Alternative were then compared to those with the action alternatives, and the difference between the No-Action and action alternatives would be the indirect effects associated with the WDC.

23.4 Affected Environment

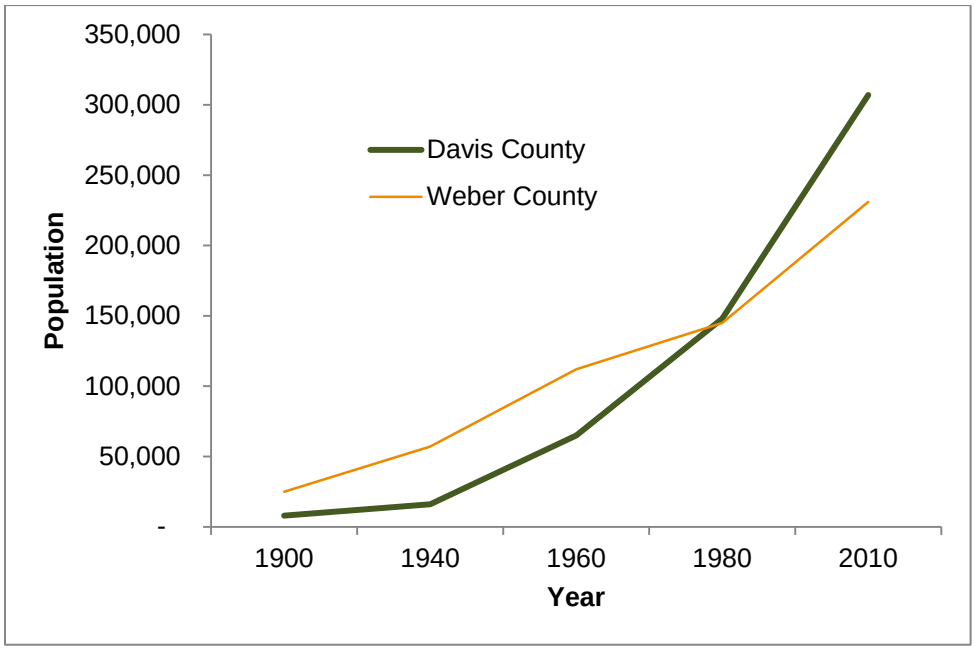
This section provides an overview of the past growth in population, the amount of developed area in Weber and Davis Counties, and the future population and development growth that is expected to occur.

23.4.1 Past Growth in Population and Developed Areas

The context for the indirect effects analysis is the population growth that has occurred in Weber and Davis Counties. This past population growth has led to the urban development that is present in much of the two counties as well as the loss of natural areas. Weber and Davis Counties have experienced major urban expansion resulting in residential, commercial, and industrial centers along with associated infrastructure such as freeways and surface streets.

The 1900 U.S. Census found that Davis County had a population of about 8,000 people and Weber County had a population of about 25,000 people. As shown in Chart 23-1, this population has increased dramatically since 1900, and this steady increase has led to continuing urban expansion (GOMB 2012).

Chart 23-1. Population Growth in Davis and Weber Counties, 1900 to 2010



Source: GOMB 2012

23.4.2 Projected Future Growth in Population and Developed Areas

The rapid population growth shown in Chart 23-1 above is expected to continue through 2040, with population of Davis and Weber Counties increasing by 28% and 43%, respectively (GOMB 2008). The indirect effects impact analysis area includes low-density suburban areas in the east and agricultural and preserved land in the west. The areas that could potentially experience future development are determined by local land-use policy as reflected in master plans and zoning. These plans, which are prepared by city planners based on public input, provide the best available information about how city officials see the future growth of the city. Master plans, sometimes referred to as comprehensive plans, provide recommendations for the future land-use development of a jurisdiction as well as for public facilities and services to support the new development. Zoning district maps, as part of a zoning ordinance, are intended to implement the future land-use plans.

Therefore, zoning is the primary implementing mechanism that local jurisdictions have to control land use. Regional and state planning agencies do not have zoning authority. The future land-use plans for the impact analysis area—plans that are supported by the Cities—show much of the existing agricultural land within the city limits being converted to urban uses (mostly residential) to support future population growth.

The impact analysis area has an extensive road network that has supported past growth, although this network is now becoming congested. Future development patterns in the impact analysis area are expected to follow past and existing trends based on the expected future population growth and on the land-use and zoning plans, transportation plans, and existing road network developed by the Cities.

What is infill development?

Infill development is development within previously built-up areas, often as part of a redevelopment or revitalization program.

The past development trends in the impact analysis area have led to current land uses of low-density residential (41%), commercial (2%), and industrial (3%) (for more information, see Chapter 3, Land Use). These patterns have resulted from the cumulative combination of infill development and new development on the periphery of already developed areas, strip commercial development along major roads, and more-concentrated commercial development at interchanges. Other factors that contribute to this expected future development are the presence of Hill Air Force Base, Weber and Davis Counties' proximity to major employment centers in Ogden and Salt Lake City, and the existing infrastructure that has been put in place to support this development.

In summary, given the projected population growth and past development trends in the indirect effects impact analysis area, this area is likely to become more urbanized with or without the WDC as long as developable land is available.

23.5 Potential Indirect Effects

The discussion in Section 23.4, Affected Environment, makes clear that there will be substantial development throughout the indirect effects impact analysis with the No-Action Alternative; that is, without the WDC. This development is driven by economic and demographic factors that operate independently of the WDC or any specific transportation facility. Therefore, when analyzing whether the WDC would influence land uses, it is critical to distinguish between development that would occur even if the No-Action Alternative is selected and development that would occur only if one of the WDC action alternatives is selected.

For the indirect effects impact analysis area, the WDC is not expected to induce the population growth and associated development projected by GOMB (2008). Instead, the WDC is expected to change the timing or type of development and the locations of this development planned by the Cities. Therefore, appreciable indirect effects related to changes in land use from the WDC action alternatives are not anticipated on the social resources of recreation resources, community facilities, public safety and security, public facilities and services, and minority and low-income populations; transportation; bicyclist and pedestrian resources; air quality; water quality; hazardous waste sites; or visual resources.

Potential indirect effects on land use, ecosystem resources, farmland, floodplains, economics, the community, and noise are discussed in the following sections. No archaeological or paleontological resources were identified in areas that could have an indirect effect; therefore, these resources were not analyzed further for indirect effects.

23.5.1 Overview of Indirect Effects

23.5.1.1 Regional Overview of Growth and Land-Use Changes

To understand how the WDC could change population and household growth and land uses compared to the No-Action Alternative, the WDC team held meetings with local planning officials, conducted an independent market analysis, performed a Real Estate Market Model evaluation, and determined whether travel times with the No-Action Alternative would influence future growth and land use.

Meetings with Local Planning Officials

The WDC by itself is not expected to cause more population growth and associated development than what is already projected by GOMB (2008). Rather, the WDC would shift and affect the pace and type of some of the projected development planned by the Cities in certain locations along existing roads, particularly in Layton, Syracuse, and West Point.

Based on input from the local planners (see Section 23.5.1.2, City Overview), the WDC would enhance the opportunity for previously planned development by providing more-efficient access rather than induce major new development (West Davis Corridor Team 2012a). All of the Cities that would have a WDC action alternative within the city limits have included the WDC in their respective general land-use and transportation plans. However, the

location of the WDC alignment and interchanges could be different than what is identified in the plans.

Adjacent to the interchanges and intersections, the WDC would induce a change in land use and in the locations of certain types of developments. For example, without the WDC interchanges and intersections, the areas would likely develop as low-density residential areas, but with the more-efficient access provided by the interchanges and intersections, the areas adjacent to the interchanges and intersections could develop as commercial areas to support suburban living, with businesses such as grocery stores, gas stations, and restaurants.

There are two main reasons why city staff felt that the indirect effects impact analysis area will develop with or without the WDC. First, city planning officials have said that the population growth and associated development in Davis and Weber Counties will occur with or without the WDC (West Davis Corridor Team 2012a).

Second, GOMB is projecting growth in population and related changes in land use from agricultural to urban in Davis and Weber Counties between 2005 and 2030 (see Figure 23-2, Wasatch Front North Developed Land 2005, and Figure 23-3, Wasatch Front North Developed Land 2030, in Volume IV). According to GOMB, about 47,000 additional acres are expected to be developed between 2005 and 2030 in all of Davis and Weber Counties, based on a current urbanized area of about 119,000 acres and a future urbanized area of about 166,000 acres in 2030 if current trends continue (GOMB 2008).

Assuming that a similar pace of development continues to 2040, about 66,000 acres would be developed between 2005 and 2040 in the two counties independent of the WDC. The assumption of the similar pace of development is based on an expected growth rate of about 1% per year in Davis County and 1.6% per year in Weber County between 2030 and 2040 compared to about 1.3% and 1.5% per year between 2010 and 2030 in Davis and Weber Counties, respectively. The above information was provided for the entire counties and could not be broken out for the specific impact analysis area. The population numbers and growth areas from GOMB do not consider specific transportation projects. The planning process in Utah starts with the projections from GOMB at the state and county levels, which are provided to WFRC to plan future road improvements to support the expected growth.

Overall, based on the interviews with local planning staff, the WDC team expects that the indirect impact analysis area will continue to develop with similar suburban-related land uses with or without the WDC.

Independent Market-Based Evaluation

As part of the proposed Shared Solution Alternative, a market-based evaluation of development in the WDC study area (RCLCO 2015) was conducted to verify future growth patterns. It evaluated the potential for residential, commercial, and industrial development that would likely occur by 2040 based on market factors. The report for the market evaluation concluded the following.

> It is important to add, finally, that this suggests, as well, that construction of the West Davis Corridor would likely have little impact on broad development trends within west Davis and Weber Counties. Evidence in the Wasatch Front and elsewhere suggests that low density single-family development likely occurs whether or not the transportation improvements are there to accommodate it, unless more powerful forces (the land runs out, the government steps in, or the economy collapses) constrain development. (RCLCO 2015)

The evaluation states that the inexpensive land in the WDC study area will be used to meet the strong demand for single-family homes, that the WDC is unlikely to change development patterns substantially, and that the WDC could facilitate more-ordered development of the area (development that is consistent with local planning documents). Therefore, the market-based evaluation further supports the conclusion that the WDC study area would develop with mostly single-family residential uses with or without the WDC. For a copy of the market evaluation report, see Appendix K of *Development and Evaluation of the Shared Solution Alternative* (West Davis Corridor Team 2016).

Real Estate Market Model Evaluation

WFRC used a Real Estate Market Model (REMM) to help the WDC team evaluate future 2040 No-Action and WDC land development and socioeconomic growth patterns in the WDC study area (WFRC 2017). Even before the adoption of the WFRC 2015–2040 Regional Transportation Plan in 2015, WFRC had been working on the REMM in order to account for how transportation infrastructure affects land use over time.

The REMM models land development and transportation as related systems, rather than assuming that development decisions will be static regardless of how investments in transportation are made (Clay 2016). The Utah Department of Transportation (UDOT) requested that WFRC run the REMM for the No-Action and action alternatives to determine what affect, if any, the WDC would have on housing and employment in 2040.

The modeling showed that, by 2040, total household growth would increase by less than 1% as a result of the WDC (90,645 households) compared to conditions with the No-Action Alternative (90,401 households) and that employment would decrease by less than 2% with the WDC (84,033 jobs) compared to conditions with the No-Action Alternative (85,494 jobs). The model results further support the conclusion that the WDC study area will develop at a similar rate and with similar suburban land uses with or without the WDC.

Travel Demand Analysis

Another measure that was considered to evaluate whether the WDC would induce growth is the reduction in travel time that would result from construction of the WDC. Major reductions in travel time would imply a higher potential of induced growth, whereas modest reductions would indicate that growth would not be significantly affected. The indirect effects impact analysis area has an existing transportation network of arterial roads that has allowed much of the area to develop into low-density residential land uses. The existing transportation network supports low-density development. About 1,400 new home building permits were issued in the indirect effects impact analysis area in 2016. However, by 2040, many of the arterial roads would become more congested along with I-15, a projection that supports the need for the WDC.

The travel time analysis focused on the areas with the most developable land in Syracuse, West Point, and West Haven. Areas to the south of these cities in Kaysville and Farmington are already mostly built out with low-density residential developments, so the WDC would not appreciably change the development in those cities. The WDC team reviewed travel times during the evening commute from Salt Lake City to Syracuse, West Point, and West Haven and found that, overall, the WDC would improve a person's travel time by 19% to 23%.

For example, the longest trip from Salt Lake City to West Haven would be 73 minutes with the No-Action Alternative and 59 minutes with the action alternatives. The 14-minute difference in commute time would not likely influence buying decisions for those seeking entry-level homes, considering that the low average cost for a new home in West Haven in 2016 was about $200,000 (at the northern end of the indirect effects impact analysis area) compared to a new home in Farmington at about $377,000 (at the southern end of the indirect effects impact analysis area and closer to Salt Lake City). Also, the WDC team observed that about 32% of the trips would be internal to the indirect effects impact analysis area, and these internal trips would less likely be influenced by morning and evening commuting congestion with the No-Action Alternative in 2040.

The results of this travel time analysis further support the conclusion that the WDC study area will develop at a similar rate and with similar suburban land uses with or without the WDC.

23.5.1.2 City Overview

Based on the analysis in Section 23.5.1.1, Regional Overview of Growth and Land-Use Changes, the WDC team does not expect that the WDC would result in additional growth or substantially different regional land uses of low-density residential use. However, to evaluate how the WDC could change land uses around intersections and interchanges, the WDC team met with local planning officials.

On March 14, 2012, the WDC team interviewed officials from Weber County and the Cities of West Haven, Hooper, Clinton, West Point, Syracuse, Layton, Kaysville, and Farmington. These interviews yielded information about planned land-development projects, reasonably foreseeable development patterns, the potential effect of transportation planning decisions on types of development, and the degree to which future development and real estate investment

decisions were related to the WDC. These officials were asked how the indirect effects impact analysis area would develop differently with the No-Action Alternative compared to the action alternatives.

A summary of the information gathered during the meeting is provided below by city. Unless stated otherwise, all information cited is taken from the meeting notes (West Davis Corridor Team 2012a).

Farmington

Over the past 10 years, Farmington has developed at an accelerated rate, even during and after the economic recession from 2007 to 2010. For example, in 2008, the City issued 145 building permits for single-family homes, and, for the past 3 to 4 years, the city has been in the top 10 jurisdictions in the state for the number of building permits issued on a monthly basis. In 2015, Farmington City issued 160 permits.

According to Farmington city planners, prior to the release of the Draft EIS, with Alternatives A1–A2 and B1–B2 (the WDC at Glovers Lane), the planned 500-acre business park and employment center south of Shepard Lane was expected to develop with or without the WDC as long as the Shepard Lane interchange on I-15 that is identified in the WFRC 2015–2040 Regional Transportation Plan is built independent of Alternatives A1–A2 and B1–B2 (West Davis Corridor Team 2012b). The Shepard Lane interchange is planned to be constructed in Phase 1 (2015 to 2024) of the 2015–2040 Regional Transportation Plan (WFRC 2015).

After the release of the Draft EIS, and based on new employment numbers provided by Farmington City for the proposed commercial development south of Shepard Lane in Farmington, a new interchange access was added at 950 North on the WDC for all of the WDC action alternatives. This interchange would allow WDC traffic to access the proposed Farmington commercial development and the existing Station Park development. Thus, the WDC alternatives would not negatively affect proposed or existing developments in Farmington by not providing access.

The area around the proposed interchange at 950 North is already developed, so no new induced development would occur from the interchange. The northeast quadrant of the proposed interchange includes the South Davis Sewer District complex, the southeast quadrant has an existing residential area, and the area to the east is currently being developed with the Shepard Landing residential development. Thus, all of the area east of the proposed 950 North interchange is either developed or is being developed. The area west of the proposed 950 North interchange is either part of the either the Great Salt Lake Shorelands Preserve or within the Great Salt Lake floodplain, thus restricting new development.

Before the proposed 950 North interchange is constructed, a road to the interchange would need to be built by Kaysville City connecting to the existing road at 2000 West and 950 North. A corridor west of this intersection has been preserved for a future road. A separate environmental study for this independent roadway segment would look at alternative options, but, based on surveys conducted for the WDC, wetlands and residential impacts could be avoided. Overall, the Farmington Station Park development is moving forward. The WDC would not induce growth at this development because the development is more influenced by

I-15 and Farmington residents. With the WDC Glovers Lane alternatives (Alternatives A1–A2 and B1–B2), 1100 West could eventually connect to the WDC with an interchange once the City obtains funding. The 1100 West road is not needed to meet the purpose of the WDC and would be an independent project implemented by Farmington City once it obtains funding. The area around the interchange has been developed, and the WDC would not induce development in the area.

Farmington City has been planning for a 90-to-100-acre light-industrial-use area south of Glovers Lane. Alternatives A1–A2 and B1–B2 would result in less industrial development near the Glovers Lane interchange. The flyovers associated with the interchange would eliminate planned areas for industrial development. In addition, the Farmington City planners are concerned that the areas between the flyovers could fill with storage-related development (for example, warehousing) or be left vacant. With the No-Action Alternative, this development would be built as currently planned.

Alternatives A1–A2 and B1–B2 would be along the western boundary of Farmington. City planners said that they use the Great Salt Lake floodplain elevation of 4,218 feet as the development boundary. Since most of the land west of Alternatives A1–A2 and B1–B2 is lower than this elevation, no development would likely occur in this area, although the City felt that it could occur, but at lower densities. They also said that the current and planned development would occur out to the location of the conservation easement the City has in place to restrict development in western Farmington near the Great Salt Lake. Therefore, Alternatives A1–A2 and B1–B2 would not induce development in this part of western Farmington (West Davis Corridor Team 2012b).

Farmington City has stated that, if the conservation easements are affected by Alternatives A1–A2 and B1–B2, this could result in development in the easements on the east side of the WDC. However, the WDC alternatives in western Farmington are next to the current and proposed development areas, leaving no additional area for new development between the existing and platted developments and the WDC. City planners said that the WDC alternatives would bisect the conservation easements, which might make it more difficult for the City to uphold the easements east of the WDC and would potentially allow development between the existing developments and the WDC. Given that the WDC would be on the eastern edge of the easements and would not provide any access to this area or to areas west of the WDC, the WDC would not change or cause any induced growth in this area. The City provided comments on the Draft EIS that the Glovers Lane southern interchange option could slow growth in Farmington, which would reduce indirect effects on natural resources from growth.

Finally, with the Glovers Lane southern interchange option, the City would re-evaluate its trail system program to ensure that connectivity is maintained.

Kaysville

Over the past 10 years, Kaysville has experienced growth in the amount of low-density housing, primarily due to land in agricultural use being converted to residential use. Although the recent economic recession had slowed development, development began to increase starting in 2011 with 91 residential building permits and increasing to about 198 in 2015. Long-term development projections for Kaysville show the city approaching build-out by 2040, and the City expects this to occur.

What is build-out?

Build-out means that there is no more land available for development because any undeveloped land is already being used for its intended use of open space, agriculture, or other defined uses. However, build-out rarely means the end of development in a city, because parcels of land can be redeveloped (infill), and a city can add to its existing land base by annexing adjacent parcels.

Development in Kaysville would occur with or without the WDC. The amount of land being developed and the rate of development would not change with either the No-Action Alternative or any of the WDC action alternatives because the proposed alternatives would not provide new access to most of the city. Future development will likely be low-density housing.

In Kaysville, the area around the proposed 200 North interchange has been or is being developed. A new school has been built on the southeast quadrant, and the northeast quadrant is being developed. Because the area around the interchange will be developed with a school and residential areas, the WDC would not change development in this area.

Layton

Over the past 10 years, residential growth in Layton has been strong. From 2002 to 2007, the City approved an average of 350 residential building permits per year. In 2008, during the economic recession, that number decreased to 97 but has increased to between 266 and 309 per year in 2012 to 2015. The retail and office sectors experienced similar trends as the residential sector, with a dramatic slowdown in 2008. All sectors have had increased activity since 2011. The industrial sector is focused on larger job-creating projects such as the East Gate Industrial/Business Park at Hill Air Force Base and the new Janicki Industries facility at 3835 N. Fairfield Road in Layton.

Layton city planners said that, without the WDC, the future business park/employment center planned around the WDC 2700 West interchange would not be built. Instead, the area would likely develop as residential. The planners believe that, without the business-type development, job creation in their city could be harmed. With the No-Action Alternative, east-west traffic in Layton would be more congested, even with planned improvements. A higher-density village center is planned near the intersection of 2700 West and Hill Field Road. The No-Action Alternative would affect the viability of the development and result in more residential development. Additionally, local investment in planning efforts associated with the business park, 2700 West, and Layton Parkway would be weakened with the No-Action Alternative.

Regardless of the action alternative selected, the WDC could accelerate the rate of completion of Layton Parkway, an east-west connection from I-15 to the WDC. However, as of November 2016, most of Layton Parkway had been built. The parkway extends to 1700 West with additional sections being built as part of new subdivisions along 2200 West. Layton Parkway might be completed before any influence from the WDC could occur. The city planners view the WDC as a boundary to define the edge of developed land in Layton.

The WDC interchanges in Syracuse (on Antelope Drive and 2000 West) could affect development and redevelopment east of I-15, as alleviated congestion would make the areas near the I-15 interchanges in Layton more accessible for redevelopment. Overall, the WDC would affect the rate of development and type of development at the WDC's 2700 West interchange in Layton. Development would be commercial/office park with the WDC and residential with the No-Action Alternative.

Syracuse

The city of Syracuse has seen steady population growth and expansion of commercial development, most of which has occurred north and northeast of Bluff Road. The economic recession from 2007 to 2010 reduced the number of housing subdivision and building permits issued by the City; however, the development has been similar to WFRC's projections (WFRC 2015). During the recession, the number of building permits dropped to a low of 69 in 2008, but this number had increased to 243 in 2015. The increase in building permits shows a continued strong demand for single-family homes in the WDC study area.

Syracuse city planners estimate that, regardless of whether the WDC is built, the city will be developed to 75% to 80% of build-out by 2040. Development east of Bluff Road would likely not be affected by the WDC.

Before the release of the Draft EIS, Syracuse city planners believed that, without the WDC, the unincorporated areas south of the current city boundary to Gentile Street were unlikely to incorporate into the city because there would not be enough development to support the annexation, and future residential and commercial development would occur within the current city boundaries. However, after the Draft EIS was released, several new residential developments were built adjacent to Gentile Street. This demonstrates that the WDC would not induce growth, since development is currently occurring in this area. With the proposed interchange at 2000 West that is part of all of the WDC action alternatives, development that would occur within the current city boundaries could move closer to the proposed interchange because of improved access. Thus, this area is more likely to develop and thus be annexed to Syracuse so that city services can be provided. There is a higher likelihood of some commercial, retail, or office development around the 2000 West interchange.

The planners also believe that the WDC would accelerate the rate of development and result in requests for higher-density or possibly multi-family residential developments west of Bluff Road to about 3000 West.

The city planners believe that, with the A Alternatives, the areas around the Antelope Drive interchange at 4000 West could have some tourism-related commercial development for travelers going to Antelope Island instead of the planned residential development. With the

B Alternatives, there is a higher likelihood of commercial development around the Antelope Drive interchange at 3000 West instead of the planned residential development. The B Alternatives would also be more beneficial to the existing commercial development in the city.

West Point

West Point city planners estimate that, without the WDC, the city will be developed to 60% of build-out by 2040. Commercial development would be less likely, and the current trend of residential development would continue. Without the WDC, the areas west of 5000 West would be less likely to be developed by 2040 based on current road access.

Based on the anticipated access from the WDC and available land, the city planners believe that any of the WDC action alternatives would accelerate residential development west of Bluff Road. The planners estimated that the total development in the city would be about 65% to 70% of build-out in 2040 with the WDC.

City planners said that, if Alternative A2 or B2 is selected, the planned high school on 5000 West at 1800 North could not be built at that location and would need to be moved west of 5000 West. The planners anticipate development around the school, so, if the school were to move as a result of Alternative A2 or B2, the development would likely follow it. Development in this area would be connected to the high school rather than to the WDC.

Alternatives A2 and B2 would increase the likelihood of commercial development around 1800 North and on 1800 North through West Point versus residential development with the No-Action Alternative. Alternatives A2 and B2 would also increase the likelihood of more residential development west of 5000 West including around the high school as well as the possible annexation of unincorporated areas west of the current city boundaries compared to Alternative A1 or B1 or the No-Action Alternative.

With Alternative A1 or B1, the planners anticipate increased commercial development versus the expected residential development with the No-Action Alternative around 1800 North in West Point.

Clinton

Clinton city planners said that they anticipate the city being fully built out by 2040 with or without the WDC and that the WDC is unlikely to affect the amount, rate, or types of development in Clinton. None of the WDC alternatives would affect Clinton.

Hooper

Hooper city planners estimated that the amount of future development in Hooper would likely be around 50% of total build-out by 2040. This amount would likely be the same with or without the WDC, since development is currently constrained by available sewer service.

The planners said that Alternative A2 would likely increase the desire for more residential development in Hooper because of improved access, but that the total amount (about 50% of total build-out) would not be different compared to the No-Action Alternative because of the sewer constraints. Alternative A2 would increase the likelihood of commercial development around the 5500 South terminus for this alternative compared to the likely residential development with the No-Action Alternative.

The B Alternatives and Alternative A1 would likely have little effect on Hooper because the terminus for these alternatives is about 1 mile south of the Hooper city limits.

West Haven

None of the WDC alternatives would be in West Haven, and the alternatives would be at least a mile from the city boundary. I-15 connections would have a greater influence on future development in West Haven than would the WDC because of the proximity of I-15 to the city.

Weber County

Weber County planners said that, because the WDC would not be north of 5500 South, the WDC would not affect the likelihood that the unincorporated areas of Weber County north of 5500 South would develop. The planners said that a future high school is planned along 5100 West north of 4000 South; however, the construction of this high school does not depend on the WDC.

23.5.1.3 Summary of Indirect Effects by Area

Based on the information provided by the Cities, the WDC team identified specific areas where the WDC could influence a change in the type of land use compared to the land use with the No-Action Alternative. Figure 23-1, Location of Potential Indirect Effects, in Volume IV shows these locations, which are described in Table 23-1 below.

Table 23-1. Summary of Indirect Effects of the WDC by City

Map ID for Area[a]	City	Alternative(s)	Potential Indirect Change	Potential Indirect Effects from the WDC Action Alternatives by Environmental Resource
A-1	Farmington	All action alternatives	**No-Action Alternative** – With the No-Action Alternative, the area would developed as a 90-to-100-acre industrial park as currently planned by Farmington City. **All action alternatives** – The action alternatives would result in less industrial development near the WDC Glovers Lane connection to I-15. The interchange ramps would reduce the size of the industrial development and would leave some areas under the ramps vacant.	**Agricultural** – The area around the proposed Glovers Lane interchange is agricultural and planned as light manufacturing in the Farmington land-use plan. The WDC could reduce the size of the planned manufacturing development that is anticipated with the No-Action Alternative as a result of the freeway-to-freeway interchange ramps. No indirect effects are anticipated, since the land would be developed as manufacturing with the No-Action Alternative or left as open land (highway right-of-way) with the WDC action alternatives.
A-2	Farmington	All action alternatives	**No-Action Alternative** – With the No-Action Alternative, the area would be developed with the South Davis Sewer District complex or existing or currently proposed residential development. **All action alternatives** – The action alternatives would result in the same level of development as with the No-Action Alternative, since the area around the proposed 950 North interchange is either developed or is being developed. Constructing the 950 North interchange would allow WDC traffic to access the Farmington commercial area and thus would not cause any negative indirect effects associated with reducing traffic access to a commercial area.	**Suburban –** The northeast quadrant of the proposed 950 North interchange includes the South Davis Sewer District complex, the southeast quadrant has an existing residential area, and the area to the east is currently being developed with the Shepard Landing residential development. Thus, all of the area east of the proposed 950 North interchange is either developed or is being developed. No growth-related effects impacts are anticipated. **Wildlife Habitat** – The area west of the proposed 950 North interchange is either part of the Great Salt Lake Shorelands Preserve or within a conservation easement, thus restricting new development. This area is also in the Great Salt Lake floodplain. The WDC team does not anticipate that the proposed connector road to the interchange would affect any wetlands or sensitive wildlife habitat.
B	Kaysville	All action alternatives	**No-Action Alternative** – The area would develop as residential and as a school. **All action alternatives** – Development would be similar to the No-Action Alternative conditions, since the area around the proposed 200 North interchange has been developed with a school and residential areas. Thus the area will develop with or without the WDC. If a WDC alternative is selected that bisects The Nature Conservancy (TNC) property in this area, about an additional 16 acres would be developed.	**Wildlife Habitat** – About 45 acres of wildlife habitat on TNC property would remain east of the WDC, and this area could be developed, since it would no longer be connected to the larger Great Salt Lake Shorelands Preserve and would have improved access to the WDC. With the No-Action Alternative, this property would still be used by TNC. There are no wetlands or riparian areas or threatened or endangered species on this property. **Wetlands** – About 3 acres of wetlands east of the interchange have been platted to be developed for residential use. Kaysville City has zoned the area around the interchange as residential, industrial, and commercial. The wetlands would be converted to development and mitigated with or without the WDC; therefore, no indirect effects are anticipated.

(*continued on next page)*

Table 23-1. Summary of Indirect Effects of the WDC by City

Map ID for Area[a]	City	Alternative(s)	Potential Indirect Change	Potential Indirect Effects from the WDC Action Alternatives by Environmental Resource
C	Layton	All action alternatives	**No-Action Alternative** – The area would develop as residential. **All action alternatives** – Development at the 2700 West interchange would change from residential with the No-Action Alternative to interchange-related business park/commercial with the WDC action alternatives. The area will develop with or without the WDC. With the WDC action alternatives, development at Hill Field Road and 2700 West would likely be a business park versus residential development with the No-Action Alternative. The above changes would also apply to the wetland avoidance option in Layton. If this wetland avoidance option is selected, the small amount of agricultural land between the WDC and the Great Salt Lake Shorelands Preserve would likely remain undeveloped. It would likely be either converted to natural habitat or kept in agriculture use, since the City would not provide services to this area.	**Agricultural** – The area east of the 2700 West interchange is a mix of agricultural and residential. There are no wetlands. The Layton land-use plan shows the area as low-density residential. The agricultural land is expected to develop with or without the WDC; therefore, no indirect effects are anticipated.
D	Syracuse	All action alternatives	**No-Action Alternative** – With the No-Action Alternative, the area likely would not be annexed and would have limited residential development. **All action alternatives** – The unincorporated areas around and south of the WDC 2000 West interchange to Gentile Street would likely be annexed into Syracuse and developed with the WDC action alternatives. No details regarding the amount, location, or type of development are available, so the exact acreage of indirect effects is not known.	**Agricultural/Wetlands** – The area around the 2000 West interchange includes mostly agricultural (mostly pasture) land with intermittent residential and wetland areas. With all of the WDC action alternatives, the interchange would induce some development in this area. Because it is not possible to predict the type and size of development, the exact acreage of indirect effects is not known. There are about 16 acres of wetlands in this area. Davis County does not have a land-use plan for this area.
E	Syracuse	A Alternatives	**No-Action Alternative** – The area would develop as low-density residential. **A Alternatives** – With the A Alternatives, the area around the proposed WDC interchange at Antelope Drive and 4000 West would likely develop into tourism-related commercial.	**Agricultural** – The area around this proposed interchange is a mix of residential, golf course, agricultural, and sewer treatment plant. Most of the agricultural land is used by the sewer treatment plant as a buffer for its operations. The Syracuse land-use plan shows the area around the proposed interchange as residential. The area around the interchange is expected to develop with either the No-Action Alternative or the A Alternatives; therefore, no indirect effects on agricultural land are anticipated.

(*continued on next page)*

Table 23-1. Summary of Indirect Effects of the WDC by City

Map ID for Area[a]	City	Alternative(s)	Potential Indirect Change	Potential Indirect Effects from the WDC Action Alternatives by Environmental Resource
F	Syracuse	B Alternatives	**No-Action Alternative** – The area would remain residential. **B Alternatives** – Although much of the area around the proposed interchange at Antelope Drive and Bluff Road is developed, with the B Alternatives this area would become more commercial versus residential with the No-Action Alternative.	**Agricultural/Wetlands** – Most of the land around the proposed interchange is developed with a mix of residential, golf course, and community facility. There is agricultural land with about 5 acres of wetlands along the southwest quadrant of the proposed interchange, which is shown as commercial and residential in the Syracuse land-use plan. The area around the interchange is expected to develop with either the No-Action Alternative or the B Alternatives; therefore, no indirect effects on agricultural land or wetlands are anticipated.
G	West Point	Alternatives A2 and B2	**No-Action Alternative** – The area would remain a mix of agricultural and residential as part of Davis County. **Alternatives A2 and B2**– West Point city planners believe that, with these alternatives, more residential development is likely to occur west of 5000 West, and unincorporated areas west of the current city boundaries are more likely to be annexed compared to the likelihood with Alternative A1 or the No-Action Alternative. Areas east of the interchange are planned as residential but with these alternatives would more likely become a mix of residential and commercial.	**Agricultural/Wetlands** – Most of the area west of 5000 West is agricultural. There are several wetland areas totaling about 2 acres in the area around the WDC connection to 1800 North. Davis County has no land-use plan for the area west of 5000 West. Because it is not possible to predict the type and size of development, the exact acreage of indirect effects is not known. Areas east of the alternatives are expected to develop with the No-Action Alternative and Alternatives A2 and B2; therefore, no indirect effects east of the alternatives are anticipated.
H	West Point	Alternatives A1 and B1	**No-Action Alternative** – The area would be residential. **Alternatives A1 and B1** – With these alternatives, there would be a higher likelihood of commercial-related development around 1800 North versus residential development with the No-Action Alternative.	**Agricultural/Wetlands** – The area around 1800 North for Alternatives A1 and B1 is a mix of agricultural, wetlands (13 acres), and residential. Most of the wetlands are immediately southwest of this proposed WDC connection to 1800 North. The West Point land-use plan shows this area as low-density residential. The area is expected to develop with or without the WDC; therefore, no indirect effects are expected. Given the good quality of the wetlands in this area, any development would be difficult and would require a Clean Water Act Section 404 permit.
I	Hooper	Alternative A2	**No-Action Alternative** – The area would be residential. **Alternative A2** – Hooper city planners believe that, with Alternative A2, there is a greater likelihood for commercial development around the 5500 South intersection versus residential development with the No-Action Alternative.	**Agricultural** – The area around the 5500 South intersection is a mix of agricultural and residential. The Hooper land-use plan shows these areas as residential, commercial, or industrial. The areas are expected to develop with or without the WDC; therefore, no indirect effects are expected.

[a] These areas are shown in Figure 23-1, Location of Potential Indirect Effects, in Volume IV.

23.5.2 Indirect Effects by Resource

The WDC team used the information in Table 23-1 above to evaluate the potential indirect effects of the WDC. As stated by the city planners, most of the indirect effects impact analysis area is likely to be developed with or without the WDC, although the WDC could change the type, intensity, and/or rate of development. Potential indirect effects were based on the current conditions that existed during the preparation of this Final EIS; for example, the wetlands and wildlife habitat that existed in early 2017. The potential indirect effects in 2040 were evaluated against these existing conditions.

23.5.2.1 No-Action Alternative

If the No-Action Alternative is selected, the indirect effects impact analysis area would continue to experience rapid development, which is also expected with the WDC action alternatives. The projections from GOMB predict substantial population growth for both Weber and Davis Counties, and local and regional planners and developers believe that much of that population growth and associated development will take place in the indirect effects impact analysis area because this area contains much of the remaining developable land in the region and has existing transportation access (West Davis Corridor Team 2012a). As a result, the indirect effects impact analysis area is expected to develop toward full build-out even with the No-Action Alternative.

23.5.2.2 WDC Action Alternatives

Potential Indirect Effects on Land Use

There is an ongoing trend in the impact analysis area of agricultural land being converted to residential, commercial, and industrial uses. According to information about future land uses from municipalities and city planners, land use in the impact analysis area will be dominated by residential with some commercial and retail use by 2040. Based on input from the city planners, it is not likely that the WDC would change the amount of agricultural land in the impact analysis area that would become developed in the foreseeable future, but it could change the location, density, and type of development. Change from an undeveloped land use to a developed land use consistent with land-use plans is not typically considered to be an adverse effect on land use, since the change is part of the City's plans. The indirect changes in land use as a result of the WDC would generally be consistent with the Cities' land-use plans.

Potential Indirect Effects on Ecosystem Resources

If undeveloped land contains wildlife, habitat types, vegetation communities, sensitive species, or wetlands, developing this land could harm these resources. Although wetlands are at least partly protected from development due to the Section 404 permitting process and wetland impacts must be mitigated, the same is not true for the other resources such as vegetation and wildlife. Thus, to the extent that planned development is accelerated by the WDC, adverse indirect effects could occur sooner than what would occur with the No-Action Alternative. Chapter 14, Ecosystem Resources, provides more-detailed information about the potential indirect effects on the resources evaluated as part of the ecosystem.

What is the Section 404 permitting process?

Section 404 of the Clean Water Act regulates the discharge of dredged, excavated, or fill material into waters of the U.S. The U.S. Army Corps of Engineers is the federal agency authorized to issue Section 404 permits for certain activities conducted in wetlands or waters of the U.S.

As discussed in Chapter 14, Ecosystem Resources, there are no federally listed threatened or endangered species near any of the WDC action alternatives, and only two sensitive species (bobolink and short-eared owl) might be present in agricultural land that could be indirectly affected by the WDC. With all of the WDC action alternatives, the proposed interchange at 2000 West in Syracuse and the area west of 5000 West (specifically, the proposed 1800 North interchange with Alternative A2 or the proposed 1800 North intersection with Alternative B2) in West Point could result in some development on agricultural land (both pasture and farmland) that would not occur at this location with the No-Action Alternative.

It is not possible to predict the amount, type, and location of the development, but some agricultural habitat used by these species could be developed to urban uses. The development could also result in additional habitat fragmentation, smaller habitat patches, and direct deaths of individual animals. Since the area potentially affected by these indirect effects is already marginal agricultural habitat, the impact from the WDC would be negligible. Given that the land is private property, it has a low likelihood of being restored to natural habitat in the future. Given the development trends in the area, the property would likely be converted to urban uses.

At 200 North in Kaysville, the WDC would indirectly affect 16 acres in the Great Salt Lake Shorelands Preserve owned by TNC. This land would be cut off from the main preserve by the WDC and could potentially be developed because the proximity to the proposed interchange at 200 North makes the property attractive for commercial or residential development. This land contains wildlife habitat for bird species that use the uplands adjacent to the Great Salt Lake. TNC feels that, once the land is bisected, it would have marginal value as wildlife habitat. In addition, several other parcels of the Great Salt Lake Shorelands Preserve would be bisected, leaving about 29 acres of wildlife habitat cut off from the main preserve by the WDC. This fragmentation would reduce the wildlife habitat value.

With the WDC, the proposed interchange at 2000 West in Syracuse (with all of the WDC action alternatives) and the proposed interchange or intersection at 1800 North in West Point (with Alternatives A2 and B2) could cause some development in areas that contain wetlands,

development that would not occur at this location with the No-Action Alternative. It is not possible to predict the amount, type, and location of the induced development, but there could be some induced loss of wetlands. Regardless of whether the forecasted development would be public or private, the developments that could be built in this area would need to comply with Sections 404 and 401 of the Clean Water Act, which regulates filling of and encroachment on wetlands. The wetlands in this area are currently on private land and are within areas actively farmed or used for pasture. See Chapter 14, Ecosystem Resources, for more information about the potential indirect effects of the WDC on wetlands adjacent to the highway.

Given its location, the proposed 1800 North intersection for Alternatives A1 and B1 in West Point could result in some commercial development in areas that would be residential with the No-Action Alternative. The commercial development could cause more wetland impacts than would residential development. It is not possible to predict the amount, type, and location of the induced development, but there could be some induced loss of wetlands.

In addition, proposed developments would need to comply with the program established by Section 404 of the Clean Water Act and administered by the U.S. Army Corps of Engineers (USACE). This program, which operates under a "no net loss" policy for wetlands, requires avoidance and minimization of impacts and compensatory mitigation for unavoidable impacts to wetlands. Compensatory mitigation can include mitigation banking under specific criteria defined and approved by USACE.

With the WDC, the pace of development could be accelerated in some areas. The most likely locations would be in Layton, Syracuse, and West Point on agricultural land, where improved accessibility could lead to development occurring sooner than with the No-Action Alternative. The increased pace of development could develop agricultural land and wetlands on this agricultural land earlier than what would occur with the No-Action Alternative, although the land would likely be developed with either scenario. With the WDC, less agricultural-related wildlife and wetland habitat would be available for use by bird species for a shorter period of time than with the No-Action Alternative.

Potential Indirect Effects on Farmland

As discussed in Chapter 4, Farmland, the trend in the indirect effects impact analysis area has been a decline in farmland, which is considered a notable resource in the area based on comments from the community. Based on city plans and forecasted population growth, much of the farmland in the indirect effects impact analysis area is expected to develop with or without the WDC. The past trend of farmland being converted to urban uses in Davis and Weber Counties is expected to continue through 2040. However, the WDC could redirect some development to areas that are currently farmed and that are shown in the Cities' land-use plans as continuing to be farmed in 2040 with the No-Action Alternative.

With the WDC, the proposed interchange at 2000 West in Syracuse (with all of the WDC action alternatives) and the proposed WDC connection at 1800 North in West Point (with Alternatives A2 and B2) could result in some development in areas that are currently farmed or are used for pasture and could continue as farmland or pasture in the future. It is not possible to predict the amount, type, and location of development, but there could be some

loss of farmland or pasture if owners are willing to sell. About 100 acres of pasture around the 2000 West interchange in Syracuse could experience some of this interchange-related development. The area around the proposed WDC connection to 1800 North is mostly farmland. The loss of farmland or pasture would continue a trend of converting these uses to urban uses in the indirect effects impact analysis area and would further reduce these resources in Davis County.

Potential Indirect Effects on Floodplains

None of the potential indirect effect areas identified in Table 23-1 above, Summary of Indirect Effects of the WDC by City, are within the floodplain of the Great Salt Lake, so no indirect effects on floodplains are expected. In general, floodplains pose a constraint to development. This constraint relates to the management of development within floodplains through local regulations. These local regulations limit and regulate development within floodplains and floodways to eliminate or reduce potential damage from future floods.

In addition, Executive Order 11988, Floodplain Management, and county and local ordinances would minimize floodplain encroachment to the extent allowable by the regulations, thereby preserving a majority of a floodplain's natural values. These values include retention of riparian vegetation buffers, which preserve wildlife habitat and provide natural filtration for improved water quality. As a result of the regulations governing development within floodplains, the potential effects of the WDC in terms of encroachment on and alteration of floodplains are anticipated to be negligible.

Potential Indirect Effects on Economics

The WDC would enhance the development opportunities in the areas already planned for development of commercial areas and employment centers. The interchanges would likely cause changes from future residential to future commercial development, which could provide an economic benefit to the Cities by providing more job opportunities and more tax revenue. City planners have said that the WDC would allow planned commercial areas and employment centers to develop more quickly.

Chapter 8, Economics, analyzes how the WDC could affect property values. City planners said that the WDC action alternatives could induce a change in land use from residential to commercial around interchanges or signalized intersections. The change of land use to commercial would result in more employment opportunities in the cities that have a WDC interchange or signalized intersection (Farmington, Kaysville, Layton, Syracuse, West Point, and Hooper), and this change in land use could reduce travel by local residents since they would have closer employment opportunities. The commercial development would also increase tax revenues for the Cities. Overall, the WDC would have beneficial economic indirect effects that could offset the possible loss of farm revenues due to the WDC.

Potential Indirect Effects on the Community

The WDC interchanges and signalized intersections could change the land use around the interchanges from residential with the No-Action Alternative to commercial with the action alternatives. This induced change in land use could indirectly affect the character of the area from a more rural, residential character to a commercial and urban character.

For those residents who live near the interchanges or signalized intersections and who anticipated that residential development would continue, this change to commercial development could reduce their quality of life and reduce their sense of community cohesion with their neighbors. Many residents moved to the area proposed for the WDC because of the quality of life provided by the rural nature of the area. This change to a more commercial area would occur around all of the proposed WDC interchanges and signalized intersections.

However, for some residents, the change to a commercial area could be seen as a benefit, since they would not need to travel as far for services. The effect on the community is subjective, and each resident would have different views about whether the effect is negligible or substantial. Given that the area is expected to develop with the No-Action Alternative to more of an urban environment, the change of land use from residential to commercial would continue this trend and would be a negligible impact overall.

Potential Indirect Effects on Noise

Future development would increase noise levels. To the extent that this development is induced by the WDC, the increased noise levels would be an indirect effect of the WDC. Noise is essentially a local physical condition, and most of the noise from the anticipated development would result from increased traffic in the indirect effects impact analysis area. The WDC is anticipated to accelerate the rate of development rather than induce additional development in the impact analysis area. As a result, the potential indirect effects of noise are anticipated to be negligible.

Potential Indirect Effects from a Future Transportation Corridor in Weber County

During the scoping period for this EIS, USACE, the U.S. Fish and Wildlife Service, and the U.S. Environmental Protection Agency (EPA) commented that building the WDC could allow a future highway to be built connecting to and extending north from the northern terminus of the WDC. The main issues associated with such a future extension of the WDC would be impacts to wetlands, wildlife habitat, and agricultural areas.

Two previous studies evaluated a future northern extension of the WDC called the North Legacy Highway. The 2001 *North Legacy Transportation Corridor Study* (WFRC 2001) identified a preferred alignment for the North Legacy Highway in Davis County. The Davis County segments of the North Legacy Highway made up the “Bluff Road Alternative,” and the Davis County communities generally agreed on a preferred alignment for the highway along Bluff Road. In Weber County, the local governments agreed on an alignment from the Weber County–Davis County border to 12th South in Weber County. However, they

disagreed on an alignment north of 12th South, so the 2001 study report does not discuss an alignment north of 12th South. This EIS is evaluating the alternatives in Davis County and in Weber County north to either 1800 North in Davis County or 5500 South in Weber County about 4 to 5 miles south of 12th South.

In 2009, WFRC and UDOT revisited the preferred alignment for the North Legacy Highway in Weber County (WFRC 2009). This supplemental study to the 2001 study succeeded in identifying a preferred alignment for the North Legacy Highway in the Weber County communities west of I-15 (Hooper, West Haven, and Plain City) and for the unincorporated areas of Weber County. During the comment period for the supplemental study, EPA commented that the preferred alignment would have substantial environmental impacts because it was not the least environmentally damaging alternative.

The proposed North Legacy Highway alignment identified in the 2009 study is not included in WFRC's 2015–2040 Regional Transportation Plan for construction (WFRC 2015). Thus there is no need for a North Legacy Highway through the 2040 planning period for this EIS. However, if the WDC is built, this would increase the probability that a future road north would be constructed, assuming that a need for the road is identified beyond 2040.

If a need for a North Legacy Highway is identified in the future, the highway would have to go through a similar environmental process as the WDC. That process would identify a logical terminus for the highway, alternatives to be considered, and the impacts of those alternatives. It is not possible at this time to predict the outcome of the alternatives analysis of that EIS. However, the WDC team expects that, given the wetlands, wildlife habitat, and agricultural land that would likely be crossed by the North Legacy Highway, the impacts would be similar to those from the WDC.

The 2009 study made the following observation about the likely environmental impacts of the North Legacy Highway:

> Wetlands, floodplains, social impacts, and a wide range of variables are addressed as part of NEPA. Initial screening considered many of these issues using specific criteria and data. It is assumed that any alignment, particularly if that alignment were constructed as a high-speed arterial street or freeway, would have "significant" environmental impacts to both the man-made and natural environment. These impacts would be subject to a careful analysis of the ability to meet the proposed transportation need with other alternatives so that a NEPA decision could be reached. Corridor preservation actions help avoid or minimize impacts to the man-made and natural environment. However, corridor preservation in this corridor has not occurred early enough to eliminate all of these impacts. All advanced alignments are expected to be approvable under NEPA in that there are no fatal flaws. However, it is unclear what NEPA requirements will mean in the future and what detailed data collection related to wetland delineation, cultural resources, and other issues may uncover. (WFRC 2009)

23.6 Mitigation Measures

Neither the CEQ regulations nor FHWA's environmental guidance documents implementing NEPA specifically mention mitigating indirect effects associated with highway projects. FHWA policy as stated in 23 CFR 771.105 discusses mitigation in Sections (d)(1) and (2) for adverse impacts that directly (not indirectly) result from a project; this mitigation must represent a reasonable public expenditure.

The permitting requirements associated with Section 404(b)(1) guidelines governing the USACE permit are limited to requiring mitigation for indirect effects that are specific and predictable in terms of location and degree. More-generalized indirect effects such as those associated with possible future development in a region do not require mitigation.

For a discussion of how the Cities could implement ways to minimize impacts to ecosystem resources, see Section 14.4.8, Recommendations to Minimize Growth Impacts to the Ecosystem.

23.6.1 Mitigation Measures for Potential Indirect Effects on Ecosystem Resources

The WDC would indirectly affect 48 acres in the Great Salt Lake Shorelands Preserve. This land would be cut off from the main preserve by the WDC, and this fragmentation would reduce the wildlife habitat value. For the bisected properties, UDOT would work with the property owner (either the Utah Reclamation, Mitigation, and Conservation Commission or TNC) during the right-of-negotiation process to determine the appropriate mitigation of either monetary compensation or buying suitable replacement property as allowed by the UDOT right-of-way process.

23.6.2 Mitigation Measures for Potential Indirect Effects on Farmland

An open-space-acquisition program that could be implemented by the Cities in the indirect effects impact analysis area can help shape and restrict the area of development. Farmlands and grazing lands are another source of open space and could be protected from conversion for development, where appropriate and feasible. This rural feature can relieve the pattern of uninterrupted urban development and retain some of the historic uses in Davis and Weber Counties. Such an open-space-acquisition plan can be accomplished by a partnership among city, county, and state governments. The above actions would have to be implemented by the Cities or Counties in the WDC study area independent of the WDC Project.

23.7 Summary of Potential Indirect Effects

In conclusion, the WDC would result in indirect effects, including redirecting some projected development near its interchanges and intersections and the highway alignment. This redirected development could have environmental effects, particularly where wetlands and agricultural land are located near the interchanges. The main areas that would have indirect effects are the areas around the proposed interchange at 2000 West in Syracuse (all WDC action alternatives) and the proposed interchange or intersection at 1800 North in West Point (Alternatives A2 and B2).

If the WDC is not built, the amount of projected development would be nearly the same. However, the pace of development would be slower in some areas. In some cases, the size and density of permitted developments would be reduced, and the land-use mix would change to less commercial development. As a result, the current low-density, suburban-style development pattern would continue. The city and county master plans have anticipated and planned for the increased mobility and access provided by the WDC, particularly in combination with a regional vision for the indirect effects impact analysis area.

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