

3.19 CUMULATIVE IMPACTS

This section discusses the cumulative impacts associated with the Midvalley Highway alternatives. Cumulative impacts are “the impact on the environment which results from the incremental impact of the [proposed] action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such actions. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time.” Cumulative impacts include the direct and indirect impacts of a project together with the reasonably foreseeable future actions of other projects. Cumulative impacts are resource-focused.

3.19.1 Regulations

The Council on Environmental Quality (CEQ) regulations require an assessment of cumulative impacts. Cumulative impacts are defined by the CEQ regulations in 40 Code of Federal Regulations (CFR) 1508.7. Cumulative impacts include the direct and indirect impacts of a project together with the reasonably foreseeable future actions of other projects. Cumulative impacts also include the impacts of “other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such actions.” For this project, an example of a past action in the Midvalley Highway project study area is the Tooele Army Depot (TEAD) operations. An example of reasonably foreseeable future actions includes the planned Overlook Estates development.

3.19.2 Methodology for Determining Cumulative Impacts

This section provides a general overview of the methodology used to conduct the cumulative impact analysis. The methodology for determining the cumulative impacts for the Midvalley Highway is based on *Considering Cumulative Effects under the National Environmental Policy Act* (CEQ, 1997). The specific analyses of cumulative impacts are provided under the appropriate resource sections. The methodology for determining cumulative impacts includes:

- Identifying Resources with a Direct or Indirect Impact from the proposed action;
- Identifying the Past, Present, and Reasonably Foreseeable Actions; and
- Evaluating the Past, Present, and Future Conditions for the Applicable Resources; Comparing the Future Resource Conditions for the No Build Alternative to the Midvalley Highway Build Alternatives.

3.19.3 Identifying Resources with a Direct or Indirect Impact

Public and agency involvement through the scoping process to helped determine the resources and issues important to the public and agencies. The scoping process provided the foundation for which cumulative impacts are addressed. Scoping involves the identification of past, present, and future actions (federal and non-federal). This section discusses agency, public, and local municipality concerns regarding resources and cumulative impacts.

3.19.3.1 Agency Concerns

As part of the EIS process for this project, scoping meetings were held with public and resource agencies, in part, to identify issues and resources that need to be considered and analyzed. The comments received during the public and agency scoping period were reviewed to determine if any important issues were identified.

Public and agency scoping meetings were held on June 13, 2007 at the Fire Fighters Museum within the Deseret Peak Recreational Complex in Tooele County. The meetings consisted of a municipal working group meeting held during the day with a public open house later that evening. The scoping and public involvement activities are discussed in more detail in Chapter 5. Local, state, and federal agencies along with other interest groups were invited to attend the agency scoping meeting. Agencies that either came to the municipal working group meeting or the public open house included representatives from Stansbury Park, the Tooele Army Depot, Wasatch Front Regional Council, U.S. Geological Survey, School and Institutional Trust Lands Administration, Grantsville City, Tooele City, Erda Township, and the Salt Lake City Department of Airports. Issues identified by these agencies include:

- Protection of drinking water wells;
- Groundwater monitoring wells;
- Traffic impacts to I-80;
- Wetland impacts;
- Concerns about alternatives that would encroach on the Tooele Valley Airport;
- Wildlife habitat impacts.

3.19.3.2 Public Concerns

A total of 26 people came to the public open house during the scoping period. The following concerns were identified by the public:

- Need to plan for future growth;
- Loss of farmlands; and
- Reducing congestion on SR-36.

3.19.3.3 Local Municipality Concerns

In addition to the scoping meeting, the joint lead agencies met with local municipalities including Tooele City and Erda Township. These agencies provided input during the scoping process. The local municipalities were concerned with impacts to residential and commercial establishments.

3.19.3.4 Resources

The resources are listed in Table 3.19-1 as they are discussed in this chapter. Those resources that are highlighted include further cumulative impact analysis.

TABLE 3.19-1 CUMULATIVE IMPACTS BY RESOURCE

Resource	Midvalley Highway Alternatives		Comments
	Direct Impact?	Considered a Cumulative Impact?	
Transportation	No	No	<p>The existing and planned transportation network within the project study area would not be adversely impacted by the Midvalley Highway alternatives. Bridges are planned to span existing roadways such as Erda Way and Sheep Lane. Interchanges are planned at other major intersecting roadways; future 1000 North, future parkway (3400 North), SR-138, and I-80. At SR-112 the Midvalley Highway alternatives would include a signalized, at-grade intersection.</p> <p>The Midvalley Highway alternatives also improve traffic operations on SR-36 as identified in the purpose and need.</p>
Land Use	Yes	Yes	<p>The Midvalley Highway alternatives would not adversely impact land uses within the project study area. However, there is some potential for a build alternative to alter the nature or timing of planned development. Therefore, land use is considered in this cumulative impacts evaluation.</p> <p>As documented in section 3.2, the Midvalley Highway would directly impact land uses under its footprint. However, this impact is considered minor. Land use changes related to the nature or timing of development could result from the Midvalley Highway as an indirect impact. Therefore, the cumulative impacts are discussed in this section.</p>
Agricultural Lands	Yes	Yes	<p>The Midvalley Highway alternatives would directly impact agricultural lands. This is discussed in more detail later in this section. For more information regarding the direct and indirect impacts to agricultural lands see section 3.3 of this chapter.</p>
Social Resources	No	No	<p>The Midvalley Highway alternatives would not adversely impact the social resources (relocations, environmental justice and the overall community character) within the project study area (see section 3.4).</p>

TABLE 3.19-1 CUMULATIVE IMPACTS BY RESOURCE

Resource	Midvalley Highway Alternatives		Comments
	Direct Impact?	Considered a Cumulative Impact?	
Economics	No	No	The Midvalley Highway alternatives would not adversely impact the economics within the project study area (see section 3.5).
Pedestrian and Bicycle concerns	No	No	The Midvalley Highway alternatives would cross existing and planned trails. However, the Midvalley Highway alternatives would not adversely impact pedestrian and bicycle facilities within the project study area (see section 3.6 of this chapter).
Air Quality	No	No	The Midvalley Highway alternatives would not adversely impact the air quality within the project study area and the Tooele Valley (see section 3.7).
Noise	Yes	Yes	The Midvalley Highway alternatives would impact several sensitive noise receptors within the project study area. This is discussed in more detail later in this section. For more information regarding direct and indirect noise impacts see section 3.8 of this chapter.
Geology, Soils, and Topography	No	No	The Midvalley Highway alternatives would not adversely impact the geology, soils, or topography of the project study area (see section 3.9).
Water Resources	No	No	The Midvalley Highway alternatives would not adversely impact water resources within the project study area. The Midvalley Highway alternatives would not cross any streams or other water bodies other than the Ezra Taft Canal. Stormwater runoff would be collected in roadside ditches or along curb and gutter and channeled to detention/retention ponds along the alternatives. Before discharging to the Ezra Taft Canal or other areas, the stormwater would be cleaned to state standards. This is discussed in section 3.10.

TABLE 3.19-1 CUMULATIVE IMPACTS BY RESOURCE

Resource	Midvalley Highway Alternatives		Comments
	Direct Impact?	Considered a Cumulative Impact?	
Wetlands and Waters of the U.S.	Yes	Yes	The Midvalley Highway alternatives would impact wetlands and waters of the U.S. identified within the project study area. The majority of the wetlands and waters of the U.S. are located between SR-138 and I-80. This resource is discussed in further detail in this section. More information regarding the direct and indirect impacts to wetlands and waters of the U.S. is found in section 3.11 of this chapter.
Wildlife; Threatened and Endangered Species; Utah Sensitive Species	Yes	Yes	The Midvalley Highway alternatives may potentially impact wildlife habitat within the project study area. Direct impacts would be minimal, essentially limited to minor habitat loss, but there are also potential indirect impacts to some species, as discussed in Section 3.12. Any changes in the timing and nature of planned development could also potentially impact wildlife habitat. Therefore, wildlife is considered in this cumulative impacts analysis.
Vegetation and Invasive Species	No	No	The Midvalley Highway alternatives would not adversely impact vegetation and invasive species within the project study area. For more information see section 3.13 of this chapter.
Historic, Archaeological, and Paleontological	No	No	The Midvalley Highway alternatives would not adversely impact the historic and archaeological resources within the project study area. For more information see section 3.14 of this chapter.
Hazardous Materials	No	No	The Midvalley Highway alternatives would not adversely impact hazardous materials located within the project study area. For more information see section 3.15 of this chapter.
Visual Quality	No	No	The Midvalley Highway alternatives would not adversely impact the visual quality within the project study area. For more information see section 3.16 of this chapter.
Energy	No	No	The Midvalley Highway alternatives would not adversely impact energy. For more information see section 3.17 of this chapter.

3.19.4 Identifying the Past, Present, and Reasonably Foreseeable Actions

The identification of other actions that potentially have a cumulative impact is essential in the development of the cumulative impact analysis. These actions are listed in Table 3.19-2.

TABLE 3.19-2, CONTRIBUTING ACTIONS WITHIN THE PROJECT STUDY AREA

Time Frame	Action	Description
Past Actions	Settlement and incorporation of Tooele City	Tooele City was settled by Mormon pioneers in 1849 and was incorporated in 1853. Development occurred mainly in the downtown area and near Settlement Canyon. Commercial development has more recently occurred on SR-36 (Main Street) towards the north side of the city. In addition, the area's only hospital was constructed adjacent to SR-36 within Tooele City.
	Development of Stansbury Park	Stansbury Park is a planned community founded in 1969, located in the northwest area of the project study area. It includes a golf course and a man-made lake. Since Stansbury Park is not incorporated, it is governed by Tooele County.
	Tooele Army Depot	The United States entry into World War II brought the establishment of the Tooele Army Depot (TEAD) which produced a large number of jobs. Originally, the TEAD was a 25,000-acre tract southwest of Tooele City and was built in 1942. The TEAD workforce once reached as many as 5,000 employees, but has since been reduced to about 400 workers.
	Utah Industrial Depot	The Utah Industrial Depot (UID) was once part of the TEAD; it was privatized and annexed into Tooele City in 1994. The UID is approximately 1,700 acres in size and is located in the southwest quadrant of Tooele City. Currently, there are 62 businesses located in the UID.
	Deseret Peak Recreational Complex	The Deseret Peak Recreational Complex opened in 1999 and is located between Sheep Lane and SR-112. It offers 17 different venues and is owned and operated by Tooele County. The Deseret Peak Recreational Complex is approximately 180 acres in size.
	Miller Motorsports Park	The Miller Motorsports Park opened in the Spring of 2006. It is approximately 500 acres in size and is located directly west of Sheep Lane. The Miller Motorsports Park hosts a wide variety of racing events between March and October.
	Tooele Valley Airport	This airport is owned and operated by the Salt Lake City Department of Airports. It is located in Erda.

TABLE 3.19-2, CONTRIBUTING ACTIONS WITHIN THE PROJECT STUDY AREA

Time Frame	Action	Description
Present Actions	Construction and design of 1000 North	Currently, a phase of 1000 North from SR-36 to 650 West is under construction. The next phase from 650 West to SR-112 is under design and planned for construction in the summer of 2010.
	Miller Motorsports Business Park – Planned Unit Development I	The Miller Motorsports Business Park is approximately 130 acres in size and is located directly east of Sheep Lane and the Miller Motorsports Park. Recently, a 600,000 square foot distribution center was announced within this business park and planned for construction in the summer of 2009.
	Overlake Estates	Overlake Estates is a planned development and one of the largest in the Tooele Valley. This development is approximately 2,700 acres in size; 615 of those acres are currently developed. The existing development includes an eighteen-hole golf course.
	Tooele City Commercial Park	This industrial park is located between approximately 1200 West and the UID. Phase six was recently approved for this commercial park.
	Utah Industrial Depot	According to the owners of the UID, this site is at approximately 50% capacity. It is anticipated that the other commercial and industrial businesses plan to locate within the UID.
Reasonably Foreseeable Actions	Stansbury Park	Planned residential and commercial developments are occurring within Stansbury Park. Stansbury Park is planned to have approximately 8,600 residents by the year 2030.
	Overlake Estates	Overlake Estates planned development includes over 8,100 housing units.
	Future development near the Tooele Valley Airport	Tooele County has identified the area directly around the Tooele Valley Airport as an area for future development. This could include commercial and other businesses.
	Future development north and west of Miller Motorsports Park	Tooele County has identified the area directly north and west of the Miller Motorsports Park as an area for future development. This could include hotels, commercial and industrial businesses.
	Miller Motorsports Business Park – Planned Unit Developments I and II	Commercial and industrial businesses are in the planning stages for the Miller Motorsports Business Park Phase I. Phase II is located directly to the south of the Miller Motorsports Park – Phase I development. This development is similar to the phase I of the Miller Motorsports Business Park Phase I with more industrial and commercial businesses.

TABLE 3.19-2, CONTRIBUTING ACTIONS WITHIN THE PROJECT STUDY AREA

Time Frame	Action	Description
	Tooele City Commercial Park	This industrial park is located between approximately 1200 West and the UID. Currently, there have been six phases approved for this commercial park.
	Utah State University Tooele Regional Campus	Currently, the USU Tooele Regional Campus includes one building and offers a variety of classes. It is located near 1200 West and Vine Street. The expansion of this campus is planned to occur further south of the existing facility with multiple buildings. It is planned to be approximately 50 acres in size.
	Future roadways – new	These would include 1000 North (discussed under the present), future parkway (3400 North), and other roadways planned by Tooele City and Tooele County.
	Other future residential developments	Future residential developments would be expected to occur within Tooele City and Erda Township.

Cumulative impacts were assessed for all resources identified in this chapter. However, a cumulative impact analysis is only required when the Midvalley Highway alternatives would have a direct or indirect adverse impact to a resource. According to CEQ’s cumulative impacts guidance, the cumulative impact analysis should be narrowed to focus on important issues at a national, regional, or local level. The analysis should also look at other actions that could have similar effects, and should consider whether a particular resource has been historically affected by cumulative actions (see Table 3.19-2).

3.19.5 Evaluating the Past, Present, and Future Conditions for the Applicable Resources; Comparing the Future Resource Conditions for the No Build Alternative to the Midvalley Highway Build Alternatives

As a result of the scoping process and the direct and indirect impact analyses conducted for this Draft EIS, five cumulative impacts issues were identified. These resources are the focus of the cumulative impacts analysis for the remainder of this section and include:

- Land Uses;
- Agricultural Lands;
- Noise;
- Wetlands and Waters of the U.S.; and
- Wildlife; Threatened, Endangered, and Candidate Species; Utah State Sensitive Species.

The potential cumulative impacts for the resources under analysis depend on future land use changes within the project study area and the direct impacts from the Midvalley Highway. The cumulative impact analysis considered the anticipated changes in land use from regional growth and induced growth caused by the project (for more information, see section 3.2 – Land Use). The past and present changes in land use in the project study

area are the main factors causing the loss of agricultural lands, increased noise levels, loss of wetland areas and waters of the U.S and potential loss of wildlife habitat.

3.19.5.1 Temporal Boundaries

A temporal baseline is necessary to establish a cumulative impact analysis. CEQ guidelines state “When the analyst describes the affected environment, he or she is setting the environmental baseline”.

The baseline year chosen for the past is 1969. Prior to 1969, the Tooele Valley was generally a rural, agricultural community area. The urban land uses were generally confined to Tooele City. However, in 1969, Stansbury Park became the first master-planned community within the project study area that is not within the incorporated boundaries of Tooele City. The continued conversion of agricultural land to more urban land uses has increased since 1969.

Since the design year for the Midvalley Highway is 2030, this analysis covers the period between 1969 and 2030. The year 2030 was chosen since all the available transportation and land use plans use 2030 as their current planning horizons. Beyond 2030, accurate estimates for transportation and land use projections do not exist.

3.19.5.2 Geographic Boundaries

Resource specific boundaries may be applicable with the evaluation of cumulative impacts. For Land Use, Agricultural Lands, and Noise, the geographic boundary is the project study area for the Midvalley Highway (see Figure 1-1 in Chapter 1 – Purpose and Need). The project study area represents the majority of the past, present and future growth within the Tooele Valley and where most of the Land Use, Agricultural Lands, and Noise impacts are expected to occur between now and 2030.

For Wetlands and Waters of the U.S. the geographic boundary is the project study area between SR-138 and I-80. This is the location where the majority of wetlands and waters of the U.S. exist within the project study area. This area was also identified as the most sensitive for future wildlife habitat as well.

For Wildlife, the geographic boundary is the project study area north of Tooele City. This is the area where the majority of potential wildlife habitat, in the form of wetlands or uplands, exists within the project study area.

3.19.5.3 Land Uses

The existing land uses within the project study area are primarily industrial/commercial, residential, and agricultural.

Past Conditions

It is impossible to accurately describe land use in 1969. However, it is generally the case that as population and development have increased, agricultural land uses have decreased (see below) while urban land uses have increased. Statistics maintained by the Governor’s Office of Planning and Budget (GOPB) indicate that Tooele City’s population in 1970 was about 12,500. Other townships in the study area no doubt added to this number. In 2006, Tooele City’s population had more than doubled; to about 29,000 (see Chapter 1 for a more

detailed discussion). This population growth suggests a notable increase in urban land uses, and a concomitant decrease in agricultural land use.

Present Conditions

Currently, much of the Tooele Valley is still agricultural, but new commercial, industrial and residential developments have encroached upon agricultural and vacant lands. Currently, there are an estimated 6,000 acres of residential use, and 2,800 acres of industrial and commercial combined. There are approximately 8,100 acres of existing agricultural land uses. These estimates are based upon Tooele City and County zoning maps and aerial photographs. It is likely that this represents an increase in urban land uses (commercial, industrial and residential) and a decrease in agricultural uses from the past condition.

Future No Build Conditions

Considering the reasonably foreseeable actions listed above, it is expected that there will be approximately 6,000 acres of agricultural land use (see below), 10,000 acres of residential land use, and 3,800 acres of commercial/industrial land use in 2030. These estimates account for greater acreage than the present condition, as vacant land will be developed.

Comparison of the Future No Build Conditions to the Midvalley Highway Build Alternatives Conditions

As presented in Section 3.2, the project would have minimal direct impacts to land use. The direct land use impacts that would result from one of the Midvalley Highway Build alternatives are small (on the order of 20-50 acres) relative to the amount of existing land use in the project study area. Agricultural lands would experience a greater direct impact, and these are discussed in 3.19.5.4. The project would require a relatively small amount of land from the other categories of land use. Future land uses would be developed and changed independently of the project's impacts. The indirect impacts that would likely result from the Midvalley Highway Build alternatives would likely change the nature or timing of the development around the interchange areas compared to the future No Build conditions. However, if the No Build alternative were to be selected, it is anticipated that the same amount of development would occur within the project study area, although this development may occur at a later time or be located in a different location within the project study area.

3.19.5.4 Agricultural Lands

The agricultural lands considered for this project include rangeland and farmlands of statewide importance. These are located mainly between SR-112 and SR-138; irrigated croplands are mostly found near Erda Way in the central part of the project study area. The cumulative impacts on agricultural lands depend on the future changes in land use. The Midvalley Highway alternatives would directly convert between 173 to 237 acres of agricultural land depending on the alternative and option.

Past Conditions

Available data do not present the total acreage of agricultural land available in 1969. Agricultural expansion of principal crops in the study area occurred in 1966 with the completion of the Settlement Canyon Dam in the eastern foothills of the Oquirrh Mountains. Statistics maintained by the GOPB indicate that Tooele City's population in 1970 was about

12,500, and today is about 29,000. One can infer that past agricultural lands were more widespread before this population growth. However, if agricultural lands in the past were predominantly in the north and west of the study area, as they are today, then it is likely these past impacts were not particularly severe.

Present Conditions

Data provided by the NRCS indicate about 8,100 acres of agricultural land are present in the study area (Section 3.3). This includes irrigated cropland and rangeland. It is difficult to quantify the trend in available agricultural land between past and present conditions, but it is likely that this represents some reduction in agricultural lands given population growth and residential development in the valley.

Future No Build Conditions

It is impossible to accurately quantify how many acres of agricultural land will be available in 2030. However, the Tooele Valley Regional Plan (Map 8) illustrates the County's expectations. Note that the amount of future agricultural land is not based on the same data set used to identify present conditions, but it nonetheless provides a point of comparison. The future land use plan includes about 6,000 acres of agricultural land in 2030. This scenario would represent a 26 percent decline in agricultural land (2100 acres) from the estimated present condition. 6,000 acres is probably a high estimate, as it includes most of Erda Township, where the population is expected to triple by 2030 (see Chapter 1). Therefore it is likely that available agricultural land will be less than 6,000 acres.

Comparison of the Future No Build Conditions to the Midvalley Highway Build Alternatives Conditions

Section 3.3 indicates that the alternatives would directly impact between 173 and 237 acres of existing agricultural land, based upon the NRCS data set. This represents 8 to 11 percent of the 2,100-acre reduction described above and less than 3 percent of the 8,100 acres that currently exist in the study area. However, the present condition is based upon NRCS data, and the future condition is based upon the Tooele Valley Regional Plan. When one calculates the project's direct impacts to agricultural land in the Regional Plan, the impacts range between 135-175 acres. This represents 6 to 8 percent of the anticipated 2,100-acre reduction in agricultural land and less than 2 percent of the 8,100 acres that currently exist in the study area.

3.19.5.5 Noise

Due to the rural nature of the majority of the project study area, noise impacts resulting from the Midvalley Highway alternatives are relatively few in number, impacting between 0 and 4 sensitive noise receptors depending on alternative and option. The past and future trends are discussed below.

Past Conditions

Circa 1969, much the project study area was rural, with Tooele City representing a more urban setting. That being the case, noise levels would have been generally low, except in Tooele City, where noise levels would have been consistent with urban development. Noise levels in Tooele City would have been in the range of 55-60 dBA, consistent with urban noise exposures elsewhere.

Present Conditions

As the Tooele Valley has developed, noise levels have increased. In rural areas, noise levels are still low. Section 3.8 presents existing noise levels between 48 and 63 dBA in the study area, with the lower readings occurring in more rural areas. Noise levels in more developed areas are generally in the 55-60 dBA range.

Future No Build Conditions

As Tooele Valley becomes more urbanized and less rural, noise levels associated with urban land uses will become more common, and occur across a wider geographic space. It is likely that the difference between rural and urban noise levels will stay about the same as described above, and levels in the range of 55-60 dBA will be more common.

Comparison of the Future No Build Conditions to the Midvalley Highway Build Alternatives Conditions

The Midvalley Highway alternatives would increase noise levels along the roadway. Section 3.8 indicates that 2030 worst-case noise levels would be range between 48 and 64 dBA. These levels are consistent with existing noise levels, and are entirely consistent with noise levels that can be expected from continued urban development. While the project may influence the locations of increased noise levels, it would contribute very little to overall 2030 noise levels in the project study area.

3.19.5.6 Wetlands and Waters of the U.S.

The wetlands within the project study area are located north of Erda Way. The Midvalley Highway alternatives would impact between 11.94 and 23.90 acres of wetlands depending on the alternative and option. The past and future trends that have or could have impacted wetlands are discussed below.

Past Conditions

Data regarding the exact acreage of wetlands and Waters of the U.S. circa 1969 are not available. There is considerable data regarding shoreline fluctuations along the Great Salt Lake, and wetland complexes would have waxed and waned with increases and decreases in lake level. However, as Section 3.11 indicates, wetland distribution in the study area is partially determined by a natural bench that keeps wetlands in the northern portion of the study area. It is likely that the same geomorphologic feature was present in 1969, and so it is likely that that wetland distribution was similarly constrained.

Current Conditions

Section 3.11 indicates that there are about 5,000 acres of wetlands in the study area. It is not possible to precisely determine how this compares to the past condition, but it is likely that the acreage is similar to past totals, given some fluctuation in lake levels.

Future No Build Conditions

There is no method to accurately predict the future acreages of wetlands and waters of the U.S. in the study area. The Tooele County General Plan shows future expected development in areas where there are likely wetlands or Waters of the U.S. However, wetlands currently occur only north of Erda Way, and most occur north of SR-138. The

Tooele County General Plan shows most planned development being located south of SR-138, and so the potential impact to wetlands will probably not be severe. When these developments occur, if there are wetland impacts, the project proponents would have to obtain a permit from the U.S. Army Corps of Engineers and mitigate for any wetland impacts.

Comparison of the Future No Build Conditions to the Midvalley Highway Build Alternatives Conditions

Section 3.11 indicates that build alternatives would impact between 12 and 24 acres of wetlands, and about an additional acre of other waters of the U.S. Given that the total acreages of wetlands in the study area have remained fairly constant, this impact represents about 0.5 percent of existing and future wetlands. Efforts to avoid, minimize or mitigate for the direct wetland impacts will also be made as part of the Clean Water Act 404 permitting process with the U.S. Army Corps of Engineers.

3.19.5.7 Wildlife; Threatened and Endangered Species; Utah State Sensitive Species

There would be no direct or indirect impacts to threatened and endangered species or Utah State Sensitive Species. Potential impacts to wildlife would be the loss of potential habitat. Therefore, this discussion focuses on the cumulative impacts to habitat.

The geographic boundary for wildlife is generally the study area north of the Tooele City boundary. However, the area between SR-138 and I-80 was described by the U.S. Fish and Wildlife Service (USFWS) as being the most suitable habitat that exists for wildlife in the study area. It is the area nearest to the Great Salt Lake, contains the wetland areas and where wildlife habitat exists. The areas south of SR-138 that could potentially be wildlife habitat are primarily upland agricultural or vacant lands.

Past Conditions

Past wetland habitats are described in Section 3.19.5.6 above. It is assumed that wetland complexes in the past were much like they are today. Upland habitat was likely more extensive in the past than today. Population has about doubled in the valley since 1970, and this growth has no doubt impacted potential wildlife habitat.

Present Conditions

Current wetland habitats are described in Section 3.19.5.6 above. There are about 5,000 acres of wetland habitat within the SAMP (see Section 3.11). Current upland habitat is described in Section 3.12. There are an estimated 3,000 acres of upland habitat between SR-138 and I-80 and over 11,100 acres in the project study area.

Future No Build Conditions

Section 3.19.5.6 presents estimated impacts to wetland habitats in the area between SR-138 and I-80, and suggests that habitats will be generally the same in 2030 as they are today, as planned development is generally south of SR-138. It is likely that upland habitats between SR-138 and I-80 will be about the same as today, for the same reason. Upland habitats in the project area will likely decrease due to the expected commercial, industrial and residential developments that are expected to existing agricultural and vacant properties

located south of SR-138. Up to 2,100 acres of agricultural lands could be developed by 2030. It should be noted that not all agricultural and vacant lands are wildlife habitat.

Comparison of the Future No Build Conditions to the Midvalley Highway Build Alternatives Conditions

The build alternatives would have minor direct impacts to wetland and upland habitat. Wetland impacts would range between 12 and 24 acres, between SR-138 and I-80. Approximately 80-100 acres of upland habitat would be impacted by the Midvalley Highway alternatives between SR-138 and I-80. In the project study area, approximately 200-300 acres of existing agricultural or vacant lands would be directly impacted. The majority of this impact includes the conversion of agricultural or vacant lands to highway right-of-way. It should be noted that not all agricultural and vacant lands are wildlife habitat. The direct impacts to potential wildlife habitat that would result from any of the Midvalley Highway Build alternatives would be very minor when compared to the Future No Build conditions and relative to the amount of existing potential habitat in the project study area. See Section 3.12 for a longer discussion of impacts to wildlife habitat for the whole project study area.

3.19.6 Climate Change Cumulative Effects

The issue of global climate change is an important national and global concern that is being addressed in several ways by the federal government. The transportation sector is the second largest source of total greenhouse gases (GHG) in the U.S., and the greatest source of carbon dioxide (CO₂) emissions – the predominant GHG. In 2004, the transportation sector was responsible for 31 percent of all U.S. CO₂ emissions. The principal anthropogenic (human-made) source of carbon emissions is the combustion of fossil fuels which account for approximately 80 percent of anthropogenic emissions of carbon worldwide. Almost all (98 percent) of the transportation-sector emissions result from the consumption of petroleum products such as motor gasoline, diesel fuel, jet fuel, and residual fuel.

Recognizing this concern, FHWA is working with other modal administrations through the Department of Transportation Center for Climate Change and Environmental Forecasting to develop strategies to reduce transportation's contribution to greenhouse gases - particularly CO₂ emissions - and to assess the risks to transportation systems and services from climate changes.

In Utah, the Governor's Blue Ribbon Advisory Council on Climate Change (BRAC) identified measures that the state could take to minimize the impacts of transportation related GHG. The recommended measures include reducing vehicle miles travelled (VMT) through developing and encouraging the use of mass transit, ridesharing, telecommuting. Other strategies outlined in the BRAC report to reduce CO₂ at the source include promoting the use of low carbon fuels such as alternative fuels, biofuels and hybrid vehicles, vehicle technologies resulting in greater fuel efficiency and implementing an idle reduction program for school busses and heavy duty trucks.

Because climate change is a global issue, and the emissions changes due to the Midvalley Highway alternatives are very small compared to global totals, FHWA did not calculate the GHG emissions associated with the alternatives. Because GHGs are directly related to energy use, the changes in GHG emissions would be similar to the changes in energy consumption presented in section 3.17 - Energy. The relationship of current and projected

Utah highway CO₂ emissions to total global CO₂ emissions is presented in Table 3.19-3. Utah highway CO₂ emissions are expected to decrease by 6.2% between 2006 and 2030. The benefits of the fuel economy and renewable fuels programs in the 2007 Energy Bill more than offset growth in Utah vehicle miles of travel (VMT); the UDOT Planning Division predicts that statewide VMT will increase by 58% between 2006 and 2030. Table 3.19-3 also illustrates the size of the project corridor relative to total Utah travel activity.

TABLE 3.19-3, UTAH CO₂ EMISSIONS

Global CO₂ emissions, 2006, MMT¹	Utah highway CO₂ emissions, 2006, MMT	Projected Utah 2030 highway CO₂ emissions, MMT	Utah highway emissions, % of global total (2006)	Project study area VMT, % of statewide VMT (2006)
27,578	16.2	15.2	0.06%	< 1%

¹ EIA, *International Energy Outlook 2007* (MMT = million metric tons)



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