Chapter 18: Visual Resources

18.1 Introduction

The aesthetic quality of a community or area depends on its visual resources—the physical features that make up the visible landscape, including land, water, vegetation, and human-made features such as buildings, roads, and structures. This chapter considers the visual resources present along the proposed West Davis Corridor (WDC) alternatives, as the typical viewer groups that would view those resources, and the effects of the WDC alternatives on those resources.

What is the visual resources impact analysis area?

The impact analysis area for the WDC visual resources analysis is called the *viewshed*. The viewshed is defined as all areas where physical changes associated with the proposed alternatives could be seen.

The following terms and concepts are used when evaluating the visual impacts associated with a long, linear transportation project such as the WDC: visual resources impact analysis area (viewshed), key observation points, visual quality, and viewer groups.

Visual Resources Impact Analysis Area (Viewshed). The impact analysis area for the WDC visual resources analysis is called the *viewshed*. The viewshed is defined as all areas where physical changes associated with the proposed alternatives could be seen. The views can be looking outward from the proposed alternatives or looking toward the alternatives. The viewshed is influenced by existing topography, vegetation, and structures, and it decreases with hilly topography and tall vegetation or structures.

What is a viewshed?

A viewshed is all areas where physical changes associated with the proposed alternatives could be seen.

The visual character and quality of the viewshed were evaluated using Federal Highway Administration (FHWA) criteria for visual landscape relationships. These criteria form the foundation of an objective methodology that is commonly used to establish the visual characteristics and quality of landscapes and to assess impacts on scenic vistas and scenic resources under the National Environmental Policy Act (NEPA).

Key Observation Points. Parts of the WDC viewshed were inventoried for existing foreground, middle-ground, and background views. Foreground views are those immediately visible; they show the local character of the area, such as rural or urban. The foreground is defined as the area within 0.5 mile of the viewer. The middle ground is defined as views within 0.5 mile to 4 miles, and the background views are 4 miles away or more. Typical views, called *key observation points* (KOPs), were selected to represent different types of views within the viewshed.

What are key observation points (KOPs)?

Key observation points are typical views that represent different types of views within the viewshed.

Visual Quality. Visual quality is an assessment of the composition of the character-defining features of the landscape. Under the FHWA visual quality analysis system, visual quality is determined by evaluating the viewed landscape's characteristic in terms of vividness, intactness, and unity (FHWA 1988).

- **Vividness** is the visual power or memorableness of landscape components as they combine in striking or distinctive visual patterns.
- **Intactness** is the visual integrity of the natural and human-built landscape and its freedom from encroaching elements. This factor can be present in well-kept urban and rural landscapes as well as natural settings.
- **Unity** is the visual coherence and compositional harmony of the landscape considered as a whole. It frequently attests to the careful design of individual components in the artificial landscape.

What are the FHWA criteria for visual landscape relationships?

The FHWA criteria are vividness, intactness, and unity. KOPs are described as ranking *high*, *moderate*, or *low* for each of these criteria.

KOPs are described as ranking *high*, *moderate*, or *low* for each of the visual quality criteria.

- For vividness, *high* means that the views form a memorable, striking, and distinctive visual pattern, and *low* means that they do not.
- For intactness, *high* means that the landscape is free from visual encroachment, and *low* means that it is not. Intactness also considers visual integrity between the natural and human-made landscape and the extent that it is free from visual encroachments. Integrity occurs where natural areas and human-made landscapes blend into the surrounding character and create no visual discontinuity between the natural and human-made elements.
- For unity, *high* means that the landscape's visual resources join together to form a coherent, harmonious visual pattern, and *low* means that they do not.

Viewer sensitivity is scored from high to low as well. *High* means that more people will have access to the view and will be sensitive to changes in it. *Low* means that fewer people will have access to the view and will not be sensitive to changes in it.

For the affected environment, the visual quality of a view is characterized by its lowest-scored criterion. Therefore, a view cannot be described as having high visual quality unless it scores high for each of the three criteria. For example, a view might rank high for intactness and unity, but if the view is not memorable and does not form a striking and distinctive visual pattern, it cannot be said to have high visual quality.

Viewer Groups. For the purpose of a visual analysis, there are two basic viewer groups associated with a transportation network: those using the network (who have views from the roadway) and those looking at the transportation network (who have views of the roadway). People using the roadway see some of the same views as people looking at the roadway.

The visual sensitivity of these viewer groups depends on the number and type of viewers and the frequency and duration of views. Visual sensitivity is also affected by viewer activity, awareness, and visual expectations in relation to the number of viewers and viewing duration. The visual sensitivity is generally higher for the group viewing the new road than for the group that uses the road (FHWA 1988).

18.2 Regulatory Setting

FHWA considers aesthetic values during project development. The Council on Environmental Quality's regulations for implementing NEPA (Section 1508.8, Effects) also state that aesthetic effects should be considered.

To consider the aesthetic effects of the WDC, the WDC team performed a visual analysis for this Environmental Impact Statement (EIS). An analysis of visual impacts is required in an EIS by FHWA guidance in Technical Advisory T 6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents* (FHWA 1987). This chapter was prepared with reference

What is the WDC team?

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

to guidance from FHWA's Visual Impact Assessment for Highway Projects (FHWA 1988) to assess visual impacts in the visual resources impact analysis area. The Utah Department of Transportation's (UDOT) *Environmental Process Manual of Instruction*, Chapter 6, Part U, was also used as guidance when preparing this assessment.

In accordance with these guidelines, the existing visual character and quality of the affected environment, as well as the viewer response to those resources, provide the framework for assessing the change in visual character that would occur as a result of constructing the WDC.

18.3 Methodology

The visual impact assessment methodology includes identifying the visual character of the project corridor, characterizing the visual quality of the viewshed, identifying and quantifying viewer groups (those with a view of the highway and those with a view from the highway) to the extent practicable, describing the visual change that would occur because of the proposed transportation improvements, qualitatively characterizing the change (low, moderate, or high), and considering reasonable measures to mitigate adverse visual effects where a sensitive visual impact has been identified.

Evaluation of visual impacts is often considered highly subjective, even where established federal methodology and guidance are used. Following a clear, comprehensive, and understandable visual impact assessment (VIA) methodology helps to ensure that the visual impacts of a project are evaluated objectively and that public opinions, concerns, and input are taken into account. The FHWA methodology used to conduct this VIA has four principal steps:

1. Define the affected environment (that is, baseline conditions), including the project setting and viewshed. The data used in the baseline determination were gathered from field visits to the impact evaluation area and the use of geographic information system (GIS) maps. The data used in the baseline determination also include aerial photographs and land-use data.
2. Identify key views for the visual assessment. Sensitive viewpoints are determined through a survey of historic sites and maps showing areas of special interest in the context of the local topography.
3. Assess the visual impacts of the project, including changes to resources and viewer responses. This step typically involves renderings or diagrams of the proposed project features set against the existing landscape.
4. Propose methods to mitigate adverse visual impacts. Mitigation measures could include landscaping and aesthetic treatments on roadway components such as retaining walls, bridge abutments, and sidewalks.

18.4 Affected Environment

18.4.1 Description of the Viewshed

The WDC viewshed is a combination of natural, agricultural, and urban areas. The area consists primarily of relatively flat topography adjacent to the Great Salt Lake traversed by canals and streams. The flat topography limits views west toward the Great Salt Lake but does allow views of the Wasatch Mountains to the east. The landscape of the WDC viewshed was previously modified from a more natural setting to an agricultural setting and is undergoing another transition to residential and commercial development. There are no specific visual management objectives defined by any of the jurisdictions in the WDC viewshed; however, the land-use plans that guide development in the area acknowledge that the area is undergoing substantial change.

Land Cover Types. There are various land cover types in the viewshed area including urban and disturbed land, agricultural land, hayfields and pasture, grass and shrub land, and riparian and marsh land. Taller shrubs and trees are present primarily along fence lines and ditches. The groundcover ranges from sparse in disturbed areas and playa/mudflats to dense in areas of wetlands. The native vegetation in the viewshed area has been disturbed to varying degrees.

What are riparian land and playa/mudflats?

Riparian land is land along the bank of a river, stream, canal, or other waterway. Playa/mudflats are a flat-bottomed basin that becomes a lake when surface water is available. The water usually evaporates away quickly, leaving a deposit of salts, clays, and silts.

Limits of the Viewshed. The northern limit of the viewshed is a mix of residential and agricultural land at about 3000 South in Weber County. The views from the northern limit extend to the Wasatch Range on the east and the Great Salt Lake on the west. The southern viewshed limit is near the Farmington Bay of the Great Salt Lake.

The eastern limit is the Wasatch Range, and the western limit is the Great Salt Lake. The Wasatch Range consists of uplifted, fault-block mountains that form the western edge of the Rocky Mountains and the dramatic, abrupt, wall-like Wasatch Front that rises over 6,000 feet above the eastern edge of the valley floor and provides a dramatic backdrop to the long-range views. The Great Salt Lake and Antelope Island are the main features visible to the west. Also visible are active and abandoned agricultural land and open fields, a high-voltage transmission line corridor, residential subdivisions, schools, and commercial retail developments.

Ratings for Visual Landscape Relationships. The WDC viewshed has the following ratings using the FHWA criteria for visual landscape relationships (see Section 18.3, Methodology):

- **Vividness.** The vividness of most views in the viewshed is considered *moderate* because most views are dominated by open fields or pasture, and potentially striking elements, such as mountain ranges or the Great Salt Lake, make up only the background. However, in other cases, the background vista created by the mountains or the vividness of colors for a particular view warrants a *high* rating for vividness.
- **Intactness.** In many locations, there is so little existing development that most views rank *moderate* or *high* for intactness.
- **Unity.** As with intactness, a few views in the viewshed retain most of their natural elements and do not have significant obstructions or interruptions, so they rank *high* for unity. In other cases, the housing developments being built in agricultural fields are not harmonious with their surroundings and therefore warrant a *moderate* rating.

Specific views are described in Section 18.4.3, KOPs in the Viewshed.

18.4.2 Description of Viewer Groups in the Viewshed

The WDC team considered how sensitive different types of viewers were to changes in their visual environment. Viewer groups were developed by determining each viewer type's proximity to the WDC alternatives and its frequency and duration of exposure to the visual environment. The concept of viewer groups is an analytical tool; it is not meant to portray an actual survey of the affected population's opinion.

The number of people using the existing transportation network in the WDC viewshed will increase as the population grows. The other viewer group—those who view the transportation network—is more difficult to quantify but will also increase. This group includes local residents and agricultural landowners as well as commercial and industrial owners. There are also occasional recreational viewers along the Great Salt Lake wildlife and recreation areas and viewers associated with the duck clubs that use areas along the Great Salt Lake.

Residential viewers typically have extended viewing periods and are concerned about changes in the views from their homes. In the viewshed, these viewers have long-range views of the mountains to the east. In comments received during public meetings, residents stated that these long-range views of the mountains are very important to them. Many of the immediate views around the homes are of other residential developments or open agricultural land.

Viewers using recreation trails and areas, scenic highways, and scenic overlooks are also concerned about the changes in their views. On the other hand, commuters and non-recreational travelers have generally fleeting views and tend to focus on traffic and not on the surrounding scenery.

Table 18-1 lists the three viewer types that were used in this analysis. Viewer types were defined mainly in relation to visual changes in the WDC viewshed.

Table 18-1. Viewer Types

Viewer Type	Definition
Resident	Viewer who lives in the viewshed and has views of the proposed alternatives (including views from an adjacent yard or through residential windows that face the proposed alternative). Residents are considered the most sensitive viewer type since they would have the most visual exposure to the highway. A resident's degree of sensitivity to the highway depends on the orientation and distance of her or his house relative to the highway.
Motorist	Viewer who travels across or parallel to the proposed alternatives in a motorized vehicle. The motorist would be temporarily exposed to the highway. Motorists are considered less sensitive to the highway because their exposure would be short term.
Pedestrian or recreational viewer	Viewer on foot or bicycle within viewing distance of the proposed alternatives. Pedestrians and recreational viewers have a higher degree of sensitivity to the highway due to their proximity to the highway and the fact that they travel within or near the highway at a slower rate than vehicles. In addition, many trail users are regular viewers of recreational facilities near alternatives.

18.4.3 KOPs in the Viewshed

Fourteen KOPs within the viewshed were chosen to represent the visual resources of the impact analysis area. The existing visual character is generally consistent across half of the KOPs. In these places, the landscape consists of open fields and rural roads. The other half of the KOPs have a different visual character with enough development—primarily residential—to contrast with the natural landscape features.

The overall trend in the viewshed is conversion of farmland to suburban uses. Some of the visual quality of the KOPs has changed between the release of the Draft EIS and the Final EIS as new schools and residential subdivisions have been built in areas previously used for agriculture. The visual quality at KOP 1a changed from *moderate* to *low* as a result of a new high school and residential subdivision being constructed, and the visual quality at KOP 6 changed from *high* to *moderate* as a result of an elementary school being built in the vicinity of the KOP. Additionally, the locations of KOPs 3, 13, and 14 were changed between the release of the Draft EIS and the Final EIS as a result of revisions to the alternatives.

These KOP locations are shown in Figure 18-1, Visual Resources Key Observation Points, in Volume IV. The following sections describe these KOPs and include a representative photograph of each KOP. Some features described in the text are not visible in the photograph for each KOP because of the direction from which the photograph was taken.

18.4.3.1 KOP 1a – Glovers Lane and 650 West in Farmington

KOP 1a is located in Farmington just west of Interstate 15 (I-15) and Legacy Parkway. The view is looking east toward the Wasatch Mountains. Foreground views from this KOP primarily include land uses that support residential uses and open land with established vegetation south of Glovers Lane. North of Glovers Lane, a new high school is being constructed, and homes are being built around the intersection. The setting is changing from rural to urban with the new construction. Foreground and middle-ground views are primarily residential properties and the new school. Background views are of the Wasatch Mountains. The viewer groups in this KOP primarily include rural residents and roadway users and will include students of the new high school.

I-15 is visible but does not constitute a dominant feature of the vista since it is about a quarter of a mile away. Local roads are often perceptible in the distance due to the movement of cars and trucks. The Wasatch Mountains can be seen in the background, providing a scenic backdrop to the area.

Vividness, intactness, and unity are all *low* due to the construction of the new high school and residential areas interrupting the rural character south of Glovers Lane. The landscape and visual nature are changing from rural to urban.

The visual quality of KOP 1a is *low*.

Photo 18-1. KOP 1a – Glovers Lane and 650 West in Farmington

18.4.3.2 KOP 1b – Glovers Lane and 650 West in Farmington

KOP 1b is located in Farmington just west of I-15 and Legacy Parkway. The view is looking south through a residential area. Foreground views from this KOP primarily include older residential neighborhoods with established vegetation in a rural setting. The streets are rural roads without curbs or sidewalks. Middle-ground and background views are primarily residential properties and the Wasatch Mountains. The viewer groups in this KOP include rural residents, roadway users, recreationists, farmers, and a small number of businesses such as the Pack Farms pumpkin patch on 1700 W. Glovers Lane.

Agricultural fields are visible in the foreground and middle ground. Dominant visual features include fields of low-growing vegetation, tilled soil, and the electric transmission line that traverses the viewshed. Views provide seasonal interest, such as in the winter and spring when landscaping, agricultural fields, and the Wasatch Mountains are green versus the summer and fall when vegetation browns or dies back and fields have been plowed under and the brown earth is exposed.

Vividness, intactness, and unity are all *moderate* due to scenic views over agricultural fields to the Wasatch Mountains in the background and the cohesiveness of the rural character. The lower-voltage wooden power poles are dominant in the foreground but are not unexpected in this semi-rural setting and do not entirely disrupt the unity.

The visual quality of KOP 1b is *moderate*.

Photo 18-2. KOP 1b – Glovers Lane and 650 West in Farmington

18.4.3.3 KOP 2 – Power Corridor and Clark Lane in Farmington

KOP 2 is located in western Farmington east of the Great Salt Lake in the Farmington Ranches subdivision. The view is looking northwest toward the Great Salt Lake. Although the area has a rural setting, the power lines provide a more suburban feel but do not obstruct distance views. Foreground views from this KOP primarily include newer residential developments and the power lines. The topography in the area is flat, which limits views of the Great Salt Lake. Middle-ground and background views are primarily residential properties and open land used for agriculture. Immediately west of the location where the photograph was taken are the Farmington conservation easements, the combined area of which is set aside for wildlife viewing and includes a trail system. The visual quality of KOP 2 is different from that of KOPs 1a and 1b. The viewer groups in this KOP include subdivision residents and roadway users.

The dominant elements in the foreground, middle ground, and background are the high-voltage power lines. Other notable visual features include fields of low-growing vegetation and manicured lawns. Views from this KOP represent the character of the built landscape in the viewshed, including roads and utility infrastructure, as well as natural elements of the landscape such as flat farmland and residential landscaping.

Vividness is *high*, since the huge power line corridor is a distinctive landscape component in both the foreground and background. Intactness and unity are *moderate* due to the obtrusive nature of the power lines and the unmaintained landscaping in the power line corridor and due to the juxtaposition of the power lines running adjacent to the housing development.

The visual quality of KOP 2 is *moderate*.

Photo 18-3. KOP 2 – Power Corridor and Clark Lane in Farmington

18.4.3.4 KOP 3 – Foxhunter Drive and 900 North in Farmington

KOP 3 is located in western Farmington east of the Great Salt Lake. The view is looking west toward The Great Salt Lake. Although the area has a rural setting, the distant power lines provide a more suburban feel but do not obstruct views of Antelope Island in the Great Salt Lake. Foreground views from this KOP primarily include open land with several agricultural buildings. Middle-ground and background views are primarily of open land, the north-south power corridor, and mountains. Dominant visual features include fields of low-growing vegetation and a high-voltage electric transmission line that traverses the viewshed in the background. The viewer groups in this KOP primarily include subdivision residents and roadway users.

Views from this KOP represent the character of the built landscape in the viewshed, including some buildings and utility infrastructure, as well as natural elements of the landscape such as the flat, open field and distant views of Antelope Island. Views provide seasonal interest such as in the winter and spring when fields are green versus the summer and fall when vegetation browns or dies back and the brown earth is exposed, such as in the photograph below.

Vividness and intactness are *high* due to the scenic views toward Antelope Island and the richness of the rural character. However, middle-ground views of the power lines slightly encroach on the landscape, and therefore the visual elements do not form a coherent, harmonious visual pattern, so the unity is *moderate*.

The visual quality of KOP 3 is *moderate*.

Photo 18-4. KOP 3 – Foxhunter Drive and 900 North in Farmington

18.4.3.5 KOP 4 – Shepard Lane and Sunset Drive in Kaysville

KOP 4 is located in western Kaysville east of the Great Salt Lake. The view is looking south toward the Salt Lake Valley. There area is in a rural setting with fields used for agriculture, but the distant power lines provide a more suburban feel. Foreground views are of open land and a sewer treatment plant. Middle-ground views include numerous interstate power lines that slightly obstruct the background vista. Background views are of the Wasatch Mountains and Oquirrh Mountains. The Great Salt Lake is to the west. Although not visible in the photograph, there are scattered rural residential properties in the area.

The viewer groups in this KOP primarily include rural residents, farmers, and roadway users. Mid-range views of this location from elsewhere are dominated by the human-made structures and surrounding disturbances.

Vividness and intactness are *moderate* because the sewer treatment plant and surrounding disturbances encroach on the otherwise rural and agricultural landscape within this view. Unity is also considered *moderate* since the visual elements do not form a coherent, harmonious visual pattern.

The visual quality of KOP 4 is *moderate*.

Photo 18-5. KOP 4 – Shepard Lane and Sunset Drive in Kaysville

18.4.3.6 KOP 5 – Wellington Drive Cul-de-Sac in Kaysville

KOP 5 is located in western Kaysville east of the Great Salt Lake. The view is looking southwest toward the Great Salt Lake. The area is in a suburban setting with recently constructed homes. Middle-ground views include numerous interstate power lines that slightly obstruct the background vista and open fields west of the subdivision boundary. Background views are of the Great Salt Lake and the mountains west of the lake. The viewer groups in this KOP primarily include residents of the housing development and roadway users.

Views at this KOP represent the built landscape in the viewshed, including roads, homes, and utility infrastructure. Views of this location from elsewhere are dominated by the human-made structures and surrounding disturbances.

Vividness, intactness, and unity are all *moderate* because the houses, high-voltage power lines, and surrounding disturbances significantly encroach on the otherwise rural landscape within this view and because the background views of the mountains are very far away. Unity is also considered *moderate* since the visual elements do not form a coherent, harmonious visual pattern.

The visual quality of KOP 5 is *moderate*.

Photo 18-6. KOP 5 – Wellington Drive Cul-de-Sac in Kaysville

18.4.3.7 KOP 6 – 200 North and 2950 West in Kaysville

KOP 6 is located in western Kaysville east of the Great Salt Lake. The view is looking northwest. The area is generally in a rural setting with a mix of residential properties, a new elementary school (not shown in the picture), and land used for agriculture. Foreground views from this KOP primarily include open land used for agriculture. Dominant visual features include fields of low-growing vegetation, and the canal and associated vegetation can been seen in the foreground. Middle-ground views include residential properties, farm buildings, and power lines. Background views include the Wasatch Mountains.

The viewer groups in this KOP primarily include residents, farmers, and roadway users. Landscape elements such as trees and shrubs, farm fields, residences, and utility lines are some of the dominant visual features of this viewpoint.

Vividness, intactness, and unity are *moderate* due to the rural character changing to more urban with the construction of the elementary school and other residential units intruding on the scenic views over agricultural fields and breaking up the cohesiveness of the rural character. However, some of the rural character is maintained toward the western edge of this KOP.

The visual quality of KOP 6 is *moderate*.

Photo 18-7. KOP 6 – 200 North and 2950 West in Kaysville

18.4.3.8 KOP 7 – Gentile Street and Bluff Road in Syracuse

KOP 7 is located in Syracuse adjacent to Bluff Road. The view is looking southwest toward the Great Salt Lake. The area is generally in a rural setting with most land dedicated to agriculture; however, new subdivisions are being built north of Gentile Street west of Bluff Road, thereby changing the rural character to suburban. Foreground views from this KOP primarily include open fields and land used for agriculture. The vegetation is a mix of weeds and grasses. Middle-ground views are of open land near the Great Salt Lake that are protected for waterfowl use and wetland preservation. Background views are of Antelope Island in the Great Salt Lake.

The viewer groups in this KOP primarily include roadway users, recreationists, and farmers. Dominant visual features include fields of low-growing vegetation, unplanted farm fields, and the electric transmission line that traverses the viewshed.

Vividness, intactness, and unity are *high* due to scenic views over agricultural fields to the Wasatch Mountains in the background, the cohesiveness of the rural character, and richness in color and texture. Also, the views are so expansive that the rural roads and low-voltage power lines do not substantially encroach on the landscape and the view forms a coherent, harmonious visual pattern. The lower-voltage wooden power poles are dominant in the foreground but are not unexpected in this semi-rural setting and do not disrupt the unity.

The visual quality of KOP 7 is *high*.

Photo 18-8. KOP 7 – Gentile Street and Bluff Road in Syracuse

18.4.3.9 KOP 8 – Bluff Road and 2150 South in Syracuse

KOP 8 is located in Syracuse on Bluff Road at about 2150 South. The view is looking northwest across the area that was preserved for a future road. The area is generally in a suburban setting with a mix of open space and subdivisions. Foreground views from this KOP primarily include the Old Emigration Trail (a pedestrian trail) and open land that was set aside for a future road. The vegetation is a mix of cattails and grasses. Middle-ground views are of a subdivision that blocks background views. The viewer groups in this KOP include subdivision residents, roadway users, and recreationists.

Dominant visual features include the high-growing grass vegetation, paved trail, and rows of homes in the development. Views at this KOP represent the built landscape in the viewshed, particularly the housing developments that dot the area.

Vividness, intactness, and unity are all *moderate* due to scenic views of the open fields and the richness in color and texture. However, the abrupt change from rural to developed land uses and the obtrusive visual feature of the homes dominate the landscape.

The visual quality of KOP 8 is *moderate*.

Photo 18-9. KOP 8 – Bluff Road and 2150 South in Syracuse

18.4.3.10 KOP 9 – Antelope Drive and Bluff Road in Syracuse

KOP 9 is located in Syracuse adjacent to Bluff Road. The view is looking northeast toward a residential development. The area is a mix of open land and residential properties and has a more urban setting. Foreground views from this KOP primarily include open fields and older residential properties as indicated by the mature vegetation. In the immediate foreground is a pedestrian trail. Middle-ground views are of residential properties that limit background views. At the left edge of the photograph is a distance view of the Wasatch Mountains. Behind the KOP and out of range of the photograph is the Syracuse Arts Academy.

The viewer groups in this KOP include residents, roadway users, and recreationists. Views of this location from elsewhere are dominated by the human-made structures, such as the Syracuse Arts Academy, and surrounding disturbances.

Vividness and intactness are *moderate* because the school, homes, and surrounding disturbances encroach on the otherwise rural landscape within this view. Unity is also considered *moderate* since the visual elements do not form a coherent, harmonious visual pattern.

The visual quality of KOP 9 is *moderate*.

Photo 18-10. KOP 9 – Antelope Drive and Bluff Road in Syracuse

18.4.3.11 KOP 10 – Antelope Drive and 4500 West in Unincorporated Davis County

KOP 10 is located in unincorporated Davis County adjacent to 4500 West. The view is looking southeast toward the North Davis Sewer District sewer treatment plant. The area is mostly open land with sewer facilities in the background. The foreground and middle-ground views from this KOP primarily include open fields and buildings associated with the sewer treatment plant. At the left edge of the photograph is a distance view of the Wasatch Mountains to the southeast.

The viewer groups in this KOP primarily include rural residents and roadway users. Views of this location from elsewhere are dominated by the human-made structures and surrounding disturbances.

Vividness and intactness are *moderate* because the sewer treatment plant and surrounding disturbances encroach on the otherwise rural and agricultural landscape within this view. Unity is also considered *moderate* since the visual elements do not form a coherent, harmonious visual pattern. The lower-voltage wooden power poles are dominant in the foreground but are not unexpected in this semi-rural setting.

The visual quality of KOP 10 is *moderate*.

Photo 18-11. KOP 10 – Antelope Drive and 4500 West in Unincorporated Davis County

18.4.3.12 KOP 11 – 1800 North and 5000 West in West Point

KOP 11 is located in West Point at the intersection of 1800 North and 5000 West. The view is looking east toward the Wasatch Mountains. The area is a mix of open pasture land with a few residential properties in the background. Foreground views from this KOP primarily include open fields used for pasture and some mature vegetation. Middle-ground views are of a few residential and farm buildings. In the distance are views of the Wasatch Mountains.

The viewer groups in this KOP primarily include residents of the rural residential properties and roadway users. Dominant visual features include fields of low-growing vegetation, higher mature vegetation, farm buildings, background views of the mountains, and the low-voltage power poles that traverse the viewshed.

Vividness, intactness, and unity are all *high* due to scenic views over agricultural fields to the Wasatch Mountains in the background, the cohesiveness of the rural character, and richness in color and texture. Also, the views are so expansive that the rural road and low-voltage power lines do not substantially encroach on the landscape and the view forms a coherent, harmonious visual pattern. The lower-voltage wooden power poles are dominant in the foreground but are not unexpected in this semi-rural setting and do not disrupt the unity.

The visual quality of KOP 11 is *high*.

Photo 18-12. KOP 11 – 1800 North and 5000 West in West Point

18.4.3.13 KOP 12 – 4000 West and 1300 North in West Point

KOP 12 is located in West Point at 4000 West and 1300 North and looks to the northwest. The area is a mix of open land and residential properties and has a rural setting. Some of the area has been designated for development. Foreground views from this KOP primarily include a mix of open land and residential properties. Middle-ground and background views are of open land with scrub-type vegetation.

The viewer groups in this KOP primarily include residents and roadway users. Landscape elements such as fields, residences, empty lots, building remnants, and utility lines are some of the dominant visual features of this viewpoint.

Vividness and intactness are *moderate* since there is a lack of color and texture. Unity is *moderate* since there is some degree of visual coherence within the landscape as a whole.

The visual quality of KOP 12 is *moderate*.

Photo 18-13. KOP 12 – 4000 West and 1300 North in West Point

18.4.3.14 KOP 13 – 4100 West and 1800 North in West Point

KOP 13 is located in West Point at 4100 West and 1800 North. The view looks southwest along 1800 North. The area is a mix of open land and residential properties and has a rural setting. Some homes and agricultural-related buildings can be seen among the open and agricultural fields. Foreground views from this KOP primarily include a mix of rural residential properties, open land used for grazing, and a power line. Middle-ground views are of agricultural land and mature vegetation that limits background views, although the peaks of Antelope Island can be seen in the distance.

The viewer groups in this KOP primarily include rural residents and roadway users. Views of this location from elsewhere are dominated by the rural character and agricultural uses.

Vividness, intactness, and unity are all *high* due to scenic views over agricultural fields to Antelope Island in the background, the cohesiveness of the rural character, and richness in color and texture. Because the views are so expansive, the rural road and low-voltage power lines do not substantially encroach on the landscape, and the view forms a coherent, harmonious visual pattern. The wooden power poles are dominant in the middle ground but are not unexpected in this semi-rural setting and do not disrupt the unity.

The visual quality of KOP 13 is *high*.

Photo 18-14. KOP 13 – 4100 West and 1800 North in West Point

18.4.3.15 KOP 14 – 5500 South and 5400 West in Hooper

KOP 14 is located in Hooper on 5500 South. The view looks southwest from 5500 South. The area is a mix of agricultural fields and small- and large-lot residential properties. Foreground views from this KOP are primarily of agricultural fields. Middle-ground views are of larger-lot rural residential properties and mature vegetation. Background views are of mature trees and the peaks of Antelope Island. The viewer groups in this KOP include subdivision residents and roadway users.

Views at this KOP represent an overall rural landscape in the viewshed; however, utilities and residential areas (not seen in the photograph) are in the northwest view of this KOP. Dominant visual features include the mix of agriculture fields and homes.

Vividness and intactness are *high* due to scenic views over agricultural fields to Antelope Island in the background, the cohesiveness of the rural character, and richness in color and texture. However, unity is *moderate* because the abrupt change from rural to developed land uses (not seen in the photograph) and the obtrusive visual feature of the homes dominate the landscape.

The visual quality of KOP 14 is *moderate*.

Photo 18-15. KOP 14 – 5500 South and 5400 West in Hooper

18.4.3.16 Summary of Existing Visual Quality at the KOPs

Table 18-2 summarizes the existing visual quality at each KOP. The overall existing visual quality of the impact analysis area is *moderate*.

Table 18-2. Summary of Existing Visual Quality at Each KOP

KOP	Vividness	Intactness	Unity	Overall Existing Visual Quality
1a	Low	Low	Low	Low
1b	Moderate	Moderate	Moderate	Moderate
2	High	Moderate	Moderate	Moderate
3	High	High	Moderate	Moderate
4	Moderate	Moderate	Moderate	Moderate
5	Moderate	Moderate	Moderate	Moderate
6	Moderate	Moderate	Moderate	Moderate
7	High	High	High	High
8	Moderate	Moderate	Moderate	Moderate
9	Moderate	Moderate	Moderate	Moderate
10	Moderate	Moderate	Moderate	Moderate
11	High	High	High	High
12	Moderate	Moderate	Moderate	Moderate
13	High	High	High	High
14	High	High	Moderate	Moderate

18.5 Environmental Consequences

This section identifies the impacts of the proposed WDC alternatives on existing visual resources in terms of the expected changes in views of and from the WDC at each KOP. The WDC action alternatives were evaluated equally in this chapter. However, to reduce repetitive discussions, if impacts from one alternative would be the same as impacts from a previously discussed alternative, the text is not repeated but instead references the previous analysis.

Table 18-3 shows where the KOPs are located in terms of the proposed alternatives. A checkmark (✓) indicates that the KOP is located along the alternative.

Table 18-3. Summary of KOP Locations by Alternative

KOP	A1	A2	B1	B2
1a	✓	✓	✓	✓
1b	✓	✓	✓	✓
2	✓	✓	✓	✓
3	✓	✓	✓	✓
4	✓	✓	✓	✓
5	✓	✓	✓	✓
6	✓	✓	✓	✓
7	✓	✓	✓	✓
8	—	—	✓	✓
9	—	—	✓	✓
10	✓	✓	—	—
11	—	✓	—	✓
12	✓	—	✓	—
13	✓	—	✓	—
14	—	✓	—	—

18.5.1 Methodology

Visual Impact Levels. Aesthetic values and the perception of visual impacts are subjective and vary from person to person. Although this section attempts to present objective descriptions of the visual impacts of the proposed alternatives, it cannot address every individual's unique perception of the viewshed. This section's assessment of impacts is based on ideas of contrast and harmony underlying most systems of visual evaluation.

FHWA has defined the following measures of visual impact levels:

- **Low** – Minor adverse change to the existing visual resource, such as the introduction of elements in areas where existing transportation or utility facilities are located. Typically low viewer response to change in the visual environment. Might or might not require mitigation.
- **Moderate** – Indicates noticeable changes to visual resources such as the introduction of major elements into the existing landscape that obstruct or alter existing scenic vistas. Mitigation methods could be used to reduce impacts.
- **High** – Indicates major changes to visual resources including the introduction of structures that obstruct scenic vistas or the removal of mature vegetation that provides landscape character. Typically, viewer response level is high.

Viewshed Distance. The final impact rating for each KOP takes into consideration the impacts from the alternatives, any planned mitigation measures, and the sensitivity of the

viewers near the KOPs to changes in their visual environment as well as the sensitivity of viewers in the distance looking toward the changes at the KOPs. With respect to determining the radius of the impact area to be analyzed, neither FHWA's nor UDOT's visual impact assessment guidelines suggest a distance for the analysis of viewsheds; however, the guidelines of the New York State Department of Environmental Conservation (2000) suggest a 5-mile radius. The 5-mile distance probably originated with the "distance zones" set forth in the U.S. Forest Service's 1973 landscape management journal.

The New York State Department of Environmental Conservation guidelines allow modifying that radius when a 5-mile radius would be too small or too large. Using the concept of scientific perspective, the New York State Thruway Authority (2006) conducted a generic analysis of a toll barrier structure to determine levels of visibility from specified distances under worst-case viewing conditions. To simulate a scientific perspective, a three-dimensional (3D) computer model of the toll barrier structure was developed. Head-on, unobstructed views of the toll barrier were created from specified distances. Perfectly flat topographic conditions and a muted gray background were assumed to use the most conservative approach to determining the distance from which views of the barrier could not reasonably be perceived.

What is scientific perspective?

Scientific, linear, or size perspective is the reduction in the apparent size of objects as the distance from the observer increases. An object appears smaller and smaller as an observer moves farther and farther from it. At some distance, depending on the size and degree of contrast between the object and its surroundings, the object might not be a point of interest for most people. At this hypothetical distance, it can be argued that the object has little effect on the composition of the landscape of which it is a tiny part. Eventually, at even greater distances, the human eye is incapable of seeing the object at all (New York State Department of Environmental Conservation 2000).

The analysis determined that, assuming optimal viewing conditions, at a distance of 2 miles, the toll barrier structure can be classified as visible, while at 3 miles the toll barrier structure is no longer a point of interest and therefore can be classified as not visible (New York State Thruway Authority 2006).

As demonstrated by this analysis, at a distance greater than 2 miles under optimal conditions, the toll barrier structure became insignificant due to scientific perspective. It's reasonable to assume that, with the flat topography in the WDC visual impact analysis area, the mainline highway would become insignificant at a distance greater than 0.5 mile due to scientific perspective, and the interchange structures would become insignificant at a distance greater than 2 miles due to scientific perspective. Therefore, a viewshed radius of 0.5 mile for the mainline highway and 2 miles for elevated interchange structures was used for each alternative site in this VIA.

Impacts. Impacts are defined relative to the existing views along an alternative. *High impact* means that the alternative would entirely block the existing views or would be significantly out of character with the rest of the viewshed. *Low impact* means that the existing views would not be blocked and that the change would not be significantly out of character. Given these definitions, it is possible to have a high impact to a low-quality existing view or a low impact to a high-quality existing view.

Photosimulations. In addition to determining the visual contrast rating at each KOP, the WDC team prepared visual photosimulations to provide representative illustrations of the WDC. These are presented in Appendix 18A, Photosimulations. The photosimulations were created using ground-level photographs. The different photosimulations help the reader understand the contrast ratings in pictorial format. Because much of the proposed WDC interchanges and alignments would look the same, one photosimulation is used to represent several viewpoints.

- Photosimulation 1 shows the typical WDC at-grade, slightly elevated highway design and shows the visual character of the project for KOPs 1, 2, 3, 4, 5, 6, 7, 10, 11, 12, 13, and 14.
- Photosimulation 2 shows the interchange design for the WDC specifically at the Syracuse Arts Academy but also represents the visual character of proposed interchanges at KOPs, 3, 6, 7, 9, 10, 11, and 12.
- Photosimulation 3 represents views at KOP 8 and characterizes views from the neighborhoods adjacent to the WDC alignment when it spans a cross street at an interchange.

18.5.2 No-Action Alternative

The present visual setting has a mostly mixed character with agricultural, commercial, and residential land uses. However, along the Wasatch Front, rapid urbanization is occurring. The agricultural land in Davis and Weber Counties will continue to be converted into residential and commercial developments as population in the area grows. These planned developments, which will include associated infrastructure such as utilities and roads, will dramatically change the rural visual character of some areas to urban.

What is the Wasatch Front Regional Council?

The Wasatch Front Regional Council is the designated metropolitan planning organization that works in partnership with UDOT, city and county governments, and other stakeholders to develop the Regional Transportation Plan for the Wasatch Front Urban Area. This plan is the region's plan for highway, transit, and other transportation-related improvements to meet the area's growing transportation needs over the next 30 years.

With the No-Action Alternative, the WDC would not be built, so there would be no change to the visual environment as a result of the WDC. Other independent roadway improvements in the Wasatch Front Regional Council's Regional Transportation Plan would continue to be made. These improvements would further define the visual character of the area as urban. The middle-ground and foreground views with the No-Action Alternative would continue to be primarily residential and commercial with a mix of agriculture. The background views would continue to be the Great Salt Lake to the west and the Wasatch Mountains to the east.

18.5.3 Alternatives A1–A2

As described in Chapter 2, Alternatives, Alternative A is the more westerly alternative and consists of two separate alternatives: Alternatives A1 and A2. These alternatives are defined in Table 18-4. Alternatives A1 and A2 do not pass through Clinton.

Table 18-4. Components of Alternatives A1–A2

Alternative	I-15 Connection	Four-Lane Highway	Two-Lane Highway	West Point/ Hooper Cities Segment	North Terminus
A1	Glovers Lane	I-15 to 2000 West	2000 West to 1800 North	4100 West	1800 West (West Point)
A2	Glovers Lane	I-15 to 2000 West	2000 West to 5500 South	5400 West	5500 South (Hooper)

Provided below is the visual analysis for the areas that would be affected by Alternatives A1 and A2. Table 18-5 summarizes the visual contrast rating for the KOPs within the viewshed.

Table 18-5. Summary of Visual Contrast Ratings for Alternatives A1–A2

	Visual Contrast Rating by Alternative	
KOP	A1	A2
1a	Low	Low
1b	High	High
2	Moderate	Moderate
3	High	High
4	High	High
5	Moderate	Moderate
6	High	High
7	High	High
8	—	—
9	—	—
10	High	High
11	—	High
12	High	—
13	High	—
14	—	High

18.5.3.1 Alternative A1 – Glovers Lane and 4100 West/1800 North

Temporary Impacts to Visual Resources from Alternative A1

Temporary visual and aesthetic impacts are those related to construction of the WDC. Alternative A1 (and all other action alternatives) would result in construction-related visual impacts. During construction, the visual quality of the viewshed would be reduced for viewers of the new highway. Nearby residents and business employees and patrons who would have construction occurring near them would likely experience substantial visual impacts because construction activities would evoke a sense of invaded privacy.

In general, adverse visual impacts to areas adjacent to the proposed alternatives would result from the following elements of construction:

- Traffic congestion in areas of active construction
- Construction vehicles and equipment
- Clearing and grading activities resulting in exposed soil until replanting occurs
- Erosion-control devices such as silt fences and straw bales
- Dust, exhaust, and airborne debris in areas of active construction
- Stockpiling of excavated material
- Staging areas used for equipment storage and construction materials

Because the WDC could be completed in phases, only specific segments of the project area might experience construction-related impacts at any given time. Two types of temporary effects have been identified: those resulting from on-site construction activities and from off-site construction staging.

On-site Construction. During construction, the visual quality of views to and from the viewshed would be temporarily altered. Construction-related signs and heavy equipment would be visible in the vicinity of construction sites. Vegetation might be removed from some areas to accommodate construction of the bridges, new ramps, and highway. This would degrade or partially obstruct views or vistas. Temporary lighting might be necessary for nighttime construction of certain project elements. This temporary lighting would affect residential areas by exposing residents to glare from unshielded light sources and by increasing ambient nighttime light levels.

During construction, the work zone would be cleared of vegetation. The exposed bare ground would contrast visually with the surrounding agricultural, residential, and/or municipal areas that the viewer is accustomed to seeing. Visual quality from sensitive viewer locations (such as residences next to the highway) would be temporarily reduced during construction. Until the construction is completed and the right-of-way is revegetated, the construction area would stand out.

Construction of the interchanges associated with Alternative A1 would have the greatest effect on the views at KOPs because of the length of time needed to construct the elevated structures. The view of the new WDC matters most to local residents, business owners, and travelers. The viewshed is largely typified by a mix of agricultural land and dense residential developments. Residential viewers might be most visually sensitive to construction of the

new highway and its effects, such as dust, traffic congestion, and the reduction of existing landform or vegetative buffers between their homes and the highway.

Off-site Staging. Construction activities would require at least one large site to stage equipment and materials and might also require a large site for fabricating segments of the bridges. Staging of equipment and materials would occur in many areas in the viewshed throughout the construction period, generally within existing or newly purchased right-of-way or on nearby vacant parcels. However, at least one large site would be required for construction offices, to stage the larger equipment such as cranes, and to store materials such as rebar and aggregate. This site should be as close as possible to the construction zone but might not be located within public right-of-way, since it would require temporary use of a nearby parcel.

Long-Term Impacts to Visual Resources from Alternative A1

The overall impact of Alternative A1 is considered substantial because it would greatly change the visual character of the affected areas from rural to a transportation corridor. These changes would disrupt the vividness, intactness, and unity at all KOPs in the viewshed because it would add built structures to the rural, agricultural landscape and break up the compositional balance between views of the agricultural fields, the Great Salt Lake, and the Wasatch Mountains. Views of relatively rural areas such as the Farmington conservation easements and the agricultural areas in southern Syracuse would have a substantial visual change from a rural, open area to that of a highway.

Alternative A1 would cause a distinct change in character in the viewshed as agricultural areas are used for the highway. With Alternative A1, visual character in the viewshed would change from predominantly agricultural with urban influences to a shared urban and agricultural character. The WDC would bring co-dominance between agricultural and urban forms, lines, colors, and textures. Agricultural pattern elements (flat forms, clean lines, green and natural undertones, and rich rural textures) currently dominate the viewshed, especially to the west looking toward the Great Salt Lake. Urban pattern elements already exist to the east with the close proximity of I-15. However, the influence of additional urban pattern elements (linear and concrete forms, more-dominant highway and structural lines, gray and black undertones, and concrete and pavement textures) to the west would create a strong change in visual character and would increase the visual diversity of the viewshed.

Alternative A1 would create a change in viewer exposure from and of the WDC. The majority of viewers of Alternative A1 would be residents of the viewshed, particularly the residents of the Millers Meadows, Farmington Creek Estates, Knighton, Bridgeway Island, Suncrest Meadow, Suncrest Park, Webster Farms, Pheasant Brook, and Schick Farm subdivisions. Residents of other subdivisions or neighborhoods could also be affected.

Residents of the viewshed would have stationary views from their homes. The number of residences with views of the alternative is characterized as medium-high. The frequency of exposure for these residences would be high. Although the WDC overcrossings and interchanges would be visible to a variety of nearby residential viewers and travelers, the existing flat topography would minimize direct views of the highway itself.

The continuity of farmland is currently broken up by urban and rural roads and housing developments. Changes to the visual character with the WDC would include the introduction of new, highly visible structures, including up to six interchanges: Glovers Lane and I-15/Legacy Parkway in Farmington, 950 North in Kaysville, 200 North in Kaysville, Layton Parkway in Layton, and 2000 West in Syracuse. Additionally, crossings where a local road goes over the WDC or where the WDC goes over a local road would introduce an elevated structure that would be visible to residents. The scale and dominance of these changes, in conjunction with the existing flat natural environment, would impede some existing panoramic views. Instead, these changes would add views of the roadway and its associated elements to areas in the viewshed, which would likely be viewed negatively when compared to the current, more rural views.

Changes in Viewer Sensitivity. The degree of visual impact from Alternative A1 would be closely tied to the distance of the viewer from the roadway and associated interchange ramps and structures. Viewers near the roadway and associated interchanges would be more adversely affected by Alternative A1 than would viewers 2 or more miles away. Because the topography is flat, the mainline highway would be difficult to see at a distance of about 0.5 mile away, though the elevated interchange structures might be more noticeable. At a distance of 2 miles away, the interchange structures would also be difficult for the viewer to see. As a person approaches the Alternative A1 interchanges, the scale of the impact would increase and would become more intrusive. The structures would restrict views of distant scenery and would become the dominant element of the scene.

Alternative A1 would create a substantial change in viewer sensitivity because the viewers' concern for scenic quality and change to the existing visual resources is anticipated to be high. Currently, most viewers within the viewshed are residents of the area. Viewer sensitivity would change with the introduction of views of the highway and the proposed interchange structures in place of views of the Great Salt Lake and associated open space and rural farmland. In addition, recreational viewers in the viewshed would have views of the highway.

Nighttime Views and Lighting. Detailed design information about the potential locations, types, and quantity of proposed WDC lighting is not currently available; therefore, a detailed analysis of the impacts of proposed lighting is not included in this assessment. However, it is possible to make a general assessment of possible effects. Alternative A1 would require installation of nighttime lighting fixtures at interchanges and intersections only. Existing lighting sources in the viewshed are limited to the developed areas; the rest of the viewshed is currently unlit or poorly lit. By 2040, continued development along existing roads and within the viewshed would introduce more light sources into an agricultural/rural residential setting. Light fixtures would be an integral part of the overall WDC design and would be positioned to minimize any direct sight lines or glare visible to the public.

During operation, Alternative A1 would illuminate the area, especially at the proposed interchanges and intersections where changes in shadow levels or light would be noticeable. Although the highway design would include fixtures that shield sideways glare and minimize lighting impacts in the impact analysis area, areas near interchanges would have increased illumination. For Alternative A1, the system-to-system interchange of the WDC with

I-15/Legacy Parkway would substantially increase the light impact to homes in the surrounding area, especially the homes to the east that have a view to the west toward the Great Salt Lake. The interchange lighting would add a new element that would obstruct these residents' nighttime views.

Noise Barriers. For the A Alternatives, noise barriers would be effective, feasible, and reasonable at two locations. One barrier would be located west of the Hunters Creek subdivision in Farmington and the other in the Bridgeway Island subdivision in Syracuse. The noise barrier to the west of the Hunters Creek subdivision would block residents' views of the natural area and the Great Salt Lake to the west of the subdivision. The Bridgeway Island noise barrier would be in a residential area and would not substantially block views. The noise barriers would be constructed only if agreed to by the local residents. Residents would weigh the costs and benefits associated with barriers, including their visual impacts. The barriers would attenuate roadway noise and block the roadway from view but could also affect residents' long-range views of the valley, foothills, and mountains. See Chapter 12, Noise, for more information about UDOT's noise barrier policy.

Impacts to Specific KOPs from Alternative A1

KOP 1a

Photosimulation 1

Photosimulation 1 in Appendix 18A, Photosimulations, shows what the proposed highway might look like at KOPs 1a and 1b.

Alternative A1 would affect the existing visual character near this KOP. The continuity of farmland near KOP 1a is currently broken up by construction of the new high school, residential subdivisions, rural roads, and the close proximity to Legacy Parkway and I-15. Viewer sensitivity at KOP 1a is classified as *low* since the viewers' concern for scenic quality and change to the existing visual environment is anticipated to be low as a result of the new construction. Because of the KOP's proximity to the new high school, Legacy Parkway, and I-15, this KOP is located in a more urban setting than other KOPs.

Viewer sensitivity could change with the introduction of the proposed structures associated with this alternative, such as the WDC to I-15/Legacy Parkway system-to-system interchange at Glovers Lane and I-15, which would have a series of ramps and structures that could block the distant views that residents east of I-15 have of the mountains to the southeast and the Great Salt Lake to the west. The new overcrossing would introduce several elevated structures, visible to all viewer groups, similar to what currently exists farther north within the viewshed. These changes would be most apparent where residential viewers would have the most exposure to this change in character. The nighttime lighting of the system-to-system interchange would also add a new visual element that would substantially decrease views in the area.

Since this KOP is located near a new high school, subdivisions, and existing major urban freeway systems (Legacy Parkway and I-15) and is about half a mile away from the proposed new interchange, the impact at KOP 1a from Alternative A1 would be *low*.

KOP 1b

Impacts to visual quality at KOP 1b would be similar to those at KOP 1a. In addition, about 60 acres of farmland would be converted to highway use near KOP 1b. The limits of the new interchange and highway would be less than 0.02 mile (about 106 feet) away from this KOP and would dramatically change the character of the visual setting from rural, agricultural fields and rural roads to a highway corridor including the system-to-system interchange with its series of elevated ramps and structures. Alternative A1 would place a new highway, including median and highway barriers and lighting fixtures, closer to existing residences.

Although there are few homes near KOP 1b, because of the proximity of this KOP to the new highway and interchange, the impact at KOP 1b from Alternative A1 would be *high*.

KOP 2

Alternative A1 would affect the existing visual character of views near KOP 2 by changing the character of the visual setting from rural residential to a highway corridor and placing new highway elements much closer to existing residences. Because a high-voltage electric transmission line corridor already runs through this area, the visual impact would not be as great as in other locations, since a large, linear element with vertical features already dominates this viewshed.

Photosimulation 1

Photosimulation 1 in Appendix 18A, Photosimulations, shows what the proposed highway might look like at KOP 2.

The viewers in this area would predominantly be the residents of the Farmington Ranches housing development who are accustomed to seeing the stationary vertical elements of the power line and who would experience a moderate visual impact due to the moving, urban element of the proposed highway. In addition, the current views that residents have to the southwest of pasturelands in the Farmington conservation easements and of the Great Salt Lake would be interrupted by the new highway. The Farmington conservation easements are an important open space set aside by the City for trail use and wildlife viewing, and the proposed highway would substantially reduce the view of this open, natural space. Because the topography is rather flat and no elevated highway elements are proposed in this location, long-range views of the Great Salt Lake should not be affected; however, mid-range views would be dominated by the new highway.

The WDC would be a new four-lane highway, which would contrast in color and texture with the existing short-range views of residences and the power corridor and with the existing mid-range and long-range views of pastureland and the Great Salt Lake.

The impact at KOP 2 from Alternative A1 would be *moderate*.

KOP 3

Photosimulations 1 and 2

Photosimulations 1 and 2 in Appendix 18A, Photosimulations, show what the proposed highway might look like at KOP 3.

Alternative A1 would affect the existing visual character of views near KOP 3 by changing the character of the visual setting from rural residential and open land near the Great Salt Lake to a highway corridor and by placing new highway elements much closer to existing residences. This view would include a proposed new interchange at 950 North, which would dominate the views of many residents and recreational users in the area and a potential noise barrier west of the Hunters Creek subdivision. Because a high-voltage electric transmission line corridor already runs through this area, the visual impact would not be as great as in other locations, since a large, linear element with vertical features already dominates this viewshed.

The viewers in this area would predominantly be the residents who are accustomed to seeing the stationary vertical elements of the power line but would experience a high visual impact due to the highway corridor, potential noise barrier, and new interchange blocking views to the west. In addition, the current views that residents have to the southwest of pasturelands in the Farmington conservation easements and of the Great Salt Lake would be interrupted by the new highway and associated features. The Farmington conservation easements are an important open space set aside by the City for trail use and wildlife viewing, and the proposed highway would substantially reduce the view of this open, natural space.

The WDC would be a new four-lane highway and could include a proposed noise barrier, which would contrast in color and texture with the existing short-range views of residences and the power corridor and with the existing mid-range and long-range views of pastureland and the Great Salt Lake.

The impact at KOP 3 from Alternative A1 would be *high*.

KOP 4

Photosimulation 1

Photosimulation 1 in Appendix 18A, Photosimulations, shows what the proposed highway might look like at KOP 4.

This KOP is more rural with agriculture dominant, although the human-made element of the nearby sewer treatment plant also dominates the view. Alternative A1 in this area would contrast visually with the existing land use. The viewers from the agricultural areas and sewer treatment plant who are accustomed to seeing the agricultural area would experience a high visual impact due to the urban form of the proposed highway and the interchange at 950 North. Farm owners and operators would see the WDC highway and the interchange on a regular basis.

The WDC would be a new four-lane highway which would contrast in color and texture with the existing views of residences and the power corridor.

The impact at KOP 4 from Alternative A1 would be *high*.

KOP 5

The impacts to visual quality at KOP 5 would be the same as those at KOP 2. The viewers in this area would predominantly be the residents of the nearby subdivisions including Suncrest Park, Suncrest Meadows, and Webster Farms. Residents of other subdivisions or neighborhoods could also be affected.

Photosimulation 1

Photosimulation 1 in Appendix 18A, Photosimulations, shows what the proposed highway might look like at KOP 5.

The impact at KOP 5 from Alternative A1 would be *moderate*.

KOP 6

This KOP is more rural with agriculture dominant. Alternative A1 in this area would contrast visually with the existing land use. The viewers from the agricultural areas who are accustomed to seeing the agricultural area would experience a high visual impact due to the urban form of the proposed highway. In addition, the current views that residents from the Kayscreek Estates subdivision have to the southwest of pasture land and the Great Salt Lake would be interrupted by the new highway.

Photosimulations 1 and 2

Photosimulations 1 and 2 in Appendix 18A, Photosimulations, show what the proposed highway might look like at KOP 6 near 200 North.

Because the topography is rather flat and no elevated highway elements are proposed in this location, long-range views of the Great Salt Lake should not be affected; however, mid-range views would be dominated by the new highway. Farm owners and operators, students of the new elementary school, and residents would see the new highway on a regular basis. The WDC would be a new four-lane highway, which would contrast in color and texture with the existing views of farm fields. Because the topography is flat, mid-range and long-range views would not be affected at this KOP.

In addition, construction of a diamond interchange or operationally equivalent interchange connecting to the WDC near this location (200 North in Kaysville) would convert existing agricultural land uses to accommodate the proposed interchange and elevated highway structures. The new interchange would introduce an elevated structure visible to all viewer groups where none presently exists in the immediate viewshed. The interchange and highway would change the character of the visual setting from rural, agricultural fields to a highway corridor.

The impact at KOP 6 from Alternative A1 would be *high*.

KOP 7

The impacts to visual quality at KOP 7 would be the same as those at KOP 6. The impact at KOP 7 from Alternative A1 would be *high*.

Photosimulations 1 and 2

Photosimulations 1 and 2 in Appendix 18A, Photosimulations, show what the proposed highway might look like at KOP 7.

KOP 10

This KOP is more rural with agriculture dominant, although the human-made element of the nearby sewer treatment plant also dominates the view. Alternative A1 in this area would contrast visually with the existing land use by changing the character of the visual setting from rural, agricultural fields to an interchange and a highway corridor.

Photosimulations 1 and 2

Photosimulations 1 and 2 in Appendix 18A, Photosimulations, show what the proposed highway might look like in the vicinity of KOP 10.

The viewers from the agricultural areas and sewer treatment plant who are accustomed to seeing the agricultural area would experience a high visual impact due to the urban form of the proposed highway and associated interchange that would be built on currently open agricultural land. The viewers from the agricultural areas who are accustomed to seeing the agricultural area would experience a high visual impact due to the urban form of the proposed highway. Farm owners and operators would see the new highway on a regular basis.

The WDC would be a new two-lane highway, which would contrast in color and texture with the existing views of residences and the power corridor. Even though roadway travelers are less sensitive, these new highway elements would be highly visible where travelers presently see rural, agricultural fields. These changes would disrupt the vividness, intactness, and unity of the viewshed by adding built structures to the rural, agricultural landscape and breaking up the compositional balance between the fields. Views west to the Great Salt Lake would not be affected. Short-range and mid-range views to the east could be affected by the raised structure associated with the nearby interchange and ramps, although long-range views of the mountains would not be affected.

The impact at this KOP from Alternative A1 would be *high*.

KOP 12

Alternative A1 would affect the existing visual character of views near KOP 12 by changing the character of the visual setting from rural residential to a highway corridor and by placing new highway elements much closer to existing residences. The viewers in this area would predominantly be residents and roadway users. Landscape elements such as fields, residences, empty lots, building remnants, and utility lines are some of the dominant visual features of this KOP, but they would be replaced with the new highway and the associated structure of the WDC over 1300 North.

Photosimulations 1 and 2

Photosimulations 1 and 2 in Appendix 18A, Photosimulations, show what the proposed highway might look like in the vicinity of KOP 12.

Viewer sensitivity might change with the introduction of the proposed structure associated with the WDC over 1300 North, which would block mid-range views toward the Great Salt Lake. The current views that residents have to the west of pastureland and the Great Salt Lake would be blocked by the new highway. The WDC would be a new two-lane highway, which would contrast in color and texture with the existing short-range views.

The impact at KOP 12 from Alternative A1 would be *high*.

KOP 13

Alternative A1 would affect the existing visual character of views near KOP 13 by changing the character of the visual setting from residential to a new at-grade intersection of the WDC with 1800 North. The intersection would include traffic signals and intersection lighting. The viewers in this area would predominantly be residents, who would experience a high visual impact due to the new signalized intersection. The WDC intersection would contrast in color and texture with the existing views of residences, landscaping, and residential roads. Because the topography is flat, mid-range and long-range views would not be affected at this KOP.

Photosimulation 1

Photosimulation 1 in Appendix 18A, Photosimulations, shows what the proposed highway might look like at KOP 13.

The impact at KOP 13 from Alternative A1 would be *high*.

18.5.3.2 Alternative A2 – Glovers Lane and 5400 West/5500 South

Temporary Impacts to Visual Resources from Alternative A2

The construction-related impacts from Alternative A2 would be the same as those from Alternative A1.

Long-Term Impacts to Visual Resources from Alternative A2

The long-term impacts from Alternative A2 would be the same as those from Alternative A1.

Impacts to Specific KOPs from Alternative A2

The impacts from Alternative A2 to specific KOPs would be same as those from Alternative A1, with the following differences: KOPs 12 and 13 would not be affected by Alternative A2, but KOPs 11 and 14 would be affected.

KOP 11

The visual impacts from Alternative A2 at KOP 11 would be the same as those from Alternative A1 at KOP 10.

The impact at KOP 11 from Alternative A2 would be *high*.

Photosimulations 1 and 2

Photosimulations 1 and 2 in Appendix 18A, Photosimulations, shows what the proposed highway might look like at KOP 11.

KOP 14

The visual impacts from Alternative A2 at KOP 14 would be the same as those from Alternative A1 at KOP 13.

The impact at KOP 14 from Alternative A2 would be *high*.

Photosimulation 1

Photosimulation 1 in Appendix 18A, Photosimulations, shows what the proposed highway might look like at KOP 14.

18.5.4 Alternatives B1–B2

As described in Chapter 2, Alternatives, Alternative B is the more easterly alternative and consists of two separate alternatives: Alternatives B1 and B2. These alternatives are defined in Table 18-6. Alternatives B1–B4 do not pass through West Haven.

Table 18-6. Components of Alternatives B1–B2

Alternative	I-15 Connection	Four-Lane Highway	Two-Lane Highway	West Point City Segment	North Terminus
B1	Glovers Lane	I-15 to Antelope Drive[a]	Antelope Drive to 1800 North	4100 West	1800 North (West Point)
B2	Glovers Lane	I-15 to Antelope Drive[a]	Antelope Drive to 1800 North	4800 West	1800 North (West Point)

[a] The transition from a four-lane highway to a two-lane highway would occur between Antelope Drive and 700 South.

Provided below is the visual analysis for the areas that would be affected by Alternatives B1 and B2. Table 18-7 summarizes the visual contrast rating for the KOPs within the viewshed.

Table 18-7. Summary of Visual Contrast Ratings for Alternatives B1–B2

	Visual Contrast Rating by Alternative	
KOP	B1	B2
1a	Low	Low
1b	High	High
2	Moderate	Moderate
3	High	High
4	High	High
5	Moderate	Moderate
6	High	High
7	High	High
8	High	High
9	High	High
10	—	—
11	—	High
12	High	—
13	High	—
14	—	—

18.5.4.1 Alternative B1 – Glovers Lane and 4100 West/1800 North

Temporary Impacts to Visual Resources from Alternative B1

The construction-related impacts from Alternative B1 would be the same as those from Alternative A1.

Long-Term Impacts to Visual Resources from Alternative B1

The long-term impacts from Alternative B1 would be the same as those from Alternative A1 except for the locations of noise barriers.

Noise Barriers. For the B Alternatives, noise barriers would be effective, feasible, and reasonable at three locations: (1) west of the Hunters Creek subdivision in Farmington, (2) at the 2000 West interchange in Syracuse, and (3) east of the Fremont Estates and Outwest subdivisions in Syracuse. The visual impacts to the Hunters Creek subdivision would be the same as for Alternative A1.

The 2000 West interchange noise barrier would be placed along the interchange to the south of a subdivision and would not add an additional visual impact beyond the interchange. The Fremont Estates and Outwest noise barrier would block near views by residents adjacent to the barrier of a natural area and pedestrian trail that runs north-south along Bluff Road.

The noise barriers would be constructed only if agreed to by the local residents. Residents would weigh the costs and benefits associated with barriers, including their visual impacts. The barriers would attenuate roadway noise and block the roadway from view but could also affect residents' long-range views of the valley, foothills, and mountains. See Chapter 12, Noise, for more information about UDOT's noise barrier policy.

Impacts to Specific KOPs from Alternative B1

The impacts from Alternative B1 to specific KOPs would be the same as those from Alternative A1, with the following differences: KOP 10 would not be affected by Alternative B1, but KOPs 8 and 9 would be affected.

KOP 8

Photosimulation 3

Photosimulation 3 in Appendix 18A, Photosimulations, shows what the proposed highway might look like at KOP 8.

Alternative B1 would affect the existing visual character of views near KOP 8 by changing the character of the visual setting from suburban residential to a highway corridor and placing new highway elements, including a potential noise barrier on the west side of the highway, much closer to existing residences. The viewers in this area would predominantly be the residents of the housing developments such as Quail Bluff, Fremont Estates, Outwest, and Myrtlewood (although residents of other nearby subdivisions or neighborhoods could also be affected). Other primary viewers in this area would be users of Fremont Park and the Syracuse Trail, who would experience a high visual impact due to the urban element

of the proposed highway replacing the open space and trail that would border the residential developments.

The WDC would be a new four-lane highway, which would contrast in color and texture with the existing views of residences, open space, and the power corridor. Because the topography is rolling in this area, mid-range and long-range views would be affected.

The impact at this KOP from Alternative B1 would be *high*.

KOP 9

The impacts from Alternative B1 at KOP 9 would be similar to those at KOP 8. In addition, views at KOP 9 include the views from the Syracuse Arts Academy as well as a different view of Fremont Park. The viewers in this area would mainly be residents, users of the Syracuse Arts Academy, and park users.

Photosimulation 2

Photosimulation 2 in Appendix 18A, Photosimulations, shows what the proposed highway might look like at KOP 9.

Currently, the views from the Syracuse Arts Academy to both the north and south consist of open space. The open space would be replaced with a new raised highway structure, associated ramps, and a frontage road. Views to and from Fremont Park would change near this KOP as well, since part of the park would be converted to roadway use and a new access road would go through the park.

Viewer sensitivity might change with the introduction of proposed structures associated with the highway, such as the interchange at Antelope Drive and Bluff Road, which would include a structure and frontage road that would block mid-range views of the mountains to the northeast. Viewers would be especially sensitive at this location, since the Syracuse Arts Academy is nearby. The new overcrossing would introduce an elevated structure visible to all viewer groups where none presently exists in the viewshed. The WDC would be a new four-lane highway, which would contrast in color and texture with the existing views of fields and the manicured landscape of the park and school yard.

The impact at KOP 9 from Alternative B1 would be *high*.

18.5.4.2 Alternative B2 – Glovers Lane and 4800 West/1800 North

Temporary Impacts to Visual Resources from Alternative B2

The construction-related impacts from Alternative B2 would be the same as those from Alternative A1.

Long-Term Impacts to Visual Resources from Alternative B2

The long-term impacts from Alternative B2 would be the same as those from Alternative A1.

Impacts to Specific KOPs from Alternative B2

The impacts from Alternative B2 to specific KOPs would be the same as those from Alternative B1, with the following differences: KOPs 12 and 13 would not be affected by Alternative B2, but KOP 11 would be affected.

KOP 11

Photosimulation 1

Photosimulation 1 in Appendix 18A, Photosimulations, shows what the proposed highway might look like at KOP 11.

Alternative B2 would affect the existing visual character of views near KOP 11 by changing the character of the visual setting from residential to a new at-grade intersection of the WDC with 1800 North. The intersection would include traffic signals and intersection lighting. The viewers in this area would predominantly be residents, who would experience a high visual impact due to the new signalized intersection. The WDC intersection would contrast in color and texture with the existing views of residences, landscaping, and residential roads. Because the topography is flat, mid-range and long-range views would not be affected at this KOP.

The impact at KOP 11 from Alternative B2 would be *high*.

18.5.5 Wetland Avoidance Options

Two wetland avoidance options are being evaluated in this Final EIS, as shown in Table 18-8. The purpose of these options is to avoid wetland impacts per guidance from the U.S. Army Corps of Engineers on wetland avoidance. Either wetland avoidance option could be implemented with any of the A or B Alternatives.

In this section, the impact information for the wetland avoidance options provides only the differences in impacts for the A and B Alternatives as a result of using the wetland avoidance options. The differences in impacts would apply to any of the A and B Alternatives if they were to use the wetland avoidance options.

Table 18-8. Components of the Wetland Avoidance Options

Option	Location	City	Description
Farmington	Prairie View Drive and West Ranches Road	Farmington	Shift the A and B Alternatives in Farmington about 150 feet east to the southwest side of the intersection of Prairie View Drive and West Ranches Road.
Layton	2200 West and 1000 South	Layton	Shift the A and B Alternatives in Layton about 500 feet east to the northeast side of the intersection of 2200 West and 1000 South.

The wetland avoidance options would not change the visual impacts identified for Alternatives A1, A2, B1, and B2.

18.5.6 Mitigation Measures

FHWA and UDOT will consider context-sensitive solutions when developing landscape and aesthetic treatments for the WDC alternatives. As part of any selected WDC alternative, FHWA and UDOT will consider mitigating the visual impacts of structural elements by incorporating architectural design elements that reflect local community or regional characteristics or the use of landscaping. The aesthetic features considered during the final design phase of the project could include lighting; vegetation and plantings; the color of bridges, structures, and retaining walls; and other architectural features such as railings.

What are context-sensitive solutions?

Context-sensitive solutions is a philosophy that guides UDOT in planning, designing, constructing, and maintaining safe transportation solutions in harmony with the community and the environment.

All aesthetic treatments will be completed in accordance with UDOT Policy 08C-03, Project Aesthetics and Landscaping Plan Development and Review (UDOT 2011a), and UDOT's Aesthetics Guidelines (UDOT 2011b). UDOT's policy is to set a budget for aesthetics and landscape enhancements based on the aesthetics guidelines. Residents adjacent to a noise barrier will have the opportunity to vote on the noise barrier.

Aesthetic treatments are typically evaluated during the final design phase of the project after an alternative is selected in the Record of Decision and funding has been allocated for the project. UDOT will coordinate with the local municipalities to determine whether the desired aesthetics can be implemented within the project budget.

18.5.7 Cumulative Impacts

There are no anticipated cumulative impacts to visual resources. Cumulative impacts were analyzed for local and regionally important issues (ecosystem resources, air quality, water quality, floodplains, farmland, economics, and community impacts). The list of resources analyzed for cumulative impacts was developed with input from resource agencies and the public during scoping. For a more detailed discussion of cumulative impacts, see Chapter 24, Cumulative Impacts.

What are cumulative impacts?

Cumulative impacts are the resulting impacts from the proposed action combined with impacts from other past, present, and reasonably foreseeable future actions.

18.5.8 Summary of Impacts

Overall, the existing visual quality of the viewshed is considered *moderate* (12 KOPs rank *moderate*, three rank *high*, and none rank *low*). This visual quality is due mainly to the rural landscape and to the general flatness of the elevation, which allows short-range views of surrounding agricultural land and development, background views of the Wasatch Mountains and the Great Salt Lake, and views that provide seasonal interest. Residents of the viewshed would be the most affected by the proposed alternatives because of direct, long-term views of the new highway. Roadway users and recreationists would also be affected, though to a lesser extent.

All of the proposed action alternatives would produce mostly *high* visual quality impacts to viewers in the viewshed. At only a few KOPs along the alternatives would the proposed alternatives have a *moderate* visual impact. The long-term visual impacts from the proposed alternatives would be due to the increased pavement width or the addition of new pavement, including cut and fill; the loss of mature trees and urban vegetation; the loss of agricultural land; and the construction of new bridges, interchanges, and drainage structures. These changes would increase the visibility of "built" characteristics and would alter the existing agricultural landscape to a major transportation facility.

The visual quality ratings for KOPs would be reduced due to the proposed alternatives because the WDC would change the existing visual character and create a feature that physically and visually transects a presently cohesive landscape.

The proposed action alternatives are planned to be constructed largely on undeveloped agricultural land, some of which is being converted into urban or suburban development and some of which continues to be farmed. Because this agricultural land is continuing to be developed, several housing developments would also be affected by the proposed highway. The highway improvements would alter the existing rural visual character of the area as well as the suburban feel of the housing developments.

Overall, the visual impacts from all of the proposed action alternatives would be similar, but the B Alternatives would have the most impacts to neighborhoods, while the A Alternatives would have the most impacts to open space and agricultural land. Post-construction and short-term adverse visual impacts would also occur as part of the project. These impacts are expected to diminish as mitigation components become established and the project site becomes an established part of the visual environment.

Table 18-9 below summarizes the visual impacts from each action alternative. Overall, all of the proposed action alternatives would result in *high* visual impacts to the viewers in the viewshed. The change in visual quality at each KOP, combined with the viewer group's response, is rated as *low*, *moderate*, or *high* according to the definitions in Section 18.5.1, Methodology.

Table 18-9. Summary of Visual Impacts by Action Alternative

	Visual Contrast Rating by Action Alternative			
KOP	**A1**	**A2**	**B1**	**B2**
1a	Low impact to low view	Low impact to low view	Low impact to low view	Low impact to low view
1b	High impact to moderate view	High impact to moderate view	High impact to moderate view	High impact to moderate view
2	Moderate impact to moderate view	Moderate impact to moderate view	Moderate impact to moderate view	Moderate impact to moderate view
3	High impact to moderate view	High impact to moderate view	High impact to moderate view	High impact to moderate view
4	High impact to moderate view	High impact to moderate view	High impact to moderate view	High impact to moderate view
5	Moderate impact to moderate view	Moderate impact to moderate view	Moderate impact to moderate view	Moderate impact to moderate view
6	High impact to moderate view	High impact to moderate view	High impact to moderate view	High impact to moderate view
7	High impact to high view	High impact to high view	High impact to high view	High impact to high view
8	—	—	High impact to moderate view	High impact to moderate view
9	—	—	High impact to moderate view	High impact to moderate view
10	High impact to moderate view	High impact to moderate view	—	—
11	—	High impact to high view	—	High impact to high view
12	High impact to moderate view	—	High impact to moderate view	—
13	High impact to high view		High impact to high view	—
14		High impact to moderate view	—	—

18.6 References

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