

# EXISTING CONDITIONS AND ENVIRONMENTAL CONSEQUENCES

## 3.0 Introduction

Chapter 3 summarizes the existing baseline of the proposed project vicinity in each identified resource area of concern. The chapter also summarizes the analysis of projected impacts (direct, indirect and cumulative) for each resource area.

### Cumulative Effects Criteria

For the purpose of evaluating cumulative effects, the following activities likely to occur in the foreseeable future (10 years) were considered.

1. Construction of 1-2 acre residential housing lots on an 80-acre parcel at the southwest corner of Tutuilla Church Road and South Market Road, with an estimated 15-30 homes on a community water and sewer system.
2. Development of 10 acres of commercial property west of Arrowhead Truck Plaza, north of I-84, likely in some type of retail use.
3. Continued farming in the Tutuilla-Patawa watershed, with varying degrees of participation in the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) Tutuilla-Patawa Restoration project by different landowners. The potential results would be an unknown number of additional buffer strips being created along various creeks in the watershed.

Residential and commercial development described above would occur on Trust land and would thus have a federal nexus through the Bureau of Indian Affairs (BIA) for review under the National Environmental Policy Act (NEPA).

## 3.1 Project Area Description

### Location

The proposed project site is on the Umatilla Indian Reservation, which includes approximately 172,400 acres in Umatilla County about seven miles east of Pendleton in Northeastern Oregon. The proposed site is at the intersection of Interstate 84 and Highway 331/ South Market Road at Exit 216 and comprises most of Section 21, Township 2 North Range 33 East, Willamette Meridian.

The proposed project site is a portion of Tract No. T2103. This parcel has a total area, excluding rights-of-way but including easements, of 721.81

acres. The portion of Tract No. T2103 that is located south of Interstate 84 and north of Tutuilla Church Road is approximately 520 acres. The portion of the subject property proposed for Coyote Business Park is located south of Patawa Creek in the central area of Section 21, an area of approximately 139 acres. An 80-acre allotment, also included in Section 21, is bounded on three sides by the subject property. See Figure 2-1.

## **Topography**

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The proposed project site elevation ranges from 1330 feet to 1430 feet above mean sea level. Patawa Creek divides the proposed project site into a southern section of relatively flat low lying land that slopes downward to the northwest, and a northern section of higher elevation land that slopes downward to the west.

## **Soils**

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The subject property has the following soil types (Figure 3-1):

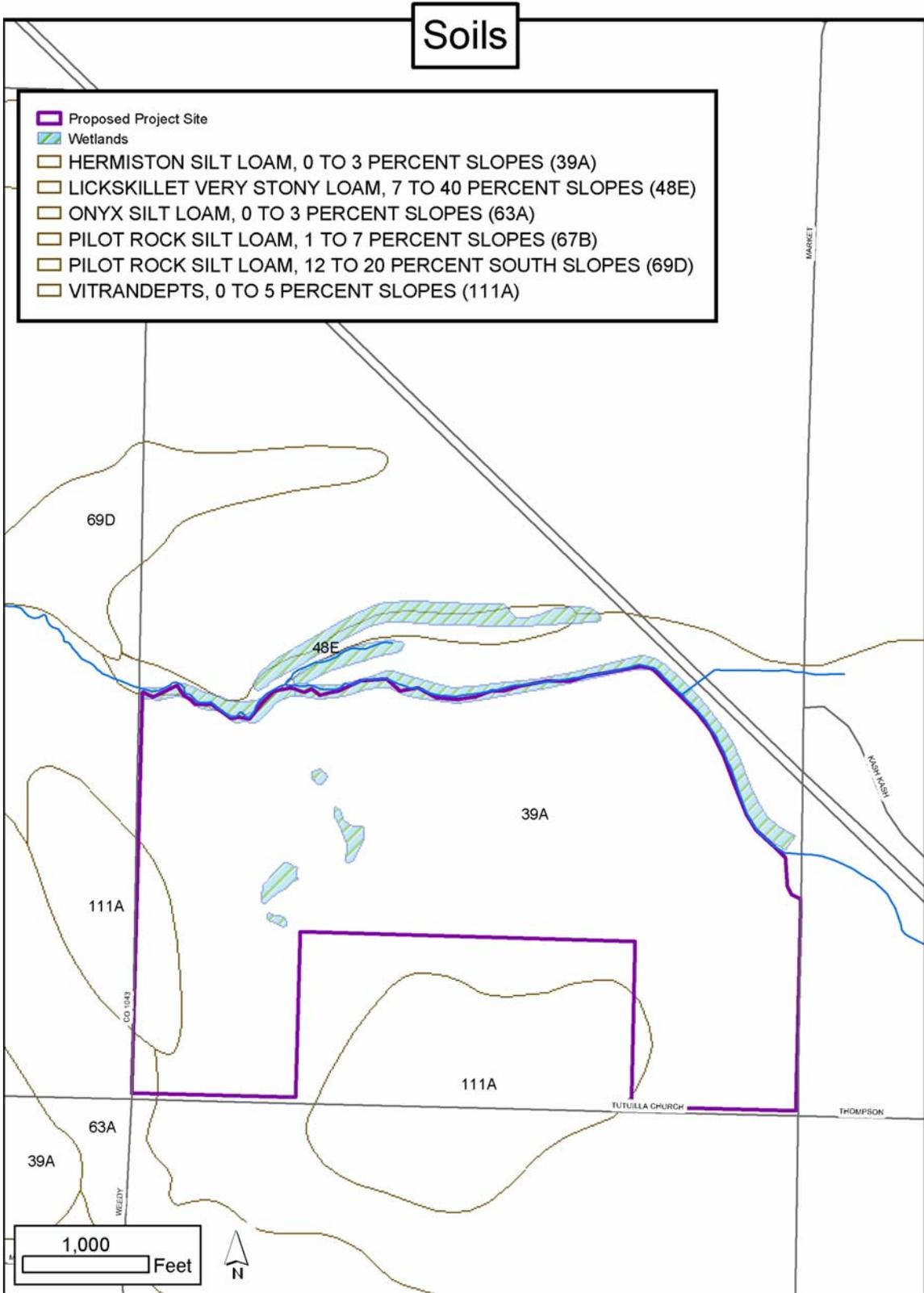
- 39A - Hermiston silt loam, 0 to 3 percent slopes. Prime farm soil.

Characteristics of Hermiston Silt Loam (39A) are described as variably permeable, with poor to well-draining properties. Run-off is described as slow, water erosion slight, and subject to rare periods of flooding. It is potentially 5 feet deep, with a corresponding water table within 6 feet of the surface (U.S. Department of Agriculture, 1988.)

Other soils present at the site include:

- 67B – Pilot Rock silt loam, 1 to 7 percent slopes.
- 48E – Lickskillet very stony loam, 7 to 40 percent slopes.
- 111A – Vitrandepts, 0 to 5 percent slopes.
- 69D – Pilot Rock silt loam, 12 to 20 percent south slopes.

Wysocki (2004) noted well-hydrated soils throughout the proposed project site, and a layer of volcanic ash, approximately four feet down and four feet thick.



**Figure 3-1 Soils at Proposed Project and Vicinity (Soil Survey of Umatilla County Area, 1988)**

## **Geology and Climate**

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The project area is situated in the southeastern portion of the Columbia Plateau, just north of the Blue Mountains. The Columbia Plateau covers 63,000 square miles in Washington, Oregon, and Idaho. It is bordered by four mountain ranges, the Okanogan Highlands to the north, the Cascade Mountains to the west, the Blue Mountains to the south, and the Clearwater Mountains/Foothills of the Rocky Mountains to the east (Orr and Orr 1996).

During the Miocene Epoch (23.5 to 5.3 million years ago), over a period of more than eleven million years, “flow upon flow of Columbia River basalts poured across an ever-widening area following stream valleys much like water” (Orr and Orr 1996). This resulted in over 42,000 cubic miles of basalt (Orr and Orr 1996) covering the Columbia Plateau. The basalt flows redirected or blocked rivers and streams, creating sediment basins. The project area lies within the McKay Basin that is famous for late Miocene vertebrate fossils. Extensive plant and animal remains reflect an assortment of paleoenvironments. (Orr and Orr 1996).

Gonthier and Bolke (1993) note that the project area is underlain by late Miocene/Pliocene Epoch (11 to 4 million years ago) sedimentary deposits comprised of basalt debris and silt. These sediments have been referred in other reports as fanglomerate (Walker and MacLeod, 1991) and the McKay Formation (Orr and Orr, 1996). Review of the geologic log reported on well records near the project area indicate, in general, that the semiconsolidated to unconsolidated sedimentary deposits beneath the soil range in thickness from 40 to more than 100 feet. Beneath the sediments lie the basalt flows to depths greater than 1,000 feet. North of the project area is an extensive duripan layer (cementation by silica) formed in the older sedimentary deposits at depths of about six to eight feet. This layer was not found beneath the project site below depths of eight to 12 feet but it may be present at greater depths.

Field inspection by Oregon State University Extension and CTUIR staff of the project area in March 2004 indicated the presence of a recent ash deposit in the soil at depths of about three feet below ground surface and exposures along the stream bank of Patawa Creek. Additional soil sampling of the area indicated the ash deposits are local accumulations and not found everywhere. Sampling identified the depth of the soil (depth where probe was unable to penetrate) ranging from eight to twelve feet, and documented volcanic ash at a layer ranging from forty (40) to eighty (80) inches thick. Some of the well-log records in the vicinity of the project site indicate presence of white clay from three to six feet deep, but this layer was not encountered in these probes.

The climate of the Umatilla Indian Reservation at lower elevations is semiarid. According to Franklin and Dyrness (1988), the average January temperature for the city of Pendleton is  $-0.7^{\circ}\text{C}$  ( $30.74^{\circ}\text{F}$ ), the average July temperature is  $23.1^{\circ}\text{C}$  ( $73.58^{\circ}\text{F}$ ) and the average annual precipitation is 320 mm (12.6 inches).

## **Historical Context**

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In the early 1850s, Governor Joel Palmer of the Oregon Territory convinced the Indian Department that no further settlements were to be established east of the Cascades until the Indians there could be moved to reservations by treaty. Congress then authorized negotiation of treaties in order to purchase the Indian lands east of the Cascades, and establish a reservation for Indians. On May 29, 1855, a Council was convened at the old Indian grounds in the Walla Walla valley to discuss the situation in Eastern Oregon and to negotiate a treaty. Officiating were Isaac I. Stevens, Governor and Superintendent of Indian Affairs for Washington Territory, and Joel Palmer, Superintendent of Indian Affairs for Oregon Territory. They met with chiefs, delegates, and headmen from the Nimi'ipuu (Nez Perce), Weyíiletpuu (Cayuse), Walúulapam (Walla Walla), Imatalamláma (Umatilla), Yakama, and Palouse tribes (CTUIR 1996)

On June 9, 1855 representatives from the Weyíiletpuu, Imatalamláma (Umatilla), and Walúulapam tribes signed a treaty with the United States ceding 6,400,000 acres of land, retaining certain rights, and establishing a 512,000 acre reservation (Lahren 1998). The Treaty was subsequently ratified by Congress on March 8, 1859. In 1885 the Slater Act required that the Umatilla Indian Reservation be allotted to individuals. Lands not allotted ("the residue of said reservation lands") were to be appraised and auctioned off to the highest bidder (23 Stat. 340 §2). The entire area of the proposed project was allotted to members of the Weyíiletpuu and Imatalamláma.

As a result of federal legislation in the late 1800s that reduced its size, the Umatilla Reservation now is approximately 172,400 acres.

## **3.2 Land Use**

### **Regulatory Context**

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The CTUIR retains jurisdiction over all land use development regulations of lands situated inside the boundaries of the Umatilla Indian Reservation located within Umatilla County under the Land Development Code and Subdivision Ordinance of the CTUIR (Memorandum of Understanding between Umatilla County and CTUIR, September 19, 1990.) The Land

Development Code of the CTUIR regulates building and construction activities to insure that standards are met to protect the public health, safety and welfare of the residents of the Umatilla Indian Reservation, and to promote orderly development of the Umatilla Indian Reservation, and to implement the provisions of the Comprehensive Plan.

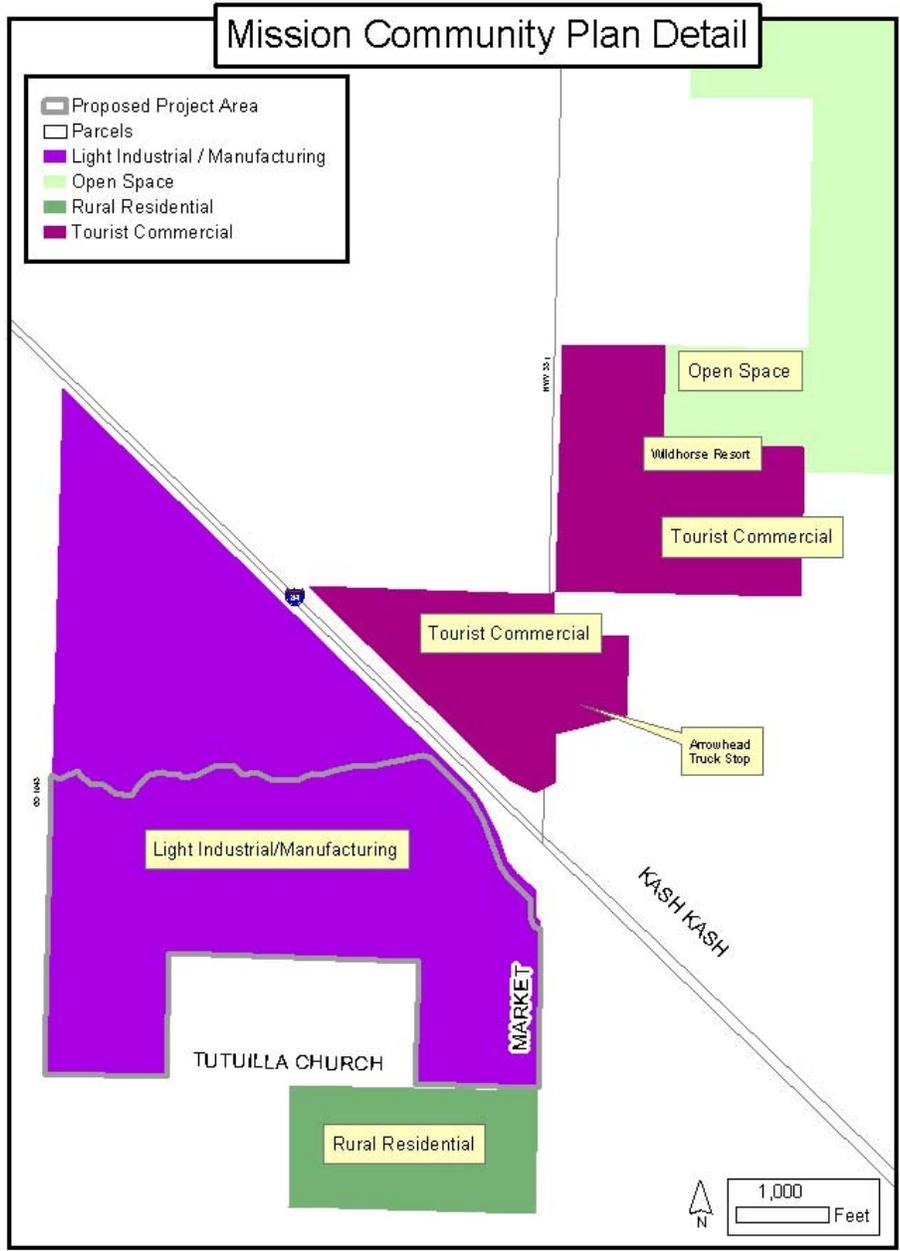
The scope of this Code includes but is not limited to: the establishment of standards for: (1) the location of land uses and buildings; (2) the promotion of the development of the reservation economy; (3) public and semi-public and other specified uses; and (4) for the construction of residences. It is also intended that this Code address the needs and requirements for the compliance with such federal acts as Section 208 of the Clean Water Act of 1972, P.L. 92-500 and other such acts which will enhance and conserve all reservation natural resources.

The Mission Community Plan was adopted by the CTUIR on June 17, 1998 by Resolution No. 98-30. This plan recommends that over the next twenty (20) years, one hundred and ten (110) acres of Reservation land should be set aside for attracting/recruiting industrial users.

The Mission Community Plan as amended by CTUIR Resolution 03-031 (Figure 3-2) designates the future land uses in the vicinity of the subject property as follows:

- Light Industrial/ Manufacturing - south of I-84 and west of South Market Road (approximately 520 acres)
- Tourist Commercial - north of I-84 and west of Highway 331 (approximately 80 acres).
- Rural Residential - south of Tutuilla Church Road and west of South Market Road (approximately 80 acres).
- Agricultural - existing agricultural zoning in balance of vicinity.

When the subject parcel was zoned Industrial Development in 2003, the Mission Community Plan was amended to include expansion of industrial area from 110 acres to 520 acres and the future rural residential area was limited to the specified area south of Tutuilla Church Road.



**Figure 3-2 Mission Community Plan Detail in Project Vicinity**

## Historical Context

Table 3-1 details the history of land use planning as it relates to the subject property. Note that the proposed project site is a portion of a larger parcel. Land use planning actions which affect that larger parcel and parcels in the immediate vicinity are included below.

**Table 3-1  
Land Use Planning History of Subject Property and Vicinity**

<b>Date</b>	<b>Action</b>	<b>Reference</b>
1983	Zoned Ag-1, Exclusive Farm Use with the adoption of the Land Development Code.	Zoning Map of the CTUIR Land Development Code. Map No. 2N 33. Adopted August 29, 1983, by CTUIR BOT Resolution No. 83-74.
1997	Property purchased by CTUIR. CTUIR requests BIA transfer land from fee to trust status.	CTUIR BOT Resolution No. 97-70
1998	CTUIR BOT approves the Zone Change Request, #ZC-98-01, to classify approximately 7 acres located southwest of the existing State of Oregon Sand Shed as P-2 Public Facilities Zone for Tribal Transfer Station (Tribal Environmental Recovery Facility).	CTUIR BOT Resolution No. 98-024
1998	Conditional Use Permit issued by the Natural Resources Commission for the construction of the Tribal Environmental Recovery Facility located on 7 acres zoned P-2 Public Facilities Zone.	File No. CU-98-01
1998	Mission Community Plan, Future Land Use Map designates two new zones for the subject property: "Light Industrial Manufacturing"- extending for one half mile to the west of South Market Road, one quarter mile north of Tutuilla Church Road to the ODOT access road and following I-84 west. "Rural Residential" - South of I-84 and west of South Market Road, a half square mile area of the property bisected by Tutuilla Church Road" (note that this "Rural Residential" designation included a portion of the original allotment located south of Tutuilla Church Road, a designation which was subsequently amended by zone change request ZC-02-02 which reclassified the subject property north of Tutuilla Church Road as Industrial Development.)	CTUIR BOT Resolution No. 98-30
1998	Sign Permit issued for the construction of a billboard located on the south side of Interstate 84 west of the State of Oregon Sand Shed.	File No. SP-98-01 & File No. DP-98-20
1999	CTUIR Development Permit issued for the construction of the Tribal Environmental Recovery Facility	File No. DP-99-92

**Table 3-1  
Land Use Planning History of Subject Property and Vicinity**

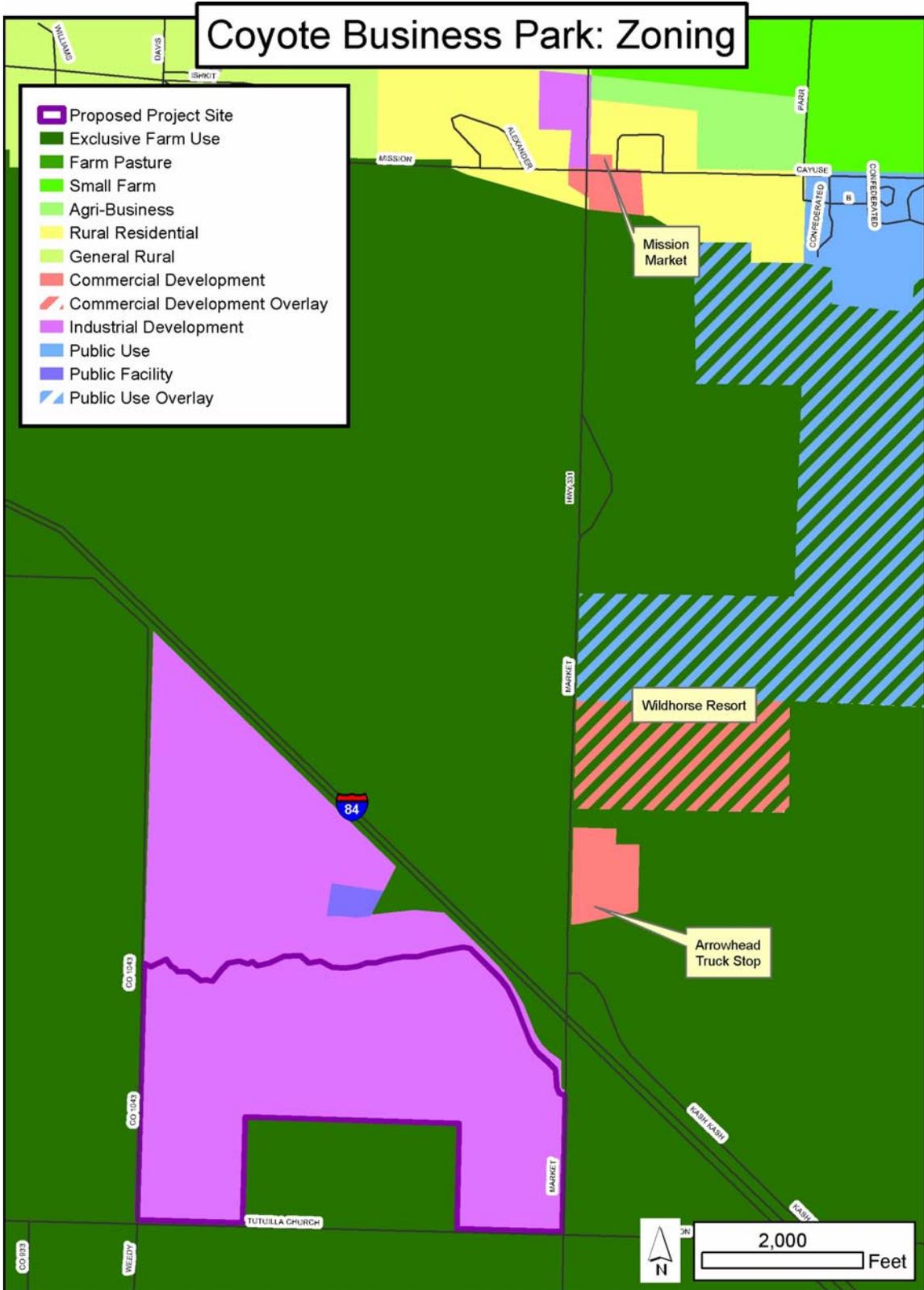
<b>Date</b>	<b>Action</b>	<b>Reference</b>
2000	Property converted from fee to trust.	Bureau of Indian Affairs Umatilla Agency, recorded November 1, 2000 Umatilla County
2000	CTUIR New Neighborhood Analysis determined that an eighty-acre parcel south of Tutuilla Church Road was appropriate for rural residential housing development.	CTUIR BOT Resolution No. 00-72
2002	CTUIR BOT designated "CTUIR Tribal Enterprise Zone" which includes approximately 520 acres of proposed project site.	CTUIR BOT Resolution No. 02-004
2002	CTUIR BOT approved preliminary engineering study for the subject property supported by the Oregon Special Public Works Technical Assistance Fund and U.S. Economic Development Administration Planning Grant.	CTUIR BOT Resolution No. 02-030
2002	CTUIR BOT directs development of CTUIR Industrial Park to begin, including rezone application and any required environmental analysis, on the subject property.	CTUIR BOT Resolution No. 02-068
2003	CTUIR BOT affirms its intent that approximately 500 acres of the subject property are included in the Tribal Enterprise Zone and are designated for future industrial development.	CTUIR BOT Resolution No. 03-001
2003	CTUIR BOT approves zone change request, #ZC-02-02, to classify approximately 520 acres of the subject property south of Interstate 84, north of Tutuilla Church Road, east of Billy Road and west of South Market Road as I-D, Industrial Development Zone.	CTUIR BOT Resolution No. 03-31
2003	Tribal Development Permit issued for the construction of a hazardous waste storage building located at the Tribal Environmental Recovery Facility.	File No. DP-03-33
2003	Sanitation Development Permit issued for a site evaluation of the subject property for a septic tank and drainfield suitability.	File No. SDP-03-05

## **Existing Conditions**

### ***Zoning***

The subject parcel is zoned Industrial Development (Figure 3-3). See Appendix A for a list of allowed or approvable uses in this zoning designation. Zoning on adjacent and area parcels includes the following:

- Ag-1 – Exclusive Farm Use (to the east, west, south, and north of the parcel).



**Figure 3-3 Zoning in vicinity of proposed project site**

- Commercial Development Zone - northeast of the parcel across Interstate 84 (Arrowhead Travel Plaza) on the northeast. (Figure 3-3)
- Public Facilities Zone - a seven-acre parcel along the north edge of the property (Tribal Environmental Recovery Facility).

### ***Land Use of Subject Property***

The subject area is currently being used for non-irrigated cereal grain production and alfalfa production. The farm usage is managed by the CTUIR Tribal Farm Enterprise and by a private lessee (Figure 3-4).

The CTUIR Tribal Farm Enterprise currently generates approximately \$12,000 per year in combined net revenues from leased and direct farm operations on the entire parcel. The CTUIR Tribal Farm Enterprise currently has two full time employees engaged in farming over 3,000 acres, including the subject parcel. There are no jobs directly dependent on the continued farming use of the subject parcel.

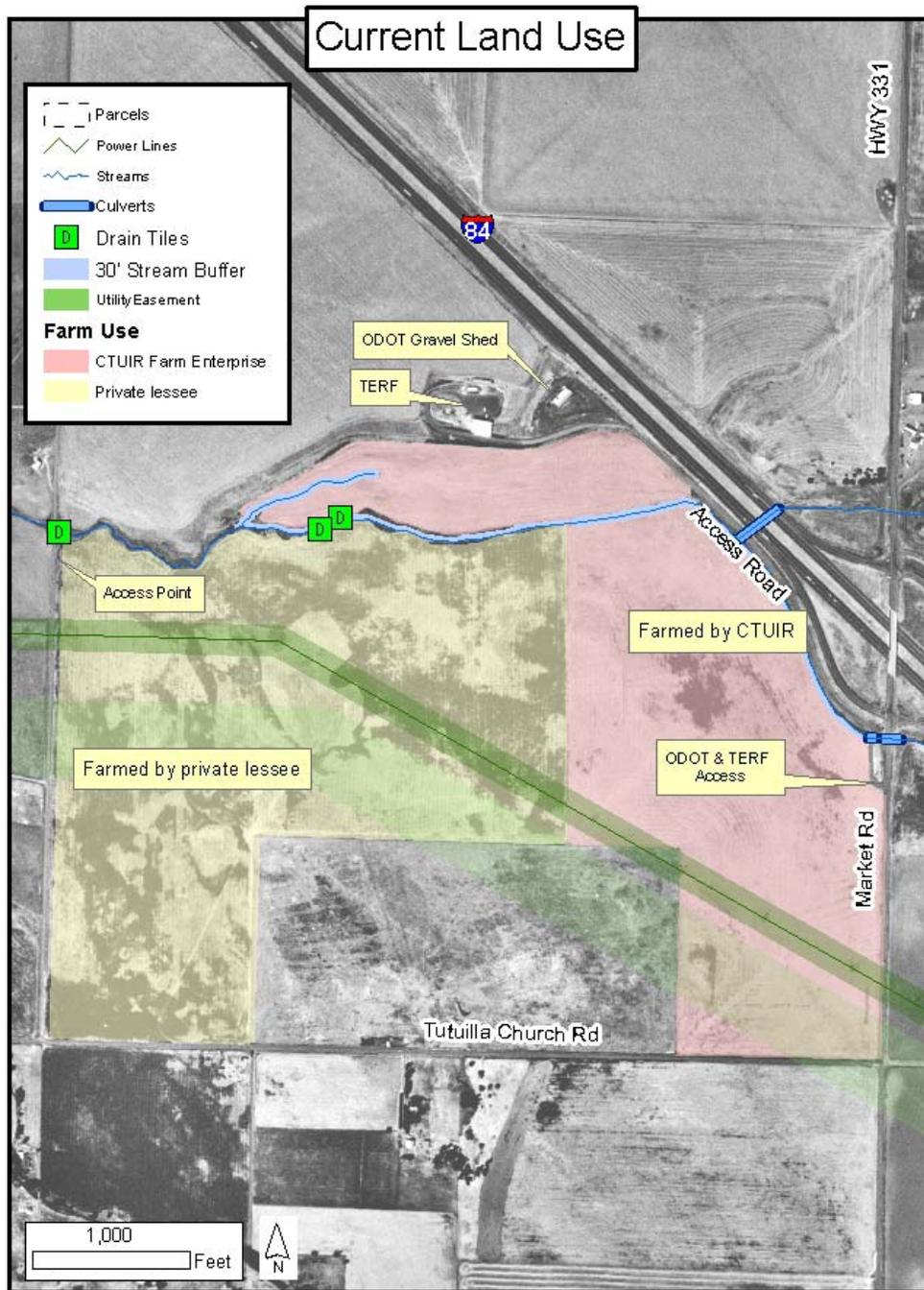
The CTUIR Farm Enterprise has planted and maintain an estimated 1 acre (including areas both south and north of Patawa Creek) buffer strip in orchard grass.

### ***Rights-of-Way***

Rights-of-way for Interstate 84, Bonneville Power Administration (BPA) transmission line, South Market Road, Tutuilla Church Road, and Billy Road cross the property. There are several drainage easements adjacent to the Interstate right of way. An ODOT gravel shed is located within the right of way for the Interstate.

The BPA easement is one hundred feet wide and is used for one 230 kilovolt (kV) regional transmission line. Usage of the area immediately underneath the line is constrained by terms of the easement. Allowable Uses within the BPA Right of Way are as follows (BPA 1999):

- Low shrubs and trees
- Fences and irrigation devices (fences or irrigation pivots must be at least 50 feet from the base of a steel tower)
- Septic and drainage systems (pipelines must be at least 50 feet from the base of any steel structure, and buried at least 24 inches deep, drainfields clearly marked)
- Roads (at least 25 feet from poles and guy wires and 50 feet from steel tower legs)
- Buried electric and communication lines (at least 25 feet away from poles and guy wires, 50 feet from legs of steel towers, and buried at least 30 inches deep).



**Figure 3-4 Current and Adjacent Land Uses at Proposed Project Site**

### ***Land Use of Adjacent Properties and Surrounding Area***

A seven-acre gravel shed facility owned and operated by the Oregon Department of Transportation (ODOT) is adjacent to the site. This shed is located along the north central edge of the property. Regular ODOT activities at the shed require periodic truck traffic along the access road, which is also owned by ODOT. A waste transfer station owned and operated by the CTUIR, also known as the Tribal Environmental Recovery Facility (TERF), is also adjacent to the site. Regular operations at TERF involve truck and vehicular traffic.

A billboard adjacent to the eastbound lanes of Interstate 84 and just northwest of the ODOT gravel shed is owned by CTUIR and operated under a 25-year lease by a private operator. The billboard currently serves to advertise for the resort properties and off reservation businesses.

Within a one-mile radius of the subject property the surrounding land uses include agricultural, commercial, public, residential and state and county road systems. The most common land use is agricultural production, but the area south of the subject property is also used for residential and horse pastures. There are currently approximately 130 residential dwellings within a one-mile radius of the subject property and three commercial uses located to the northeast of the subject property (Figure 3-5). This area has a number of 5-10 acre lots, which make up approximately fifty-four (54) homes. Also, Shenandoah Estates Subdivision is located in this area, which consists of approximately sixty (60) homes.

Surrounding uses in relation to the subject property are (Figure 3-4):

North: Interstate 84 and the Oregon State Department of Transportation gravel storage shed bound the north side of the subject property. Three residential dwellings are northwest of the subject property. Land uses north of Interstate 84 include agricultural production land and grain elevators; Wildhorse Resort and Casino (including Wildhorse Casino, Hotel, RV Park, Golf Course, and Tamastlikt Cultural Institute); Arrowhead Travel Plaza (which includes a parking area that can serve approximately one hundred (100) semi-trucks); Cody's Restaurant; and a maintenance building.

East: South Market Road and Interstate 84 bounds the east side of the subject property. Land uses east of the subject property include agricultural production, and three residential dwellings. Also, Patawa Creek and the BPA Transmission line

easement are located on the properties east of the subject property.

South: Tutuilla Church Road and an 80 acre parcel used as a pasture bounds the south side of the subject property. Other uses include agricultural production land, pasture land and approximately seventy nine (79) residential dwellings.

West: Billy Road bounds the west side of the subject property. Other uses to the west of the subject property include agricultural production land, pasture land, Tutuilla Church, and approximately nine residential dwellings to the west and thirty one residential dwellings to the southwest.

## **Land Use Impact Analysis**

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Tables 3-2 and 3-3, presented at the end of this section, provide details on land use parameters by alternative and impacts to land use issues, respectively.

### ***Alternative A (No action)***

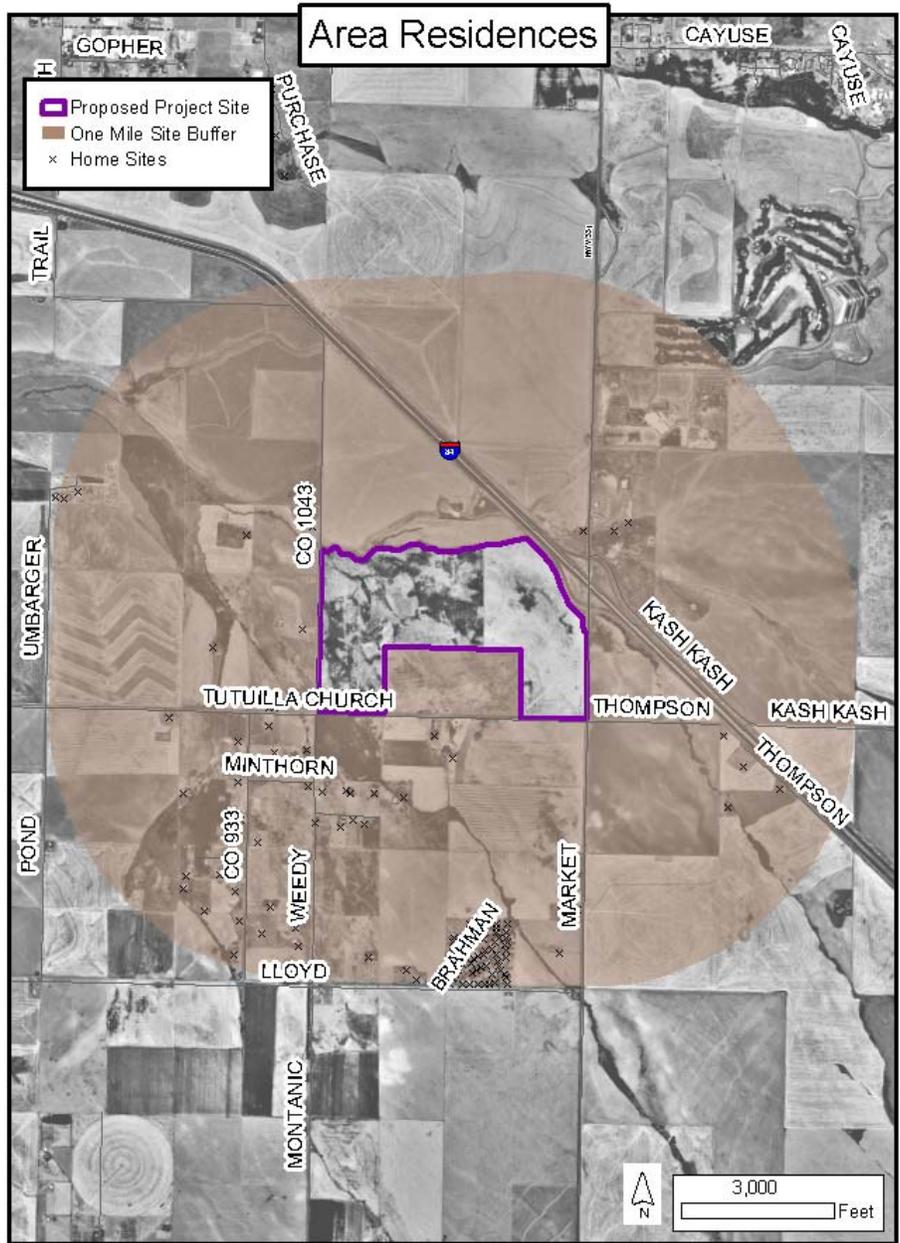
#### **Direct Impact**

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Under Alternative A, the 520 acres currently zoned for Industrial Development on the proposed site would remain in agricultural use for the foreseeable future, or until the CTUIR developed another proposed use for the property. Agricultural use is a conforming use under an Industrial Development zone.

The current buffer strip that has been planted and maintained by CTUIR Tribal Farm Enterprise throughout a portion of the parcel would continue to be maintained.

The current access point immediately south of the I-84 eastbound off-ramp and South Market Road would continue to provide access to the road serving the Oregon Department of Transportation (ODOT) gravel shed and the Tribal Environmental Recovery Facility. Farm access would continue as currently exists via road and via an access point on the west edge of the property from Billy Road. The access road is used periodically, on a seasonal basis, by ODOT maintenance vehicles, and daily by CTUIR solid waste collection trucks and customers. Both of these activities would continue under Alternative A as well as under the action Alternatives.



**Figure 3-5 Location of homes within 1 mile of project boundary. Locations of homes within 1 mile of project boundary are shown with an X.**

### **Indirect Impact**

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Under Alternative A, proposals for future business growth on the Reservation (demand was estimated at 110 acres in the Mission Community Plan) may result in proposals for development of business facilities (potentially these could be owned by either CTUIR or by individual entities) at sites other than the subject property.

In upcoming planning periods, CTUIR would likely revisit industrial development planning assumptions for this site and other potential industrial sites on the Reservation. The demand for industrial development identified in the Mission Community Plan would not be met by the project site, and therefore project proponents would presumably seek other sites on the Reservation for business and industrial development.

### **Cumulative Impact**

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The cumulative impact of Alternative A on the pattern of land use on the entire Reservation could be a more scattered and less concentrated pattern of business and industrial growth. Alternatively, it is possible that relatively little industrial development would take place on the Reservation.

Under Alternative A, the demand for business and industrial development on the Reservation in the next five to ten years would not be met by the proposed project site.

## ***Alternative B (21 acres)***

### **Direct Impact**

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Industrial development and agricultural use on the site are both conforming uses within the Industrial Development zone. There would be no direct impact on land use on the site from Alternative B.

### **Indirect Impact**

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Proposed industrial use of the subject property is consistent with the Mission Community Plan and would not have a land use impact on existing agricultural and residential uses, or proposed commercial or residential development in the project vicinity.

Alternative B could change the rural character of the area by extending the rural-urban interface southwest from the commercially developed area north of Interstate 84, resulting in a more urban atmosphere for rural residents living south of the

interstate. This change is consistent with the Mission Community Plan and the approval of the Industrial Development Zone.

Alternative B would result in the development of up to 21 acres of industrial land. Since this is less than the 110 acres identified as a projected twenty-year goal in the Mission Community Plan, demand for business and industrial development on the Reservation may result in the proposed development of business facilities at sites other than the subject property, or on this property at some other point in the future.

### **Cumulative Impact**

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Once a road access and utility extensions have been constructed, it would be more cost-effective to locate future business development at the project site than to locate it elsewhere on the Reservation, even if the full projected build-out (three lots) of Alternative B has occurred. The cumulative impact may thus include proposed future business or industrial development beyond the scope of Alternative B, although the infrastructure proposed by Alternative B would not accommodate additional growth without new investment and additional environmental analysis.

The cumulative impact of Alternative B on Reservation land use would likely be some industrial development as envisioned by the Mission Community Plan, and an overall scattered pattern of industrial and business development (and associated impacts), as businesses locate on other sites on the Reservation. Alternately, businesses may locate off-Reservation altogether if expansion at the project site is not forthcoming.

Under Alternative B, the demand for business and industrial development on the Reservation in the next five to ten years would likely not be met by the proposed project site.

### **Alternative C (58 acres)**

#### **Direct Impact**

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Proposed industrial use of the subject property is consistent with the Mission Community Plan and would not have a land use impact on proposed commercial or residential development in the project vicinity. Industrial development and agricultural use of the site are both conforming uses within the Industrial Development zone.

#### **Indirect Impact**

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Alternative C could facilitate commercial development north of I-84. Approximately 80 acres north of I-84 are designated for commercial

development in the future land use map of the Mission Community Plan. This area is not now served by water or sanitary sewer lines. Alternative C would extend water lines through this area in order to reach the proposed project site. Proposed commercial development north of I-84 could not take place without appropriate zoning and environmental review. However, the existence of water lines crossing the parcel could potentially reduce the cost of development at the parcel and thus facilitate commercial development as designated in the Mission Community Plan.

A similar impact could occur on the 80-acre parcel south of Tutuilla Church Road that is designated for future Rural Residential development by the Mission Community Plan. This area is not now served by water or sanitary sewer lines. Alternative C would extend water lines closer to this parcel, although not all the way to it, than they are at the present. Residential development could not take place at this parcel without appropriate zoning and environmental review. However, the increased proximity of water lines could reduce the cost of development at the parcel and could thus facilitate residential development there as designated in the Mission Community Plan.

Alternative C could change the rural character of the area by extending the rural-urban interface southwest from the commercially developed area north of Interstate 84, resulting in a more urban atmosphere for rural residents living south of the interstate. This change is consistent with the Mission Community Plan and the approval of the Industrial Development Zone.

### **Cumulative Impact**

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Alternative C would result in the development of up to 58 acres of industrial land. Since this is less than the 110 acres identified in the Mission Community Plan as the twenty year estimated demand for industrial land, there could presumably be additional demand for business and industrial development on the Reservation that may result in the proposed development of business facilities at sites other than the subject property. It is difficult to predict the build-out rate of industrial lands in rural areas, so it is not possible to project the likelihood or magnitude of this potential effect.

More likely, additional industrial development (beyond the 58 acres envisioned in these alternatives) would be proposed for the same site. Once a road access and utility extensions have been constructed, it would be more cost-effective to locate future business development at the project site than to locate it elsewhere on the Reservation, even if the full projected build-out (three lots) of

Alternative C has occurred. The cumulative impact may thus include proposed future business or industrial development at the project site beyond the scope of Alternative C, although the infrastructure proposed by these alternatives would not accommodate additional growth without new investment and additional environmental analysis.

The cumulative impact of Alternatives C would be a more concentrated pattern of industrial and business development, with its associated traffic, noise, and visual impact, on the Reservation, as envisioned by the Mission Community Plan, rather than a more diffuse pattern of industrial development throughout the Reservation.

Under Alternative C, the demand for business and industrial development on the Reservation in the next five to ten years (or potentially longer) would likely not be met by the proposed project site.

#### ***Alternative D (58 acres)***

##### **Direct Impacts**

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The impacts would be the same as in Alternative C.

##### **Indirect Impacts**

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The impacts would be the same as in Alternative C.

##### **Cumulative Impacts**

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The impacts would be the same as in Alternative C.

#### ***Alternative E (142 acres)***

##### **Direct Impact**

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Proposed industrial use of the subject property is consistent with the Mission Community Plan and would not have a land use impact on proposed commercial or residential development in the project vicinity. Industrial development and agricultural use of the site are both conforming uses within the Industrial Development Zone.

##### **Indirect Impact**

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Alternative E could facilitate commercial development north of I-84. Approximately 80 acres north of I-84 are designated for commercial development in the future land use map of the Mission Community Plan. This area is currently not served by water or sanitary sewer lines. Alternative E would extend water and sanitary sewer lines

through this area in order to reach the proposed project site. Proposed commercial development north of I-84 could not take place without appropriate zoning and environmental review. However, the existence of water lines and sanitary sewer lines crossing the parcel could reduce the cost of development at the parcel and thus facilitate commercial development as designated in the Mission Community Plan.

A similar impact could occur on the 80 acre parcel south of Tutuilla Church Road that is designated for future Rural Residential in the future land use map of the Mission Community Plan. This area is not now served by water or sanitary sewer lines. Alternative E would extend water and sanitary sewer lines closer to this parcel, although not all the way to it, than they are at the present. Residential development could not take place at this parcel without appropriate zoning and environmental review. However, the increased proximity of water and sanitary sewer lines could reduce the cost of development at the parcel and could thus facilitate residential development there as designated in the Mission Community Plan.

Alternative E could change the rural character of the area by extending the rural-urban interface southwest from the commercially developed area north of Interstate 84, resulting in a more urban atmosphere for rural residents living south of the interstate. This change is consistent with the Mission Community Plan and the approval of the Industrial Development zoning of the site.

### **Cumulative Impact**

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Once a road access and utility extensions have been constructed, it would be more cost-effective to locate future business development at the project site than to locate it elsewhere on the Reservation, even if the full projected build-out (thirteen lots) of Alternative E has occurred. The cumulative impact may thus include proposed future business or industrial development beyond the scope of Alternative E, although the infrastructure proposed by Alternative E would not accommodate additional growth without new investment and additional environmental analysis.

Under Alternative E, the demand for business and industrial development on the Reservation in the next five to ten years (or potentially longer) would likely be met by the proposed 142 acres of industrial land at the proposed project site. Future industrial development on the Reservation would likely be directed toward the

project site since it would have utility service and immediate freeway access.

The cumulative impact of Alternatives E would be a more concentrated pattern of industrial and business development, with its associated traffic, noise, and visual impact, on the Reservation, as envisioned by the Mission Community Plan, rather than a more diffuse pattern of industrial development throughout the Reservation.

**Table 3-2  
Summary of Land Use Parameters by Alternative**

	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
<b>Number of acres used within each alternative for project area</b>					
<b>Farm Use</b>	139 acres	118 acres	81 acres		0 acres
<b>Light Industrial</b>	0 acres	21 acres	58 acres		139 acres
<b>% of total land developed within entire project area</b>	0/139 acres =0%	21/139acres =15%	58/139 acres=72%		139/139 acres=100%
<b>Number of acres Industrial Development zoned land on the Reservation, including subject property</b>	550 acres				
<b>Number of acres of undeveloped industrial zoned land on the Reservation</b>	516 acres	495 acres	458 acres	458 acres	377 acres
<b>Number of acres of industrial zoned land on the Reservation that is developed</b>	34 acres	55 acres	92 acres	92 acres	173 acres
<b>% of total zoned industrial land in subject property developed</b>	6%	10%	17%	17%	31%

**Table 3-3  
Summary of Impacts on Land Use**

	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
<b>Direct Impact</b>	None				
<b>Indirect Impact</b>	No impact on commercial and residential development in proposed project vicinity as envisioned in Mission Community Plan		Could facilitate commercial and residential development in proposed project vicinity, as consistent with Mission Community Plan.		
	Maintain existing rural atmosphere with current levels of noise, traffic, and lights.	Creation of more urban atmosphere with associated noise, traffic, and lights, as consistent with Mission Community Plan			
<b>Cumulative Impact</b>	Any proposed industrial development would either be directed to existing industrial lands on the Reservation, resulting in a more scattered pattern of industrial development than envisioned by the Mission Community Plan; or be directed off-Reservation.		After lots were fully leased, additional industrial development could be directed off-Reservation; or could result in a proposal to expand business park, resulting in a more concentrated pattern of industrial development as consistent with the Mission Community Plan.		
	Demand for business and industrial development on the Reservation in next 5-10+ years would not likely be met at proposed project site.				Demand for business and industrial development on the Reservation in next 5-10+ years would likely be met at proposed project site.

## 3.3 Water Resources

### Regulatory Context – Water Quality

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#### *The Clean Water Act and Section 401*

The Federal Water Pollution Control Act was enacted in 1972. With subsequent amendments through 2002, the Act became commonly known as the Clean Water Act (CWA). The Act established the basic structure for regulating discharges of pollutants into the waters of the United States and also required water quality standards for specific contaminants in surface waters. The Act made it unlawful for any person to discharge any pollutant from a point source into navigable waters of the United States unless a permit was obtained under its provisions. The U.S. Environmental Protection Agency (EPA) was given the authority to implement pollution control programs to protect the nation's waters. Section 303 of the CWA provides the process by which the EPA bestows the authority to states to regulate pollution under the various provisions of the CWA. Section 518 provides that Indian Tribes be accorded the same authority as the states with regards to the establishment of Water Quality Standards on Reservations.

Section 401 of the CWA authorizes Tribal (State) water quality programs to certify that federal actions involving the granting of licenses or permits do not violate applicable water quality standards adopted by the Tribe and approved by EPA. The CTUIR was granted "Treatment as State" status by the EPA and the CTUIR adopted its own Water Quality Standards (WQS) in 1999. In 2001 the EPA approved the CTUIR Water Quality Standards and granted Section 401 authority to the CTUIR. The CTUIR Water Quality Standards are applicable to all surface waters within the exterior boundaries of the Umatilla Indian Reservation.

Under Section 401 of the Clean Water Act, an applicant for any federal permit to conduct an activity that may result in a discharge to waters of the Reservation must provide the permitting agency with a water quality certification issued by the CTUIR. A water quality certification is the mechanism by which the CTUIR evaluates whether an activity may proceed and meet water quality standards. Certifications may be denied if there is no configuration by which the activity can proceed and meet standards. Certifications may be approved if the activity may be conducted as proposed and meet standards, or it may be approved with conditions, which if met, would ensure that water quality standards are met.

### ***Federal Permits, NPDES and the Clean Water Act***

Various Federal Agencies are responsible for issuing permits authorized under the Clean Water Act and other Federal statutes. National Pollutant Discharge Elimination System (NPDES) permits are required for storm water discharges from construction activities and industrial activities and municipalities if:

1. The activity is identified in regulation (40 CFR §122), and
2. Stormwater from rain or snow melt leaves the site through a "point source" and reaches surface waters either directly or through a storm water drainage. A point source is a natural or human-made conveyance of water through such things as pipes, culverts, ditches, catch basins, or any other type of channel.

Currently the EPA carries the authority to issue and approve pollution control permits and stormwater discharge permits under the National Pollutant Discharge Elimination System (NPDES) as authorized under 40 Code of Federal Regulations (CFR) § 122.

### ***Tribal Regulation of Water Quality***

In 1981 the Board of Trustees of the CTUIR adopted the Tribal Water Code for the use and protection of the waters of the Umatilla Indian Reservation. In 1999 the Board of Trustees adopted water quality standards for the Reservation. With the approval of the CTUIR water quality standards by the EPA in 2001 and the delegation of Section 401 certification authority, the CTUIR revised the Tribal Water Code to provide procedures for the protection of water quality and the implementation of the water quality standards. The Tribal Water Code outlines the process for the review and certification of any federal permit application under authority of Section 401 of the CWA as well as a process to provide for the anti-degradation review of any CTUIR permits issued on the Reservation and the development of water quality management plans. The anti-degradation review of CTUIR permit applications insures that the proposed activity does not violate CTUIR Water Quality Standards.

The CTUIR Water Quality Standards designate allowable levels for specific water quality indicators including temperature, sedimentation/turbidity, dissolved oxygen, bacteria, and pH. In certain cases, these standards as codified are narrative rather than quantitative standards, and in those cases, the code has subsequently been interpreted to a specific quantifiable standard. For example, the CTUIR Water Quality Standard for sediment/ turbidity states that

turbidity shall not be at a level to potentially impair designated beneficial uses or aquatic biota; this standard has been subsequently interpreted to mean that turbidity shall not exceed 30 nephelometric turbidity units.

The Tribal Water Quality Standards further designate thirteen specific beneficial uses, which are protected as they apply in specific water bodies. Patawa Creek is included in the Tribal Water Quality Standards as having protected beneficial uses, which are described below.

Patawa Creek and Tutuilla Creek are included in CTUIR's Tutuilla-Patawa Watershed Management area, as designated in the CTUIR Water Quality Standards (CTUIR 1999). The assessment area is also included as part of the Tutuilla Watershed under the CTUIR TMDL (Total Maximum Daily Load), which is currently being developed, and the Umatilla River Basin TMDL (Oregon Department of Environmental Quality, 2000).

### ***Total Maximum Daily Load***

The TMDL is a document which describes the amount of each criteria pollutant a waterbody can receive and still not exceed water quality criteria in accordance with CTUIR water quality standards. Therefore it sets the water quality recovery targets for a water body.

In accordance with the CWA, the CTUIR is currently developing a description of the condition of the waters of the Reservation and generating a list of impaired water bodies. For those impaired water bodies identified, the CTUIR would develop a TMDL for each of the components that exceed the water quality standards and set the targets for that water body to bring CTUIR waters into compliance.

A TMDL has been prepared for the Umatilla Basin Watershed by the Oregon Department of Environmental Quality (DEQ). Although the CTUIR participated in the development of this TMDL, it did not include waters within the exterior boundaries of the Umatilla Indian Reservation. DEQ has no regulatory authority over those waters.

## **Regulatory Context – Water Quantity and Use**

### ***Stream Zone Alteration Permits***

A Stream Zone Alteration Permit is required from the CTUIR Water Resources Program prior to any construction activities in a stream zone.

### **Water Use Permit**

The 1981 Tribal Water Code also regulates water quantity, or use, on the Reservation. A Water Use Permit is required prior to construction of any new wells on the Reservation. Water Use Permits specify the depth of the well, the allowable rate of withdrawal, and the allowable withdrawal each year. Any proposed changes in these regulated issues require approval of the CTUIR Water Resources Department.

## **Regulatory Context – Project Design Elements**

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Table 3-4 shows the federal and/or tribal permits, plans or reviews that would be required for specific elements of the proposed project.

**Table 3-4  
Regulatory Context for Water Quality and Quantity**

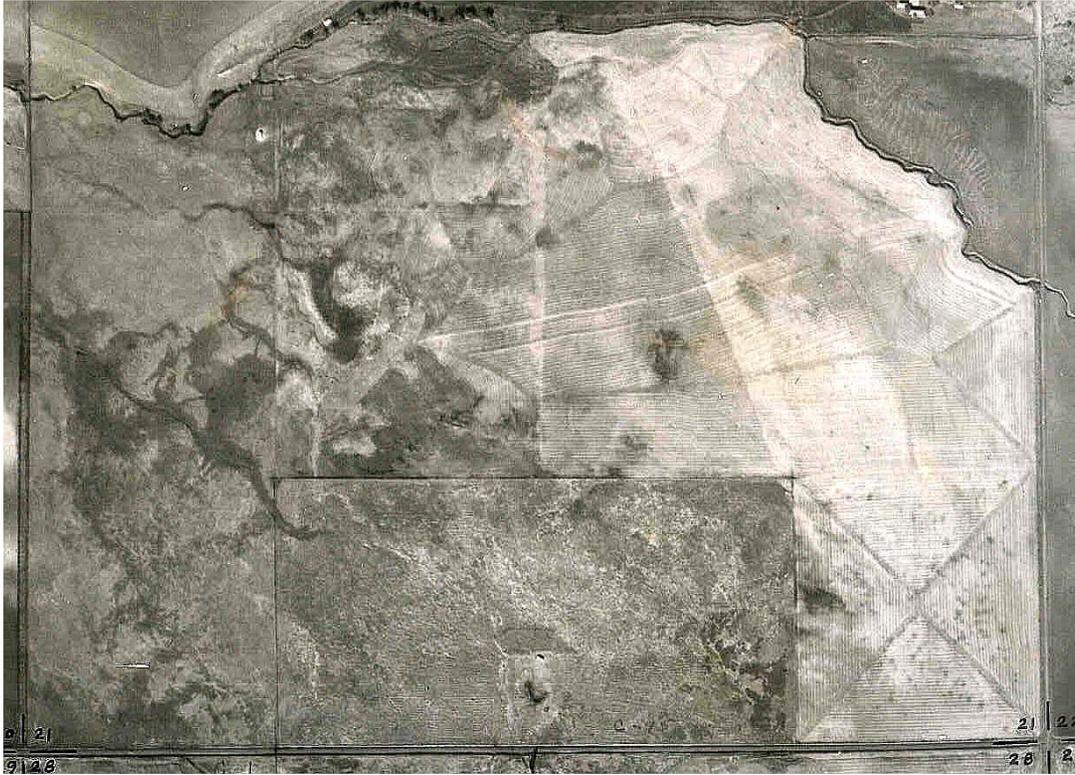
<b>Proposed action</b>	<b>Federal Permit or Plan Required?</b>	<b>CTUIR Permit</b>	<b>CTUIR Review</b>
Crossing Patawa Creek with water lines and bridge (Alternatives C, D, E)	No	Stream Zone Alteration Permit	Anti-degradation review
Storm Water System Construction (no discharge to creek) (Alternatives B, C, D, E)	Yes (NPDES) Storm Water Pollution Prevention Plan (SWPPP)	None	401 Certification of NPDES permit (CTUIR Water Resources program)
Construction of well (Alternative B) or withdrawal of water from current community water system beyond currently permitted level (Alternatives C, D, E)	No	Water Use Permit	Anti-degradation review

## **Historical Context**

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The hydrology of the Tutuilla and Patawa Creek watershed has changed over the past hundred years as dryland farming was introduced and expanded in the area. Generally, creeks have been ditched and relocated to accommodate agricultural operations. Riparian vegetation has been removed as part of agricultural management practices. Aerial photos document that Patawa Creek has been gradually ditched and moved to the margins of the proposed project site as farming on the site has expanded over the past 50+ years. Aerial photos also document the

presence of more trees and other vegetation than is now present. (Figure 3-6)



**Figure 3-6.** 1949 Aerial Photo of Section 21 showing Patawa Creek course (top of photo)

In 2003, the CTUIR Tribal Farm Enterprise established a 400-foot long, 30-foot wide buffer strip south of Patawa Creek on the proposed project site planted in non-native grass. This buffer protects the creek from direct, annual agricultural related runoff as fields are planted and harvested.

## **Existing Environment**

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### ***Hydrology, Wetlands, Riparian Function***

#### **General Description**

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The proposed project area is in the Patawa Creek Watershed within the Umatilla River Basin. Patawa Creek is a tributary to Tutuilla Creek.

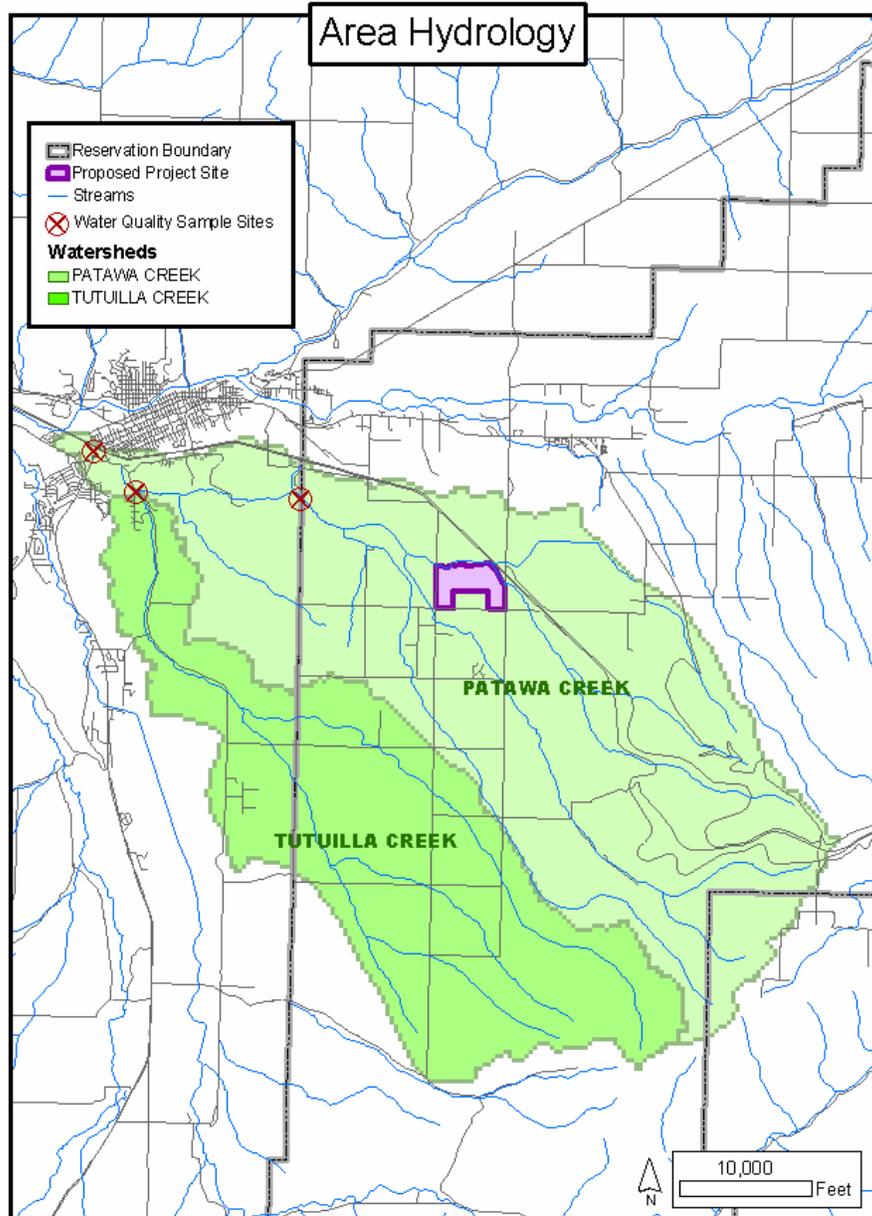
Two major channel courses are located within the proposed project area. The mainstem of Patawa Creek flows 6600 feet through the middle of the area just south of I-84 in a westerly direction. It drains a total area of approximately 10.5 square miles from an elevation of 3500 feet down to 1330 feet at the proposed project site (Figure 3-

7). Included in this drainage area is a small, unnamed tributary that flows southwesterly and drains 2.7 square miles just north of I-84, crossing under the interstate to join with Patawa Creek in the north central portion of the proposed project site. Although both these channels intermittently convey water, they are well defined in the landscape with developed banks and bedload. The overall Patawa Creek drainage is defined by deep loess soils that overlay alluvium and cemented alluvium. The drainage is in a parallel pattern oriented in a northwest direction and characterized by long, parallel, single-thread channels with relatively few tributaries.

The majority of precipitation falls between November and June with the greatest percentage falling between December and March. Mean annual precipitation ranges from approximately 13 inches at the assessment area to 18 inches at the upper portion of the drainage area (National Weather Service Data). Although precipitation during the summer months from thunderstorms is minor at the basin scale, it can be important at a watershed scale by creating conditions for localized flood events that can result in overbank flow and significant localized bank and floodplain erosion. There is potential for the proposed project area south of I-84 to be inundated by flood water in a 50-100 year storm event, but as long as the culvert under South Market Road is sized appropriately, this risk is relatively low.

### **Floodplain and Channel Conditions**

The existing condition of the two stream channels in the project area is poor in terms of stream function and aquatic habitat. Both streams have been straightened into single-thread channels with very little complexity. Complexity is typically considered desirable because situations are created in the channel and floodplain that reduce erosive energy and promote positive bank and floodplain building processes. Sediment that may flow off the upland is detained and stored by variable terrain and riparian vegetation in a complex floodplain. Sediment that is transported within a sinuous, complex channel is deposited in specific and appropriate areas, such as pointbars rather than center bars. During high flow events, a complex floodplain filled with vegetation that has stabilizing root masses is able to withstand overbank flow and not be torn apart. These conditions would promote a narrow and deep low flow channel that is less susceptible to temperature increases and provides positive conditions for aquatic species.



**Figure 3-7. Patawa Creek drainage areas for the proposed project**

Riparian plant species, both herbaceous and tree/shrub species have either been directly removed or have been reduced through land management activities. In addition, roughness elements such as down woody debris and large rock appear to have also been removed or reduced through land management actions. Riparian vegetation is almost completely absent from the near stream region.

Removal of roughness elements from the channel and floodplain of Patawa Creek and associated tributaries has resulted in a stream system with a high potential for erosion. When vegetation removal is combined with other activities that reduce the stability of soil surfaces, the channel bed and floodplain is eroded when subjected to any discharge that exceeds the channel capacity. Even small discharge events that do not exceed channel capacity may erode the channel bed and exposed banks and lower the channel elevation leaving the entire valley bottom with less potential for groundwater storage. As shallow groundwater storage is reduced and the elevation of the water table lowered, water availability to plants is reduced. This degraded condition can translate into less opportunity for establishing and maintaining riparian vegetation, and that a shift to upland vegetation with less soil holding ability can occur.

### **Reach Characteristics**

Bankfull channel dimensions are often used as consistent measures of the channel form. A bankfull discharge, also known as a channel forming flow, is a flow that is right at the point of spilling into the active floodplain and typically occurs every 2 out of 3 years. The active floodplain should not be confused with abandoned floodplains or terraces that are at higher elevations. Although these higher terraces may be inundated occasionally, the flow events are considered more extreme and less likely to occur during any one year.

Expected morphological characteristics for a specific geologic setting can be estimated using several methods. Regional curves developed by Castro and Jackson (2001) for the Blue Mountain region were used to calculate expected ranges of hydraulic geometry for the drainage area of Patawa Creek at the assessment area. Although there can be substantial error associated with geomorphic estimates, the values can be useful as a general guideline for planning purposes.

The calculated bankfull discharge for Patawa Creek at the lower end of the assessment area is 79 cubic feet per second (cfs). This equates to an expected bankfull width of 10.8 feet and an expected bankfull depth of 1.4 feet. These would be the expected channel dimensions of Patawa Creek, based on other stream channels in the Blue Mountain region, if the channel were in a stable geomorphic condition.

The visually estimated Rosgen stream type is a G5 or F5, which would not be an expected functional type for the valley

characteristics with healthy riparian conditions (Rosgen 1996). Both these stream types are highly entrenched and disconnected from any available floodplain (Figure 3-8 and 3-9). This further supports the assessment that flow energy and erosive power of the stream may be higher than historical conditions. The valley form through the reach is very wide and historically is thought to have allowed significantly high flows to access an expansive floodplain.

The stream channel through the proposed project area is relatively low gradient (<2%) with low sinuosity (<1.2) and moderate to high entrenchment (<1.8). This means that the existing channel is straight and downcut into the floodplain; channel-forming flows remain within the terrace banks and only extreme flows (>25 year recurrence) will access any energy relief. This also means that during high flows (flows greater than bankfull) shear stress will continue to increase as flows increase and bed and bank erosion will occur. Shear stress will be highest at the bottom of the channel, which will cause downward erosion until a resistant layer is encountered. Dominant substrate materials in the channel bed and floodplain consist of small gravels, sands and fines. The channel configuration shows signs of both lateral and vertical instability, with excessive bank erosion observed.

### **Wetlands**

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The location and type of wetlands in the assessment area were determined using the National Wetlands Inventory (USFWS 1991). Two types of wetlands are shown to be present in the assessment area (Figure 3-1); palustrine emergent temporarily flooded and palustrine emergent seasonally flooded. Temporarily flooded wetlands are isolated wetland areas located in the southwest corner of the project area and were estimated at a total of 4 acres plus an additional 0.5 acres located just north of I-84. The seasonally flooded wetland is associated with the Patawa Creek channel throughout most of the project area.

A 2004 wetland survey identified approximately 1.09 acres in four palustrine emergent temporarily flooded wetland areas (three isolated areas and Patawa Creek) on the proposed project site as potential jurisdictional wetlands (Northwest Wildlife Consultants, Inc., 2004.)



**Figure 3-8. Patawa Creek facing northwest, showing entrenchment and erosion (March 2004)**



**Figure 3-9. Patawa Creek north of proposed project site, facing northeast, showing entrenchment, March 2004**

## **Surface Water Drainage**

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Existing surface water structures in the area are culverts conveying natural drainage ways under existing road crossings. These culverts are shown on Figures 2-1 and 3-10. Patawa Creek is conveyed through a 60-inch culvert under South Market Road and a 78-inch arch culvert under the access road to TERF and the ODOT sand shed west of South Market Road. A 72-inch arch culvert crosses under Highway 331 north of I-84 to convey flows from the drainage area northeast of the project area across the highway. A 6-foot by 6-foot reinforced concrete box culvert conveys the flows from this drainage south across I-84 toward Patawa Creek. The 60-inch culvert under the access road to the transfer station and ODOT sand shed is the final culvert on this drainage prior to converging with Patawa Creek.



**Figure 3-10. Patawa Creek emerging from culvert under ODOT/ TERF access road, March 2004**

Aerial photos and area farmers indicate that sometime after 1959 a subsurface drainage system was installed, in order to intercept and prevent surface and ground water movement on this parcel and to maximize agricultural potential. Previous agricultural operators laid drainage “tiles” (perforated pipes) four feet below the surface to drain surface waters into the stream channel of North Patawa (Wagner 2004). Three pipes protruding from the creek side are still in place (Figure 3-4). Previous farmers and operators have estimated the amount of subsurface pipes to be 12,000 linear feet, but the exact configuration of the pipes is unknown.

Chemicals related to agriculture come from farm equipment used in the field or on the roads and travel to the creek via stormwater flows. Stormwater has not been adequately sampled to measure its magnitude or constituents. The subsurface drainage pipes in parts of this section remove and deplete the groundwater, and are potential contributors of contaminants including sediment, and to the down-cutting of the creek bed.

### ***Groundwater Resources***

The primary aquifers in the project area are the zones between successive basalt flows in the Columbia River Basalt Group (CRBG). The vertical connection between the interflow zones is limited to just a few sporadic open fractures. Most of the fractures are filled with secondary minerals, which act as barriers to groundwater flow and thus separate the interflow zones. Results from pumping tests performed on wells on the Reservation indicate that most of the aquifers in the CRBG are confined, but in some areas, however, where there is a leaky layer or connection to the water-table aquifer, the CRBG aquifers are semi-confined to unconfined. The specific type of aquifer beneath the project area is currently unknown. There are a number of flowing-artesian wells on the Reservation in the vicinity of the project site.

Secondary sources of groundwater occur in the older sedimentary deposits overlying the basalts. The sedimentary unit is comprised of gravel with interstices filled with silt. These materials do not transmit water readily (Hogenson 1964) and would be considered more of an aquitard than an aquifer. The Quaternary alluvium is highly permeable but because of limited thickness and extent, these sedimentary deposits are not considered aquifers for the area.

An analysis of well logs located within one-mile radius of the project site, as well as in adjacent sections 15-17, 20, 22, and 27-29, shows the depth to water (static water level) occurs in a range from flowing artesian (flowing water at ground surface) to more than 150-feet deep. The typical depth to water in most wells is about 15 to 40 feet. Given the variability in static-water levels, well yields, and well construction (depth of well and well seal), there is a strong likelihood that more than one aquifer is the source of water to the wells in the area. That is, some wells may tap a confined aquifer only, some intercept both a confined and/or semi-confined to unconfined aquifers of the sedimentary materials.

Field inspection of the site indicates that the water table is, in general, six to eight feet below ground surface. In some areas, there are

wetlands where groundwater is at or near ground surface (less than two-feet deep). It uncertain whether groundwater at the spring site and wetland areas is from a high water table, a perched water table or from upwelling of a confined aquifer at depth.

A search of records for water wells constructed within a one-mile radius of the proposed project area, as measured from the entrance to Tribal Environmental Recovery Facility at South Market Road, yielded well driller logs on 17 wells within the defined area. The wells ranged from 51 to 700 feet deep. Yields ranged from 12 gallons per minute (gpm) pumping capacity to 400 gpm pumping capacity, with one well of unknown depth and construction providing a reported 30 gpm. Table 3-5 shows well log data for wells in the vicinity of the proposed project.

**Table 3-5  
Well Log Data for Wells in Vicinity of Proposed Project**

Depth (ft)	#	Range (ft)	Static Water Level (ft)	Yield (gpm)
<100	02	51-85	12-28	12-100
100-199	07	100-193	12-98	25-105
200-299	05	230-261	06-40	13-100
400-499	01	430	--	80
700-799	01	700	--	400
Unknown	01	unknown	unknown	30
Total Wells	17			

Source: CTUIR Department of Natural Resources, Water Resources Program, Summary

In general, the greater the depth of the well the greater the potential yield of the well. However, as noted from the range of yields in the shallower wells, this varies greatly by location. As such, drilling deeper is not a guarantee of producing greater yields.

***Water Quality and Beneficial Uses***

Water quality data is not currently available for the project site. Existing data from the Patawa and Tutuilla Creek watershed were examined to indicate the water quality baseline in the proposed project vicinity. Existing data was collected between 1996 and 2002 by different agencies including the DEQ, the Umatilla Basin Watershed Council, and the CTUIR. Data collection was done to determine baseline conditions and not to determine regulatory compliance. The source, timeframe, and type of data are summarized in Table 3-6.

All data points are located downstream of the proposed project site. However, conditions are similar upstream and at the proposed project site due to similar land uses (Watershed Professionals Network, LLC,

**Table 3-6  
Water Quality range of data and grab samples taken near the project area**

<b>WQ Parameter</b>	<b>CTUIR Water Quality Standard</b>	<b>Location</b>	<b>Agency collecting data/ Source</b>	<b>Year(s) measurement was taken</b>	<b>Reading/ Measurement</b>	<b>Currently in compliance with CTUIR water quality standards? (Yes/No)</b>
<b>Temperature<sup>1</sup></b>	64 ° F (17.8 ° C)	Mouth of Patawa Creek	DEQ	12/1997 - 04/1998	Range of measurements: 4.9 °C - 11.7°C	Yes
<b>Temperature<sup>1</sup></b>	64 ° F (17.8 ° C)	Tutuilla Creek Gage Station	DEQ	8/1996 - 4/1998	Range of measurements: 4.3 °C - 23.0 °C	Yes
<b>Temperature<sup>1</sup></b>	64 ° F (17.8 ° C)	Patawa Creek at downstream Res. boundary	CTUIR <sup>2</sup>	6/2002 - 8/2002	Range of measurements: 16.4° C- 19.59° C	No - some measurements exceed standard  No - some measurements out of compliance with accepted surrogate
<b>Sediment/ Turbidity<sup>1</sup></b>	Narrative <sup>3</sup> 30 NTU	Mouth of Patawa Creek	DEQ	12/1997 - 04/1998	Range of measurements: 4 NTU - 334 NTU	
<b>Sediment/ Turbidity<sup>1</sup></b>	Narrative <sup>3</sup> 30 NTU	Tutuilla Creek Gage Station	DEQ	8/1996 - 4/1998	Range of measurements: 1 NTU - 887 NTU	
<b>Sediment/ Turbidity<sup>1</sup></b>	Narrative <sup>3</sup> 30 NTU	Tutuilla Creek Gage Station	UBWC	1/1998 - 4/1998	Range of measurements: 1 NTU - 426 NTU	
<b>Sediment/ Turbidity<sup>1</sup></b>	Narrative <sup>3</sup> 30 NTU	Tutuilla Creek Gage Station	UBWC	11/1998 - 6/1999	Range of measurements: 2 NTU - 1118 NTU	
<b>Sediment/ Turbidity<sup>1</sup></b>	Narrative <sup>3</sup> 30 NTU	Tutuilla Creek Gage Station	UBWC	11/1999 - 6/2000	Range of measurements: 5 NTU - 1572 NTU	
<b>Sediment/ Turbidity<sup>1</sup></b>	Narrative <sup>3</sup> 30 NTU	Tutuilla Creek Gage Station	UBWC	11/1999 - 6/2000	Range of measurements: 5 NTU - 1572 NTU	

**Table 3-6  
Water Quality range of data and grab samples taken near the project area**

<b>Dissolved Oxygen<sup>1</sup></b>	6.5 mg/l minimum for cool-water aquatic life	Tutuilla Creek Gage Station	DEQ	8/1996	10.2 mg/L - 11.0 mg/L	Yes (based on limited data)
<b>Dissolved Oxygen<sup>1</sup></b>	6.5 mg/l minimum for cool-water aquatic life	Patawa Creek at downstream Res. boundary	CTUIR <sup>2</sup>	6/2002 - 8/2002	8.22 - 10.74 mg/L	Yes (based on limited data)
<b>Bacteria<sup>1</sup></b>	No single sample shall exceed 406 E. coli per 100 ml.	Mouth of Patawa Creek	DEQ	12/1997 - 04/1998	16 E. coli /100 mL - 600 E. coli/100 mL	No - some measurements out of standard compliance
<b>Bacteria<sup>1</sup></b>	No single sample shall exceed 406 E. coli per 100 ml.	Tutuilla Creek (approx 0.8 miles above confluence)	DEQ	8/1996 - 4/1998	1 E.coli /100 mL - 1200E. coli / 100 mL	
<b>pH<sup>1</sup></b>	Values shall not fall outside the range of 7.0-9.0 units	Mouth of Patawa Creek	DEQ	12/1997 - 04/1998	8.0 - 9.1 (standard units)	No - some measurements out of standard compliance
<b>pH<sup>1</sup></b>	Values shall not fall outside the range of 7.0-9.0 units	Tutuilla Creek (approx 0.8 miles above confluence)	DEQ	8/1996 - 4/1998	7.8 - 9.3	
<b>pH<sup>1</sup></b>	Values shall not fall outside the range of 7.0-9.0 units	Patawa Creek at downstream Res. boundary	CTUIR <sup>2</sup>	6/2002 - 8/2002	7.71 - 8.36	Yes

CTUIR: Confederated Tribes of the Umatilla Indian Reservation;

DEQ: Oregon Department of Environmental Quality;

UBWC: Umatilla Basin Watershed Council

Notes: 1 Parameter regulated by WQ Standards. 2 Grab samples taken to be used as a general guidance for summarizing data. 3. See Sediment/Turbidity section, above. Surrogate of above 30 NTU will be used, to describe an impairment of beneficial uses and aquatic life, to comply with water quality standards.

and Duck Creek Associates., 2003.) It is therefore assumed that water quality conditions documented at the sampling sites in the project vicinity can be used to approximate water quality conditions at the project site.

Data collection sites (Figure 3-7) include:

- a) Mouth of Patawa Creek (approximately five (5) miles downstream from project site).
- b) Tutuilla Creek gage station (approximately six (6) miles downstream from project site, 0.8 miles upstream of confluence with Umatilla River).
- c) Patawa Creek at Reservation boundary (approximately three (3) miles downstream from project site).

These samples have not been collected for the purposes of regulation and in some cases were collected prior to the adoption of the CTUIR Water Quality Standards in 1999. Therefore, while the data shows that some sampling sites have historically been out of compliance with CTUIR Water Quality Standards, these areas are not necessarily under regulatory action as a result of these samples. Regulatory action would require additional sampling to capture the range of daily fluctuation and to ensure that data from a single point in time is representative of actual water conditions.

Based on data collected at the sampling sites in the project vicinity, it is assumed that due to similar riparian conditions and land uses at the sampling sites and at the proposed project site, water quality at the proposed project site would generally fall outside the acceptable range of CTUIR Water Quality Standards. It is further assumed that this is generally due to a combination of poor riparian functioning (as described above) and impacts from adjacent agricultural and transportation land uses.

### **Temperature**

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The CTUIR temperature water quality standard is 17.8 ° C (64 ° F), a standard for maximum temperatures in any cold-water/ salmonid-bearing stream. Under the CTUIR Water Quality Standard for temperature, no measurable surface water temperature increase resulting from human-caused activities is allowed unless a management plan has been reviewed and approved by the CTUIR.

No temperatures from the proposed project site are available. Three sites within the Tutuilla- Patawa watershed were sampled for temperature by either DEQ or CTUIR between 1997 and 2002. Temperatures ranged between 4.3 ° C (39.7 ° F) up to a maximum 23.0 ° C (73.4 ° F). Sampling locations in Patawa Creek and

Tutuilla Creek exceed the CTUIR Water Quality temperature standard periodically, mainly during the summer months. The sampling site closest to the project site, approximately three miles downstream on Patawa Creek at the Reservation boundary, shows some measurements that were out of compliance during the summer of 2002 (see Table 3-5).

During the summer months stream temperature in the Tutuilla-Patawa watershed is increased due to a number of factors, including:

- 1 openness to solar radiation;
- 2 disconnection from the floodplain;
- 3 lack of overhead and riparian vegetation; and
- 4 run-off from agricultural fields with little to no time for cooling, or sediment/nutrient/bacteria release, prior to entering the water body.

Elevated stream temperatures are typically due to decreased stream shading, increased air temperature, increased width to depth ratio and/or low summer flows (Moore and Miner, 1997). These conditions could result in additional stream heating in the project area.

### **Sediment /Turbidity**

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The CTUIR Water Quality standard for turbidity is a narrative standard, which states that turbidity shall not be at a level to potentially impair designated beneficial uses or aquatic biota (CTUIR, 1999). This standard has been interpreted by CTUIR to mean that turbidity shall not exceed 30 nephelometric turbidity units (NTU), which has been determined to be a turbidity level, which shall protect aquatic life.

Turbidity has not been measured on Patawa Creek. In this baseline description, Tutuilla Creek data is used to approximate conditions on Patawa Creek since the two have similar drainage sizes, soils, slopes, and land use conditions. It is assumed that at least half of the sediment load measured at the mouth of Tutuilla Creek comes from Patawa Creek, since the Patawa drainage makes up approximately five eighths of the entire Patawa-Tutuilla system (Webster, 2004). Sediment and turbidity data comes from composite measurements taken by either DEQ or the Umatilla Basin Watershed Council between 1997 and 2000. Composite measurements are the daily average of four measurements.

Data from Tutuilla Creek (near its mouth) show that Tutuilla Creek exceeds the sediment/turbidity standard periodically during the

year, mainly during and after rainfall and more often in the spring. At times, the standard is exceeded by a factor of fifty. By extension, Patawa Creek, which contributes at least half of the volume of Tutuilla Creek, would also be expected to exceed the standard during these times. Both of these streams systems lack riparian vegetation which would otherwise trap and minimize sediment runoff from agricultural activities which are predominant in the Patawa- Tutuilla watershed.

Sediment delivery to the drainage network may be further increased by down cutting of current stream channel, field erosion, and by erosion of unprotected road surfaces from overland flow. The Tutuilla-Patawa watershed, including the proposed project area, has roads with one or more of the above concerns. Several existing roads within the Patawa watershed show evidence of surface erosion, inadequate road/stream crossings, and unstable cut-banks and fill slopes. Roads with these conditions include two roads, which directly abut the project site (Tutuilla Church Road and Billy Road, which crosses Patawa Creek immediately west of the project site.)

### **Dissolved Oxygen**

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The Tribal water quality standard for dissolved oxygen applies to water bodies identified in the CTUIR Water Quality Standards as providing habitat for cool-water aquatic life, including the Patawa Creek Watershed. This standard states, “the dissolved oxygen shall not be less than 6.5 mg/L as an absolute minimum.” Low dissolved oxygen levels are associated with excessive aquatic vegetation (often resulting from excessive nutrient runoff), high temperatures, and channelized (straightened) streams that do not have functional meanders belts. Higher levels of oxygen are more desirable to provide adequate habitat and spawning for salmonids as well as habitat for other aquatic life within the stream environment.

Dissolved oxygen samples taken in 1996 and 2002 on Tutuilla and Patawa Creeks were in compliance with the CTUIR water quality standard. These are from a single point in time and do not necessarily mean that the project site or Patawa creek is in compliance either at the time of sampling or at the present time, but they indicate that dissolved oxygen may be less of a concern on Patawa than other standards such as temperature and sediment/turbidity.

### **Bacteria**

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The CTUIR standard for bacteria is that the logarithmic mean shall not exceed 126 E.coli colonies per 100 ml of water based upon a

minimum of 5 samples; and/or no one sample shall contain more than 406 E. coli per 100 ml (CTUIR 2002). No samples have been taken at the project site. Data is available from DEQ sampling at the mouth of Patawa Creek and at the Tutuilla Creek gauge in 1996-1998. Those samples showed E.coli levels periodically exceeding the CTUIR standard, in some cases by up to 300%.

These samples are from a single point in time and do not necessarily mean that the project site or Patawa creek is in or out of compliance either at the time of sampling or at the present time. The major contributor toward high bacterial levels is the presence of cattle or other livestock in proximity to the creek.

### **pH/Alkalinity**

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CTUIR water quality standards state that the pH/ Alkalinity range of acceptable measurements lies between neutral (7) and basic (9.0). Samples taken by DEQ between 1996 and 1998 at the mouth of Patawa Creek and at the Tutuilla Creek show that some measurements exceed the CTUIR pH standard.

pH levels that are out of compliance are associated with local area geological conditions (sediment) as well as with pesticide and herbicide use.

### **Beneficial Uses**

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Of the thirteen beneficial uses identified and protected in the CTUIR Water Quality Standards, five have been identified in the Standards as applicable to Patawa Creek. The CTUIR Water Quality Standards are designed to protect water quality for these established beneficial uses. However, at the proposed project site, water conditions are such that there is no known history of these uses in this specific stretch of Patawa Creek, at least on a year-long basis. Limited support for beneficial uses may be possible during certain times of year, depending on stream flow. These beneficial uses are itemized below.

### **Body Contact**

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The section of Patawa Creek at the proposed project site is not deep enough for swimming. It is unknown whether or not it is used for other body contact uses including sweating.

### **Aquatic Habitat**

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The section of Patawa Creek at the proposed project site provides limited support for aquatic habitat. No fish or amphibians have been observed at the project site (see Biological Resources Section 3.4 for more detail).

### **Fish Rearing and Spawning/ Terrestrial Habitat**

The section of Patawa Creek at the proposed project site provides limited support for fish rearing and spawning, and for terrestrial habitat. See Biological Resources Section 3.4 for more detail.

### **Agricultural Water Supply**

This section of Patawa Creek does not contribute to agricultural water use at the present time.

### **Pollution Abatement**

This section of Patawa Creek experiences flows that would not support pollution abatement.

## **Water Resources Impact Analysis**

Table 3-7, presented at the end of this section, provides a summary of water quality and beneficial use impacts. Table 3-8 provides a summary of impacts to water resources, by alternative.

### ***Alternative A (No Action)***

#### **Direct Impact**

##### *Hydrology, Wetlands, Riparian Function*

The condition of Patawa Creek and the unnamed stream channel would remain in the same condition as described above. During large flood events (estimated at a >25 year return interval), the culvert under South Market Road may plug, causing flow across the Patawa Creek terrace surface east of South Market Road. During larger flood events (estimated at a 50-100 year return interval), these flows may then rise above South Market Road and flow westward back across the proposed project site and back into Patawa Creek. These flow estimates are general and are not based on an elevation survey.

Wetland areas would not be expected to change in size with current management practices.

Inputs from the riparian area and upland to the stream channel would be expected to remain the same as existing conditions. Any overland flow and entrained sediment coming off the agricultural field would flow across the existing buffer area of 30 feet or less (agricultural buffer established in portions of the

proposed project site in 2003 by the CTUIR Tribal Farm Program, planted in orchard grass) before reaching the channel.

Since no additional structures or compaction would take place on the site, hydrology is not expected to change. As farming practices continue the soil would maintain the same moderate to high infiltration and percolation rates. Water movement from the upland, through the soil profile and into the stream channel would not be interrupted and concentrated by structures or compacted surfaces.

### *Groundwater Resources*

There would be no direct impact on area wells under Alternative A. Area wells would continue to be influenced by current groundwater flows and aquifer recharge periods.

### *Water Quality and Beneficial Uses*

Although direct negative impacts on water quality and beneficial uses from existing and ongoing agricultural usage of the proposed project site are likely, they have not been measured and therefore it is difficult to predict the scope of these potential impacts. Established links between land use practices at the subject property and negative water quality conditions make it likely that Patawa Creek temperature and pH would continue to be negatively affected by agricultural use under the no action alternative.

## **Indirect Impact**

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The network of drainage pipes is expected to remain in place under Alternative A, although the condition and functionality of the system may change with age. Surface water may become more apparent in specific areas if these pipes stop functioning.

## **Cumulative Impact**

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### *Water Quality and Beneficial Uses*

Because of similar conditions (entrenched channel, lack of riparian vegetation, agricultural use and general lack of buffer areas) throughout the watershed and on the project site, it is likely that the water quality conditions documented through past sampling in the watershed and described above would continue to occur under the No Action alternative.

Direct impacts would likely include continuing runoff of sediment into Patawa Creek. Temperature and pH levels would likely continue to exceed allowable standards due to continued channelization and lack of riparian vegetation, specifically during the summer. Dissolved oxygen levels in the watershed were within standards when last measured, and this condition would be expected to continue under Alternative A.

The recently planted buffer strip south of Patawa Creek could result in improved water quality over time, although since site-specific data was not collected prior to its establishment it is not possible to quantify this improvement. This buffer is a voluntary initiative that is not currently required by any management plan. It is assumed in this analysis that the buffer would be continued in the future.

Five beneficial uses of water have been identified for Patawa Creek. However, these uses are generally not supported by existing water conditions at the proposed project site, and this situation would be expected to continue under Alternative A.

*Hydrology, Wetlands, and Riparian Function / Groundwater Resources*

No cumulative impact is anticipated.

**Alternative B (21 acres)**

**Direct Impact**

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*Hydrology, Wetlands, Riparian Function*

The condition of Patawa Creek and the unnamed stream channel would remain in the same condition as described in above. During large flood events (estimated at a >25 year return interval), the culvert under South Market Road may plug, causing flow across the Patawa Creek terrace surface east of South Market Road. During larger flood events (estimated at a 50-100 year return interval), these flows may then rise above South Market Road and flow westward back across the proposed project site and back into Patawa Creek. These flow estimates are general and are not based on an elevation survey.

Wetland areas would not be expected to change in size with current management practices.

Inputs from the riparian area and upland to the stream channel would be expected to remain the same as under existing conditions. Any overland flow and entrained sediment coming off the agricultural field would flow across the existing buffer area of 30 feet or less before reaching the channel.

As farming practices continue the soil would maintain the same moderate to high infiltration and percolation rates. Water movement from the upland, through the soil profile and into the stream channel would not be interrupted and concentrated by structures or compacted surfaces in the area remaining in agricultural use.

### *Stormwater Drainage*

The concentration of stormwater flows from impervious surfaces and ground disturbance associated with the construction of buildings, driving surfaces and detention ponds have the potential to directly affect hydrology at the project site. The total estimated impermeable surface under this alternative is 70% of the total proposed developed area or 15 acres. This equates to an increase in impermeable area of 11% of the 142(+/-) acre project property and an increase of 0.2% of impermeable area in the total drainage for this project site. This amount of area does not create a measurable change in hydrology and soil recharge at the drainage scale.

The amount of water that would be intercepted by 0.2% of the drainage area is not measurable in terms of changes to the flow regime. Based on an average annual precipitation of 13 inches, a total of 16.25 acre feet of water would be intercepted by the proposed stormwater drainage system during a single year. This water would be transported by a drainage system to detention ponds or infiltration areas that would be located outside of the proposed Riparian Management Zone on Patawa Creek (the buffer created by the Zone would be 75 feet wide under this alternative; see Figure 2-2 and Appendix B for more detail.)

### *Wastewater*

Treatment of wastewater under Alternative B is proposed to be individual septic systems for each of the three lots. As wastewater infiltrates to the soils through the septic systems it

may add to total water quantity on the project site. The source of water to the septic systems would mainly be from a community well developed for the project. This would essentially be new water to the site that would not currently be there. This water would move through the soil, down gradient, and enter the Patawa Creek channel. At the relatively low volume of estimated production (675-1350 gallons per day or <0.1 cubic feet per second over a 10 hour day), changes in stream discharge would be undetectable.

### *Groundwater Resources*

Withdrawal of water from the proposed well would have a direct impact on the shallow aquifer, however at the quantities proposed (an estimated 5.6 acre feet per year) the effect would be minimal. The effects of the proposed well on surrounding residential and agricultural wells would likely be negligible given the distances from the project area to surrounding wells.

### *Water Quality and Beneficial Uses*

This system would act as a closed system with no direct input to the Patawa Creek channel and therefore would not have a direct effect on water quality. The septic system would filter out any potential contaminants. Alternative B would be unlikely to directly affect either water quality or beneficial uses.

## **Indirect Impact**

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### *Hydrology, Wetlands, Riparian Function*

The Riparian Management Zone proposed under Alternative B (75 feet wide on the south side of the creek; due to existence of the ODOT access road adjacent to creek on the north side, the Zone could not be applied on the north side under Alternative B) would apply to approximately 400 feet (length) of Patawa Creek. Due to the size of the zone, the projected effects described below would likely be minimal.

Creation of the Riparian Management Zone would potentially minimally improve stream function and water quality over time within the project area and by extension in the entire Patawa and lower Tutuilla creek system. This would occur through the establishment of riparian vegetation, reduction of erosion causing activities (such as agriculture) adjacent to the creek,

and eventual re-establishment of a meander channel. Indirect impacts would include:

- Reduced temperature (through increased vegetation and reduced solar radiation there would be a long term effect as vegetation grows and a meander channel is established.)
- Reduced sediment and turbidity through establishment of perennial native vegetation and cessation of agricultural activities within the Zone (a more immediate effect than a reduction in temperature.)

#### *Water Quality and Beneficial Uses*

Dissolved oxygen levels, temperature, and sediment/turbidity may slightly improve over the long term with gradual re-establishment of native vegetation in the Riparian Management Zone. Bacteria levels would likely not change. They are related to livestock grazing which is not occurring on the project site, a condition that would not change under any of the proposed alternatives.

pH levels are linked to pesticide and herbicide use, but the relative increase or decrease in pesticide use under the proposed alternatives is unknown and difficult to predict. Agricultural pesticide use may decrease on the project site, but plans to control noxious weeds in the Riparian Management Zone through herbicides may have an unknown effect on pH in the stream. There may be increased use of fertilizers related to new landscaping at the project site as well. See Table 3-7 for summary.

#### *Stormwater Drainage, Wastewater, Groundwater Resources*

The network of drainage pipes is expected to remain in place under Alternative B, although the condition and functionality of the system may change with age. Surface water may become more apparent in specific areas if these pipes stop functioning.

## **Cumulative Impact**

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### *Groundwater Resources*

There would be increased withdrawal of groundwater of an estimated 5.6 acre feet per year (see Table 3-45 in Community Infrastructure section of this chapter) from a shallow aquifer. The quantity proposed would be relatively small and any cumulative impact would be negligible.

The cumulative impacts of Alternative B to hydrology would be limited to the amount of impermeable surfaces that would be created. The additional construction that would be planned in the vicinity of the Interstate 84 Exit 216 interchange in the foreseeable future would also create additional areas of impermeable surface and could lead to higher peak flows and changes in the timing of runoff events if a detention system is not included. It is assumed that any future developments on the project site would require similar surface detention storage areas to be constructed, and that there would be no measurable cumulative effects to hydrology and channel characteristics.

### **Alternative C (58 acres)**

## **Direct Impacts**

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### *Hydrology, Wetlands, Riparian Function*

Same as Alternatives A and B, with the following exceptions:

The existing 30-foot agricultural buffer currently being maintained throughout a portion of the site would be replaced by a 75 to 112 foot Riparian Management Zone (see Figure 2-3 and Appendix B). Any overland flow and entrained sediment coming off the agricultural field or project areas would flow across the Riparian Management Zone before reaching the channel.

Direct effects on hydrology would be possible from the construction of the ~~bridge and~~ water and sewer lines crossing Patawa Creek. After the utility trench is backfilled, ~~and at the point where the bridge footings would be constructed,~~ the structure of the soil would be disturbed. The trench could be a soft point in the channel bed, banks and floodplain; ~~and the footing areas could conversely be a hard point in the channel~~

bed. During flow events that are at bankfull or greater, there would be the potential for channel and floodplain erosion at or around these points due to the difference between them and the surrounding channel. These effects have been taken into consideration in the proposed project design, ~~and the proposed bridge would be required to meet design standards that would minimize or eliminate this potential effect.~~ It is possible that design may not completely offset potential impacts, and in this case a minor increase in erosion and sedimentation could result.

As farming practices continue the soil would maintain the same moderate to high infiltration and percolation rates. Water movement from the upland through the soil profile and into the stream channel would not be interrupted and concentrated by structures or compacted surfaces in the area maintained in agricultural use.

### *Stormwater Drainage*

Alternative C has the potential to directly affect hydrology at the project site because of the concentration of stormwater flows from impervious surfaces and ground disturbance associated with the construction of buildings, driving surfaces and retention ponds. The construction of non-permeable and compacted surfaces, including buildings, parking lots, and roads, require associated drainage and retention ponds. The total estimated impermeable surface under this alternative is 70% of the total developed area (58 acres) or 40 acres. There would be a 29% increase in the impermeable area of the 142 (+/-) acre maximum project boundary and a 0.6% increase in the impermeable area of the total Patawa-Tutuilla drainage area. This amount of area does not create a measurable change in hydrology and soil recharge at the drainage scale.

The amount of water that would be intercepted by 0.6% of the drainage area would not be measurable in terms of changes to the flow regime. Based on an average annual precipitation of 13 inches, a total of 43.3 acre-feet of water would be intercepted during a single year. This water would be transported by a drainage system to detention ponds and infiltration areas, which would be located a minimum of 200 feet from Patawa Creek.

### *Groundwater Resources*

Withdrawal of water from the Mission Community Water System would have a direct impact on the deep aquifer that supplies Mission Well #5. However at the quantities proposed (see Table 3-45 in Community Infrastructure section of this chapter; an estimated 10.5 acre feet per year, or 1.4% of the total annual permitted withdrawal from the system) the effect would be minimal.

Treatment of wastewater under Alternative C is proposed to be on-site treatment with septic and drainfield. As wastewater infiltrates to the soils through the septic systems it may add to total water quantity on the project site since the source of water to the septic systems is mainly from the water supply line. This is new water to the site that would not currently be there. This water would move through the soil, down gradient, and enter the Patawa Creek channel. At the relatively low volume of estimated production (2400-4800 gallons per day or <0.1 cubic feet per second over a 10 hour day), changes in stream discharge would be undetectable.

There would be no impact on area residential wells either from the proposed on-site septic and drainfield, or increased withdrawal from Mission Well #5, due to the distances between the residential wells and the proposed project site, and between the residential wells and Mission Well #5.

### *Water Quality and Beneficial Uses*

There would be the potential for negative impacts on water quality and beneficial uses resulting from ground disturbing activities while crossing Patawa Creek to construct water and sewer lines and the proposed bridge. However, the stormwater collection and retention system and Riparian Management Zone would function to mitigate for negative impacts to water quality and beneficial uses.

There would be no expected impacts on water quality or beneficial uses from proposed ongoing operational activities at the site. Proper design and construction of utility crossing and bridge construction activities as regulated under the CTUIR Stream zone Alteration Permit would result in no expected negative impacts to water quality.

The Riparian Management Zone may have a positive impact on the long term on water quality and beneficial uses by allowing for riparian vegetation restoration and buffering a larger section of Patawa Creek from agricultural use than existing conditions.

## **Indirect Impact**

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### *Hydrology, Wetlands, Riparian Function*

The Riparian Management Zone proposed under Alternative C would apply to approximately 4,760 feet (stream length) of Patawa Creek. Due to the size of the impacted area, projected effects as described below would likely be modest when considered within the context of the entire Patawa Creek system.

Creation of the Riparian Management Zone would likely improve stream function and water quality over time within the project area and by extension in the entire Patawa and lower Tutuilla creek system. This would occur through the establishment of riparian vegetation, reduction of erosion causing activities (such as agriculture) adjacent to the creek, and eventual re-establishment of a meander channel. Indirect impacts would include:

- Reduced temperature through increased vegetation and reduced solar radiation, a more long-term effect as vegetation grows and meander channel is established.
- Reduced sediment and turbidity through establishment of perennial native vegetation and cessation of agricultural activities within the Zone. This represents a more immediate effect than a reduction in temperature.

### *Water Quality and Beneficial Uses*

Same as Alternative B.

### *Stormwater drainage, Wastewater, Groundwater*

The network of drainage pipes is expected to remain in place under Alternative C, although the condition and functionality of the system may change with age. Surface water may become more apparent in specific areas if these pipes stop functioning.

## **Cumulative Impact**

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Same as Alternative B, except that no water would be withdrawn from the shallow aquifer through an on-site well.

### ***Alternative D (58 acres)***

Impacts would be the same as under Alternative C, with the following exception:

#### **Direct Impacts from Groundwater Resources**

Withdrawal of water from the Mission Community Water System would have a direct impact on the deep aquifer that supplies Mission Well #5. However at the quantities proposed (an estimated 13.54 acre feet per year or 1.8% of the current total annual permitted withdrawal from this system) the effect would be minimal.

Treatment of wastewater under Alternative D is proposed to be off-site treatment with a collection system and lift pump that would transport water to the City of Pendleton's wastewater treatment plant. This system would require the construction of a lagoon (approximate size: 2 acres) in the lower, west portion of the project property that would be lined and isolated from local groundwater. The effect of this system would be limited to the actual ground disturbance that would occur during the installation of the piping system and lagoon. Wastewater would not be added to the soil profile because it would be removed from the area. Total water quantity on the project site would remain the same as existing conditions.

### ***Alternative E (142 acres)***

#### **Direct Impact**

##### *Hydrology, Wetlands, Riparian Function*

Same as Alternative C and D.

##### *Stormwater Drainage*

Alternative E has the potential to directly affect hydrology at the project site because of the concentration of stormwater flows from impervious surfaces and ground disturbance associated with the construction of buildings, driving surfaces and retention ponds. The total estimated impermeable surface under this alternative would be 70% of the total developed area or 97 acres. The impermeable area of the 142 (+/-) acre subject

property would be 70% of the total property, increasing the total impermeable surface of the entire Patawa-Tutuilla drainage by an estimated 1.4%. This amount of area is negligible in terms of creating a measurable change in hydrology and soil recharge at the drainage scale.

The amount of water that would be intercepted by 1.4% of the drainage area is not measurable in terms of changes to the flow regime. Based on an average annual precipitation of 13 inches, a total of 105 acre feet of water would be intercepted during a single year. By estimating an extreme precipitation event of 2 inches over a 24-hour period, the drainage system would be designed to handle a discharge of 8.2 cubic feet per second and a total water volume of 16.2 acre-feet. This water would be managed by a drainage system of detention ponds and infiltration areas. The regional detention pond proposed for the west end of the project site may be constructed as a series of ponds, in which case they would add environmental value as a constructed wetland site.

#### *Groundwater Resources*

Same as Alternative D, with the following exception:

Withdrawal of water from the Mission Community Water System would have a direct impact on the deep aquifer that supplies Mission Well #5. However at the quantities proposed (an estimated 22.10 acre feet per year, or 2.9% of the total annual permitted withdrawal from the system) the effect would be minimal.

The wastewater lagoon proposed under Alternative E would be approximately 3.5 acres in size but in other respects would be the same as the system proposed under Alternative D.

#### *Water Quality and Beneficial Uses*

Same as Alternative C.

### **Indirect Impact**

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Same as Alternative C.

### **Cumulative Impact**

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Same as Alternative C.

**Table 3-7  
Summary of Water Quality and Beneficial Uses Impacts**

<b>Water Quality Parameter</b>	<b>Temperature</b>	<b>Sediment &amp; Turbidity</b>	<b>Dissolved Oxygen</b>	<b>Bacteria</b>	<b>pH</b>
<b>Patawa-Tutuilla sampling Sites within CTUIR Water Quality parameters at time of Sampling?</b>	No	No	Yes	No	No
<b>Standard:</b>	Standard: 17.8C	Standard: 30 NTU (proxy)	Standard: 8.0 mg/l (30 day); 6.5 mg/l (7-day); 5.5 mg/l minimum)	Standard: 30 day mean of 126 E. Coli per 100 ml, none exceeding 406 E. Coli per 100 ml	Standard: Values shall not fall outside range of 9.0 units
<b>Current Reading:</b>	Range: 4.9-11.7 C	Range: 4 NTU-334 NTU	Range: 10.2 mg/L-11.0 mg/L	Range: 16 E. Coli/100 mL-600 E. Coli/100 mL	Range: 8.0-9.1 standard units
<b>Alternative A</b>	Maintain current condition of non-compliance		Maintain current condition (compliance)	Maintain current condition of non-compliance	
<b>Alternative A Indirect and Cumulative Effects</b>	Continued non-compliant water quality measurements in Patawa and Tutuilla creek system.				
<b>Alternative B Direct Impacts</b>	Maintain current condition of non-compliance		Maintain current condition (compliance)	Maintain current condition of non-compliance	
<b>Alternative B Indirect and Cumulative Effects</b>	Continued non-compliant water quality measurements in Patawa and Tutuilla creek system.				
<b>Alternative C, D, E Direct Impact</b>	Maintain current condition of non-compliance		Maintain current condition (compliance)	Maintain current condition of non-compliance	
<b>Alternative C, D, E Indirect and Cumulative Impact</b>	Minor improvement in water quality levels in Patawa and Tutuilla creek system, most immediately with sedimentation and in the longer term with temperature. Likely no impact on bacteria, pH, or dissolved oxygen				

**Table 3-8  
Summary of Water Resources Impacts**

	<b>Alternative A</b>	<b>Alternative B</b>	<b>Alternative C</b>	<b>Alternative D</b>	<b>Alternative E</b>
<b>Direct Impacts</b>	No change in hydrology.	No changes in hydrology Stormwater drainage and wastewater retained on site			
<i>Patawa Creek</i>			Potential negative effects (sedimentation and erosion) of new crossing of Patawa Creek mitigated by design standards for construction. Minor increase in sedimentation and erosion possible if not completely mitigated by design.		
<i>Area Wells</i>	No impact on area wells.	5.6 acre feet per year withdrawn from shallow aquifer. No impact on area wells. Minimal impact on aquifer.	10.5 acre feet per year (1.4% of the total annual permitted withdrawal from the Mission water system) withdrawn from the deep aquifer. No impact on area wells. Minimal impact on aquifer.	22.10 acre feet per year (2.9% of the total annual permitted withdrawal from the Mission water system) withdrawn from the deep aquifer. No impact on area wells. Minimal impact on aquifer	
<i>Water Quality</i>	Conditions that contribute to negative water quality near project site likely to continue.	No direct impact from stormwater drainage, which would be retained on site.  Conditions that contribute to negative water quality near project site likely to continue or show minor positive improvement resulting from creation of Riparian Management Zone.  Potential direct negative impact from herbicides applied to control noxious weeds in Riparian Management Zone.			
<b>Indirect Impacts</b>	None	Minor positive impact on Patawa Creek system hydrology resulting from creation of Riparian Management Zone.			
<b>Cumulative Impacts</b>	Continued negative	None, assuming future development would require stormwater retention systems.			

## 3.4 Biological Resources

### **Regulatory Context**

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The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), requires federal agencies to consult with the National Oceanic and Atmospheric Administration (NOAA Fisheries) on activities that may adversely affect Essential Fish Habitat for anadromous fish.

The U.S. Fish and Wildlife Service has jurisdiction over endangered and/or threatened species (including bull trout) and for migratory birds (Endangered Species Act, Migratory Bird Protection Act). NOAA has jurisdiction over endangered and/or threatened anadromous fish. The State of Oregon has jurisdiction over wildlife on fee lands not owned by the CTUIR. The CTUIR retains jurisdiction over wildlife on all trust lands on the Reservation and regulates hunting and fishing activities on the Reservation through the Fish and Wildlife Code.

### **Existing Conditions**

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Existing conditions are described for three categories of biological resources: non-threatened; threatened, endangered, and sensitive terrestrial species; and fisheries.

#### ***Non-threatened terrestrial species***

##### **Habitat Survey Methodology**

In November 2002, CTUIR Department of Natural Resources wildlife and botany staff conducted a pedestrian survey of the proposed project site. The purpose of the survey was to establish existing baseline information on fish, wildlife, and plant habitat conditions in the project area. The survey was focused on the channels (Site A and D in Figure 3-11) and slough (Site C in Figure 3-11) of Patawa Creek, a remnant scabland eyebrow (Site B in Figure 3-11) and the ephemeral wetlands within the tilled agricultural lands (Site E in Figure 3.11). The remainder of the subject lands and those lands north of Interstate 84 were virtually all under tillage and provided no significant perennial wildlife habitat value. This survey was followed up with an additional survey in July 2004.

The survey was limited to notation of species present or indicated by past habitat use.

### *Site A*

This habitat area includes the channel and stream banks of Patawa Creek from South Market Road west to the confluence with an unnamed stream that enters Patawa Creek from under Interstate 84 (Site C). Patawa Creek is 0-30 feet wide and deeply incised to an average depth of approximately 10 feet and is channelized into a road ditch as it parallels the gravel shed/transfer station access road. While there is evidence of past areas of standing water scattered throughout the channel, no flowing water was found at the time of survey. This area may provide for limited waterfowl nesting and brood rearing habitat in the spring but could be easily searched by predators, thus reducing its rearing habitat suitability. There is significant herbaceous and scattered shrub cover throughout the channel. Cover could provide nesting and foraging for neotropical migrant songbirds and upland game birds. A list of plant species, by site area, is provided in Appendix D.

### *Site B*

This habitat area includes the southwest facing scabland eyebrow lying east of the transfer station. This area appears to be a remnant of the original native grass/shrub land that was spared from past agricultural tillage due to the slope and rocky character of the soil. Significant borrowing activity was noted, probably from Northern Pocket Gophers. There is evidence of browsing deer throughout. There are many native plant species present along with significant recent incursion of non-native Yellow star thistle.

### *Site C*

This habitat area includes a blind channel slough to Patawa Creek. The slough is approximately 6 feet deep and 20-30 feet wide. Water is flowing in portions of this channel and appears to be the source for much of the surface water to the lower reaches in Site D. This area supports numerous foraging song sparrows. The vegetation is dominated by non-native Canada thistle and cattail.

### *Site D*

This habitat area includes the channel and stream banks of Patawa Creek starting at the confluence with the blind channel slough (Site C) running east to Billy Road where it passes

though a large culvert. The stream may be perennial within this reach and was flowing at the time of survey. No fish or amphibians were noted on limited visual inspection.

### *Site E*

This habitat area includes several ephemeral wetlands created by shallow ground water within the tilled agricultural area south of Patawa Creek. There was no standing water at the time of survey. There is evidence of recent past use by deer and Ring-Necked Pheasant. The vegetation is dominated by Canada thistle.

### **Wildlife Survey Results**

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Species sighted during the survey included Song sparrow (*Melospiza melodia*) and Ring-Necked Pheasant (*Phasianus cochicus*) along stream channels. A Red-Tailed Hawk (*Buteo jamaicensis*) was seen throughout much of the survey period either in flight or perching on power poles in the immediate vicinity.

Excavation mounds and evidence of winter castings in the remnant scabland eyebrow indicated the presence of Northern Pocket Gopher (*Thomomys talpoides*). Excavation mounds elsewhere in the tilled agricultural areas are indicative of Northern Pocket Gopher and possibly Coast Mole (*Scapanus orarius schefferi*). Additional evidence of borrowing activities is noted in the eroded banks of Patawa Creek. Evidence of browsing by White-tailed Deer (*Odocoileus virginianus*) and/or Mule Deer (*Odocoileus hemionus*) was seen throughout the untilled areas surveyed. Scat and tracks from Coyote (*Canus latrans*) is also noted along the stream course and fence lines in the tilled agriculture lands

### **Habitat Conditions and Plant Survey Results**

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Most of the area surveyed and proposed for Coyote Business Park was under tillage for winter wheat production. Existing perennial cover for wildlife habitat is restricted to narrow strips along roadside ditches, fence rows, the channelized stream course and associated wetlands of Patawa Creek, and areas where past tillage was limited by slope or soil conditions. All habitats surveyed had sizeable incursions of non-native plant species.

The presence of the high-voltage BPA power lines crossing the site and passing through habitat survey Site E (see Figure 3.11) is not known to cause any disturbance to wildlife. However, power lines that are too close together may create an electrocution hazard for perching raptors or other large birds. This situation has been

observed at other locations on the Reservation in the past but has not been documented within the proposed project site.

Notable habitat areas surveyed are identified (A through E) on the attached aerial photo (Figure 3-11) described below.

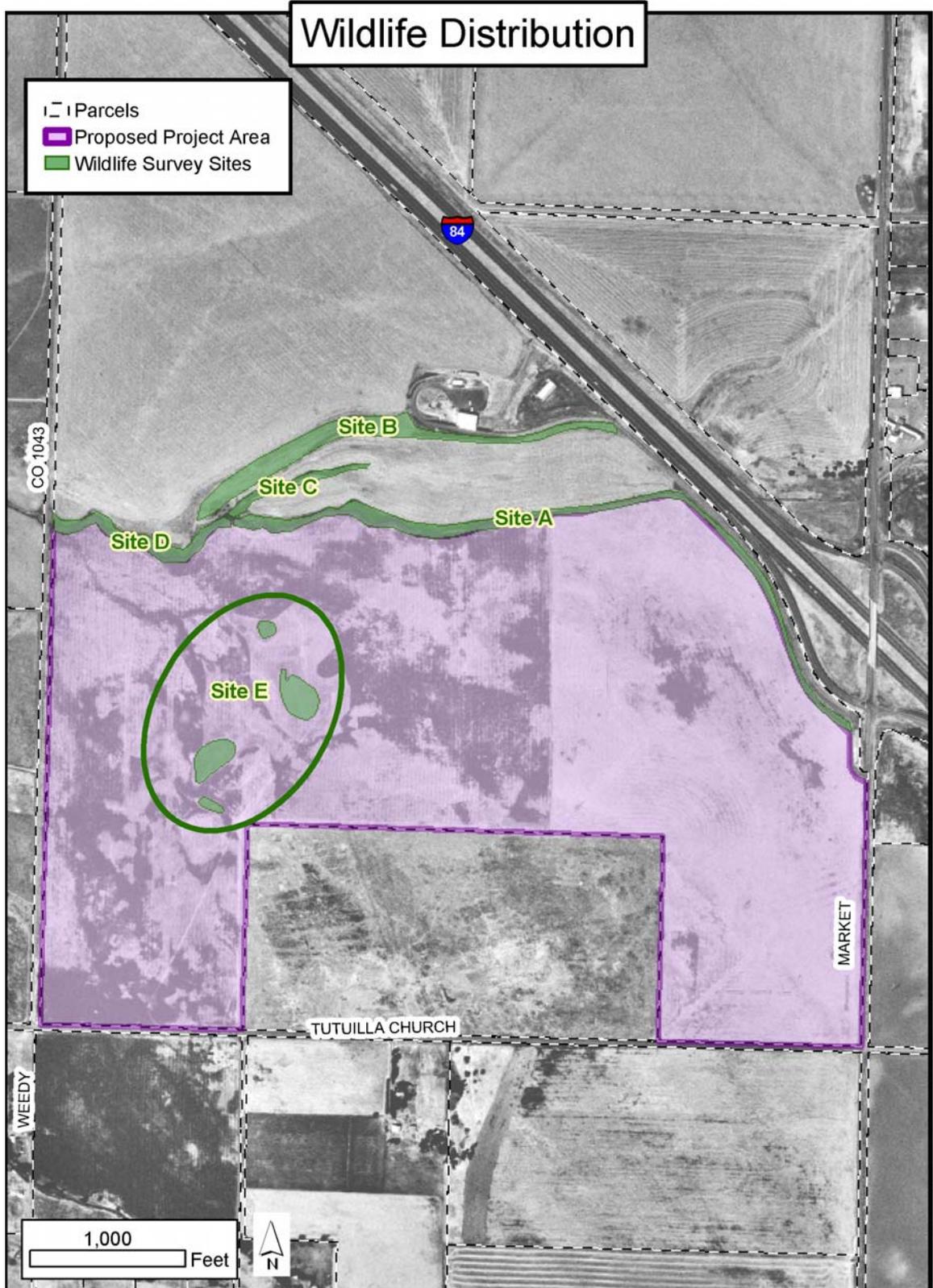
### ***Threatened, Endangered and Sensitive Terrestrial Species***

Threatened, endangered, and sensitive species records were solicited from the Oregon Natural Heritage Program (ONHP) for the vicinity of the subject property. Five (5) records were noted within a two-mile radius. This included two fish species, the Mid Columbia River ESU Steelhead (*Oncorhynchus mykiss*), and the Marginated Sculpin (*Cottus marginatus*).

Additionally, the Western Painted Turtle (*Chrysemys picta*), a state species of concern, has been found in various locations within the Umatilla Basin. However, there did not appear to be suitable perennial wetland habitat to support this species within the survey area. Although appropriate spotted frog habitat is available (wetlands, stream margins), a survey conducted in 2003 by Northwest Wildlife Consultants failed to identify any amphibians in the creek.

The Washington Ground Squirrel (*Spermophilus washingtoni*) a state species listed as endangered as well as a federal endangered species candidate, is also noted on the state list, but suitable habitat is lacking within the survey area due to extensive historic agricultural development. Soils present at the proposed project site are favorable for the burrowing needs of the Washington ground squirrel; likewise, the dry open grassland is appropriate habitat. However, previously plowed land is unsuitable for Washington ground squirrel habitat, an effect that cannot be reversed (Rickert and Yensen, 1991). There are no known populations of Washington ground squirrel in the area.

The last specimens were collected in the general area prior to 1938. In addition to the species occurrences noted as occurring in the area by the ONHP, Bald Eagle (*Haliaeetus leucocephalus*), Prairie Falcon (*Falco mexicanus*) and Peregrine Falcon (*Falco peregrinus*) have been seen wintering in the Umatilla Basin and may be seen passing through the project area. Although the Umatilla River subbasin may support wintering bald eagle populations, no bald eagles have been observed at the proposed project site, nor are there potential nesting or roosting trees on the site. Patawa Creek and associated wetland areas do not provide adequate prey habitat for bald eagles. The disturbance history of the proposed project site, including agriculture, Interstate 84, the Arrowhead Truck Plaza, and other developments, probably contributes to the absence of bald eagles.



**Figure 3.11, Sites surveyed for Wildlife Distribution, 2002**

Adjacent grassland habitats may provide suitable habitat for the Long-billed Curlew (*Numenius americanus*), a state species of concern.

Yellow-billed cuckoos (*Coccyzus americanus*), a candidate species, has also been identified as species that may be present within the proposed project area. No yellow-billed cuckoos have been observed at the proposed project site, nor are there potential nesting or foraging trees (cottonwood and willows) on the site. Yellow-billed cuckoos, especially in the west, seem to prefer large areas (25 acres) of undisturbed riparian vegetation, which is not available on or near the proposed business park site. The disturbance history of the proposed project site, including agriculture, Interstate 84, the Arrowhead Truck Plaza, and other developments, probably contributes to the absence of yellow-billed cuckoos.

The OHNP record search identified one plant species, Laurence's Milk Vetch (*Astragalus collinus var. Laurentii*), as potentially present in the vicinity of the proposed project. This species was not seen in either CTUIR survey (Shippentower 2004).

### ***Threatened, Endangered and Sensitive Fish Species***

#### **Columbia River bull trout (*Salvelinus confluentus*)**

This species is listed as a threatened species in the Umatilla Basin under the federal Endangered Species Act but are not present in the Patawa Drainage (Shaw 2004.)

#### **Middle Columbia River ESU Summer Steelhead (*Oncorhynchus mykiss*)**

Middle Columbia River Evolutionary Significant Units (ESU) summer steelhead populations were listed as a threatened species by NOAA Fisheries on March 25, 1999. The status of this and several other West Coast salmon and steelhead ESUs are currently under review. Although total steelhead abundance in the area has been increasing, the majority of natural stocks have been decreasing. Riparian vegetation and in-stream habitat of streams within this ESU have been heavily impacted by overgrazing, timber harvest, road building, and channelization, as well as past gold dredging and sedimentation due to poor land management. These factors led to the conclusion by the NOAA Fisheries that the Middle Columbia River steelhead is at risk of becoming endangered in the foreseeable future. Critical habitat for Middle Columbia River steelhead was designated in February 2000, but in April 2002 NOAA Fisheries withdrew the designation. Critical habitat is currently under review. No steelhead are present in the segment of

Patawa Creek that crosses the proposed project site, although rearing and migration may occur approximately 1.1 miles downstream (see Figure 3-12).

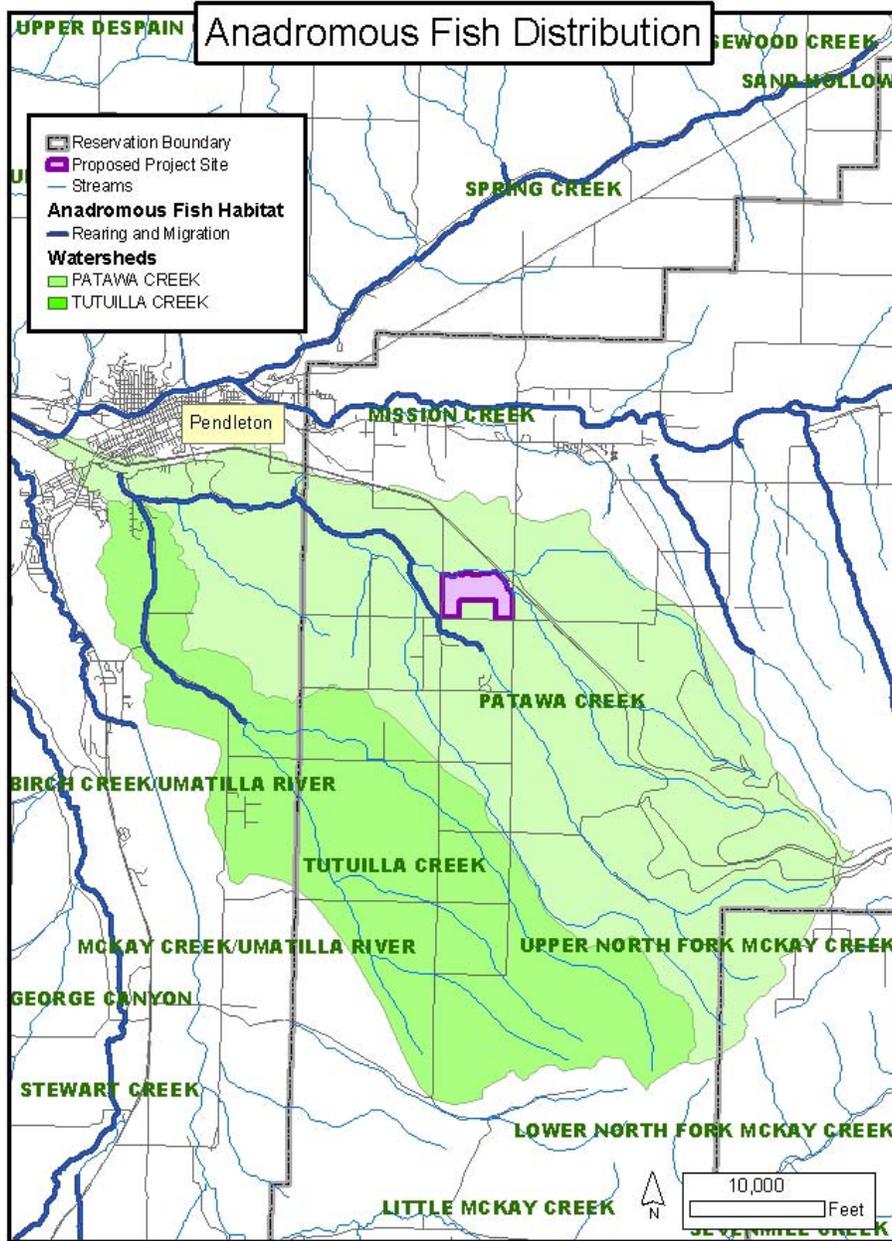
Middle Columbia River steelhead are an inland form of the West Coast steelhead. Most steelhead of this ESU smolt at age 2, with ocean ages of 1 to 2 years. Middle Columbia River steelhead are stream-maturing or “summer” populations, entering freshwater in a sexually immature condition and requiring several months to mature and spawn. Fish in this ESU remain in fresh water one year prior to spawning. Although steelhead are iteroparous (capable of spawning more than once before they die), repeat spawning is rare in Middle Columbia River steelhead (NOAA-NWFSC Tech Memo 27 : Status Review of West Coast Steelhead). Depending on water temperature, eggs may incubate for 1.5 to 4 months before hatching and subsequently emerging as “fry.” The relationship between anadromous and resident forms of *O. mykiss* is unclear.

This ESU occupies the Columbia River Basin from above the Wind and Hood Rivers upstream to include the Yakima River, excluding steelhead of the Snake River Basin. The region includes some of the driest areas in the Pacific Northwest, with shrub-steppe vegetation. High summer and low winter temperatures are limiting factors in this region.

Juvenile steelhead utilize the higher quality headwaters and upper reaches of the Umatilla River primarily during spring and early summer; however, during late fall, winter, and early spring, juvenile steelhead can be seen throughout the Umatilla River subbasin.

Although presence of steelhead in Patawa Creek is undocumented at the proposed project site, the potential for use of the stream by steelhead does exist; additionally, downstream from the project site at river miles 0 to 2.6, Patawa Creek is used for rearing and migration by steelhead (StreamNet 2002; Figure 3-12.)

Habitat elements, as with riparian reserves, are essentially non-existent on the proposed project site. No large woody debris or pools were identified during a site visit in December 2002 (Anderson Perry & Associates, 2004.) As most of the area surrounding the proposed project site is also agricultural, these habitat elements and other indicators would likely be the same throughout the Patawa Creek Watershed.



**Figure 3-12, Anadromous Fish Distribution in vicinity of proposed site**

The environmental baseline for the road density and location indicator for the Patawa Creek watershed is “not properly functioning” due to Interstate 84 being located immediately to the north of Patawa Creek, roads criss-crossing the creek at several

points, and the road to the ODOT sanding shed running alongside the creek as it crosses the proposed project site. Since the land has most recently been used for farming to the stream margins, disturbance history and riparian reserves are not properly functioning.

## **Biological Resources Impact Analysis**

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Direct impacts to wildlife habitats from proposed developments may be characterized as complete loss, conversion, or as partial degradation of habitat suitability for various target species from existing levels. While agricultural lands in annual cropping can provide seasonal cover and forage needs of various wildlife species, they are not generally considered prime wildlife habitat. The use of these areas by wildlife may in fact be perceived negatively by agricultural operators, as crop yields may be reduced.

Impacts may occur outside the development footprint to adjacent habitats and to their use by wildlife. Impacts from proposed and existing use of the project lands may include disturbance from increased noise, light, particulates and other discharges.

A summary of the determination of project effects from on ESA listed species is provide in Table 3-9 at the end of this section.

### ***Alternative A (No Action)***

#### **Direct Impact**

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Under the no action alternative, impacts to adjacent wetland and riverine habitats from annual tillage and associated agricultural runoff would continue at the current rates. Existing levels of noxious weed infestations would likely remain the same or increase with additional invasions.

#### **Indirect Impact**

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Habitat quality of adjacent untilled lands and use by wildlife species would likely remain unchanged. Noise disturbance from Interstate 84 and existing developments in the area would remain similar in magnitude and timing.

#### **Cumulative Impact**

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None anticipated.

## **Alternative B (21 acres)**

### **Direct Impact**

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The proposed development footprints fall within areas of existing tilled lands with less than optimum habitat value. In general, areas of existing habitat, including agricultural and non-agricultural wetlands and undeveloped cover are avoided by the design of the proposed project activities.

There would be no direct impacts on Washington Ground Squirrel, Bald Eagle, or Yellow Billed Cuckoo as there is not presently adequate habitat for these species on the proposed project site and they have not been observed at or near the proposed project site. Proposed construction and operations would not directly impact these species.

There would be no direct impacts on Middle Columbia River ESU Steelhead, Chinook Salmon (Candidate Species), or Columbia Spotted Frog as potential habitat for these species (Patawa Creek) would not be affected by the proposed action.

The direct effect on project area for proposed construction and operation of light industrial facilities would permanently remove 21 acres of cropland from production. The ground disturbance required during construction would create habitat for invading weeds. Known noxious weeds (Yellow star thistle) in close proximity to project may invade open ground.

Ongoing operations may also create an opportunity for weeds to invade, as not all surfaces would be covered by structures or pavement. Vectors of transport would be created for weeds coming on to the site, with heavy equipment and truck traffic in and out of project area. The planting of a 30-foot visual screening buffer may create an opportunity to reintroduce native plants to project area. The buffer would consist of native grass, shrubs and trees and would form a defense against weed dispersal from thru traffic into site and the highway traffic along South Market Road.

There would be no impact on sensitive plant species *Astragalus collinus var laurenti* as this species has not been identified during surveys of the proposed project area.

### **Indirect Impact**

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No impact.

## **Cumulative Impact**

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Cumulative impacts from peripheral developments such as additional residential and commercial development necessary to support the increase in local work force for the industrial area are possible. The existing regulatory framework that protects threatened, endangered, and sensitive species would remain in effect on lands that have an appropriate nexus (federal funding would trigger implementation of the Endangered Species Act, for example). In the foreseeable future, projected peripheral developments would likely be on trust land, as discussed in Section 3.0, and since developments on trust land are considered a federal action, the existing regulatory framework that protects threatened, endangered, and sensitive species would remain in effect and adverse cumulative effects from this type of development would be evaluated.

### ***Alternative C (58 acres)***

#### **Direct Impact**

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The proposed development footprint falls within areas of existing tilled lands with less than optimum habitat value. In general, areas of existing habitat, including agricultural and non-agricultural wetlands and undeveloped cover are avoided by the design of the proposed project activities.

The impact of the higher power lines and the different power line configuration on the new poles on birds is unknown.

#### *Threatened, Endangered, or Sensitive Species*

There would be no direct impacts on Washington Ground Squirrel, Bald Eagle, or Yellow Billed Cuckoo as there is not presently adequate habitat for these species on the proposed project site and they have not been observed at or near the proposed project site. Proposed construction and operations would not directly impact these species.

Short-term and long-term impacts to water quality and loss of habitat and vegetation anticipated from proposed bridge construction and utility construction crossing Patawa Creek would negatively impact feeding and breeding behaviors of individual frogs. Therefore, development of up to 58 acres at Coyote Business Park may affect, but is not likely to adversely affect, the Columbia spotted frog. As previously noted, although

there is potential frog habitat in Patawa Creek, no frogs or amphibians were identified there in a 2003 survey.

There would be no direct impact on fisheries as there is no perennial fish habitat identified within the section of Patawa Creek, which passes through the proposed project area.

There would be no impact on sensitive plant species *Astragalus collinus var laurenti* as this species has not been identified during surveys of the proposed project area.

#### *Other Fish and Wildlife Species*

There would be the potential to impact Patawa Creek through the proposed construction of utility lines across ~~and a bridge crossing of~~ Patawa Creek. This would result in the temporary loss of riparian vegetation along approximately 80 feet of the stream channel, ~~and a permanent loss of riparian vegetation along approximately 40 feet where the new road and bridge crossing would be.~~ Abandonment of the road that currently parallels the creek would be a benefit to habitat.

Additional direct effects of the proposed Patawa Creek crossing include increased emissions and noise due to construction and use of heavy equipment, disturbing species present in the proposed project area. There would be an increased possibility of pollution related to construction activities occurring in the riparian area. The accidental release of fuel, oil, or other contaminants into Patawa Creek, riparian, or wetland areas could injure or kill aquatic organisms. Accidental releases would be mitigated by requiring a Pollution Prevention Plan during construction.

Direct adverse affects of the proposed project include increased disturbance of local wildlife populations from activities associated with the construction and operation of the industrial areas. Short-term impact from the loss of riparian vegetation that supports wildlife resulting from the construction of the right-of-way would be largely or completely offset by the increased riparian buffers to Patawa Creek throughout the project area.

While electrical power lines can pose a potential electrocution hazard for birds, such as raptors, configurations less than 1 kV or greater than 69 kV typically do not present an electrocution hazard, based on conductor placement and orientation (Avian Power Line Interaction Committee (APLIC) 1996.) The impact of

the higher power lines and the different power line configuration of the new poles on birds is unknown.

### *Plants*

The proposed project would permanently remove 58 acres of cropland. The ground disturbance required during construction would create habitat for invading weeds. Known noxious weeds (Yellow Starthistle) in close proximity to project may invade open ground. Ongoing operations may also create an opportunity for weeds to invade as not all surfaces would be covered by structures or pavement.

Surface water swales and retention ponds would be constructed and planted with native drought resistant bunch grasses. The road construction would create an 80-foot right-of-way with planted surface drainage swales, which could create an additional disturbed area for noxious weed invasion. Alternative C would require removal of riparian vegetation along Patawa Creek in the area where the bridge would be constructed and utility crossing made. This could increase opportunities for noxious weed invasion directly in the riparian area.

Alternative C proposes abandonment of the road that parallels the creek, at a length of approximately ¼ mile, which would be a benefit to water quality and therefore to wildlife habitat.

### **Indirect Impact**

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Due to the distance between the project boundaries and the designated area of Essential Fish Habitat (EFH) for Chinook Salmon (candidate species), which is approximately 5.3 river miles downstream from the proposed project site, minimal effects are anticipated to EFH. The concern with this project and EFH is stream quality. Riparian measures and sedimentation resulting from proposed ~~bridge construction~~ and utility crossing of Patawa Creek are potential indirect impacts but would not affect EFH downstream of the project construction. Construction activities would be mitigated by project design (providing proper erosion and sediment control measures and incorporating BMPs.) Thus the project may affect, but is not likely to adversely affect, Essential Fish Habitat for Chinook Salmon on Patawa Creek.

Similarly, due to the short-term effects associated with stream crossing construction, the proposed project may affect, but is not likely to adversely affect, Middle Columbia River ESU steelhead,

which has potential rearing and migration habitat approximately 1.1 miles downstream of the proposed project site.

### **Cumulative Impact**

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Same as Alternative B.

### **Alternative D (58 acres)**

Same as Alternative C.

### **Alternative E (142 acres)**

#### **Direct Impact**

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Same as Alternatives C, D, with the following exceptions:

Short-term and long-term impacts to water quality and loss of habitat and vegetation anticipated from proposed ~~bridge construction and~~ utility construction crossing Patawa Creek would negatively impact feeding and breeding behaviors of individual frogs. Therefore, development of up to 142 acres at Coyote Business Park may affect, but is not likely to adversely affect, the Columbia spotted frog. As previously noted, although there is potential frog habitat in Patawa Creek, no frogs or amphibians were identified there in a 2003 survey.

#### *Other Fish and Wildlife Species*

There would be the potential to impact Patawa Creek through the proposed construction of utility lines ~~and a bridge crossing of Patawa Creek~~. This would result in the temporary loss of riparian vegetation along ~~approximately 80 feet of the stream channel, and a permanent loss of riparian vegetation along approximately 40 feet where the new road and bridge crossing would be~~. Abandonment of the road that currently parallels the creek would be a benefit to habitat.

#### *Plants*

The proposed project would permanently remove up to 142 acres of cropland from production. The ground disturbance required during construction would create habitat for invading weeds. Known noxious weeds (Yellow Starthistle) in close proximity to project may invade open ground. Ongoing operations may also create an opportunity for weeds to invade as not all surfaces would be covered by structures or pavement.

Surface water swales and retention ponds would be constructed and planted with native drought resistant bunch grasses. The road construction would create an 80-foot right-of-way with planted surface drainage swales, which could create an additional disturbed area for noxious weed invasion. Alternative E would require removal of riparian vegetation along Patawa Creek in the area where the ~~bridge would be constructed~~ and utility crossing made. This could increase opportunities for noxious weed invasion directly in the riparian area.

**Indirect Impact**

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Same as Alternatives C, D.

**Cumulative Impact**

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Same as Alternative B.

**Table 3-9  
Summary of Determination of Project Effects from  
CTUIR Coyote Business Park on ESA Listed Species**

<b>Species</b>	<b>Federal ESA Status</b>	<b>Occurrence at Proposed Project Site</b>	<b>Project Effects</b>	<b>Criteria Used for Determination</b>
<b>Washington Ground Squirrel Spermophilus washingtoni</b>	Candidate	None known	No effect	No populations in the proposed project area; previously disturbed habitat cannot be restored for future populations.
<b>Bald eagle Haliaeetus leucocephalus</b>	Threatened	None known	No effect	No nests/roosts in the proposed project area; previous disturbances likely limit use of the area by bald eagle; no impact to bald eagle prey habitat and/or availability.
<b>Yellow-billed cuckoo Coccyzus americanus</b>	Candidate	None known	No effect	No populations in the proposed project area; no appropriate nesting/feeding habitat.
<b>Middle Columbia River ESU steelhead Oncorhynchus mykiss</b>	Threatened	None at site; rearing and migration downstream	May affect, not likely to adversely affect	No steelhead in this segment of Patawa Creek; rearing and migratory habitat downstream at river miles (RM) 0 to 4.5 have very little chance of being altered or impacted by this project. The project boundary is RM 5.6.
<b>Essential Fish Habitat (EFH) Middle Columbia Chinook Salmon (candidate species)</b>			May affect, not likely to adversely affect	Because a portion of Patawa Creek is designated EFH, potential impacts and EFH discussions are included in this BA. However, because the distance of the project boundaries to the EFH is 5 river miles, the effects of the project will be minimal.
<b>Great Basin DPS Columbia spotted frog Rana luteiventris</b>	Candidate	None known	May affect, not likely to adversely affect	No known populations. Appropriate frog habitat is present, but no amphibians were observed during survey in 2003.

## 3.5 Air Quality

### **Regulatory Context**

The Environmental Protection Agency has regulatory authority over air quality on the Reservation. The air quality regulations and standards of the Clean Air Act (CAA) are applicable to the CTUIR and to sources of air emissions on the Reservation.

The various programs of the Clean Air Act that have been designed to achieve the goal of preserving air quality are briefly summarized below.

#### ***Title I – The Non Attainment Program***

This program deals with meeting National Ambient Air Quality Standards (NAAQS), in non-attainment areas or areas that do not meet the NAAQS and State and Tribal Implementation Programs (SIP, TIP). The National Ambient Air Quality Standards are standards for chemical compounds and materials commonly referred to as criteria pollutants which include sulfur oxides (SO<sub>x</sub>), nitrogen oxides (NO<sub>x</sub>), ozone (O<sub>3</sub>), particulate matter of different size (PM<sub>10</sub>, less than 10 microns in diameter and PM<sub>2.5</sub>, less than 2.5 microns in diameter) carbon monoxide (CO), volatile organic chemicals (VOC) and lead (Pb). The proposed project area is in an area of attainment.

#### ***Title II - Mobile Sources, Fuels and Fuel Additives***

This program is used by EPA to negotiate with manufacturers of cars/trucks and petroleum companies to reduce mobile emissions, and does not apply to the proposed project.

#### ***Title III – Air Toxics***

This program of the CAA regulates air toxics or hazardous air pollutants (HAP) other than the criteria pollutants covered under the NAAQS that are likely to cause death or serious illness. The standards are referred to as the National Emissions Standards for Hazardous Pollutants or NESHAP. Any “stationary” source emitting more than 10 tons per year of any of the listed substances or 25 tons per year of any combination of the substances is considered a major source and is subject to regulation. The proposed project does not include any major sources.

#### ***Title IV – Acid Rain***

This program of the CAA address the control of two principle contributors of acid rain and other forms of acid deposition, sulfur oxides (SO<sub>2</sub>, SO<sub>3</sub>) and nitrogen oxides (NO, NO<sub>2</sub> and N<sub>2</sub>O). The principal SO<sub>x</sub> sources targeted by the program are large fossil fuel-fired electric utility boilers or turbines. The NO<sub>x</sub> sources are regulated

by set annual emission standard. The proposed project does not include activities likely to emit those pollutants at all or in quantities subject to regulation.

#### ***Title V – Operating Permit Program***

The Operating Permit program consolidates into a State, Tribal, or Federal Implementation Plan (SIP, TIP, or FIP) all federally enforceable air regulations applicable to a particular source. Permits for sources falling under this program must include:

- 1) Emissions limits
- 2) Compliance schedules
- 3) Monitoring and reporting requirements.

The program requires “major sources” to pay emissions fees in amounts sufficient to cover costs of developing and implementing the permit program (FIP, TIP or SIP). The proposed project does not include any major sources.

#### ***Haze and Visibility***

To reduce haze, and to meet requirements of the CAA, in 1999 EPA issued a regional haze rule aimed at protecting visibility in 156 federal Class 1 areas (in Oregon, these include the Strawberry Mountain and Eagle Cap Wilderness Areas). Under the 1999 regional haze rule, states, tribes and federal land managers are required to set periodic goals for improving visibility in Class 1 areas.

### **Existing Conditions**

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Existing air emissions on the CTUIR are summarized in the Table 3-10. In 1998, an air emission inventory was completed by CTUIR for the Reservation. This inventory did not include any estimate of emissions from agricultural tillage, forest practices, Wildhorse Resort, or Arrowhead Travel Plaza. Air emissions are generally classified into area sources, point sources, and mobile sources. Area sources identified on the Reservation include:

- Fugitive dust
- Stationary sources that are too small, difficult, or numerous to account for individually as point sources

**Table 3-10  
Summary of 1998 Air Emissions on Reservation by Type and Regulatory Context (Tons/year)**

	Total Particulate Matter (PM <sub>10</sub> and PM <sub>2.5</sub> )	NH <sub>3</sub>	NOx	CO	HC	VOC	SOx	Regulatory Context and Type of Permit Required
<b>Field Burning</b>	166	56	98	2,830	--	229	20	Field burning on the Reservation is regulated by CTUIR Fire Department.
<b>Residential Woodstoves</b>	9		1	65	--	15	<1	Not regulated
<b>Point Source (Pioneer Asphalt)</b>	24		39	99		39	39	Either Air Contaminant Discharge Permit (for most minor sources) or Title V permit (for most major sources.) See <a href="http://www.deq.state.or.us/aq/aqpermit">www.deq.state.or.us/aq/aqpermit</a> for more information.*
<b>Grain Elevator</b>	5							Not regulated
<b>Mobile Sources</b>	56		1,238	2,203	309	--	--	Mobile sources are regulated under the Clean Air Act through fuel and emission control devices, 40 CFR 85.
<b>Fugitive Road Dust</b>	24,088							Not regulated
<b>Trains</b>	50		2,004	523		71	326	Not regulated
<b>Applications of fertilizer and pesticides</b>		33						Not regulated
<b>Total Estimated Emissions, tons/year</b>	24,398	89	3,380	5,720	309	354	385	

(sources: CTUIR Air Emissions Inventory, 2000; Oregon Department of Environmental Quality website, [www.deq.state.or.us](http://www.deq.state.or.us))

\* According to DEQ (Jacobs 2005), Pioneer Asphalt is regulated by DEQ under a Memorandum of Understanding between CTUIR and DEQ.

- Residential wood combustion
- Silviculture and agriculture burning sources.

Point sources are those that can be identified from a specific, fixed point in space. Mobile sources are tailpipe emissions of automobiles and trucks.

The Reservation, including the proposed project site, is in a Class II area that is in attainment with NAAQS. There are no major stationary sources regulated under Title III, Title IV, or Title V of the Clean Air Act on the Reservation. Since the Reservation is not in a Class I area, the 1999 EPA regional haze rule does not apply.

This inventory should be considered a rough and incomplete estimate since it was based on data taken and computations made for the 1998 calendar year and updated in 2000.

Other point sources identified by the Air Emissions Inventory for the Reservation include:

- Mission Grain Elevator
- Arrowhead Truck Plaza
- Wildhorse Resort and Casio
- Transfer Station (Tribal Environmental Recovery Facility, or TERF)
- Reservation Landfill (closed since time of report)

## **Air Quality Impact Analysis**

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### ***Methodology***

CTUIR air quality staff analyzed projected air quality impacts from the proposed action alternatives according to EPA methodology. First, all potential sources of air emissions resulting from the proposed action were identified. Then an activity level was estimated, along with an emission rate, and used to project the total air emissions under each alternative. Results were then compared to applicable regulatory requirements and standards for air emissions to determine if they would be exceeded. This assessment also attempted to assess air quality impacts that may lie outside the envelope of regulatory compliance in order to provide a comprehensive assessment of the air quality impact of the proposed project.

In the following summary of the analysis, emissions estimates are organized by the type of emissions source (point and non-point) and by type of impact (direct and indirect). Direct impacts are those that occur on the project site. They are categorized by point and non-point

sources. Indirect impacts are those that occur off of the project site. Cumulative impacts are those that would occur Reservation-wide and in the regional airshed.

### **Criteria pollutants**

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The analysis considered projected impacts from “criteria pollutants,” or those emissions, which are regulated under the Clean Air Act. Pollutants were identified in the analysis as potential impacts from the proposed alternatives. Hazardous Air Pollutants (HAP) are additional pollutants that occur on a list of 189 EPA recognized hazardous air pollutants and in some cases were also identified in the analysis as potential impacts.

Estimated pollutants were presented as a percentage of the total estimated 1998 emissions for each particular pollutant characterized in the 1998 CTUIR Air Emissions Inventory. This latter comparison would likely be an underestimate due to the age of the data and since that inventory did not include data on some emissions sources such as Wildhorse Resort, Arrowhead Travel Plaza, or agriculture harvest activities.

### **Project Construction**

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Project construction would result in disturbance and handling of surface soils at the site and along the extension of utility, water, sewer and access roads. The air emissions for the construction phase for each of the alternatives have been estimated and included in the analysis.

## ***Alternative A (No action)***

### **Direct Effects**

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Air emissions projected at the proposed project site under the no-action alternative include: dust, carbon monoxide, nitrous oxide, and some volatile organics and lead from the tailpipes of farm vehicles; tilling; road dust; and agricultural sources (vegetation). (Table 3-11)

These types of emissions are similar in nature and degree to emissions from other dryland agricultural parcels on the Umatilla Indian Reservation and throughout Umatilla County.

**Table 3-11  
Alternative A  
Projected Direct Effect Emissions from Nonpoint Sources**

Source	PM <sub>10</sub>	PM <sub>2.5</sub>	CO	NO <sub>x</sub>	VOC/ HC	HAP**
Tons/year	<1.0	0	6	82	211	38
% of estimated CTUIR total emissions, 2000 inventory	<0.01%	0.001%	0.024%	60%	Not known	

\*\* HAP, any of a list of 189 EPA recognized hazardous air pollutants.

### **Indirect Effects**

Indirect Effects under Alternative A would be air emissions resulting from travel of agricultural vehicles to and from the site, primarily fugitive dust (Particulate Matter) from travel on paved and gravel roads (Table 3-12).

**Table 3-12  
Alternative A  
Projected Indirect Effect Emissions**

Source	PM <sub>10</sub>	PM <sub>2.5</sub>	CO	NO <sub>x</sub>	VOC/ HC	HAP**
Tons/year	15	4				
% of estimated CTUIR total emissions, 2000 inventory	14.73%	3.63%	0	0	0	Not Known

\*\* HAP, any of a list of 189 EPA recognized hazardous air pollutants.

### **Cumulative Effects**

It is expected that there would be very low projected impact on local ambient air quality and no measurable impact on any Class I air shed within 100 miles of the proposed facility under Alternative A.

***There could be a potential cumulative impact on local ambient air quality from increased nonpoint emissions sources (vehicle traffic) associated with proposed commercial development along Highway 331 north of Interstate 84.***

**Alternative B (21 acres)**

Emissions were based on the projected construction and use of the proposed 21- acre business/industrial park and the use of 118 acres in farming. Under this alternative, most of the acreage of the proposed project site would remain in agricultural use. Agricultural air emissions estimated for agricultural use of the site under the baseline condition would continue, although on a reduced scale. Increased vehicular traffic would contribute dust, carbon monoxide, nitrous oxide, and volatile organics. Vehicle emissions are regulated by Title II of the 1990 Clean Air Act through emissions control devices and clean fuels.

Estimated direct (on-site) and indirect (off-site) impacts on air quality from these emissions from vehicular travel are shown in Tables 3-13 and 3-14, respectively.

**Direct Effects- Point Sources**

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The proposed business facilities would likely not be considered point sources under the Clean Air Act due to their size and operational type.

**Direct Effects- Nonpoint Sources**

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Projected sources would include vehicular traffic, agricultural tilling and harvest on the remaining portion of the site; fugitive dust resulting from employee and other business travel on the parcel itself; and “biogenic” or biological sources (agriculture) which are emitted directly from plant activity (Table 3-13).

**Table 3-13  
Alternative B  
Projected Direct Effect Emissions from Nonpoint Sources**

Source	PM <sub>10</sub>	PM <sub>2.5</sub>	CO	NO <sub>x</sub>	VOC/HC	HAP*
Projected emissions in tons/year	0.78	0.19	0.13	0.28	0.067	0.016
% of estimated CTUIR total emissions, 2000 inventory	<0.00% PM <sub>10</sub>		<0.003%	<0.01%	<0.012%	Not Known

\* HAP, any of a list of 189 EPA recognized hazardous air pollutants.

### **Indirect Effects**

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Indirect effects are those that would take place off-site as a result of the implementation of Alternative B. Primary indirect effects would be fugitive road dust and emissions from employee and commercial vehicle travel to and from the site (Table 3-14).

In order to estimate these effects, this analysis assumes that all employees and vehicle traffic traveling to the site under Alternative B are completely new and are not now traveling to other locations throughout the Reservation.

**Table 3-14  
Alternative B  
Projected Indirect Effect Emissions from Nonpoint Sources**

<b>Source</b>	<b>PM<sub>10</sub></b>	<b>CO</b>	<b>NOx</b>	<b>VOC/HC</b>
<b>Projected Emissions in Tons/Year</b>	23.5	4	4	1
<b>Estimated % of total CTUIR emissions, 1998 inventory</b>	<0.1%	<0.1%	<0.2%	<0.2%

### **Cumulative Effects**

---

It is estimated there would be very low impact on local ambient air quality and no measurable impact on any Class I air shed within 100 miles of the proposed facility under Alternative B.

***There could be a potential cumulative impact on local ambient air quality from increased nonpoint emissions sources (vehicle traffic) associated with proposed commercial development along Highway 331 north of Interstate 84.***

### **Alternative C and D (58 acres)**

Projected air emissions under Alternative C and D include emissions from agricultural sources from the undeveloped portion of the site, and emissions from employee and business travel on the site itself. Employee and business traffic levels would reflect projected employment levels.

### **Direct Effects – Point Sources**

---

Two sources of air emissions have been treated as point sources for the purpose of this analysis:

400,000 ft<sup>2</sup> warehousing business

- Heated by natural gas boiler with an annual consumption based on 3.15E7 Btu/h for 6 months/year and 24 hours/day
- Electric loaders (no propane loaders) used

10,000 ft<sup>2</sup> refueling-truck repair business

- 10,000 ft<sup>2</sup> by 15 ft structure heated by natural gas
- Annual natural gas consumption based on 1.58E6 Btu/h for 6 months/ year and 24 hours per day
- Daily consumption of 7,500 gallons of diesel for 255 days per year

Analysis results for Alternative C and D are presented in Tables 3-15, 3-16 and 3-17.

**Table 3-15  
Alternative C and D**

**Projected Criteria Pollutants from Proposed New Point Sources**

Source	PM <sub>10</sub>	CO	NOx	VOC/HC
<b>Projected Emissions in tons/year</b>	0.5	5.7	3.4	17.7
<b>Estimated % of total CTUIR estimated emissions, 1998</b>	<0.01%	0.1%	0.1%	2.8%

Based on the projected air emissions, an Air Contaminant Discharge Permit (ACDP) would not be required prior to construction.

**Direct Effects- Nonpoint Sources**

Nonpoint direct sources of emissions include employee and service vehicle travel on-site; and construction activity (particulate matter). Total projected on-site emissions are summarized in Table 3-16.

**Table 3-16  
Alternative C and D  
Projected Criteria Pollutants from Proposed New Nonpoint Sources**

Source	PM <sub>10</sub>	PM <sub>2.5</sub>	CO	NOx	VOC/HC	HAP*
<b>Projected Emissions in Tons/year</b>	15	4	2	3	0.7	0.01
<b>Estimated % of total CTUIR estimated emissions, 1998</b>	0.06% PM <sub>10</sub>		<0.1%	<0.1%	<0.12%	N/A

\* HAP is any of a list of 189 EPA recognized hazardous air pollutants.

## Indirect Effects

---

Alternative C and D would result in an increase in PM<sub>10</sub> (Particulate Matter) from increased off-site employee travel on area gravel and paved roads as well as increased carbon monoxide, nitrogen oxide, and volatile organic compounds from employee and service vehicles. In order to estimate these effects, this analysis assumes that all employees and vehicle traffic traveling to the site under Alternative C and D are completely new and are not now traveling to other locations throughout the Reservation.

**Table 3-17**  
**Alternative C and D**  
**Projected Criteria Pollutants from Proposed Indirect Air Emissions**

Source	PM <sub>10</sub>	PM <sub>2.5</sub>	CO	NOx	VOC/HC
Total tons/Year	229	56	32	44	5
Estimated % of total CTUIR estimated emissions, 1998	0.9% PM <sub>10</sub>		0.7%	1%	0.8%

### **Alternative D**

Emissions projected under Alternative D are essentially the same as those for C except for the construction phase. Since Alternative D would involve more ground disturbing activity for construction of the sewer line, there would be additional fugitive dust emissions. The construction phase of Alternative D is assumed to require 12 months, producing estimated emissions of 835 tons of particulate matter (PM<sub>10</sub>, dust). During the operations of the proposed business facilities, Alternatives C and D would be estimated to have the same or nearly the same air emissions.

### **Cumulative Effects**

---

It is estimated there would be very low impact on local ambient air quality and no measurable impact on any Class I air shed within 100 miles of the proposed facility under Alternative C or D.

***There could be a potential cumulative impact on local ambient air quality from increased nonpoint emissions sources (vehicle traffic) associated with proposed commercial development along Highway 331 north of Interstate 84.***

## Alternative E (142 acres)

### Direct Effects

---

Direct impacts include both point and nonpoint on-site sources of criteria pollutants.

### Direct Effects - Point Sources

---

Two sources of air emissions have been treated as point sources for the purpose of this analysis:

#### 400,000 ft<sup>2</sup> warehousing business

- Heated by natural gas boiler with an annual consumption based on 3.15E7 Btu/h for 6 months/year and 24 hours/day
- Electric loaders (no propane loaders) used

#### 10,000 ft<sup>2</sup> refueling-truck repair business

- 10,000 ft<sup>2</sup> by 15 ft structure heated by natural gas
- Annual natural gas consumption based on 1.58E6 Btu/h for 6 months/ year and 24 hours per day
- Daily consumption of 7,500 gallons of diesel for 255 days per year

Analysis results for Alternative E are presented in Tables 3-18, 3-19, and 3-20.

**Table 3-18**  
**Alternative E**  
**Projected Criteria Pollutants from**  
**Proposed Point Sources of Air Emissions**

Source	PM <sub>10</sub>	CO	NOx	VOC/HC
Point Sources, tons/year	0.5	5.7	3.4	23.5
Estimated Emissions as % of estimated 1998 CTUIR emissions	0.01%	0.1%	0.1%	3.8%

### Direct Effects of Nonpoint Sources

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Other direct effects that are not point sources would be emissions from increased on-site vehicular traffic (primarily dust, carbon monoxide, and nitrogen oxides). The results are presented in Table 3-19.

On-site PM<sub>10</sub> is projected to be 35 tons/ year under this alternative. This level would not be regulated as a non-point source since the CTUIR is in an Air Attainment area for NAAQS.

**Table 3-19  
Alternative E  
Projected Direct Effects of Criteria Pollutants from  
Proposed Nonpoint Sources of Air Emissions**

Source	PM <sub>10</sub>	PM <sub>2.5</sub>	CO	NOx	VOC/HC
<b>Total Tons/Year</b>	35	9	5	7	0.8
<b>% of estimated CTUIR emissions, 1998</b>	<0.14% PM <sub>10</sub>		<0.1%	<0.2%	<0.2%

**Indirect Effects**

Indirect (off-site) effects would primarily be emissions resulting from increased traffic (employee and service) off-site. Primary emissions would be dust (Particulate Matter or PM<sub>10</sub> and PM<sub>2.5</sub>), carbon monoxide, nitrogen oxide, and volatile organic compounds. In order to estimate these effects, this analysis assumes that all employees and vehicle traffic traveling to the site under Alternative E are completely new and are not now traveling to other locations throughout the Reservation.

The results are shown in Table 3-20.

**Table 3-20  
Alternative E  
Projected Indirect Effects of Criteria Pollutants for  
Alternative E**

Source	PM <sub>10</sub>	PM <sub>2.5</sub>	CO	NOx	VOC/H C
<b>Totals, tons/year</b>	352	86	49	67	8
<b>Totals as % of 1998 CTUIR estimated Emissions</b>	1.4% of PM <sub>10</sub>		1%	2%	2%

The principal contributors to air emissions are due to mobile sources, i.e., the increase in vehicle traffic by employees and customers using the industrial park and the temporary dust emissions during the construction of the park.

These mobile sources as seen from the summary data in Table 3-21 are major sources of criteria pollutants (PM<sub>10</sub>, CO, NOx, and VOC), although these sources are not regulated under the Clean Air Act as point sources. As previously mentioned the mobile

sources are regulated under Title II of the 1990 Clean Air Act through emissions control devices and cleaner burning fuels.

### **Cumulative Effects**

---

It is expected that there would be a low but perceptible impact on local ambient air quality and no measurable impact on any Class I air shed within 100 miles of the proposed facility under Alternative E.

***There could be a potential cumulative impact on local ambient air quality from increased nonpoint emissions sources (vehicle traffic) associated with proposed commercial development along Highway 331 north of Interstate 84.***

**Table 3-21  
Summary of Effects, Air Quality**

	<b>Alternative A</b>	<b>Alternative B</b>	<b>Alternative C and D</b>	<b>Alternative E</b>
<b>Direct Effects</b>				
<i>Point Sources</i>				
<b>Source</b>	None	None	Warehouse boiler Refueling/ Truck repair	
<b>Type of Emissions</b>	---	---	PM <sub>10</sub> , CO, NO <sub>x</sub> , VOC	
<i>Nonpoint Sources</i>				
<b>Source</b>	On-site Farm Vehicles & Agricultural Activities	On-site commercial & employee vehicle travel On-site Farm Vehicles & Agricultural Activities		
<b>Type of Emissions</b>	PM <sub>10</sub> , CO, NO <sub>x</sub> , VOC, HAP	PM <sub>10</sub> , CO, NO <sub>x</sub> , VOC/HC, HAP		
<b>Do projected emission levels require a permit?</b>	No	No	No	No
<b>Indirect Effects</b>				
<b>Source</b>	Off-site agricultural vehicle travel	Off-site commercial & employee vehicle travel Off-site agricultural vehicle travel		
<b>Type of Emissions</b>	PM <sub>10</sub> , CO, NO <sub>x</sub> , VOC/HC	PM <sub>10</sub> , CO, NO <sub>x</sub> , VOC/HC		

**Table 3-21  
Summary of Effects, Air Quality**

	<b>Alternative A</b>	<b>Alternative B</b>	<b>Alternative C and D</b>	<b>Alternative E</b>
<b>Do projected emission levels require a permit?</b>	No	No	No	No
<b><i>Cumulative Effects</i></b>	<p>Very low impact on local ambient air quality.</p> <p>Contributes less than 0.01% to Reservation air inventory.</p>	<p>Very low impact on local ambient air quality.</p> <p>Estimated increase in Reservation air emissions:</p> <ul style="list-style-type: none"> <li>• 0.1% PM<sub>10</sub></li> <li>• 0.1% CO</li> <li>• 0.2% NO<sub>x</sub></li> <li>• 0.2% VOC/HC</li> </ul>	<p>Very low impact on local ambient air quality.</p> <p>Estimated increase in Reservation air emissions:</p> <ul style="list-style-type: none"> <li>• 1% PM<sub>10</sub></li> <li>• 0.9% CO</li> <li>• 1.2% NO<sub>x</sub></li> <li>• 3.7% VOC/HC</li> </ul>	<p>Low but perceptible impact on local airshed.</p> <p>Estimated increase in Reservation air emissions:</p> <ul style="list-style-type: none"> <li>• 1.2% PM<sub>10</sub></li> <li>• 1.2% CO</li> <li>• 2.3% NO<sub>x</sub></li> <li>• 6% VOC/HC</li> </ul>

## 3.6 Cultural Resources

### **Regulatory Context**

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A variety of laws govern cultural resources especially when federal land, dollars, or permitting is involved in a project. The CTUIR Cultural Resources Protection Program (CRPP) assumed Tribal Historic Preservation Office (THPO) responsibilities in 1996, when CTUIR accepted certain tasks from the State Historic Preservation Office for Tribal lands. The THPO must ensure that laws which protect cultural resources, such as the National Historic Preservation Act, are followed on Tribal lands. The following are regulations which aid in the protection of cultural resources on the reservation.

#### ***National Historic Preservation Act***

The National Historic Preservation Act (NHPA) of 1966, 16 U.S.C. §§ 470-470x-6, is the cornerstone of the federal government's legislated responsibility for the protection of archaeological and historic properties. The NHPA created the National Register of Historic Places, on which "districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, engineering, and culture" (Section 101[a][1][A]) would be placed.

Section 106 of the National Historic Preservation Act requires that Federal agencies must take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register. An undertaking is "a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency" (Section 301 [7]). The NHPA established the State Historic Preservation Offices and Tribal Historic Preservation Offices which review all of these undertakings as they relate to cultural resources.

#### ***Archaeological Resources Protection Act***

The Archaeological Resources Protection Act (ARPA), 16 U.S.C. §§ 470aa-470mm, was passed in 1979. The purpose of this law is to protect archaeological resources, which are defined as "any material remains of past human life or activities which are of archaeological interest" (Sec.3[1]; 43 CFR 7.3[a]), on public land and at least 100 years old.

#### ***Native American Graves Protection and Repatriation Act***

The Native American Graves Protection and Repatriation Act (NAGPRA), 25 U.S.C. §§ 3001-3013, was passed in 1990 to provide for the protection of Native American graves. Any Native American cultural items (human remains, associated and unassociated funerary objects, sacred objects, and objects of cultural patrimony) excavated or

discovered on federal or tribal land after the law passed are to be under the ownership and control of a direct descendant of the individual or the Indian tribe on whose land the items were found. Intentional excavation of human remains and related objects is allowed if a person has an ARPA permit and appropriate consultation with Indian tribes has taken place. If human remains are inadvertently discovered in connection with an activity, the person making the discovery “shall cease the activity in the area of the discovery, make a reasonable effort to protect the items discovered before resuming such activity, and provide notice” (Section 3 [d][1]) to the head of the federal agency or the appropriate Indian tribe.

***Confederated Tribes of the Umatilla Indian Reservation Policy and Procedure Manual for the Repatriation of Ancestral Human Remains and Funerary Objects***

The Confederated Tribes of the Umatilla Indian Reservation Policy and Procedure Manual for the Repatriation of Ancestral Human Remains and Funerary Objects outlines the tribal policy on the American Indian Religious Freedom Act, NAGPRA, access to sacred sites, protection of Indian graves, and the standards and procedures for the discovery and handling of ancestral human remains.

## **Existing Conditions**

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The Tutuilla Presbyterian Church and cemetery, established in 1882, is approximately one-half mile west of the proposed development. Additional cultural resources are located in the vicinity.

Approximately ten acres of the proposed project area had been previously surveyed resulting in the recordation of one historic homestead. Between November 12 and November 14, 2002, CRPP staff conducted a surface survey over a 650 acre area for the proposed project using a 30 meter transect interval (Miller 2003b). This area included approximately 495 acres south of Interstate 84 and approximately 155 acres north of Interstate 84. The area between the east and west bound lanes was not surveyed, nor was the area between each of the off and on ramps and the interstate. The previously surveyed area was not resurveyed (Miller 2003b). The pedestrian surveys identified cultural resources in the project area.

On June 9, 2004 and June 15, 2004 the CRPP conducted shovel testing in the area of the two isolated finds most likely to be impacted by the proposed project. No cultural resources were observed in the probes.

***In 2005, the CRPP conducted an oral history investigation of the proposed project area and concluded that the proposed Coyote***

***Business Park and surrounding area should be considered a Traditional Cultural Property because it is a location associated with the traditional beliefs of a Native American group and its cultural history. The area surrounding the project area is significant because it was and is still being used for religious ceremonies, as a burial area (Tutuilla Church), and habitation area. Additionally, the area surrounding the project area was once used as a camp habitation area, traditional fishing and hunting area, a travel corridor, and social event area.***

***Although the project area and the surrounding area are a Traditional Cultural Property, the CRPP does not wish to nominate it to the National Register of Historic Places at this time.***

~~At this point a traditional cultural property study or inventory of rural historic landscapes has not been conducted; a traditional cultural property study is planned for 2005.~~

~~If the existing power line, which is older than fifty years of age, is to be upgraded then the line would need to be properly recorded on a Section 106 Documentation Form and Level of Effect Form. A formal determination of eligibility would need to be made and mitigation measures developed as necessary in consultation with the Tribal Historic Preservation Officer and the lead federal agency prior to any changes to the line.~~

***On August 22, 2005 the CRPP recommended this segment of the BPA power line not eligible for inclusion in the National Register of Historic Places. On October 2, 2005 the THPO concurred with the findings.***

## **Cultural Resource Impact Analysis**

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### ***Alternative A (no action)***

#### **Direct Impacts**

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This alternative would not introduce new impacts, but previous, ongoing impacts (i.e., dryland farming) would continue. Plowing has a tendency to mix artifacts to approximately 18 to 24 inches below the surface. Plowing also may break artifacts into small pieces. Repeated plowing and trampling can bring artifacts to the surface, which are then subject to collection by people.

Historic features, such as structures and allotment markers, are also at risk from ongoing activities. General neglect would continue to impact structures. Smaller features are at risk of inadvertently

being removed or damaged by machinery such as tractors or bulldozers.

Permeable artifacts, such as fiber and bone, would continue to be subjected to an unknown level of contamination through the application of herbicides, pesticides, and fertilizers.

### **Indirect Effects**

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Cultural resources present in the project area remain at risk of collection and possible removal or damage by farm machinery or animals.

### **Cumulative Effects**

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None.

***Additional commercial development proposed along Highway 331 north of Interstate 84 could compromise the potential integrity of sites in the surrounding area, including traditional cultural properties and rural historic landscapes.***

### ***Alternative B (21 acres)***

### **Direct Impact**

---

The proposed area of development would impact the area of one isolated find. This isolated find has been tested and a subsurface component was not located.

The undeveloped portion of the project area would continue to be impacted by the same impact agents identified under Alternative A. Permeable artifacts may be subject to additional contaminating agents depending on the types of facilities constructed.

### **Indirect Impact**

---

The development would bring additional people to the area. Employees of the proposed development may explore the land around the jobsite on breaks and could potentially disturb cultural resource sites.

Shishnamíshpa (Tutuilla Church and Cemetery,) a known traditional cultural property, is located less than one mile west of the proposed project. The proposed project would likely be visible from this site (see Section 3.7). For audible levels of noise at this site, see Section 3.8.

If any nearby cultural resources are eligible for inclusion in the National Register and rely on aspects of integrity such as setting and feeling, the proposed development could potentially adversely affect the property's eligibility because of the introduction of a different land use.

### **Cumulative Impact**

---

The development of any of the action alternatives would be a change in the rural nature of the landscape. Sites that could otherwise be included in the National Register due to their representation of rural land uses would be less likely to qualify since the setting would no longer be as rural as it was historically. However, there have been developments in the project vicinity that may have already compromised the integrity of the rural landscape.

Additional development, ***including additional commercial development proposed along Highway 331 north of Interstate 84***, would continue to compromise the potential integrity of sites in the surrounding area, including traditional cultural properties and rural historic landscapes.

### ***Alternative C and D (58 acres)***

#### **Direct Impacts**

---

The proposed area of development would impact two isolated finds both of which have been tested and no subsurface component was identified. Depending on the placement of the water and sewer lines, one more isolated find which has not been tested (for a total of three isolated finds) could be affected.

Alternatives C and D may further contaminate permeable artifacts if new pollutants are released from the proposed refueling and mechanical repair station. Permeable artifacts may be subject to additional contaminating agents depending on the types of facilities constructed.

The undeveloped portion of the project area in Alternatives C and D would continue to be impacted by the same impact agents identified under Alternative A.

~~There would be a direct impact on the historical integrity of the existing power line from the proposed replacement of certain of the support structures with newer support structures. The extent of this change would need to be determined in conjunction with the Section 106 Documentation Form and Level of Effect Form described in Section 3.6.~~

### **Indirect Impact**

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Same as Alternative B.

### **Cumulative Impact**

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Same as Alternative B.

### ***Alternative E (142 acres)***

### **Direct Impact**

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The proposed area of development would impact four isolated finds. Two of the isolated finds have been tested and no subsurface component was identified. These two isolated finds are considered not eligible for inclusion in the National Register. The two remaining isolated finds have not been tested. Depending on the type of work proposed in the area of the two untested isolated finds, additional cultural resource work may be required. Depending on the placement of the water and sewer lines, one additional isolated find (for a total of five isolated finds) may be affected.

The undeveloped portion of the project area in Alternative E would continue to be impacted by the same impact agents identified under Alternative A. Permeable artifacts may be subject to additional contaminating agents depending on the types of facilities constructed including the proposed refueling and mechanical repair station.

~~There would be a direct impact on the historical integrity of the existing power line from the proposed replacement of certain of the support structures with newer support structures. The extent of this change would need to be determined in conjunction with the Section 106 Documentation Form and Level of Effect Form described in Section 3.6.~~

### **Indirect Impact**

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Same as Alternative B.

### **Cumulative Impact**

---

Same as Alternative B.

## 3.7 Visual Environment

### Regulatory Context

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Visual environment is taken into account in designation of places considered for nomination to the National Register of Historic Places and also within the CTUIR Land Development Code during review of site plans.

### Historical Context

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The proposed project area has seen a number of changes to the visual environment over the past fifty years. The construction of Interstate 84, Bonneville Power Administration transmission lines, Arrowhead Travel Plaza, and Wildhorse Resort have all resulted in a more industrial and commercial visual environment. This includes more lighting, which affects the nighttime sky visibility in the project area than was the case when those parcels were solely in agricultural and local transportation usage.

### Existing Condition

---

Currently, the subject parcel blends into the overall pattern of agricultural and rural residential usage south of Interstate 84. The two commercial uses adjacent to the parcel on the north provide a break in this pattern, which is more similar to the commercial development north of the Interstate (Arrowhead Travel Plaza, Cody's Restaurant, a high rise commercial sign for Wildhorse an unused commercial building to the northeast of it, and Wildhorse Resort.) The Interstate itself is the predominant visual intrusion into the agricultural vistas in the area, which are regularly broken by a grid pattern of roads. The Bonneville Power Administration high voltage power lines that cross the parcel are another intrusion into this agricultural usage and mark the property as part of a power corridor that traverses the landscape for miles.

The Tutuilla Church and cemetery, located approximately one mile west of the proposed project area, is an historic property that may be affected by changes in the visual environment. Wildhorse Resort, approximately one mile northeast of the proposed project area, may also be sensitive to changes in the visual environment. Finally, area residences may be sensitive to changes in the visual environment (see Section 3.2 for location of residences in the adjacent area).

### Visual Environment Impact Analysis

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#### ***Methodology***

A series of photos was taken to document the baseline visual surroundings of the proposed project area. The photos were taken on

September 17, 2003. The first set of photos was taken from points at a “near distance” to the site, or adjacent to it (“Near Distance”) (Figures 3-14, 3-15, 3-16, 3-17, 3-18). The second set was taken from ¼ mile to 1 mile away (“Mid Distance”) (Figures 3-19, 3-20, 3-21, 3-22, 3-23). The third set was taken from between two and six miles away (“Far Distance”) (Figures 3-24, 3-25, 3-26, 3-27).

It is assumed that the buildings constructed under Alternative B would be in the 5,000-20,000 square foot range at a height of approximately 15-30 feet. Alternative C, D and E assume a warehouse of approximately 400,000 square feet at a height of 30-35 feet in addition to buildings in the 5,000-20,000 square foot range.

### **Near Distance**

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The Near Distance viewpoints show that the overall visual environment in the project area is agricultural with some infrastructure (power lines, utility buildings, and roads.)

### **Mid-Distance**

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From a distance of ¼ to 1 mile, the landscape is dominated by agricultural uses mixed with some commercial, utility, and residential uses.

### **Far Distance**

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From a distance of two to six miles, agricultural uses predominate although the Interstate is very prominent in the landscape. Views from the south and west are included; the site is not visible from the north at this distance due to topography (Table 3-22).

**Near Distance: Adjacent to Proposed Site**



**Figure 3-14** Facing west from the Tribal Environmental Recovery Facility (TERF)/ODOT access road point on South Market Road, located near Exit 216 of I-84. The view is dominated by agricultural fields. The TERF facility is barely visible in the far right of the picture.

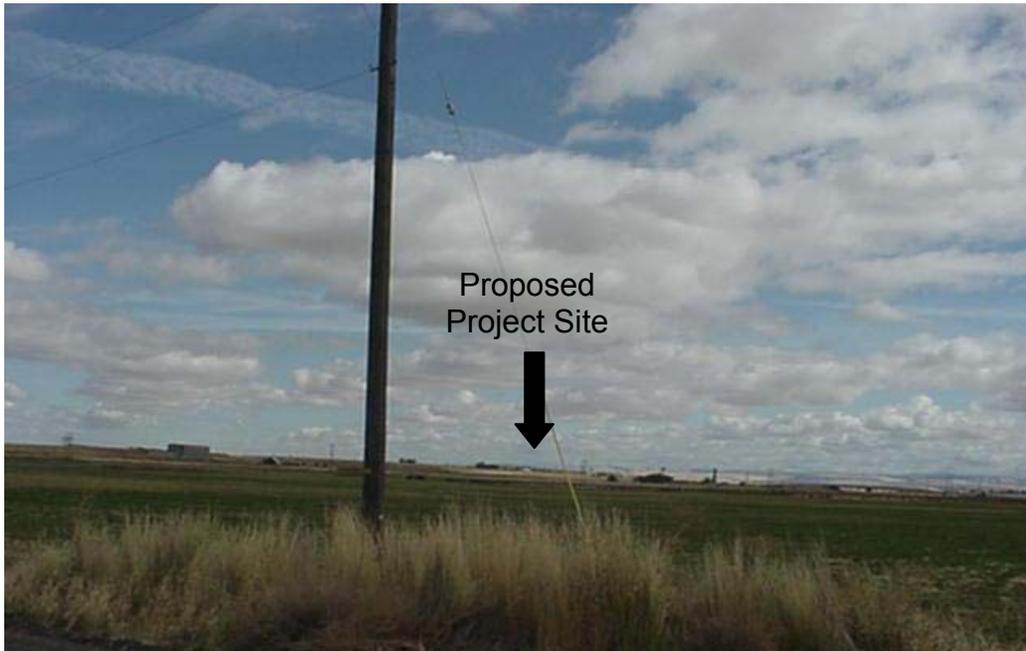


**Figure 3-15** Facing northwest. Located at the corner of South Market Road and Tutuilla Church Road by power pole T2N R33E Sec. 21. The view is predominately agricultural with BPA power lines in the background.

**Near Distance: Adjacent to Proposed Site**

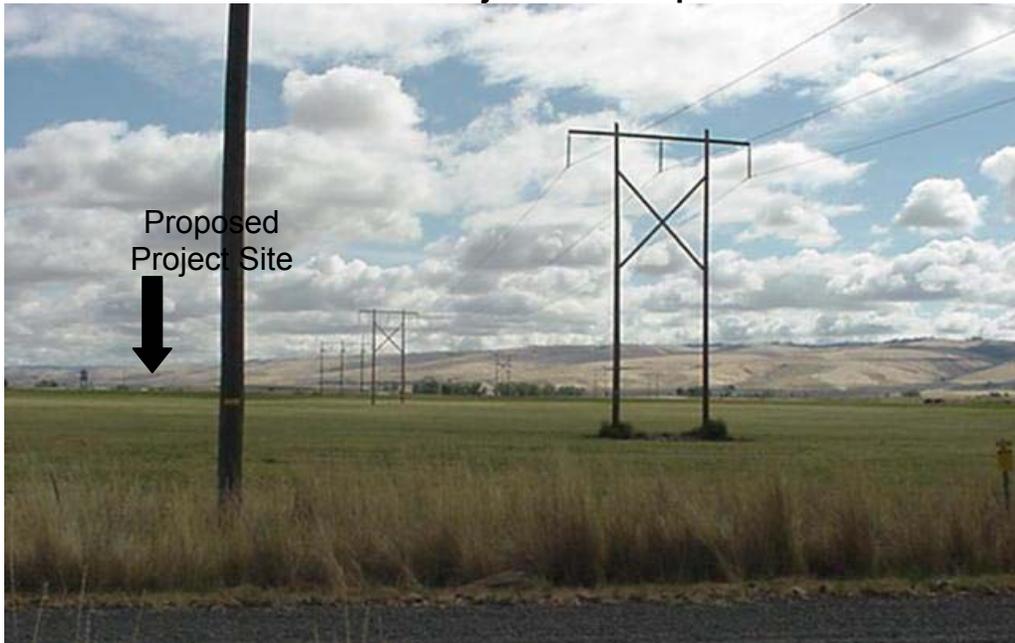


**Figure 3-16** Facing northeast from 46274 Tutuilla Church Road driveway (private residence). A Tribal allotment (cattle corrals seen here) dominates this scene. Background is an agricultural field (proposed project site) and BPA power lines.



**Figure 3-17** Facing northeast from intersection of Billy Road and Tutuilla Church Road. Agricultural field in foreground and Tribal Environmental Recovery Facility and ODOT buildings in the background.

**Near Distance: Adjacent to Proposed Site**



**Figure 3-18** Facing east from near power line easement on Township 2N Range 33E Sec. 20 on Billy Road. View dominated by agricultural fields (proposed project site) and BPA power lines.

**Mid-Distance: ¼ to 1 Mile from Proposed Site**



**Figure 3-19** Facing southwest from Arrowhead Travel Plaza. Distance is approximately ¼ mile from proposed project. Highway 331 and the parking lot of Arrowhead dominate the view. Pacific Power and Umatilla Electric power lines (above), high rise sign, and agricultural use in background.

**Mid-Distance: ¼ to 1 Mile from Proposed Site**



**Figure 3-20** Facing northeast, from Tutuilla Church Steps. View dominated by fields, residences, shrubs, power lines, and trees.

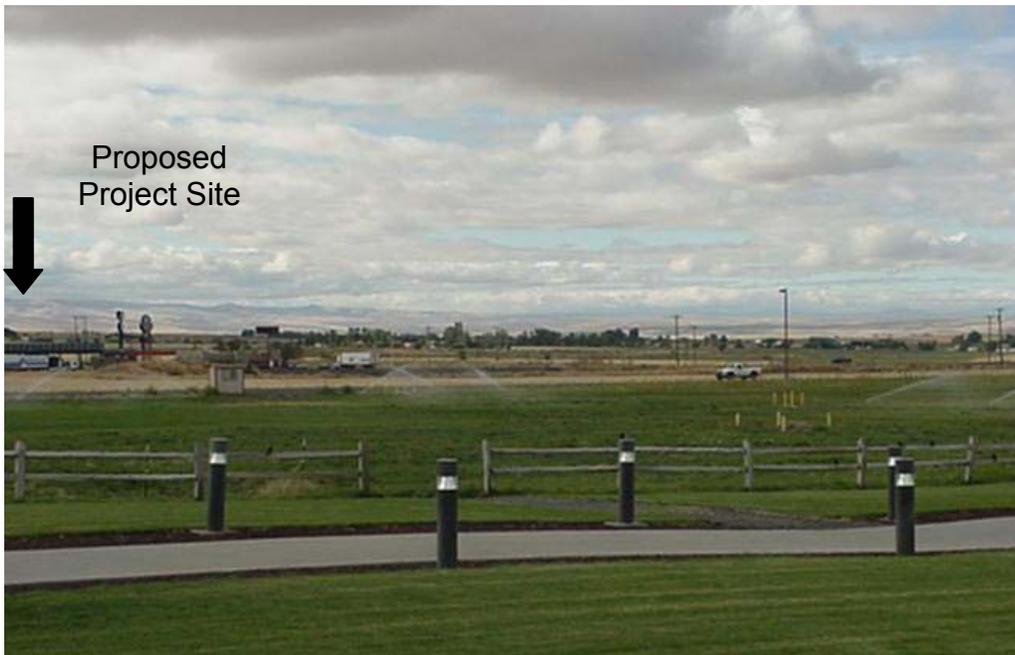


**Figure 3-21** Facing southeast from alongside Interstate 84. Photo dominated by agricultural field, Interstate 84, and Blue Mountains in the distance.

**Mid-Distance: ¼ to 1 Mile from Proposed Site**



**Figure 3-22** Facing west across Interstate 84, ½ mile east of Exit 216 on Kash Kash Road. View predominately cottonwood trees, fields between Kash Kash road and I-84, and fence along I-84.



**Figure 3-23** Picture taken on the road leading into Wildhorse Casino Resort. Facing southwest toward project site. View dominated by commercial use.

**Far-Distance: approximately 2-6 miles from Proposed Site**

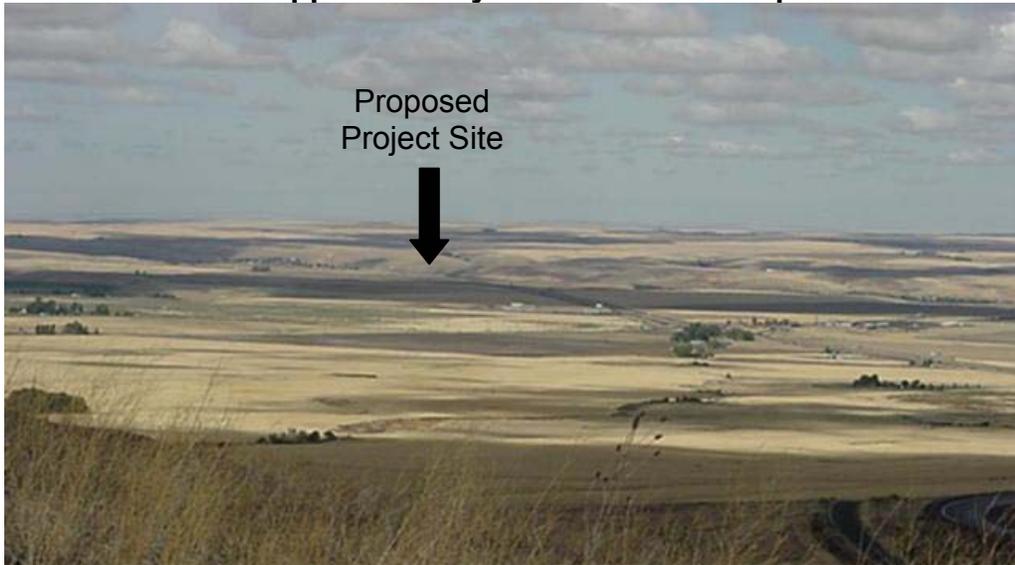


**Figure 3-24** Facing north from private residence on South Market Road. View dominated by agricultural field.



**Figure 3-25** Facing northwest from a point 2.1 miles southeast of site along I-84. View dominated by agricultural fields, residence, trees, Wildhorse Resort, and I-84.

**Far-Distance: approximately 2-6 miles from Proposed Site**



**Figure 3-26** Facing northwest from a point 4.0 miles from Exit 216 along I-84. Predominately agricultural fields with scattered residences, Wildhorse Resort and Arrowhead Travel Plaza, and I-84.



**Figure 3-27** Facing northeast from 45400 Lloyd Road (private residence), approximately 3 miles southwest of proposed site. View dominated by agriculture fields, residents, trees, and roads.

The property is generally not visible from North for distance locations (Mission), west (I-84 or Tutuilla Church Road) beyond two miles due to topography.

**Table 3-22  
Projected Visibility of Proposed Project**

Near Distance		Mid Distance		Far Distance	
Location	Visibility	Location	Visibility	Location	Visibility
3-14	Highly Visible	3-19	Visible	3-24	Visible
3-15	Highly Visible	3-20	Visible	3-25	Visible
3-16	Visible	3-21	Not Visible	3-26	Visible
3-17	Visible	3-22	Not Visible	3-27	Visible
3-18	Visible	3-23	Visible		

***Alternative A (No Action)***

**Direct Impact**

There would be no direct change in the visual environment as a result of Alternative A. The visual environment would not be changed from its present condition as a result of business development at the proposed project site.

**Indirect and Cumulative Impact**

Continuing trends of residential development in the project vicinity would be likely to continue at a moderate to slow pace. Gradually the project vicinity would likely assume more of a rural residential and less of an agricultural character as more homes are constructed. This change is assumed to be gradual and long-term. Changes in the night-time visual environment would likely be modest and gradual as residential growth occurs on a scattered basis as proposed by and anticipated in the Mission Community Plan. If proposed residential development on the 80 acre parcel immediately south of the proposed project site and south of Tutuilla Church Road does occur, there would be a more marked change in the visual environment both during the daytime and night time.

***There could be increased visual impact on the area resulting from proposed commercial development along Highway 331 north of Interstate 84.***

***Alternative B (21 acres)***

**Direct Impact (Adjacent properties)**

The proposed action calls for a vegetated 30' buffer strip planted along South Market Road and Tutuilla Church Road. This buffer strip would partially mitigate the visual impact of the action alternatives as far travelers driving along Tutuilla Church Road and South Market Road are concerned. It would not provide screening for views from the west of the parcel (Tutuilla Church) and it would not obscure the development from travelers descending I-84 from the east. Although this buffer would be planted in shrubs and trees (with an expected initial height of three to seven feet), and may also involve a constructed berm, it would likely be some years before the shrubs and trees grew to their mature height and provided maximum screening.

The proposed buildings would be visible from locations in the near distance (points 3.7.2, 3.7.3, 3.7.4, 3.7.5, and 3.7.6). There would be a change in the current visual condition, which would primarily be visible to area residents traveling north and south on South Market Road, and to travelers on Interstate 84.

Approximately 21 acres would have an industrial (buildings and parking areas) appearance instead of an agricultural appearance. Twenty one acres are approximately 5% of the parcel bounded by the bluff that the Tribal Environmental Recovery Facility (TERF) is on to the north, and Tutuilla Church Road to the south.

Facilities proposed for construction under Alternative B would likely be visible from residences in the vicinity, depending on the season, existing vegetation, and growth of new vegetation in landscaping planned for the site.

**Indirect Impact (1/4 mile to 1 mile)**

The proposed project would impact (be visible from) the mid-distance (1/4 mile to 1 mile) visual environment. Facilities may be visible from Tutuilla Church, but the projected size of the buildings as compared to other elements of the visual environment in the area would be such that the facilities would not be likely to dominate the view from Tutuilla Church. Alternative B would not be visible from Wildhorse Resort.

There may be increased light pollution visible in the mid-distance from lights at the facilities.

### **Cumulative Impact (2-6 miles)**

The cumulative impact would impact the far distance, particularly for travelers approaching westbound down Cabbage Hill on I-84. Alternative B would continue a trend of urbanization occurring in the I-84 corridor of the Reservation and visible in the form of Wildhorse Resort and Arrowhead Travel Plaza.

There may be increased light pollution visible in the far distance from lights at the facilities.

***There could be increased visual impact on the area resulting from proposed commercial development along Highway 331 north of Interstate 84.***

### ***Alternative C and D (58 acres)***

#### **Direct Impact (Adjacent properties)**

The proposed action calls for a vegetated 30' buffer strip to be planted along South Market Road and Tutuilla Church Road. This buffer strip would partially mitigate the visual impact of the action alternatives for area residents and travelers driving along Tutuilla Church Road and South Market Road. It would not provide screening for views from the west of the parcel (from Tutuilla Church, for example) and it would not obscure the development from travelers descending I-84 from the east. Although this buffer would be planted in shrubs and trees (with an expected initial height of three to seven feet), and may also involve a constructed berm, it would likely be some years before the shrubs and trees grew to their mature height and provided maximum screening.

The proposed buildings include an "anchor tenant" which would likely be some type of warehouse facility. This facility would likely be approximately 30-40 feet high and have a footprint of up to 400,000 square feet. This facility would be visible from locations in the near distance.

Approximately 58 acres would have an industrial (warehouses and parking areas) appearance instead of an agricultural appearance. 58 acres is 15% of the parcel bounded on the north by the bluff the

Tribal Environmental Recovery Facility (TERF) is on, and on the south by Tutuilla Church Road.

There may be increased light pollution at night from lights at the facilities at the near distance.

There would be a change in the visual appearance of the BPA power line crossing the site. The power support structures would be higher (110' instead of 60'), although they would occupy a more condensed area (the new structures would support three wires on a single pole instead of on two poles.) The visual impact of this change is difficult to evaluate. See Figure 3-28 for an example of the appearance of the steel monopoles, and see Figure 3-18 or the appearance of the wooden poles they would be replacing.



**Figure 3-28** Example of steel monopole power line supports

### **Indirect Impact (¼ mile to 1 mile)**

---

Alternative C and D would likely be visible from Tutuilla Church and area residences. It would be difficult to see from Wildhorse Resort but may be visible from some areas of the parking lot and from hills on the golf course. Alternative C and D would be visible at most mid-distance locations.

The presence of the high voltage power lines across the parcel, the ODOT gravel shed, the TERF operation, and I-84 have already created an industrial incursion into the otherwise agricultural visual environment of the mid-distance.

There may be increased light pollution at night from lights at the facilities at the mid distance.

### **Cumulative Impact (2-6 miles)**

---

Alternatives C and D would be visible from far distance locations south, west, and east of the parcel. Alternatives C and D would continue a trend of urbanization occurring in the I-84 corridor of the Reservation and visible in the form of Wildhorse Resort and Arrowhead Travel Plaza. The cumulative impact would be most noticeable from travelers descending I-84 westbound from Cabbage Hill and for area residents traveling in the vicinity.

There may be increased light pollution at night from lights at the facilities at the far distance.

***There could be increased visual impact on the area resulting from proposed commercial development along Highway 331 north of Interstate 84.***

### **Alternative E (142 acres)**

#### **Direct Impact (Adjacent properties)**

---

Same as Alternative C and D, with the following exception: Approximately 142 acres would have an industrial (warehouse and parking area) appearance instead of an agricultural appearance. 142 acres is approximately 34% of the parcel bounded by the bluff that the Tribal Environmental Recovery Facility (TERF) is on to the north, and Tutuilla Church Road to the south.

#### **Indirect Impact (¼ mile to 1 mile)**

---

Alternative E would be visible from Tutuilla Church and area residences. It would be difficult to see from Wildhorse Resort but may be visible from some areas of the parking lot and from hills on the golf course. Alternative E would be visible at most mid-distance locations.

The presence of the high voltage power lines across the parcel, the ODOT gravel shed, the TERF operation, and I-84 have already created an industrial incursion into the otherwise agricultural visual environment of the mid-distance.

There may be increased light pollution at night from lights at the facilities at the mid distance.

## **Cumulative Impact**

---

Alternative E would be visible from far distance locations south, west, and east of the parcel. Alternative E would continue a trend of urbanization occurring in the I-84 corridor of the Reservation and visible in the form of Wildhorse Resort and Arrowhead Travel Plaza. The cumulative impact would be most noticeable from travelers descending I-84 westbound from Cabbage Hill and for area residents traveling in the vicinity.

There may be increased light pollution at night from lights at the facilities at the far distance.

***There could be increased visual impact on the area resulting from proposed commercial development along Highway 331 north of Interstate 84.***

## 3.8 Noise

### Regulatory Context

The CTUIR does not have a noise ordinance. Umatilla County adopts the standards of the State of Oregon with regard to noise (Table 3-23). In the following analysis, baseline noise levels at the project site are compared to the standards of the State of Oregon not because those standards apply, but to provide a frame of reference.

**Table 3-23**  
**State of Oregon Industrial Noise Standards**  
**New Industrial and Commercial Noise Source Standards**  
**Allowable Statistical Noise Levels in Any One Hour**

7 am – 10 pm	10 pm – 7am
Log <sub>50</sub> – 55 dBA	Log <sub>50</sub> – 50 dBA
Log <sub>10</sub> – 60 dBA	Log <sub>10</sub> – 55 dBA
Log <sub>1</sub> - 75 dBA	Log <sub>1</sub> – 60 dBA

Source: Oregon Administrative Rules 340-35-035

### Existing Condition

#### **Noise Sources and Levels**

Primary noise sources for the subject property and surround area include:

- Interstate 84
- Vehicular traffic on area roads
- Agricultural activity
- Wind

A sampling of ambient (background) noise at the project site in 2004 showed the following noise levels. The levels are expressed in decibels. There are different ways to weight decibels, and the weighting used here is “A” which conforms approximately to the response of the human ear. (Table 3-24)

**Table 3-24  
Ambient Noise Readings**

<b>Noise Reading Location</b>	<b>Weather Condition</b>	<b>Noise Level</b>
ODOT gravel shed	Light wind	78-59.2 dBA
Intersection of South Market Road and I-84	Light wind	50.8-63.3 dBA
Near overhead power lines, 2000 feet from Market Road	No wind	40.9 dBA-43.2 dBA
Corner of Tutuilla Church Road and South Market Road	Light wind	67.8 dBA-79.4 dBA

Source: SAFER Services Corporation, Acoustic Noise Report for Confederated Tribes of the Umatilla Indian Reservation, 2004.

***Noise-sensitive properties***

Noise-sensitive properties in the project vicinity are assumed to include:

- Residences, particularly those on Tutuilla Church Road south of the proposed project site and west of Billy Road west of the proposed project site
- Tutuilla Church, south and west of the proposed project site

Due to the industrial nature of operations at the Tribal Environmental Recovery Facility (Tribal Transfer Station) and at the ODOT gravel shed adjacent to the proposed project site, these uses are not assumed to be noise-sensitive properties. The Indian allotment located directly south of the proposed project site, which is used for livestock grazing and feeding, is not assumed to be a noise-sensitive property.

**Impact Analysis**

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***Methodology***

Actual field measured data were collected in 2004 on environmental noise on the proposed project site. Field testing consisted of collecting twenty minutes of data at two locations, ten minutes of octave band data and ten minutes of broad band strip chart sound pressure levels. The collected data were recorded in graphs, which were then processed and analyzed and used to generate the acoustic profile maps.

### **Projected Noise Levels**

A noise level of 80 dBA was assumed as a standard industrial noise level. Measured noise levels from a comparable warehouse operation in Pasco, Washington showed a peak noise level of 71 dBA. Therefore, 80 dBA is a conservative assumption and may be higher than would actually be anticipated from the warehouse and similar uses proposed for Coyote Business Park.

Absent detailed drawings of specific business structures constructed under Alternatives B, C, D, and E, a further assumption was made that the noise source would be located on the project boundaries. The actual noise sources for the alternatives would be located within the interior project boundaries due to setback requirements. Noise levels degrade over distance, and thus this assumption places the noise source closer to residents and travelers outside the boundaries of the proposed project site than would actually be the case. The analysis results thus overstate the noise impact.

Most sound associated with similar industrial facilities is low frequency noise, typically found with engines, machinery, and electrical transformers.

### **Alternative A (No Action)**

#### **Direct Impact**

---

Ambient levels would be the same as in the existing condition, and no impact would be anticipated.

#### **Indirect Impact**

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No impact anticipated.

#### **Cumulative Impact**

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Ambient noise levels would increase over time as a result of increases in traffic volumes that are anticipated on Interstate 84 and other area roads due to projected overall population growth on the Reservation (CTUIR Transportation System Plan, 2003).

***There could be a potential increase in the ambient noise level over time from vehicle traffic associated with potential commercial development proposed along Highway 331 north of Interstate 84.***

### **Alternative B (21 acres)**

Projected sound levels are illustrated in Figure 3-32.

### **Direct Impact**

---

The projected noise levels range from 75 dBA very close to the project boundary out to 55 dBA at a distance from 586 feet from the project boundary, which includes the intersection of Tutuilla Church Road and South Market Road and the Interstate 84-Highway 331 intersection. This area does not include any residences.

The proposed noise levels would not exceed the State of Oregon noise standards for industrial areas (see Table 3-23).

### **Indirect Impact**

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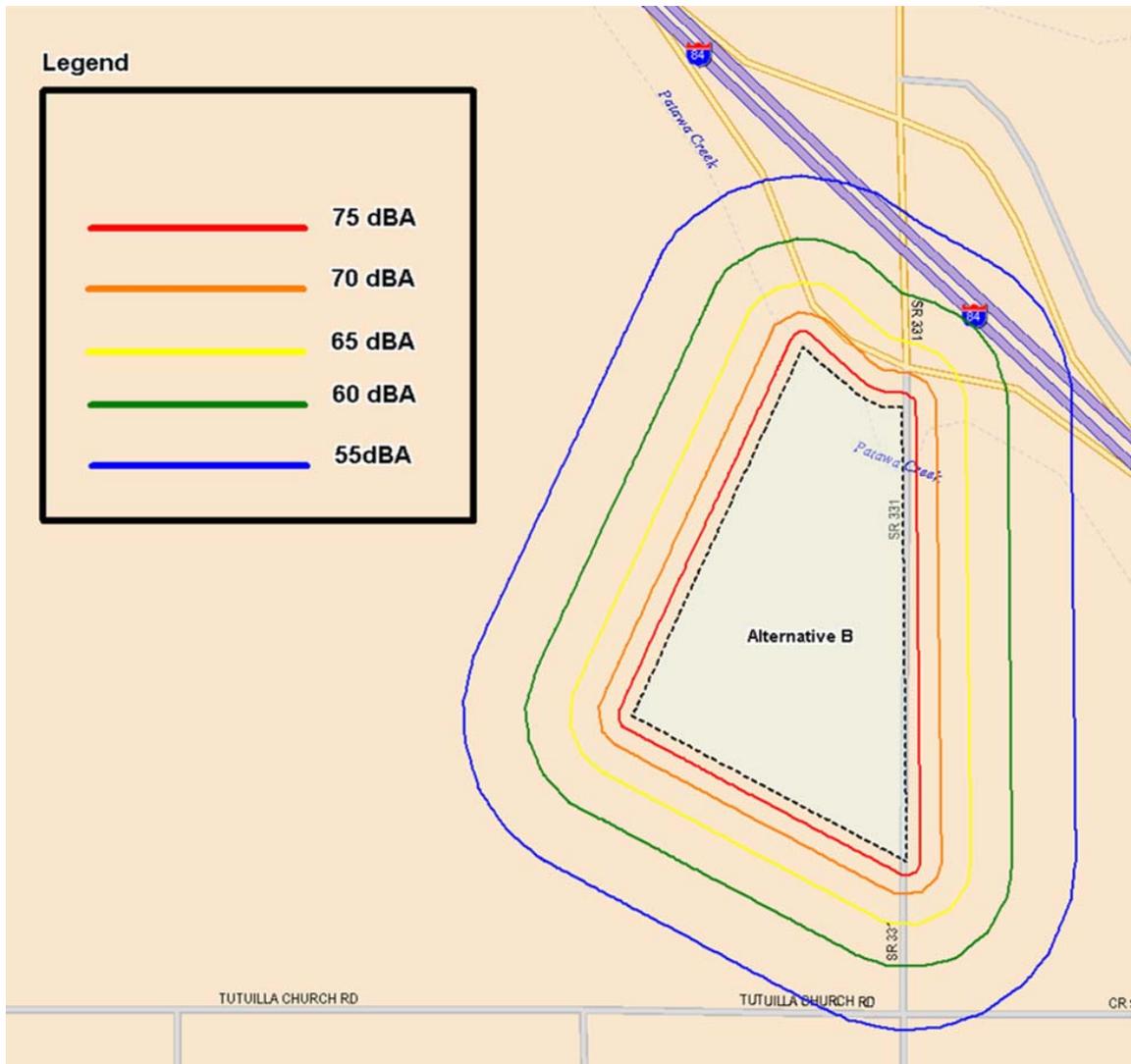
No anticipated impact.

### **Cumulative Impact**

---

The projected noise levels would be in addition to existing noise levels from traffic along Interstate 84 and South Market Road. The resulting cumulative noise level is difficult to predict with certainty. It is possible that there may be some increase in ambient noise level in the project vicinity. Due to sound's dissipation over distance, and the distances involved, it is unlikely that the closest noise-sensitive properties (area residences south of South Market Road or Tutuilla Church) would be impacted.

***There could be a potential increase in the ambient noise level over time from vehicle traffic associated with potential commercial development proposed along Highway 331 north of Interstate 84.***



**Figure 3-30** Projected Sound Levels from Alternative B

**Alternatives C and D (58 acres)**

**Direct Impact**

The projected noise levels range from 75 dBA very close to the project boundary out to 55 dBA at a distance from 586 feet from the project boundary, which includes the intersection of Tutuilla Church Road and South Market Road, the Interstate 84-Highway 331 intersection, and a larger portion of the Interstate (Figure 3-30). This area does not include any residences.

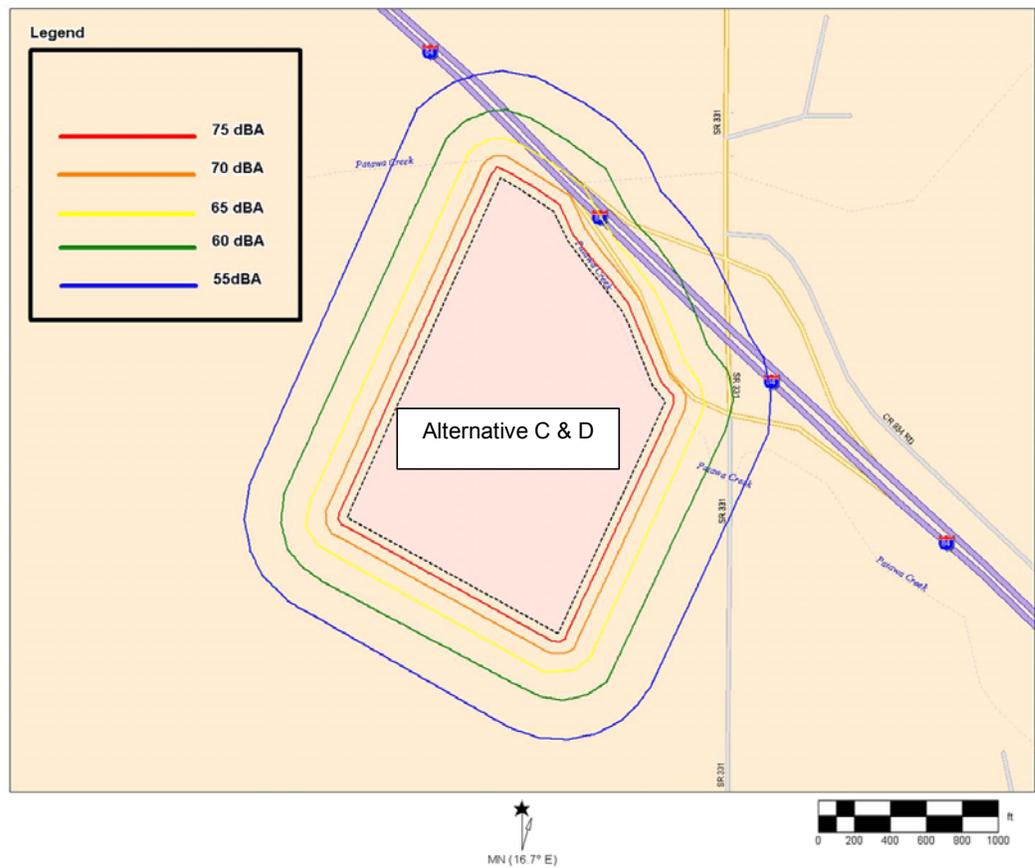
The proposed noise levels do not exceed the State of Oregon noise standards for industrial areas (see Table 3-23).

### Indirect Impact

No impact anticipated.

### Cumulative Impact

The projected noise levels would be in addition to existing noise levels from traffic along Interstate 84 and South Market Road. It is possible that there may be some increase in ambient noise level in the project vicinity, of a scale greater than that in Alternative B due to the increased size of the development and increased in projected traffic. Due to sound's dissipation over distance, and the distances involved, it is unlikely that the closest noise-sensitive properties (area residences south of South Market Road or Tutuilla Church) would be impacted.



**Figure 3.30** Projected Sound Levels from Alternatives C and D

***There could be a potential increase in the ambient noise level over time from vehicle traffic associated with potential commercial development proposed along Highway 331 north of Interstate 84.***

## **Alternative E (142 acres)**

### **Direct Impact**

The projected noise levels range from 75 dBA very close to the project boundary out to 55 dBA at a distance from 586 feet from the project boundary, which includes which includes the intersection of Tutuilla Church Road and South Market Road, the Interstate 84-Highway 331 intersection, and a larger portion of the Interstate (Figure 3-31). This area does not include any residences or other noise-sensitive properties.

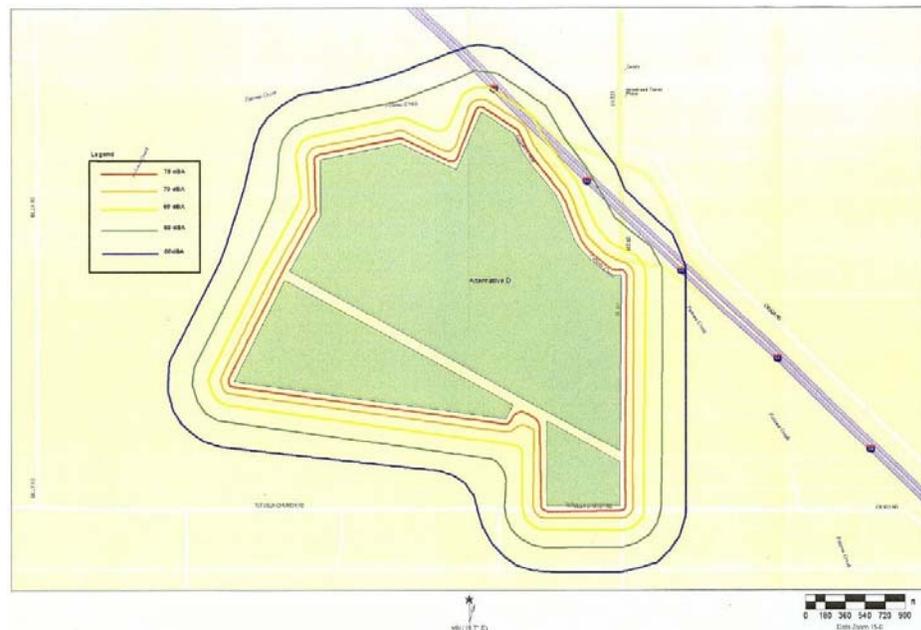
The proposed noise levels do not exceed the State of Oregon noise standards for industrial areas (see Table 3-23).

### **Indirect Impact**

None.

### **Cumulative Impact**

Same as Alternatives C and D.



**Figure 3-31** Projected Sound Levels from Alternative E

## 3.9 Transportation

### Regulatory Context

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The roads located within or providing access directly to the Umatilla Indian Reservation generally fall under these jurisdictions: state, county and BIA.

State roads are subject to regulation by the Oregon Transportation Commission through the Oregon Department of Transportation (ODOT). Relevant planning documents include the Oregon Highway Plan (1999). Improvements and changes to state roads recommended in this document would be subject to ODOT approval, funding, and implementation.

The CUTIR has developed a Transportation System Plan (TSP) (2001) for Reservation roads which describes the existing road network and which prioritizes future road improvements.

### Existing Conditions

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As shown in Figure 3-32, the proposed project area is located adjacent to two major Oregon Department of Transportation (ODOT) roadway facilities, Interstate 84 and Highway 331 (Umatilla-Mission Highway).

#### *Roads in Project Vicinity*

##### **Interstate 84**

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Interstate 84 (I-84) is a four-lane freeway running west through Pendleton and east towards the Blue Mountain Range towards La Grande. The I-84 ramp terminals at the Highway 331 interchange all have a single travel lane with flared approaches on the off-ramps so that right-turning vehicles are able to pass-by one or two vehicles waiting to make a left-turn.

##### **Oregon State Highway 331**

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Highway 331 is classified as a District Highway and provides a direct connection between I-84 and OR 11 to the north for through traffic users as well as connecting to the Mission Community area.

##### **South Market Road**

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South Market Road, a paved road also known as Umatilla County Road No.1025, is a minor collector providing access to rural residences and agricultural land south of the I-84. South Market Road turns into State Highway 331 at Interstate 84, which then has access to the east and west on the Interstate highway, as well as access to State Highway 11 to the north.

Table 3-25 provides a summary of the roads in the project vicinity.

<b>Roadway</b>	<b>Class-ification</b>	<b>Cross Section</b>	<b>Jurisdiction</b>	<b>Posted Speed</b>	<b>Side-walks</b>	<b>Bicycle Roads</b>
I-84	Interstate Highway	4-Lanes	Federal Highway Administration; ODOT	65 mph	No	No
Highway 331	District Highway	2-Lanes	ODOT	45 mph	No	No
South Market Road	Minor Collector	2-Lanes	Umatilla County	55 mph	No	No
Kash Kash Road	Local	2-Lanes	Umatilla County	NP*	No	No
Service Road	Public Use Road	2-Lanes	ODOT/ CTUIR	NP*	No	No

- Note: NP- No posted speed limit.

### **Tutuilla Road**

Tutuilla Road, a paved road also known as Umatilla County Road No. 932, intersects South Market Road at the southeast corner of the subject property and is located on the south side of the property.

### **Gravel Shed Access Road**

The service road accessing the ODOT maintenance area and CTUIR waste transfer station is a narrow two-lane paved roadway. Currently, this road is the only paved road providing access to the subject property via an entrance on South Market Road. The road is owned and maintained by ODOT up to the gravel shed turnoff. From there, the road is owned and maintained by CTUIR.

### **Billy Road**

Billy Road is a gravel road also known as Umatilla County Road No. 1043 and borders the property on the west side. There is farm access to the west of the property from Billy Road.

### **Kash Kash Road**

Kash Kash Road borders the north side of I-84 in the northeast corner of the interchange and intersects Highway 331 just north of the westbound off-ramps of the interstate. This road provides access for rural residences, a church, and farming activity.

### ***Traffic Operations in Project Vicinity***

A traffic study was conducted in 2004 for the proposed project (Kittelson 2004). Traffic operations of intersections and roadways are defined by level-of-service (LOS) and/or the volume-to-capacity (v/c) ratio. Level-of-service is a letter description ranging from LOS "A" through "F". LOS "A" indicates traffic flow is relatively free flowing with little delay, whereby LOS "F" indicates the intersection is saturated and delays are extensive. For those intersections and roadways on the reservation that are not under the jurisdiction of the county or state, the CTUIR supports a LOS "D" or better rating for peak hour traffic conditions. This is reflected in the adopted CTUIR Transportation System Plan (CTUIR 2001).

The v/c ratio is a measurement of how much capacity is being utilized by traffic during any particular time period along a roadway or at an intersection. It is determined by dividing traffic demand by the facility's capacity.

Actual traffic counts were observed at four points in the proposed project vicinity, two to the north (at the intersection of Kash Kash Road and Highway 331 and at the I-84 westbound on/off ramps); and two to the south (at the I-84 eastbound on/off ramps and at the intersection of the ODOT/ TERF access road and South Market Road.) (Figure 3-32) Traffic volumes, level of service, and v/c ratios are summarized in Figure 3-33.

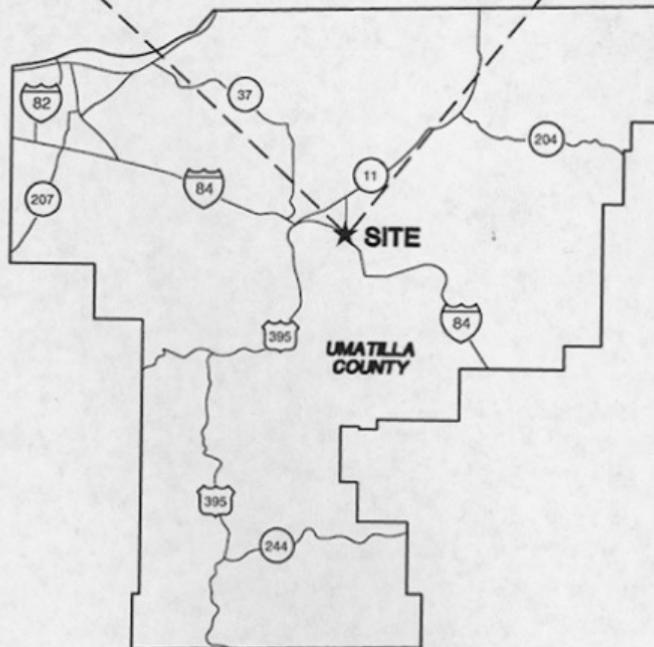
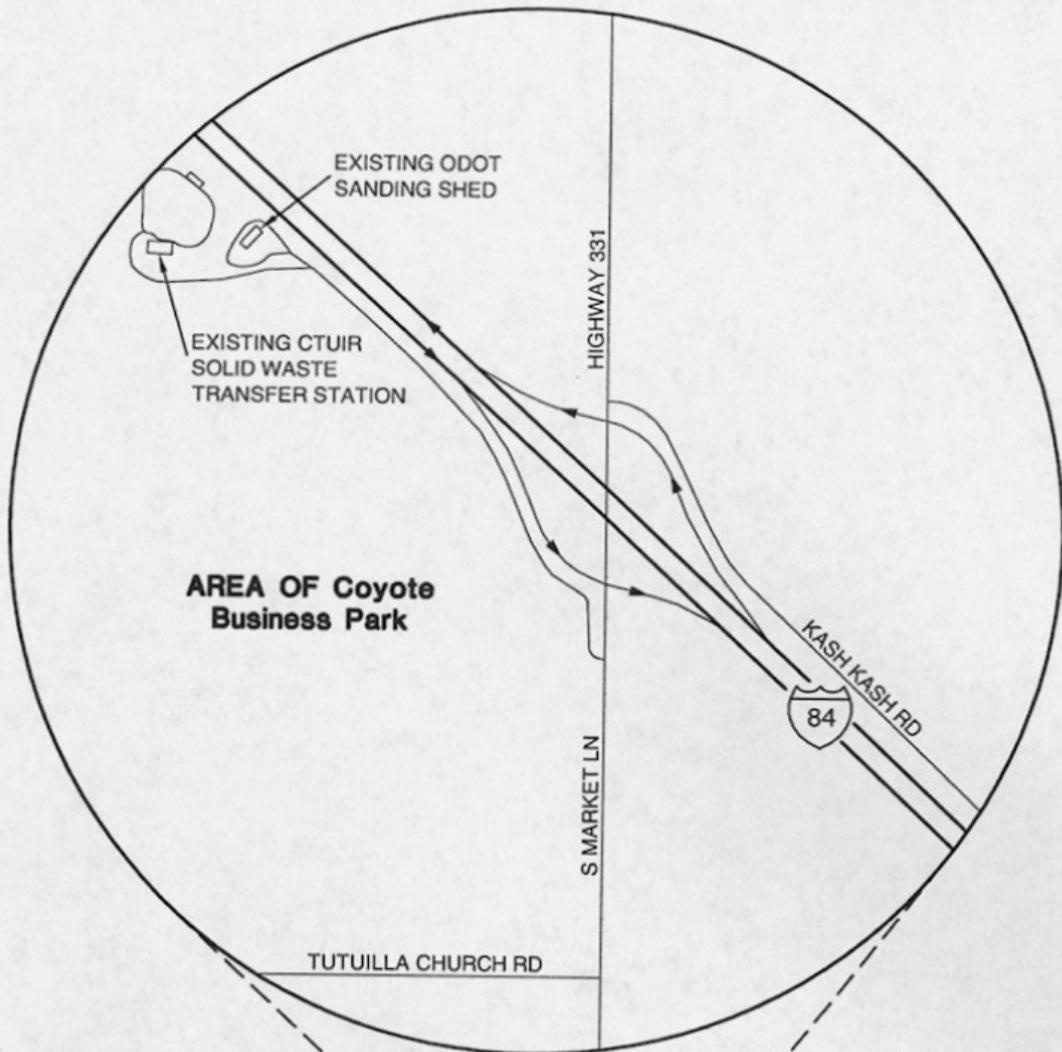
The existing traffic level entering the I-84 interchange southbound from Highway 331 is 340 vehicles during the weekday PM peak hour, as compared to 70 vehicles entering the I-84 interchange northbound from South Market Road.

For all roadway sections and intersections along a state highway, such as Highway 331 and Interstate 84, ODOT has jurisdiction over the enforcement of operating standards. ODOT defines these mobility standards in the 1999 Oregon Highway Plan. ODOT supports a v/c ratio standard of 0.80 or less along Highway 331, including the three intersections at Kash Kash Road and the I-84 westbound and eastbound ramp terminals. The CTUIR supports a LOS "D" or better rating for peak hour traffic conditions for all other intersections south of the interchange along South Market Road.

All intersections in the project vicinity are currently operating acceptably according to ODOT and CTUIR standards during the peak seasonal weekday p.m. peak hour.



(NO SCALE)



SITE VICINITY MAP  
UMATILLA INDIAN RESERVATION

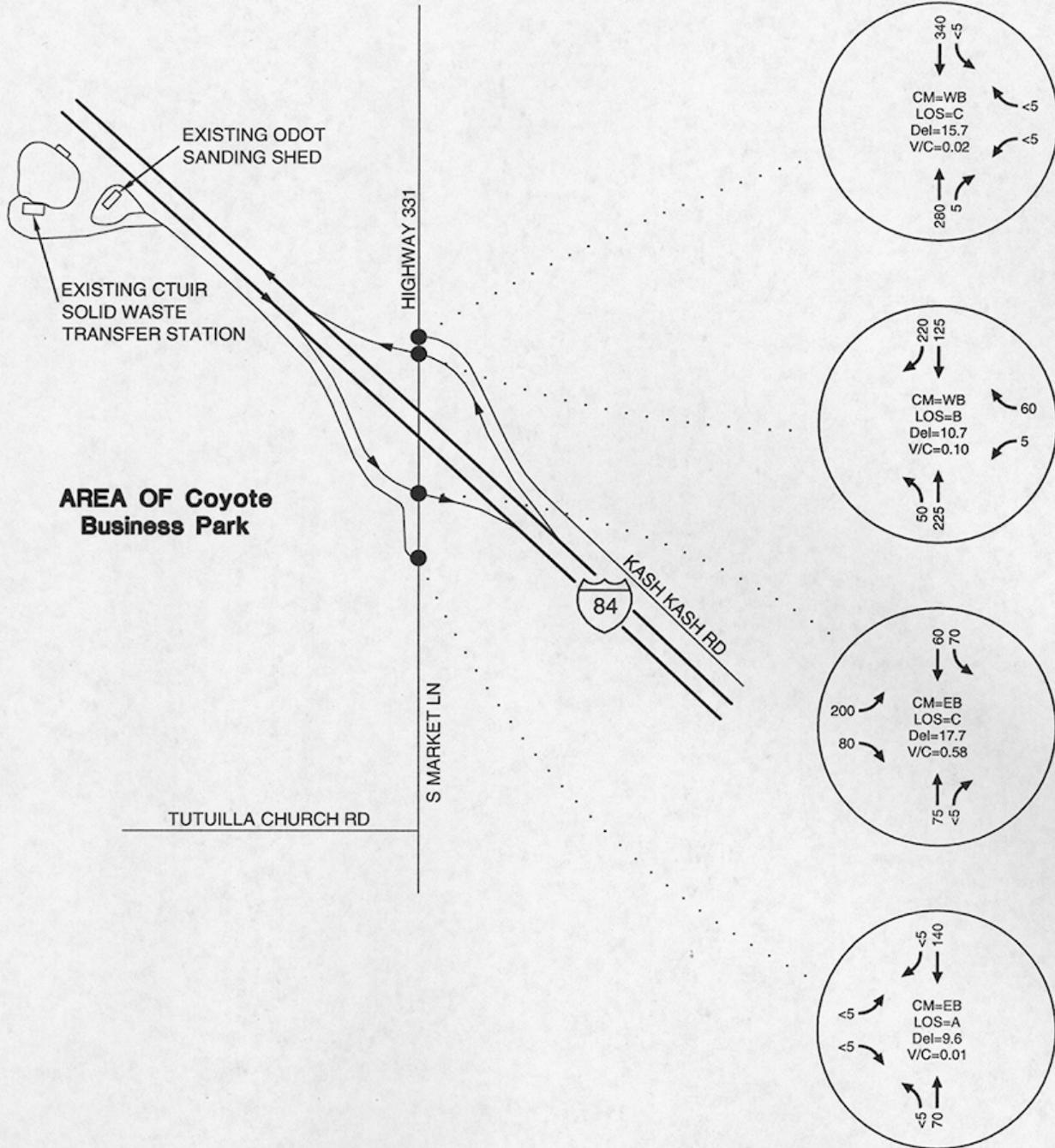
FIGURE

1

6-433Figs.dwg



(NO SCALE)



**LEGEND**

- CM = CRITICAL MOVEMENT
- LOS = CRITICAL MOVEMENT LEVEL OF SERVICE
- Del = CRITICAL MOVEMENT DELAY
- V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

**EXISTING TRAFFIC CONDITIONS WEEKDAY PM PEAK HOUR UMATILLA INDIAN RESERVATION**

**FIGURE 7**

6-439Figs.dwg

### **Traffic Safety in Project Vicinity**

Two indicators of traffic safety were evaluated: crash data and sight distance.

#### **Analysis of Crash Data**

The crash history of Highway 331 in the vicinity of the I-84 interchange was reviewed in an effort to identify existing or potential future safety issues. Crash records were obtained from the Oregon Department of Transportation for the five-year period between January 1, 1998 and December 31, 2002, the most recent five years on record. The crash history for the study area is summarized in Table 3-26, including crash severity and type.

**Table 3-26  
Intersection Crash Data, 1998-2002**

Inter-section	Crash Rate MEV	Crash Type				Severity		Total Crashes
		Rear End	Angle	Turning Movement	Fixed Object	PDO *	Injury	
Highway 331/Kash Kash Road	0.00	0	0	0	0	0	0	0
Highway 331/I-84 Westbound Ramps	0.18	0	0	1	1	1	1	2
Highway 331/I-84 Eastbound Ramps	0.33	1	0	2	0	2	1	3

\* *Property Damage Only*

*Source: Oregon Department of Transportation*

As shown in Table 3-26, within the past five years, three crashes have occurred at the I-84 eastbound ramps, two at the I-84 westbound ramps, and none at the Kash Kash/Highway 331 intersection. None of the reported crashes were fatal. The calculated crash rate for each intersection, defined by the number of crashes per million entering vehicles (mev), is low. Typically, crash rates in excess of 1.0 crashes/mev indicate a potential safety hazard exists. The highest crash rate was determined to be 0.33 crashes/mev at the Highway 331/I-84 eastbound ramp terminal.

At the I-84 westbound ramp terminal, records indicate drivers were traveling too fast under the conditions causing both reported crashes.

### *Sight Distance Evaluation*

Sight distance was evaluated at all of the study intersections along Highway 331 and South Market Road based on a comparison between measurements taken in the field and official standards outlined in the standard reference manual, A Policy on Geometric Design of Highways and Streets (Kittelson 2004.)

The following sections present two different types of analyses of sight distance: Stopping Sight Distance (SSD) and Intersection Sight Distance (ISD). SSD applies to vehicles traveling freely along the major street and is defined as the distance a driver should be able to see along the roadway in order to stop before reaching a stationary object in its path. SSD can be considered one of the most critical measures of driver safety along a roadway. ISD applies to vehicles waiting to access the major street from a minor intersecting street or driveway and is best defined as the amount of distance a driver needs to see from a minor street approach in order to make a decision to enter the intersecting major street.

#### **Stopping Sight Distance**

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The results of the stopping sight distance analysis for each study intersection are presented in Table 3-27. As shown, stopping sight distance is adequate at all intersections. This indicates that vehicles have sufficient distance to stop before hitting an object in their path.

**Table 3-27  
Stopping Sight Distance**

<b>Access Location</b>	<b>Dir.</b>	<b>Distance Available (ft)</b>	<b>Required Distance (ft)</b>	<b>Is Standard Met?</b>
Highway 331 at Kash Kash Rd	NB	>1,000	360	Yes
	SB	650	360	Yes
Highway 331 at I-84 WB Ramps	NB	>1,000	360	Yes
	SB	550	360	Yes
Highway 331 at I-84 EB Ramps	NB	550	360	Yes
	SB	>1,000	360	Yes
South Market Road at ODOT Service Road	NB	>1,000	495	Yes
	SB	>1,000	495	Yes

Source: Kittelson & Associates, 2004.

#### **Intersection Sight Distance**

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The results of the intersection sight distance analysis are presented in Table 3-28. The results shown reflect the left turn movement from the minor approach onto the major roadway.

As shown in the above table, intersection sight distance is inadequate at three locations along Highway 331:

- 1) Looking southbound from Kash Kash Road (trucks can not see far enough as they require more sight distance than cars; cars have adequate site distance),
- 2) Looking southbound from the I-84 westbound off-ramp, and
- 3) Looking northbound from the I-84 eastbound off-ramp.

**Table 3-28  
Intersection Sight Distance (Left Turn from Minor Road)**

<b>Access Location</b>	<b>Dir</b>	<b>Distance Available (ft)</b>	<b>Required Distance for Passenger Car (ft)</b>	<b>Required Distance for Combination Truck (ft)</b>	<b>Is Standard Met?</b>
Highway 331 at Kash Kash Rd	NB	>1,000	500	760	Yes
	SB	>500	500	760	Yes (car) No (truck)
Highway 331 at I-84 WB Ramps	NB	>1,000	500	760	Yes
	SB	325	500	760	No
Highway 331 at I-84 EB Ramps	NB	250	500	760	No
	SB	>1,000	500	760	Yes
South Market Road at ODOT Service Road	NB	>1,000	610	930	Yes
	SB	>1,000	610	930	Yes

Source: Kittelson & Associates, 2004.



*Figure 3-34 I-84 Eastbound exit ramp, facing north, showing inadequate sight distance for left turning movements*

The Intersection Sight Distance deficiencies along Highway 331 at the I-84 westbound and eastbound off-ramps are related and pertain to three different factors:

- 1) Metal guardrails located at the edges of the highway shoulders
- 2) Concrete retaining walls on the outside edges of the Highway 331 overpass structure
- 3) Vertical curvature of the Highway 331 overpass structure over I-84.

In summary, the major concern with the overpass is that traffic on the off-ramps does not have adequate sight distance to safely turn off the interstate. There is adequate stopping sight distance for vehicles traveling over the interstate. Right now, traffic volumes are at a low enough level that there are relatively few accidents at this area, since traffic traveling across the interstate overpass can stop in time if there is a vehicle turning left or right off of the interstate. That assumes that traffic traveling across the interstate observes the speed limit of 45 mph.

“Considering that adequate stopping sight distance is provided along the I-84 overpass, current traffic levels are low during peak travel periods, and crash frequencies are low, traffic safety at the I-84 westbound and eastbound ramp terminals does not appear to be a

problem today. As traffic levels rise in the future, the potential for crashes will increase and safety deficiencies may occur.” (Kittelsohn 2004).

### **Highway 331 Access Issues**

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The CTUIR Transportation System Plan identified a number of access concerns along Highway 331 north of Interstate 84. The primary concern had to do with the number of access points at Arrowhead Travel Plaza and Cody’s Restaurant. The Plan included recommendations for gradually reducing the number of access points and consolidating vehicle entrances and exits. Portions of this plan have already been implemented, with Arrowhead Travel Plaza reducing the number of access points from 5 to 4 in 2004.

A plan to further reduce the number of intersections on Highway 331 is planned for construction in 2008 according to the Draft State Transportation Improvement Plan (see [www.odot.state.or.us/stip](http://www.odot.state.or.us/stip)). This project would consolidate Arrowhead Travel Plaza access points to 3 (Nelson, 2004), result in slower traffic speeds, reduced congestion, and reduced potential for accidents north of I-84.

In 2004, as part of Highway 331 resurfacing, ODOT and CTUIR (Wildhorse Resort) constructed a dedicated left turn Road refuge for travelers northbound on Highway 331 turning into Wildhorse Resort.

### **Analysis of Transportation Impact**

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Table 3-30, presented at the end of this section, provides a summary of transportation impacts for all alternatives.

#### ***Methodology***

The following steps were taken to evaluate the transportation impacts generated by the proposed Coyote Business Park:

- Weekday p.m. peak hour traffic operations for Alternative A (using traffic forecasts for the year 2024) were forecast and analyzed.
- Average weekday and weekday a.m. and p.m. peak hour site-generated trips were estimated for Alternatives B, C, D, and E for the Coyote Business Park (see Table 3-30). Alternatives C and D were estimated to have the same traffic trip generation, despite differences in projected employment levels, as the trip generation model relies on square feet constructed to project traffic.
- Weekday p.m. peak hour traffic conditions with full build-out of the site under the “worst-case” trip generation scenario (Alternative E) were forecast for the year 2024.

- The proposed site driveway location along South Market Road was reviewed for safety, operations, and consistency with ODOT access spacing standards.
- An assessment was made of future turn Road needs and signal warrants at the study intersections, with an estimated timeline for improvements.
- An assessment was made of future pedestrian, bicycle, and transit needs along Highway 331 and South Market Road as they relate to the proposed Coyote Business Park.
- Existing and forecasted traffic volumes were used to conduct a left-turn Road warrant analysis for all study intersections to determine whether and when a left-turn Road would become beneficial to road users by removing left-turning vehicles from the main stream of traffic and allowing through traffic to pass by unimpeded.
- Existing and forecasted traffic volumes were also used to conduct a right-turn Road warrant analysis to determine when a right-turn Road would become beneficial to road users by removing right-turning vehicles from the main stream of traffic and allowing through traffic to pass by unimpeded.

The trip generation estimates are based on widely accepted industry standards for trip generation for the types of businesses and amount of building square footage anticipated to be developed. The trip generation estimates shown in Table 3-29 for the Coyote Business Park represents a worst-case condition and are “overly conservative” since these standards are based on typical industrial and business park projections which do not take into account the typically lower density of business park developments in rural areas as compared to urban or suburban areas.

**Table 3-29  
Coyote Business Park Trip Generation**

Alternative	Land Use	Site Size (Acres)	Estimated Building Size* (Square Feet)	Average Daily Trips	Weekday PM Peak Hour		
					Total	In	Out
A**	Agricultural	N/A	N/A		70		
B	Industrial Park	21	45,000	313	39	8	31
TOTAL				313	39	8	31
C, D	Industrial Park	21	50,000	348	43	9	34
	Warehousing	37	400,000	1,984	188	47	141
TOTAL				2,332	231	56	175
E	Industrial Park	102	230,000	1,600	198	42	156
	Warehousing	37	400,000	1,984	188	47	141
TOTAL				3,584	386	89	297

\* Building size estimates provided by CTUIR staff.

\*\* Alternative A reflects the existing condition of 70 trips entering the I-84 interchange from South Market Road during the pm peak hour

The distribution of site-generated trips onto the study area roadway system is estimated based on observed travel patterns and input from CTUIR staff on travel patterns of employees and the anticipated origins/destinations of trucks. Existing weekday PM peak hour traffic is based on a traffic count conducted in January 2003, adjusted for seasonal conditions (Kittelson, 2004).

In the following analysis, a direct impact is considered an impact to South Market Road in the immediate vicinity of the proposed project. Indirect impacts are any impacts to the surrounding transportation system including the I-84/Highway 331 interchange. Cumulative impacts are those taking place over time in the immediate and surrounding area.

**Alternative A (No action)**

The impact from Alternative A was projected from base traffic counts (adjusted for seasonal conditions) plus future increases in traffic volumes as forecast in the CTUIR Transportation System Plan (excluding the traffic that the plan estimated based on a proposed industrial park). The process used in the CTUIR TSP to determine the 20-year increase in traffic volumes accounted for regional growth in through trips along Highway 331 and I-84 and additional traffic related to planned land use activities on the reservation. The resulting traffic flows for the Alternative A conditions are displayed in Figure 3-35.

The analysis prepared for Alternative A assumes that no roadway or intersection improvements would be made in the study area.

### **Direct Impact**

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No impact anticipated at the proposed project site. Traffic south of I-84 on South Market Road would continue to flow at present levels of service, with traffic volumes increasing slightly as population increases over time.

### **Indirect Impact**

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By 2024, under Alternative A, due to projected future increases in traffic volumes, wait times at the I-84 eastbound ramps would be long enough that it would be recommended that ODOT install a traffic signal.

The existing condition of inadequate intersection sight distance at the I-84 off ramps is expected to continue. As noted above, the crash rates at the intersection presently are relatively low. Over time, as traffic volumes rise with projected population increases in the area, crash rates would be expected to rise unless the speed limit were decreased, traffic signals were installed, or other measures to slow traffic were successfully implemented.

### **Cumulative Impact**

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Traffic entering the I-84 interchange from the south is projected to grow to 90 vehicles per hour during the weekday PM peak hour by 2024, as compared to 70 vehicles per hour now. Traffic entering the I-84 interchange from the north is projected to grow to 830 vehicles per hour during the weekday PM peak hour by 2024, as compared to 340 vehicles now.

***There could be increased levels of traffic accessing Interstate 84 from the north as a result of proposed commercial development along Highway 331 north of Interstate 84.***

## **Impacts Common to Alternatives B-E**

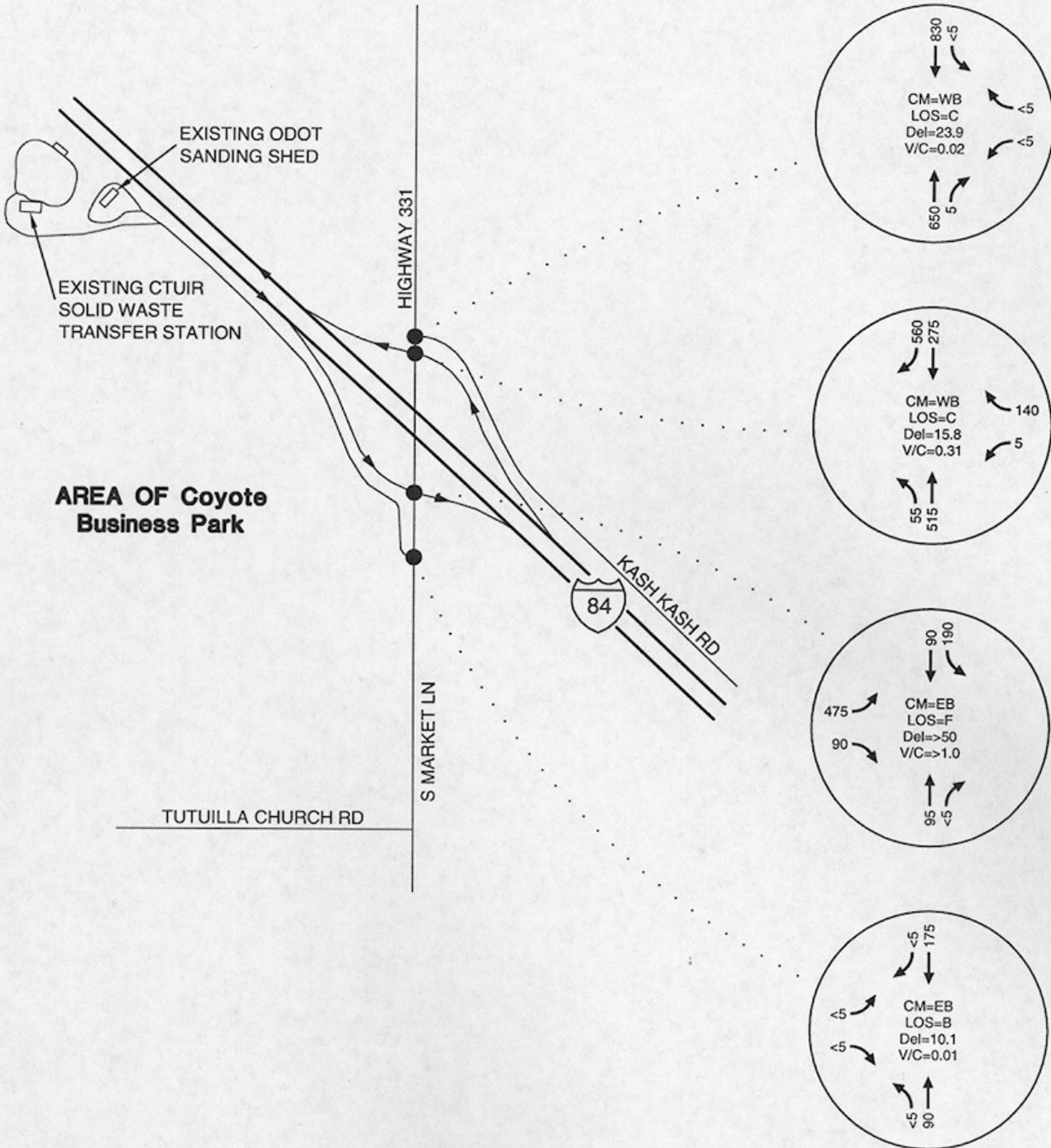
### **Direct Impact**

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The industrial uses proposed for the Coyote Business Park would result in increased truck traffic along South Market Road and the I-84/Highway 331 interchange.



(NO SCALE)



**LEGEND**

- CM = CRITICAL MOVEMENT
- LOS = CRITICAL MOVEMENT LEVEL OF SERVICE
- Del = CRITICAL MOVEMENT DELAY
- V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

**2024 NO-BUILD TRAFFIC CONDITIONS  
WEEKDAY PM PEAK HOUR  
UMATILLA INDIAN RESERVATION**

FIGURE  
**8**

Additional traffic would travel 1,320 feet of South Market Road between the access point into the business park and I-84. However there would be no negative impact to South Market Road since this length of the road would be improved to industrial standards as part of the proposed project.

A dedicated left turn Road into the proposed Coyote Business Park (for northbound traffic on South Market Road to pass left turning traffic unimpeded) would not be required under Alternatives B-E in order to maintain northbound traffic flows at targeted levels. A dedicated right hand turn Road into the proposed Coyote Business Park (to allow southbound traffic on South Market Road to pass right turning traffic unimpeded) would be not required under Alternatives B-E in order to maintain traffic flows at acceptable levels, although it is part of the proposed project design.

Traffic heading northbound on South Market Road may need to slow down to accommodate employees turning left into the business park, but even with the increased traffic, this slow down would be within the acceptable limits of wait time as established by the CTUIR Transportation System Plan.

There would be temporary delays of up to several months during the proposed reconstruction of approximately 1,320 feet of South Market Road and construction of a dedicated right hand turn Road into the proposed project site.

## **Indirect Impact**

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### *Wait Times*

Wait times at I-84 eastbound and westbound ramp terminals are currently operating within ODOT and CTUIR targeted level of service standards, but the 20 year traffic forecast shows that the I-84 eastbound ramps would be expected to fail by 2024 for the no-action alternative, and possibly sooner for Alternatives B-E.

Although the level of service at the existing I-84 on and off ramps is within ODOT and CTUIR standards for level of service, the current traffic volumes at the interchange would meet standard criteria and thereby justify construction of left and right turn Roads. That is, although the wait times for vehicles exiting I-84

are operating acceptably, the traffic flow across the I-84 overpass interchange and entering I-84 would be improved by adding dedicated left turn Roads.

### *Safety*

As noted in the Existing Conditions section, sight distance is already inadequate at I-84 east and west bound off ramps, and would continue to be inadequate under Alternative B.

### **Cumulative Impact**

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As noted above, intersection sight distance (ISD) in the southbound direction from the I-84 westbound off-ramp and sight distance in the northbound direction from the I-84 eastbound off-ramp are currently less than the American Association of State Highway and Transportation Officials (AASHTO) standard. With crash frequencies and traffic volumes at low levels at the interchange under existing conditions, the ISD deficiencies do not appear to pose a hazardous condition today.

However, as traffic levels increase at the interchange, the potential for angle-type accidents would increase as drivers on the off-ramps experience more delay and fewer gaps in mainstream traffic. This potential would increase as traffic volumes build and would therefore be greatest under Alternative E. It would also be a gradual increase over the twenty-year traffic projection horizon and would not happen instantaneously.

The traffic analysis assumes that each of the action Alternatives would be constructed, occupied, and generating traffic at their fully built-out capacity at a single point in time. The projections of traffic increases are based on that assumption. In actuality, businesses would be leasing land within the proposed business park over a period of time, and under any of the scenarios it would likely take at least 5 (Alternative B) to 10-20 years (Alternative E) to lease all the lots and to reach the traffic volumes that the analysis assumes to be the starting point. The gradual nature of the increase means that it could be addressed by ODOT through various measures, including reducing the speed limit in the interchange area and installing traffic signals at the I-84 off-ramps.

As employee traffic increases, pedestrian and bicycle traffic to the site may also increase. There may also be increased demand over time for public transit services to the site.

***There could be increased levels of traffic accessing Interstate 84 from the north as a result of proposed commercial development along Highway 331 north of Interstate 84.***

### **Alternative B (21 acres)**

#### **Direct Impact**

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##### *Traffic*

An estimated 31 additional outbound trips during the pm peak hour would be generated by business park traffic under Alternative B. This would be an increase of 43% over the current level of traffic of 70 trips per hour entering the I-84 interchange from the south during that timeframe.

#### **Indirect Impact**

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The current configuration of the interchange would be adequate for trucks up to the size and scale of a WB-67, which is the largest truck designed for interstate-type travel. It is likely that the proposed businesses projected to locate in the park under Alternative B would more commonly utilize trucks that are smaller than a WB-67. Therefore the interchange would be able to accommodate the projected truck turning movements.

#### **Cumulative Impact**

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At full build out of Alternative B, the additional traffic generated south of I-84 along South Market Road would generate about 33% as much traffic heading north into the I-84 interchange during the PM peak hour as is generated now by traffic heading south into the I-84 interchange (from Highway 11, Mission, Wildhorse Resort, Cody's Restaurant, and Arrowhead Travel Plaza).

### **Alternatives C and D (58 acres)**

#### **Direct Impact**

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##### *Traffic*

An estimated 175 additional outbound trips during the pm peak hour would be generated by business park traffic under Alternatives C and D. This would be an increase of 250% over the current level of traffic of 70 trips per hour during that timeframe.

### **Indirect Impact**

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Trucks making trips to/from the Coyote Business Park would likely reach the size and scale of a WB-67, which is the largest truck designed for interstate-type travel. Based on field observations of large trucks navigating the current I-84/Highway 331 interchange, the current configuration of the interchange appears adequate anticipated traffic.

### **Cumulative Impact**

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At full build out of Alternative C or D, the additional traffic generated south of I-84 along South Market Road would generate about 50% as much traffic heading north into the I-84 interchange during the PM peak hour as is generated now by traffic heading south into the I-84 interchange (from Highway 11, Mission, Wildhorse Resort, Cody's Restaurant, and Arrowhead Travel Plaza).

## **Alternative E (142 acres)**

### **Direct Impact**

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#### *Traffic*

An estimated 297 additional outbound trips during the pm peak hour would be generated by business park traffic under Alternative E. This would be an increase of 424% over the current level of traffic of 70 trips per hour during that timeframe.

### **Indirect Impact**

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Under Alternative E, the traffic volumes would increase to the point that a traffic signal warrant (in order to decrease wait times) at the I-84 eastbound off-ramp would be met four years after full build-out of the site. Considering that full-build out of the site may take 10-20 years, this signal may be warranted within the next 14-24 years.

A dedicated traffic signal at the access road to the business park along South Market Road would be warranted by 18 years after full build-out.

Trucks making trips to/from the Coyote Business Park would likely reach the size and scale of a WB-67, which is the largest truck designed for interstate-type travel. Based on field observations of large trucks navigating the current I-84/Highway 331 interchange, the current configuration of the interchange appears adequate anticipated traffic.

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### **Cumulative Impact**

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At full build out of Alternative E, the additional traffic generated south of I-84 along South Market Road would generate about 8% more traffic heading north into the I-84 interchange during the PM peak hour as is generated now by traffic heading south into the I-84 interchange (from Highway 11, Mission, Wildhorse Resort, Cody's Restaurant, and Arrowhead Travel Plaza).

**Table 3-30  
Traffic Impact Summary**

	<b>Alternative A</b>	<b>Alternative B</b>	<b>Alternatives C, D</b>	<b>Alternative E</b>
<b><i>Direct Impacts</i></b>				
Traffic: PM Hour Peak Traffic heading north into I-84 interchange from South Market Road	70 trips per hour (2004)	31 new trips per hour at full build out, total of 101 trips per hour  43% increase	175 new trips per hour at full build out, total of 245 trips per hour  350% increase	297 trips per hour at full build out, total of 367 trips per hour  424% increase
Traffic Flow along South Market Road	No impact	Temporary delays during construction of upgraded road and right-hand turn Road		
<b><i>Indirect Impacts</i></b>				
<b><i>Wait Times</i></b>				
<b>Would a New Traffic Signal Be Required to Meet Targeted Level of Service (wait times)?</b>				
Interstate Ramps	Yes, on the East Bound Ramp, by 2024		Yes, on the East-Bound I-84 off-ramp, by 2018-2024	
Business Park Access Road	No (no road)	No	No	Yes, 18 years after full build-out
<b>Would a Left Turn Road be Required to Meet Targeted Level of Service? (wait times)</b>				
Interstate Ramps	Yes, for traffic traveling north onto westbound ramps and traveling south to eastbound ramps			
Business Park Access Road	No	No	No	No
<b>Would a Right Turn Road be Required to Meet Targeted Level of Service? (wait times)</b>				
Interstate Ramps	Yes, for traffic traveling south to westbound ramps, a right turn Road is warranted now.  For traffic traveling north to eastbound ramps, a right turn Road would be warranted in 2021.			

**Table 3-30  
Traffic Impact Summary**

	<b>Alternative A</b>	<b>Alternative B</b>	<b>Alternatives C, D</b>	<b>Alternative E</b>
<b>Safety</b>				
<b>Is there adequate sight distance for safe stopping and turning?</b>				
I-84 Ramps	No	No	No	No
Business Park Access Road	Yes	Yes	Yes	Yes
<b>Cumulative Impacts</b>				
	20 new vehicles per pm peak hour entering intersection from the south in 2024	39 new vehicles per pm peak hour entering intersection from the south in 2024	231 new vehicles per pm peak hour entering intersection from the south in 2024	386 new vehicles per pm peak hour entering intersection from the south in 2024
	490 new vehicles per pm peak hour entering I-84 intersection from the north in 2024	Up to 515 new vehicles per pm peak hour entering I-84 intersection from the north in 2024		

## 3.10 Socioeconomics

### Regulatory Context

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The applicable regulatory context for socioeconomics is taxation authority, which is discussed below.

### Historical Context

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Since the signing of the Treaty and establishment of the Reservation in 1855, the Reservation economy has been predominantly agricultural. Between 1990 and 2000, the CTUIR economy experienced its first economic diversification and growth in decades with the development of the Wildhorse Resort (including Wildhorse Casino, Golf Course, RV Park, and Tamastlikt Cultural Center) and the subsequent expansion of CTUIR government employment and services.

This economic growth resulted in employment increases and population growth. American Indian and Alaska Native population on the Reservation increased from 1,029 in 1990 to 1,469 in 2000, a change of 43% (U.S. Census) (Table 3-31). This is a greater population change than in previous decades in which American Indian population on the Reservation actually declined (12% decline between 1960 and 1970) or grew at a slower pace (13% increase between 1980 and 1990) (U.S. Census). This same time period also saw increases in tribal enrollment and employment, and decreases in poverty.

### Existing Conditions

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#### ***Population, CTUIR Enrollment, and Age***

Economic data summarized in this section relies on U.S. Census data which reports on “American Indian and Alaska Natives” (AIAN) living on the Reservation.

The Umatilla Indian Reservation had a total population of 2,927 in 2000, composed of 1,469 AIAN and 1,458 non-Indian people.

**Table 3-31  
Umatilla Indian Reservation Population, 1980-2000**

	1980	1990	% change	2000	% change
Reservation Population	2,619	2,502	-5%	2,927	17%
Umatilla Indian Reservation American Indian and Alaska Native (AIAN) Population	908	1,029	13%	1,469	43%
Umatilla County off-Reservation AIAN Population	580	821	43%	1,355	65%
Umatilla County AIAN Population	1,488	1,850	24%	2,824	53%
Umatilla County Total Population	58,861	59,249	<1%	70,548	19%
Reservation Population Growth by Race					
American Indian and Alaska Native	908	1,029	13%	1,469	43%
All other ethnicities	1,711	1,473	-14%	1,458	-2%
Total	2,619	2,502	-5%	2,927	17%

Source: U.S. Census, 2000

CTUIR enrollment was 2,446 in January 2004, having increased 68% from 1,456 in 1992 ([www.umatilla.nsn.com](http://www.umatilla.nsn.com)) (Table 3-32). According to the CTUIR Enrollment Office (Minthorn-O'Malley, 2005), there were 895 adult CTUIR tribal members living on the Reservation in 2004.

**Table 3-32  
Tribal Enrollment and CTUIR Employment 1992-2004**

Year	# of CTUIR Members
1992	1,456
1995	1,595
1996	1,876
1998	2,082
1999	2,147
2000	2,198
2001	2,262
2002	2,334
2003	2,377
2004	2,446

Five hundred and eighty (580) American Indians and Alaska Natives living on the Reservation in 2000 were under the age of 21 (42% of the total American Indian and Alaska Native population), as compared to 32% of Umatilla County population in that age group and 29% of Oregon residents (U.S. Census 2000). (Table 3-33)

An estimated 30 American Indians and Alaska Natives (AIAN) on the Reservation are projected to turn 18 each year for at least the next 14 years (U.S. Census 2000.) This relatively large number of young

American Indians highlights a growing need for housing and jobs as young people graduate from school and establish families.

**Table 3-33  
American Indian and Alaskan Population by Age  
Umatilla Indian Reservation and comparable areas, U.S. Census**

Age	1990		2000		Umatilla County	Oregon
	21 and under	882	35%	580	42%	32%

NOTE:

The 1990 census did not offer the option of declaring multiple races and the data includes self-identified American Indians. 2000 data includes only those who declared a single race: American Indian and Alaska Native.

***Per Capita Income***

Per capita income is the average income from all sources for every man, woman and child in a particular group or defined geographic area. The per capita income figure is often used as a benchmark to compare different geographic areas. The per capita income of AIAN on the Reservation increased from \$5,265 to \$12,032 between 1990 and 2000 (U.S. Census). Despite this increase, per capita income of AIAN on the Reservation is still lower than per capita income of either Umatilla County (\$16,410) or the State of Oregon (\$20,940). (Table 3-34)

**Table 3-34  
Per Capita Income**

	1990	% of state income	2000	% of state income
American Indians and Alaskan Natives on the Umatilla Indian Reservation	\$5,265	39%	\$12,032	57%
Umatilla County	\$11,178	83%	\$16,410	78%
State of Oregon	\$13,418	-----	\$20,940	-----

U.S. Census 2000

***Poverty Rate***

The poverty rate is the percentage of people whose income is below the federally defined poverty level. It is generally considered a measure of how well individuals are able to meet basic food and shelter needs. During 1990-2000 when the statewide poverty rate showed little change, the poverty rate among American Indians and Alaskan Natives on the Reservation dropped from 35% to 23%. It is

remains twice the statewide rate of 11.6% and ten percentage points higher than the Umatilla County rate of 13%. (Table 3-35)

**Table 3-35  
Poverty Rate**

	<b>1990</b>	<b>2000</b>
Umatilla Indian Reservation	22%	16%
Umatilla Indian Reservation- American Indians and Alaskan Natives Alone	35%	23%
Umatilla County	16.5%	13%
State of Oregon	12.4%	11.6%

U.S. Census 2000

***Employment and Workforce***

Employment on the Reservation has changed dramatically in the past decade. As CTUIR enterprises have grown, the CTUIR has grown to become the second largest employer in Umatilla County, after the consolidated operations of the State of Oregon.

According to the 2000 U.S. Census, the labor force on the Reservation is 1,387 people including 609 American Indians and Alaskan Natives (44% of total labor force.) The AIAN labor force is expected to grow by 544 people over the coming 14 years as young American Indians and Alaska Natives turn 18 (U.S. Census 2000), an increase of 189%. Most of the members of the American Indian and Alaska Native workforce (86%) living on the Reservation are employed at either Wildhorse Resort or CTUIR (Table 3-36).

Unemployment on the Reservation has declined in recent years, but is still a substantial community concern. The 2000 U.S. Census figure of 11% unemployment among American Indian and Alaska Natives is considered to undercount unemployed workers on the Reservation, and the CTUIR is conducting its own survey to document this and other figures more accurately (Minthorn-O'Malley 2004.) The workforce on the Reservation includes the following components:

- Employed workers who are working in the field of their choice.
- “Underemployed” workers whose employment opportunities are not an optimal match for their skills, abilities, and interests.
- Unemployed workers who are actively seeking work.
- Unemployed workers who are enrolled in school or workforce training.

- Discouraged workers who have completed school or workforce training but who have not been able to find a job on the Reservation and who are not actively seeking work.
- Unemployed workers with multiple barriers to employment (Calhoun 2004; Azure 2004.)

Although it is difficult to estimate the total number of workers in each of these categories, 211 American Indian and Alaska Natives enrolled and made progress in either a workforce investment program or higher education program in 2004 (Calhoun 2004).

The AIAN workforce on the Reservation is projected to increase by 544 people in the next 14 years:

- 260 youth between ages of 10-17 (at time of Census in 2000; now they are aged 14-21) either have just entered the workforce or will be entering it at age 18 in next 4 years.
- 284 youth between ages 0-9 (at time of Census in 2000; now these youth are aged 0-13) will be entering the workforce in next 5-14 years.

**Table 3-36  
Civilian Labor force and Unemployment Rate**

Population	1990			2000		
	Civilian Labor Force	Total Unemployed	Unemployment Rate	Civilian Labor Force	Total Unemployed	Unemployment Rate
American Indians and Alaskan Natives on Umatilla Indian Reservation	435	139	32%	609	65	11%
Umatilla Indian Reservation (all races)	1,155	202	17.5%	1,387	101	7.3%
Umatilla County	27,974	2,372	8.5%	22,598	2,530	4.8%

U.S. Census, 1990 and 2000

Note: The labor force includes people over the age of 16 who are employed as well as those who are “actively seeking” work. People who are not considered to be in the labor force are not included in the unemployment figure above. These people include: students 16 years and over that are away at school, mentally or physically disabled men or those who are retired or institutionalized; women for whom no child-care substitutes are available and women who are mentally or physically disabled, are housewives, are institutionalized, etc.

The following trends contribute to Tribal employment on and off-Reservation.

**Small business creation**

The CTUIR has an active Business Service Center (BSC) that assists individual American Indians and Alaska Natives in starting and expanding their own businesses. This program provides assistance to tribal members to realize their aspirations of owning and operating a successful business. Services include: confidential business counseling, technical assistance, business training, access to office equipment, and assisted access to capital.

Since 1998, the Business Service Center has provided services to over 200 Native Americans and fifteen businesses in and around the Umatilla Indian Reservation. Approximately two or three American Indian and Alaska Native-owned businesses have started each year with one owner-employee each, representing a trend of growth in the Reservation private sector. (Table 3-37)

**Table 3-37  
Native American Owned Microenterprises  
Business Service Center Clients**

TYPE OF BUSINESS	WHEN STARTED	NUMBER OF EMPLOYEES
Retail (3)	1996	0
	1997	Varies
	2000	1
Service (8)	1976	2
	1997	2
	1997	2
	1998	2
	1999	2
	1999	3 – 4
Construction & Trucking (2)	2000	1
	2001	2
	2001	1
Nonprofit (2)	2003	1
	2002	0
	2002	3

Source: CTUIR Business Service Center, 2003

**Tribal enterprises and government**

Currently, the proposed subject area is part of CTUIR Tribal Farm Enterprise operations, which include over 4,000 acres. The Tribal

Farm Enterprise employs two full time and several seasonal part time employees, whose employment is not dependent on continued agricultural operations at the proposed subject property.

Employment at CTUIR enterprises and government has been relatively stable over the past several years, and this trend is expected to continue for the near future (0-5 years). There is the possibility of expanded governmental employment in the 5-10 year range if proposed projects to expand services and create additional business enterprises move to the construction and operational stage.

Employment data by ethnicity at CTUIR and Wildhorse Resort is reported below. Employment at CTUIR (figures include CTUIR government offices, Umatilla Reservation Housing Authority, Yellowhawk Clinic, Arrowhead Travel Plaza, and Mission Market grocery) show 60% of government employees are Indian and 40% non-Indian, while employment at Wildhorse Resort is nearly the reverse of that (43% Indian, 58% non-Indian.) (Table 3-38)

	<b>CTUIR Tribal Members</b>		<b>Other Indians</b>		<b>Non- Indians</b>		<b>Tota l</b>
Tribal Government	209	44%	76	16%	190	40%	475
Wildhorse Resort	163	29%	77	14%	326	58%	566
<b>GRAND TOTAL</b>	<b>372</b>	<b>36%</b>	<b>153</b>	<b>15%</b>	<b>516</b>	<b>50%</b>	<b>1,04 1</b>

### **Regional employment and economic growth**

In 2002, American Indians made up 1.2% of the Umatilla County labor force (State of Oregon Employment Department, 2002).

Employment expansion in the region is dependent on the addition of suitable industrial land and the successful expansion and recruitment of manufacturing jobs in the region. Without additional manufacturing or other “traded sector” jobs (the “traded sector” also includes tourism and gaming) to bring new dollars into the region, there would be limited ability for the service and retail sectors in the regional economy to expand and add jobs.

Currently, there is a reported shortage of buildable industrial lands in the Pendleton area. Proposed economic development initiatives

in Umatilla County include expansion of capacity at the Port of Umatilla; coordinated marketing of “shovel-ready” industrial sites through the State of Oregon Economic Development Department ([www.oregonprospector.com](http://www.oregonprospector.com)); and proposed access improvements to the City of Pendleton Industrial Park at the Eastern Oregon Regional Airport. These proposed or planned projects could improve the region’s efforts to attract employers.

Employers on the Reservation include the combined operations of the CTUIR; Pioneer Asphalt; and the Mid-Columbia Bus Company. Major employment sectors in Umatilla County include government, health care, light manufacturing, food processing, retail, and distribution. (Table 3-39)

**Table 3-39  
Major Employers in Pendleton and Umatilla County**

<b>Employer</b>	<b>Location</b>	<b>Employees</b>
State of Oregon (consolidated operations)	Umatilla County	1,615
Confederated Tribes of the Umatilla Indian Reservation (including Wildhorse Resort and other enterprises)	Mission	1,200
Wal-Mart Distribution	Hermiston	1,082
Smith Frozen Foods	Weston	900
Federal Government (all operations)	Umatilla County	891
Lamb-Weston, Inc.	Hermiston	530
Fleetwood Travel Trailers	Pendleton	460
Good Shepherd Hospital	Hermiston	436
Umatilla County	Pendleton, Hermiston, Milton-Freewater	432
Eastern Oregon Correctional Institution	Pendleton	420
Blue Mountain Community College	Pendleton	414
Wal-Mart	Hermiston	360
Marlette Homes, Inc.	Hermiston	350
Pendleton School District	Pendleton	350
St. Anthony Hospital	Pendleton	300
Wal-Mart	Pendleton	235

Source: City of Pendleton Economic Development, Pendleton Chamber of Commerce, and area employers

**Taxation**

The CTUIR retains the authority to assess taxes to provide essential governmental services. Businesses, residents, and employees on the

Reservations are subject to varying tribal, state, and federal taxes depending on the type of entity, the type of activity, and the type of land on which the activity occurs.

### **Federal Taxes**

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Federal income taxes are assessed on individual residents and business operations on the Reservation, with the exception of CTUIR business enterprises and government operations. Internal Revenue Code Section 7871 specifically exempts CTUIR business enterprises and operations from Federal taxation.

### **State of Oregon Taxes and Effect of CTUIR Tribal Enterprise Zone**

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The State of Oregon imposes an income tax on all business activities conducted within the State, unless specifically exempted from taxes. It should be noted that all CTUIR business enterprises are preempted from state taxation for all business activities conducted within the exterior boundaries of the Umatilla Indian Reservation. Oregon Revised Statutes (ORS) 316-777 and Oregon Administrative Rules (OAR) 150-316.777 also specifically exempt from state income taxation all income derived from all activities conducted within the exterior boundaries of the Reservation by any federally enrolled American Indian who lives within the exterior boundaries of the Reservation. In other words, the existing condition (prior to the CTUIR Tribal Enterprise Zone) is that Indian-owned businesses operating within the exterior boundaries of the Reservation are exempt from state income taxation.

On January 28, 2002, the CTUIR designated the CTUIR Tribal Enterprise Zone over an area that includes the proposed project site. On August 20, 2002, the State of Oregon Economic & Community Development Director's Order No. 02-102, affirmed the CTUIR Tribal Enterprise Zone. The CTUIR Tribal Enterprise Zone provides two types of tax incentives. First, three (3) to five (5) year property tax abatement is available for qualifying business property located within the CTUIR Tribal Enterprise Zone. Second, a State of Oregon income tax credit is available for any tribal tax paid by qualifying businesses. The Tribal Enterprise Zone will expire on June 30, 2012 unless subsequent legislation changes the expiration date. In practice, only non-Indian owned businesses within the Enterprise Zone would be eligible for the income tax credit since Indian-owned businesses operating within the exterior boundaries of the Reservation are exempt from state income taxation as noted above.

## **CTUIR Taxes**

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The CTUIR has enacted a Tribal Taxation Code to raise revenues to defray the cost of providing essential governmental services through the following taxes: Utility Tax, Transient Lodging Occupancy Tax, Solid Waste Transfer Station Tax, Tobacco Tax (State of Oregon / CTUIR Tobacco Agreement), and a Motor Fuels Tax (State of Oregon / CTUIR Motor Fuels Tax Agreement).

Although one of the benefits authorized by legislation within the CTUIR Tribal Enterprise Zone was a State of Oregon income tax credit for any tribal tax paid by qualifying businesses, there is no CTUIR tribal tax in place at the present time to provide this offset.

## **Umatilla County Taxes**

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Umatilla County imposes a property tax on all real and personal tangible taxable property located within the county, including taxable properties owned by taxable entities within the exterior boundaries of the Umatilla Indian Reservation.

Since the proposed project is located on a parcel that is held in trust status, real and personal property owned or operated by CTUIR business enterprises is pre-empted from Umatilla County property taxes. Real and personal property owned and/or operated by non-CTUIR business enterprises may be subject to Umatilla County property taxes. ORS 285 (C 308) allows for a state of Oregon income tax credit against the tax liability for any qualifying business for the amount of taxes paid to the CTUIR.

## ***Property Values***

Values of surrounding residential and agricultural properties have remained fairly stable over the past few years (Burns, 2004.) Demand for residential lots or lots that could be converted to residential use remains strong.

## ***Environmental Justice***

The Treaty of 1855 acknowledged Walla Walla, Cayuse, and Umatilla homelands to be 6.5 million acres. Although the Reservation was protected through the Treaty as the homeland for the Walla Walla, Cayuse and Umatilla people, the Slater Allotment Act and subsequent federal legislation reduced the amount of land in Indian ownership from over 500,000 acres in the original Reservation to 172,400 acres today.

The past ten years have seen the first measurable economic growth on the Reservation in decades. Despite increases in American Indian employment, income, homeownership, land ownership, and population on the Reservation in the last ten years, the American Indian population does not have parity or equality with non-Indian levels of

employment, income, or homeownership on the Reservation or in the county.

## Socioeconomic Impact Analysis

Estimated project costs are provided in Table 3-40. These costs are preliminary and are based on estimates by Anderson Perry & Associates (2002). These figures include design and engineering expenses but are in 2002 dollars (not adjusted for inflation.)

**Table 3-40  
Estimated Project Cost for Infrastructure by Alternative**

	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Water System	\$0	\$215,000	\$800,000	\$800,000	\$1,050,000
Wastewater System	\$0	\$100,000	\$200,000	\$1,000,000	\$1,140,000
Roadways	\$0	\$227,000	\$525,000	\$525,000	\$1,100,000
South Market Road Improvements*	\$0	\$300,000	\$300,000	\$300,000	\$300,000
Surface Water	\$0	\$12,000	\$25,000	\$25,000	\$235,000
Other Utilities	\$0	\$46,000	\$110,000	\$110,000	\$215,000
Power facility upgrade**	\$0	\$0	\$400,000	\$400,000	\$400,000
Total Estimated Cost (2004)	\$0	\$900,000	\$2,360,000	\$3,160,000	\$4,440,000

\*South Market Road improvements include approximately \$225,000 for upgrading pavement to project entrance plus \$75,000 for construction of southbound right hand turn Road.

\*\*Power Facility upgrade funded through cooperative agreement with Bonneville Power Administration

Estimated absorption rates are included in Table 3-41. An absorption rate is the amount of time it takes for an available property to be rented or sold. Absorption rates are difficult to estimate in rural areas without a lot of market activity. These rates are estimated based on historical trends of business growth in the Pendleton area, and assume that current regional and national economic trends continue.

<b>Table 3-41 Estimated Absorption Rate by Alternative</b>					
	<b>Alternative A</b>	<b>Alternative B</b>	<b>Alternative C</b>	<b>Alternative D</b>	<b>Alternative E</b>
Total Acres Developed	0	21	58	58	142
Services	None	On site well, septic	Community water, on site septic	Community water, sewer	Community water, sewer
# Lots (7-10 acres)	0	3	1-3 lots (18 acres total)	1-3 lots (18 acres total)	11 lots (80 acres total)
Absorption Estimate, Smaller Lots	N/A	15 years	5-10 years		40 years
No. of Lots (20 acres)	0	--	40 acres in 1 or 2 lots	40 acres in 1 or 2 lots	60 acres in 2 or 3 lots
Absorption Estimate, Larger Lots	N/A	N/A	15 years	10 years	15 years
Total		15 years	15 years	10 years	40 years

\*How long it would take to fully lease all developed lots

Even though Alternative C is 58 acres compared to Alternative B's 21 acres, they are each estimated to take 15 years to lease up. Alternative B has rural fire protection (tanker truck), which would preclude certain types of businesses. Alternative C would be more attractive due to the presence of on-site fire flows through the community water system.

Alternative D is presumed to be more attractive and easier to lease-up than Alternative C, since it has community wastewater service and could accommodate businesses with more than 85 employees.

It is difficult to estimate how long it would take 142 acres (Alternative E) to lease up, since there is not a comparable industrial site in the area with interstate access that does not have extensive wastewater treatment capacity.

Table 3-42, presented at the end of this section, provides a summary of socioeconomic impacts by alternative.

## **Alternative A (No Action)**

### **Direct Impact**

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#### *Employment*

No new jobs would be created as ongoing agricultural activities at the project site would continue. The two jobs that are currently involved in existing agricultural activities at the site are not dependent on this parcel remaining in agricultural use. Ongoing agricultural activities would not create construction jobs or additional permanent jobs.

Employment on the Reservation would likely continue at the same level as present (total CTUIR employment approximately 1,094 including 383 CTUIR enrolled members, with an unemployment rate of American Indians and Alaska Natives of at least 11%, and an estimated 100 enrolled CTUIR members actively seeking work) (CTUIR website, [www.umatilla.nsn.gov](http://www.umatilla.nsn.gov); U.S. Census 2000; and CTUIR Tribal Employment Rights Office, personal communication, 2004). There may be some modest increases over the next five to ten years in the overall governmental and private sector.

#### *Cost of Infrastructure*

Ongoing agricultural activities would not require additional infrastructure for infrastructure construction.

#### *Tax Revenues*

CTUIR does not derive any tax revenues from existing agricultural operations at the proposed project site. Ongoing operations at the TERF (Tribal Environmental Recovery Facility, CTUIR Transfer Station) are subject to a CTUIR solid waste transfer station tax (Zimmerman 2004). The CTUIR would continue to rely on existing sources of revenue (primarily CTUIR enterprises including Wildhorse Casino Resort, and federal contracts) to fund essential governmental services on the Umatilla Indian Reservation.

#### *Small Business Opportunities on Reservation*

No additional small business opportunities would be created from ongoing agricultural activities at the project site.

### *Workforce Training Opportunities*

There would be no foreseeable additional workforce training opportunities for CTUIR programs to provide job training from ongoing agricultural activities at the project site.

### *Agricultural Operations*

Existing agricultural activities at the proposed project site would continue. CTUIR revenues from the Farm Enterprise would continue at an estimated \$12,000 per year.

## **Indirect Impact**

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### *Jobs Created*

Tribal Government and Wildhorse Resort would be expected to maintain current employment levels or possibly expand employment slightly. An estimated 5-7 jobs would be created on the Reservation per year as a result of these trends. These jobs would not meet the projected need for 30 jobs/year for young CTUIR members entering the workforce over the next 14 years.

### *Small Business Opportunities and Workforce Training*

Tribal members would likely continue to create businesses at about the same rate as they have been over the past five years, both on and off-Reservation. Opportunities for small business growth on the Reservation would continue to be hindered by the lack of buildable, “shovel-ready” land. Since ongoing agricultural activities at the proposed project site require very little labor, the proposed project site would not create additional opportunities for workforce investment programs.

### *Property Values*

Values of residential and agricultural property in the vicinity of the project site would likely continue to maintain and/or increase over time in a manner consistent with values of similar Reservation and off-Reservation properties that are not in the project vicinity.

## Cumulative Impact

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### *Income and Poverty Levels*

The income and poverty levels documented by the 2000 U.S. Census would likely change slowly over time, with increases in income levels and decreases in poverty levels, as a result of long-term improvements in educational attainment, given the resources that CTUIR is directing toward educational assistance for CTUIR members of all ages. It is likely that these long-term changes would not have the magnitude of the changes in income and poverty levels observed between the 1990 and 2000 Census counts, since the projected job creation rate of 5-7 jobs per year over the next 5-10 years is not comparable to the average of approximately 95 jobs that were created per year during that decade with the establishment of the Wildhorse Resort and subsequent expansion of tribal government operations.

### *Reservation Employment*

Severe downturns in either of these two areas could also result in employment losses at either CTUIR government or Wildhorse Resort or both. Since CTUIR and Wildhorse together account for 86% of on-Reservation employment of American Indians and Alaska Natives, employment losses at either would have a negative impact on the Reservation economy.

***Additional employment opportunities, tax revenues, small business opportunities, and workforce training opportunities could be created as a result of the commercial development proposed along Highway 331 north of Interstate 84.***

### ***Environmental Justice***

No impact.

### ***Impacts Common to Alternatives B-E***

#### ***Direct impact***

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##### *Employment*

### Construction Jobs

Jobs would be created in the construction of buildings under any of the proposed action alternatives. Since these buildings would be financed and built by individual businesses to meet their own needs, they would be likely constructed separately over a period of time. The timing and number of jobs created is difficult to estimate. One 15,000 square foot building, at an estimated cost of \$70 per square foot, could result in an estimated creation of 33 construction jobs over a three month period, for example.

Umatilla County had a construction workforce of 1,067 workers, including 281 employees specifically working in building construction, in 2003 (Hodek, 2004.)

### Permanent Jobs

Permanent job creation would be likely to occur over a period of time, varying with each alternative. Factors used to estimate permanent job creation include:

- Design capacity of infrastructure (water, sewer, and fire flow protection system)
- Number of lots leased and business facilities constructed
- Allowable business types given CTUIR Land Development Code
- Likely business types given demonstrated market demand in region

Under any of the action alternatives, business park tenants would be required as a condition of their lease to sign a First Source Hiring Agreement with CTUIR. Businesses locating in the business park would consider qualified CTUIR member applicants prior to considering other applicants for new jobs created. CTUIR would direct existing job training and assistance programs to support CTUIR enrolled members in applying for and gaining employment.

### ***Cost of Infrastructure***

Alternatives B-E would each require CTUIR financing of proposed infrastructure (see cost summary, Table 3-40). Proposed financing would be repaid by projected lease revenues from business park tenants.

## **Tax Revenues**

The proposed development would be located on a parcel of land owned by the United States that is held in trust for the Confederated Tribes of the Umatilla Indian Reservation (trust land). The CTUIR would be entering into a consensual relationship with all entities or individuals locating any business or conducting any activities at the Coyote Business Park through the leasing of property, providing essential governmental services (e.g. police, fire, emergency medical response, water, sewer, tribal court, land use regulations, etc.), easements or access to the sites.

All business activities conducted on the proposed Coyote Business Park would be subject to Federal income taxes, unless specifically exempted. There could be incremental increases in Federal income taxes resulting from Alternatives B-E.

There could be incremental increases in State income taxes and County personal and real property tax assessments from businesses locating within Coyote Business Park. Anticipated increases in tax revenues are extremely difficult to forecast given variables that include business operations and structure. However, overall incremental increases in tax revenues would be projected under any of these Alternatives (B-E).

As a result of the CTUIR Tribal Enterprise Zone, there would be an initial 3-5 year local (Umatilla County) property tax abatement for eligible businesses locating within the proposed business park. After this initial period, local property taxes would be assessed on qualifying property within the proposed business park.

Some incremental increases in CTUIR Tribal Utility Taxes, Solid Waste Transfer Station Taxes and the Motor Vehicle Fuel Taxes would be anticipated under Alternatives B-E. The actual increase in any tax revenues would depend on several factors such as the amount of the capital investments in new utility property located at the Coyote Business Park, the increased usage of the Tribal Solid Waste Transfer Station, and any incremental increase in motor vehicle fuel sales. In addition, the CTUIR has the authority to enact additional taxes such as: property taxes, sales and use taxes, excise taxes, business and occupation taxes, etc., to implement of the State of Oregon's

recognition of the Coyote Business Park as part of the CTUIR Tribal Enterprise Zone.

### ***Small Business Opportunities on Reservation***

There would be increased opportunities for both tribal and non-tribally owned businesses to provide goods and services to tenants of the business park. There also would be opportunity for businesses owned by CTUIR members to locate in the business park. This would be an improvement over current conditions, where there is no buildable land for CTUIR-member owned businesses on the Reservation.

### ***Workforce Training Opportunities***

There would be the opportunity for CTUIR programs (including the Tribal Employment Rights Office and the Workforce Training programs) to provide job training in tandem with new business operations in order to maximize the benefit to CTUIR members and ensure a quality workforce.

## **Cumulative Impact**

***Additional employment opportunities, tax revenues, small business opportunities, and workforce training opportunities could be created as a result of the commercial development proposed along Highway 331 north of Interstate 84.***

### ***Environmental Justice***

The Coyote Business Park would be controlled and managed by the CTUIR Board of Trustees, or some duly-appointed representative or agent thereof. The Board of Trustees is elected by popular vote of the General Council on a biannual basis. Businesses seeking to locate in the business park would abide not only by all applicable tribal and federal laws, but would also be required to have a lease approved by the Board of Trustees and BIA. The lease establishes Tribal control of business activities and supports CTUIR regulations. This ensures that the site not become a location for undesirable business activities.

## **Alternative B (21 acres)**

### **Direct Impact**

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#### *Employment*

##### Construction Jobs

An estimated 19 jobs would result from the construction of water, sewer, road, and storm drainage systems associated with Alternative B. These jobs would last an estimated three months (maximum). These systems would be likely constructed by a private construction company under contract to the CTUIR in a single construction phase. This level of construction employment could easily be met by the incumbent construction workforce in Umatilla County, which included 1,067 construction workers in 2003 (Hodek, 2004).

##### Permanent Jobs

Estimated permanent employment resulting from Alternative B would be 45 jobs once all 21 acres are leased with an estimated 3 businesses employing approximately 15 people each. This employment would likely occur over a period of time estimated at 15 years (see Table 3-41).

The constraining factor on job creation under Alternative B would likely be the types of industries allowable with rural fire flow protection. These are industries that typically do not use hazardous or flammable chemicals and have inventory types and levels that would be adequately protected by rural fire flow protection (as opposed to inventory-intensive industries that would more typically require sprinkler protection). Likely industries would include specialty trade contractors, recyclers, small manufacturers, repair and maintenance, and other similar uses.

Although a community well and septic system could accommodate more than 15 employees per business under this alternative, it would be likely that the lack of on-site fire flow protection would limit the types of businesses to those with fifteen employees or fewer. Based on observations of the regional economy, it would be likely that a business operating with these constraints would be in the 5-10 employee range, but 15 is assumed to be conservative in estimating the impact.

It is estimated that in a 15 year time frame Alternative B's three lots would be built out, occupied by three businesses, and employing an estimated 15 people each, for total direct job creation of 45.

#### *Cost of Infrastructure*

Under Alternative B, the proposed improvements would cost an estimated \$900,000.

#### *Agricultural Operations*

Existing agricultural activities at the proposed project site would continue. CTUIR Tribal Farm Enterprise would continue to farm the undeveloped portion of the site, and the private lessee would continue to farm the portion of the site that they have under lease. The CTUIR Tribal Farm Enterprise would be farming approximately 21 acres fewer than is presently farmed, but this would not result in a loss of employment at the Farm Enterprise. CTUIR revenues from the Farm Enterprise would decline slightly (Rochelle, 2004).

### **Indirect Impact**

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#### *Jobs Created and Economic Impact*

Each new dollar spent in an economy has some ability to re-circulate in that economy and create additional local spending. Using an estimate of indirect economic benefit derived from a 1996 study of Umatilla and Morrow counties (the IMPLAN model, see Appendix H), the construction of infrastructure costing an estimated \$900,000 under Alternative B would generate an additional \$1,098,000 in the local economy (Umatilla County). These dollars would result from the construction project's purchasing of goods and services in the local economy, and from the construction workers' purchases in the local economy.

Business facility construction would also have an indirect economic impact, which is more difficult to estimate given the uncertainty of timing of building construction. One 15,000 square foot building costing \$1.05 million, for example, would result in an additional \$1,365,000 (\$1.05 million times 1.30 multiplier) of expenditures in the local economy, according to the IMPLAN model.

### *Property Values*

According to area appraisers and realtors (Frederickson 2004, Purchase 2004), agricultural parcels surrounding an Eastern Oregon or Southeastern Washington industrial park may see a slight rise in value if there is the perception by surrounding area landowners that the industrial park could expand. Under Alternative B, there would be additional room to expand the business or industrial park within the subject parcel, and therefore surrounding parcels would not be expected to see any increase in value due to the business park.

Given the scale of the proposed construction, the distance from area residences, and the projected strong continuing demand for rural residential parcels, it is unlikely that Alternative B would have an impact on surrounding residential land values.

## **Cumulative Impact**

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### *Income and Poverty levels*

There may be a moderate increase in average income and decrease in poverty rates among CTUIR members resulting from Alternative B. The magnitude of this potential effect is difficult to estimate.

### *CTUIR Revenues and Reservation Employment*

The addition of new business sectors on the Reservation would provide opportunities for CTUIR members and Reservation residents to be employed in an industry other than tourism or government. This would mean that even in the event of severe downturns in either of these two areas and employment losses at either CTUIR government or Wildhorse Resort, there would still be CTUIR members and Reservation residents employed.

## **Alternative C (58 acres)**

### **Direct Impact**

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#### *Employment*

##### Construction Jobs

An estimated 39 jobs would result from the construction of water, sewer, road, and storm drainage systems associated with Alternative C. These jobs would last an estimated four

to five months. These systems would be likely constructed in a single construction phase by a private construction firm under contract to the CTUIR.

Construction of the four anticipated building facilities would result in additional construction job creation. Since these buildings would be financed and built by individual businesses to meet their own needs, they would be likely constructed separately and over unpredictable intervals of time. While there would be additional construction job creation resulting from these buildings, the timing and number of jobs created is difficult to estimate. Construction of the proposed “anchor tenant” facility, a 400,000 square foot tilt-up concrete warehouse, would result in an estimated 235 jobs over an eight month time frame, for example.

This level of construction employment could easily be met by the incumbent construction workforce in Umatilla County, which included 1,067 construction workers in 2003 (Hodek 2004.)

#### Permanent Jobs

An estimated 160 permanent jobs would be created as a result of this alternative.

Factors used to estimate employment include:

- Design capacity of infrastructure (water, sewer, and fire flow protection system)
- Number of lots leased and business facilities constructed
- Allowable business types given CTUIR Land Development Code
- Likely business types given demonstrated market demand in region

The proposed connection to the Mission Community Water system would support on-site gravity fed fire flow protection, including hydrants and sprinkler systems. Under this Alternative, the proposed business park site would be attractive for a variety of business types that require this level of fire protection, whether for inventory protection or operational safety or both.

The design capacity assumes a single large “anchor” tenant. Under Alternative C, that anchor tenant could have no more

than 85 employees due to the design constraint of the proposed on-site septic system and drainfield.

Considering other available industrial land in the area and historical rates of business expansion in the area, it would take an estimated 15 years to lease all three lots (see Table 3-41).

It is estimated that in a 15-year time frame Alternative C's four lots would have one anchor tenant (80 employees) and three smaller tenants (average 27 employees each), for complete build-out and total estimated employment of 160.

According to the CTUIR Tribal Employment Rights Office, the addition of 80 semi-skilled jobs would likely provide employment opportunities for many tribal members currently seeking employment on the Reservation (Azure, 2004). Additionally, these jobs would provide an opportunity for young tribal members entering the workforce to gain employment experience while earning a living wage.

#### *Cost of Infrastructure and Lease-Up Time*

Under Alternative C, the proposed improvements would cost an estimated \$2,360,000.

#### *Agricultural Operations*

Existing agricultural activities at the proposed project site would continue. CTUIR Tribal Farm Enterprise would continue to farm the undeveloped portion of the site, and the private lessee would continue to farm the portion of the site that they have under lease. The CTUIR Tribal Farm Enterprise would be farming approximately 68 acres fewer than is presently farmed (when considering lots, roads, and utility corridors), but this would not result in a loss of employment at the Farm Enterprise. CTUIR revenues from the Farm Enterprise would decline slightly (Rochelle, 2004).

### **Indirect Impact**

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#### *Jobs Created and Economic Impact*

Each new dollar spent in an economy has some ability to re-circulate in that economy and create additional local spending. Using an estimate of indirect economic benefit derived from a

1996 study of Umatilla and Morrow counties (the IMPLAN model, see Appendix H), the construction of infrastructure costing an estimated \$2,360,000 under Alternative C would generate an additional \$2,879,200 in the local economy.

These dollars result from the construction project's purchasing of goods and services in the local economy, and from the construction workers' purchases in the local economy (Umatilla County). Business facility construction would also have an indirect economic impact, which is more difficult to estimate given the uncertainty of timing of building construction. One building costing \$1.05 million, for example, would result in an additional \$1,365,000 (\$1.05 million times 1.30 multiplier) of expenditures in the local economy, according to the IMPLAN model.

### *Property Values*

According to area appraisers and realtors (Frederickson, 2004, Purchase, 2004), agricultural parcels surrounding an Eastern Oregon or Southeastern Washington industrial park may see a slight rise in value if there is the perception that the industrial park could expand. Under Alternative C, there is additional room to expand the business or industrial park within the subject parcel, and therefore surrounding parcels would not be expected to see any increase in value due to the business park.

Given the distance of the proposed construction from area residences, the proposed visual screening and light pollution prevention measures, and the projected strong continuing demand for rural residential parcels, it is unlikely that Alternative C would impact surrounding residential land values.

## **Cumulative Impact**

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### *Income and Poverty levels*

There would likely be an increase in average income and decrease in poverty rates among Tribal members resulting from Alternative C.

The addition of new business sectors on the Reservation would provide opportunities for CTUIR members and Reservation residents to be employed in an industry other than tourism or government. This would mean that even in the event of severe downturns in either of these two areas and employment losses

at either CTUIR government or Wildhorse Resort, there would still be CTUIR members and Reservation residents employed.

***Alternative D***

Impacts are the same as Alternative C, with the following exceptions:

**Direct Impact**

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*Construction Jobs*

An estimated 46 temporary jobs would result from the construction of water, sewer, road, and storm drainage systems associated with Alternative D.

*Permanent Jobs*

An estimated 275 permanent jobs would be created over a ten-year time frame under Alternative D. There would be more jobs projected under this Alternative because the community wastewater connection would support more employees than the septic system proposed under Alternative C. Added to the estimated number of new jobs created on the Reservation outside Coyote Business Park, the total Reservation job increase over a ten year period would be about 315 jobs under Alternative D.

Estimated permanent employment resulting from Alternative D would be 275 jobs once all 58 acres are leased to an estimated 4 businesses. This employment would likely occur over a period of time. Considering other available industrial land in the area and historical rates of business expansion in the area, it would take an estimated 10 years to lease all four lots (see Table 3-41.)

*Infrastructure Cost*

Under Alternative D, the proposed improvements would cost an estimated \$3,160,000.

*Revenues Created*

Projected revenues from the leasing of 58 acres would be sufficient to cover projected payments needed to finance this level of improvements.

## **Indirect Impact**

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### *Jobs created and Economic Impact*

Infrastructure proposed for Alternative D costing an estimated \$3,160,000 would result in an additional \$3,855,200 spent in the local economy.

## **Alternative E**

### **Direct Impact**

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#### *Employment*

##### Construction Jobs

An estimated 59 jobs would result from the construction of water, sewer, road, and storm drainage systems associated with Alternative E. These jobs would last an estimated six months. These systems would likely be constructed in a single construction phase by the CTUIR.

Construction of the thirteen anticipated building facilities would result in additional construction job creation. Since these buildings would be financed and built by individual businesses to meet their own needs, they would likely be constructed separately and at intervals of time. While there would be additional construction job creation resulting from these buildings, the timing and extent of jobs created is difficult to estimate. The proposed “anchor tenant” under either of these Alternatives, a 400,000 square foot tilt-up concrete warehouse, would result in an estimated 235 jobs over an eight month time frame, for example.

This level of construction employment could easily be met by the incumbent construction workforce in Umatilla County, which included 1,067 construction workers in 2003 (Hodek, 2004.)

##### Permanent Jobs

Estimated permanent employment resulting from Alternative E would be 546 jobs once all 142 acres are leased with an estimated 13 businesses. This employment would likely occur over a period of time. Considering other available industrial land in the area and historical rates of business expansion in the area, it would take an estimated 40 years to lease all three lots (see Table 3-41).

Up to an estimated 546 jobs could be created under this Alternative within this timeframe.

The estimate of 500-546 employees was the result of estimating that an “anchor tenant” would employ 200 people, and that the remaining 12 lots in the park would employ

between 5-60 employees each (averaging 29 employees each).

The employment projection for this Alternative was not based on the full design capacity of the infrastructure (at 5 employees per acre, total design capacity would be 695 employees.) This figure was assumed to be unrealistic given the demonstrated market demand for similar industrial parcels in Northeast Oregon.

### *Cost of Infrastructure*

Under Alternative E, the proposed improvements would cost an estimated \$4,440,000.

### *Agricultural Operations*

Existing agricultural activities at the proposed project site would continue. CTUIR Tribal Farm Enterprise would continue to farm the undeveloped portion of the site, and the private lessee would continue to farm the portion of the site that they have under lease. The CTUIR Tribal Farm Enterprise would be farming approximately 140-150 acres fewer than is presently farmed (when considering lots and also roadways and utility corridors), but this would not result in a loss of employment at the Farm Enterprise. CTUIR revenues from the Farm Enterprise operations on the parcel would decline by roughly half (Rochelle, 2004).

## **Indirect Impact**

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### *Jobs Created and Economic Impact*

According to the CTUIR Tribal Employment Rights Office, the addition of 546 semi-skilled jobs would provide employment opportunities for many tribal members currently seeking employment on the Reservation (Azure, 2004) as well as for the projected numbers of young CTUIR members entering the workforce in the coming 14 years.

Each new dollar spent in an economy has some ability to re-circulate in that economy and create additional local employment. Using an estimate of indirect economic benefit derived from a 1996 study of Umatilla and Morrow counties (the IMPLAN model, see Appendix H), the \$4,400,000 spent on infrastructure under Alternative D would generate an additional

\$5,416,800 in the local economy. These dollars would result from the construction project purchasing of goods and services in the local economy, and from the construction workers' purchases in the local economy. Business facility construction would also have an indirect economic impact, which is more difficult to estimate given the uncertainty of timing of building construction. One building costing \$1.05 million, for example, would result in an additional \$1,365,000 (\$1.05 million times 1.30 multiplier) of expenditures in the local economy, according to the IMPLAN model.

### *Property Values*

According to area appraisers and realtors (Frederickson, 2004, and Purchase, 2004), agricultural parcels surrounding an Eastern Oregon or Southeastern Washington industrial park may see a slight rise in value if there is the perception that the industrial park could expand. Under Alternative E, there would still be additional room to expand the business or industrial park within the subject parcel, and therefore surrounding parcels would not be expected to see any increase in value due to the business park.

Given the distance from area residences, the proposed visual screening and light pollution prevention measures, and the projected strong continuing demand for rural residential parcels, it is unlikely that Alternative E would impact surrounding residential land values.

## **Cumulative Impact**

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### *Income and Poverty levels*

There would likely be an increase in average income and decrease in poverty rates among Tribal members resulting from Alternative E.

### *Reservation Employment*

The addition of new business sectors on the Reservation would provide opportunities for CTUIR members and Reservation residents to be employed in an industry other than tourism or government. This would mean that even in the event of severe downturns in either of these two areas and employment losses at either CTUIR government or Wildhorse Resort, there would still be CTUIR members and Reservation residents employed.

**Table 3-42  
Socioeconomic Effects Summary**

<b>Issue</b>	<b>Alternative A</b>	<b>Alternative B</b>	<b>Alternative C</b>	<b>Alternative D</b>	<b>Alternative E</b>
<b>Direct Impacts</b>					
Employment					
Construction Jobs (Infrastructure)	0	19	39	46	59
Permanent Jobs	0	45	160	275	546
Cost of Infrastructure	No cost for additional infrastructure.	\$900,000	\$2,360,000	\$3,160,000	\$4,440,000
Estimated Time to Lease All Lots	N/A	15 years	15 years	10 years	40 years
Agricultural Operations and Revenues on Parcel	Existing revenues of \$12,000 per year would continue.	Estimated revenues of \$11,292	Estimated revenues of \$9,750		Estimated revenues of \$6,250
Tax Revenues	No additional tax revenues from ongoing agricultural activities at site.	Incremental increases in Federal, State, local (County), and CTUIR tax assessments resulting from investment at proposed project site.			
<b>Indirect Impact</b>					
Economic Impact from infrastructure	\$0	\$893,040	\$2,470,744	\$3,661,464	\$5,566,616
Small Business Opportunities	No sites ready for immediate business occupation	3 lots available for immediate business occupation	4 lots available for immediate business occupation		13 lots available for immediate business occupation
Property Values	No impact	No impact.			
<b>Cumulative Impact</b>					
Income and Poverty Levels	No impact	Modest increase in income & decrease in poverty.	Likely increase in per capita income and decrease in poverty.		
Environmental Justice	Direction of economic growth on CTUIR lands controlled by popularly elected Board of Trustees.				

## 3.11 Emergency Response

Emergency Response concerns include the ability of fire, medical police, and emergency services to respond to incidents at the proposed Coyote Business Park.

### **Existing Conditions**

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#### ***Fire***

The Umatilla Tribal Fire Department (UTFD) is responsible for fire prevention and suppression, public education, emergency medical services and hazardous materials emergency response on the Umatilla Reservation. The UTFD provides fire services to a 450 square mile area and ambulance service to a 600 square mile area. The Department administers the Uniform Fire Code, the Fire Prevention Code, and Emergency Services Code. The Department currently has seven full time personnel, including three certified paramedics, and 24 volunteer fire fighters and maintains mutual aid with adjacent fire departments which include: Pendleton, East Umatilla County, La Grande, Pilot Rock, Helix, and the Oregon Department of Forestry.

The primary station is at located at 73382 Confederated Way.

#### ***Medical Services***

Medical services are provided by St. Anthony Hospital in Pendleton and by Yellowhawk Tribal Health Center. St. Anthony Hospital is a 49-bed facility that provides complete medical/surgical, ob/gyn, critical care, surgery services, and state of the art diagnostic imaging services. The Hospital has a Trauma Level 3 Emergency Room that is open 24 hours a day and has over 45 physicians and 250 employees. St. Anthony Hospital is accredited by the Joint Commission on the Accreditation of Health Care Organizations (JCAHO). Yellowhawk Tribal Health Center, which is compacted to the Tribe by the Indian Health Service in conjunction with the CTUIR Tribal Health Commission, also provides health services for American Indians in the area of the Umatilla Indian Reservation, which include outpatient clinical care, pharmacy and medical lab, public health services, and contract health services.

#### ***Police Protection and Emergency Response***

Law enforcement services for all classes of land on the Reservation are provided by the Umatilla Tribal Police Department (UTPD). In addition, the UTPD has mutual aid agreements with the following: Umatilla County Sheriff's Department, the Oregon State Police, and other local municipal police departments. The Tribal Police Department is located at 73303 July Grounds Road in (Mission)

Pendleton. The department has a total of fifteen sworn police officers and five civilian staff. They provide 24-hour, 7-days a week services 365 days per year to the Mission community. Officers are state certified. The Communication Division handles dispatch services to the Police, Fire and Emergency Medical Services.

***Criminal and Civil Jurisdiction***

Non-Indian employees working on the Reservation are subject to state and federal criminal law and to CTUIR civil law. Non-Indian employees are subject to the criminal jurisdiction of the state and/or federal courts, not CTUIR Tribal Court. CTUIR Tribal Police are cross-deputized with the ability to enforce state criminal laws against non-Indians on the Reservation.

**Emergency Response Impact Analysis**

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***Alternative A (No Action)***

**Direct Impact**

No new community service or utility needs are anticipated at the project site.

**Indirect Impact**

None.

**Cumulative Impact**

None.

***Alternative B, C, D and E***

**Direct Impact**

The CTUIR Tribal Police Department would be able to extend patrolling to the development area and would respond to calls. The CTUIR Fire Department may need to expand staff capacity to respond to calls, although on an emergency basis the CTUIR Fire Department does have mutual aid agreements with other local fire departments.

**Indirect Impact**

None. There would be no expansion of state or federal jurisdiction as a result of the proposed project (Williams, 2004).

**Cumulative Impact**

None.

## 3.12 Community Infrastructure

CTUIR community infrastructure includes community water and sewer systems, utilities, and housing services. Fire, police, and emergency response are considered under 3.11, Emergency Response.

### **Existing Conditions**

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#### ***CTUIR Community Water System***

The CTUIR operates a community water system that serves the Mission community and the Wildhorse Resort. The water system is supplied by five wells and has two pressure zones:

1. The lower elevation zone is fed by gravity flow from two 500,000-gallon reservoirs and four water supply wells that serve the Mission community.
2. The high elevation zone, which services the Wildhorse Resort (including gaming area, golf course, RV park, and interpretive center,) is supplied by a continuously operating booster pumping station located at the Tribe's two 500,000-gallon reservoirs. Well No. 5 also supplies water directly into the high level system via a variable frequency drive (VFD) well pump. The booster pumping station is equipped with a series of variable frequency electric driven pumps and one diesel engine emergency pump. The high level system can reliably provide a water supply of 3,000 to 4,000 gallons per minute (gpm) in conjunction with Well No. 5.

Existing demands in the high level system vary considerably seasonally with high level demands occurring in summer periods when water is being supplied to the golf course for irrigation purposes and when tourist activity is highest in the interpretive center, RV park, and gaming facilities. A permit from this system (issued by CTUIR Water Resources as per the CTUIR Water Code) would likely be required by any of the proposed action alternatives.

#### ***CTUIR Community Wastewater System***

The CTUIR owns and operates a wastewater collection system that services the Mission community, Wildhorse Resort, and Arrowhead Travel Plaza. The wastewater system is a collection system that gravity feeds into the City of Pendleton's wastewater treatment facilities through a 10-inch gravity line. The CTUIR does not have its own wastewater treatment facilities. There is adequate capacity in the City of Pendleton wastewater treatment facility for additional flows (Patterson). However, there is limited excess capacity in the wastewater collection line between Pendleton and Mission as discussed in *Umatilla Master Water and Sewer Plan, January 1999*.

This Plan is currently under revision, which will result in updated recommendations regarding capacity of the wastewater collection line and timing of any necessary additional capacity improvements to meet the long-term needs of the Mission community.

An 8-inch gravity sewer line provides service to the Resort area and Arrowhead Travel Plaza. This 8-inch line gravity feeds into the 10-inch trunk line for transport to the Pendleton treatment plant. Also in this area is an existing lift station that collects wastewater from Arrowhead Travel Plaza (owned by CTUIR) and restaurant (privately owned) and pumps the wastewater through a 4-inch forcemain to the 10-inch community trunk line. The lift station is located at the truck stop and is served by two 15 Hp, 125 gpm pumps.

### ***Telecommunications***

Telecommunication services in the project vicinity are provided by Qwest Corporation (Qwest). Contact with the service provider has indicated that both copper and fiber optic services are currently available at the corner of Mission Road and Highway 331, approximately three miles north of the proposed project site. Copper lines extend south to the casino; however, Qwest has indicated that these lines are 70 to 75 percent utilized. Fiber optic service currently extends to the Bureau of Indian Affairs (BIA) office east of the Highway 331 intersection. Qwest has recently made DSL service available in the Mission area. Cell phone service varies in availability across the Reservation but is generally available in the area proposed for the business park.

### ***Electricity***

PacifiCorp, doing business as Pacific Power & Light Company (Pacific Power), provides electrical service into the project area from a substation located north of the Umatilla River on the west side of Pendleton. This substation services the surrounding area with radial distribution lines. Umatilla Electrical Cooperative (UEC) also provides power to the project vicinity.

Bonneville Power Administration high power transmission lines transition into the project area, and a substation is located approximately two miles west of the site.

### ***Natural Gas***

Cascade Natural Gas Corporation (Cascade) currently provides gas service to the Arrowhead Truck Plaza located north of the I-84 interchange on the east side of Highway 331. According to Cascade, a 4-inch distribution line extends along the east side of the Highway 331

right-of-way to a point even with the north edge of the truck stop building.

### ***Housing***

Living on the Reservation is a right reserved for CTUIR members by the Treaty of 1855. Any member of a federally recognized tribe whose personal residence is within the boundaries of a federally recognized reservation and who earns income within Indian Country (see 18 USC 1151; 25 USC 1903) is exempt from the State of Oregon personal income taxes per ORS 316.777.

There are 1,013 occupied housing units (both rentals and owner-occupied homes) on the Reservation, mostly single-family homes (U.S. Census, 2000). The most densely populated area on the Reservation is in Mission, where the Umatilla Reservation Housing Authority maintains 197 subsidized public housing units. Over 100 people are on the Housing Authority waiting lists for the various sizes of apartments and homes (Pleninger, 2004.)

American Indians are underrepresented among homeowners on the Reservation. Out of the 705 owner-occupied housing units, only 34% are owned by American Indians and Alaskan Natives, although American Indians and Alaskan Natives comprise 50% of the Reservation population (U.S. Census, 2000).

Over the past ten years, the number of housing units on the Reservation has grown by 20%, as 25 rental homes and 145 owner-occupied homes have been built. American Indian homeownership has increased over the same period, as 93 additional American Indians became homeowners, but this increase has not yet made up the difference between Indian and non-Indian homeownership as a percentage of total homeownership as noted above.

Housing of all types could be considered to be at a premium on the Reservation. The average listed home price on the Reservation in 2004 was \$182,000 (Hufford 2004), compared to the average home price in Pendleton of \$99,900 (Pendleton Chamber of Commerce 2004).

There are numerous barriers to housing development on the Reservation. These include lack of buildable land; fractionated land ownership; lack of estate planning that results in lengthy and sometimes disputed inheritance of land; and zoning constraints (Roloff 2004.)

In 2000, the CTUIR Tribal Planning Office considered various parcels on the Reservation for suitability for housing development (CTUIR Tribal Planning Office 2000.) One of the parcels identified as most suitable for housing development is an 80 acre parcel located immediately south of the proposed project site, south of Tutuilla Church Road and west of South Market Road.

## Infrastructure Impact

A comparison of estimated consumptive water use in each alternative is provided in Table 3-43, while Table 3-44 provides a summary of effects by alternative at the end of this section.

**Table 3-43  
Estimated Consumptive Water Use Comparison (Acre Feet per Year)**

	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Employee Consumptive Use <sup>1</sup>	0	0.75	2.95	4.47	8.14
Incidental Industrial Use <sup>2</sup>	0	0.75	2.95	4.47	8.14
Site Landscaping Irrigation <sup>3</sup>	0	0.7	1.2	1.2	2.4
Visual Buffer Irrigation <sup>4</sup>	0	3.4	3.4	3.4	3.4
Total Projected Demand in Acre Feet Per Year	0	5.6 <sup>5</sup>	10.5	13.54	22.10
Water Source	N/A	New Community Well	CTUIR Community Water System		
Demand as % of current permitted capacity in CTUIR water system	N/A	N/A	1.4%	1.8%	2.9%
Required Water Permits?		CTUIR permit for new well	CTUIR permit for expansion of capacity in existing system		

<sup>1</sup> Based on an estimated 15 gallons per day per employee, 364 days/year; employment estimates are 45 employees for Alternative B, 160 for Alternative C, 275 for Alternative D, and 546 for Alternative E.

<sup>2</sup> Incidental industrial use would be washing equipment and is estimated to be equal to consumptive employee use.

<sup>3</sup> Landscaping is assumed to include 10' on either side of the business park access road, which is assumed to be ¼ mile long under Alternative B, ½ mile long under Alternative C and D, and 1 mile long under Alternative E.

<sup>4</sup> Visual Buffer is located along South Market Road and Tutuilla Church Road for an estimated distance of 30' wide and a total of 3,000' feet long.

<sup>5</sup> Water use estimate for Alternative B does not include water to support on-site fire flow protection such as in a reservoir or pond.

## **Alternative A (No Action)**

### **Direct Impact**

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No new community service or utility needs are anticipated at the project site.

### **Indirect Impact**

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Demand for on-Reservation housing would likely continue to be strong, due to the current shortage of all types of housing, relatively high average housing prices on the Reservation, and barriers to home construction on the Reservation. It is likely that CTUIR members would continue to seek affordable housing off-Reservation due to the lack of available housing of all types on the Reservation.

The 1999 CTUIR Water and Sewer Master Plan projects that future upgrades in the Mission wastewater collection system and expansion of the water system for residential and commercial purposes would be necessary over time, given projected population growth within the CTUIR Community Water and Sewer Plan boundaries. The 1999 Plan concludes that adding or replacing the existing wastewater collection line between Mission and Pendleton would be necessary at some point in the future, at an estimated cost of \$5 million. The Plan discusses acquiring or constructing additional wells to meet projected demand for drinking water with future residential and commercial needs.

### **Cumulative Impact**

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CTUIR members employed on the Reservation may continue to seek housing off-Reservation, losing the cultural and financial benefits (exemption from Oregon State Income tax) of living and working on-Reservation.

***There may be additional usage of the Mission Community Water and Sewer system, and increased demand for utility services, resulting from commercial development proposed along Highway 331 north of Interstate 84.***

### **Alternatives B, C, D, E**

All action alternatives would require extension of existing electric, natural gas, and telecommunications utilities. A more complete analysis of the capacity of the existing utilities in the proposed project area would be required to determine with certainty whether additional investments would be required to accommodate specific uses.

## **Alternative B (21 acres)**

### **Direct Impact**

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Projected water usage from Alternative B would be 5.6 acre feet per year when considering employee consumptive use, incidental industrial use, and landscaping and irrigation (see Table 3-42). This estimate does not include additional water to fight fires.

Alternative B would have no impact on the Mission Community water system as water would be provided from a newly constructed well on the proposed project site.

Alternative B would have no impact on the Mission Community wastewater collection system since wastewater treatment would be provided by septic tanks and drainfields.

A pond could be constructed to provide back-up fire flow storage, however, the cost of such a pond would likely be prohibitive for many small businesses. The estimated cost for a pond sized to provide minimal fire flows (two hours at 2000 gallons per minute) would be \$70,000. There is the potential that adjacent businesses could share a larger pond, which may decrease the cost to each.

### **Indirect Impact**

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Demand for on-Reservation housing would likely continue to be strong, due to the current shortage of housing, relatively high housing prices, and barriers to home construction. It is likely that CTUIR members would continue to seek affordable housing off-Reservation due to the lack of available housing of all types on the Reservation.

The 1999 CTUIR Water and Sewer Master Plan projects that future upgrades in the Mission wastewater collection system and expansion of the water system for residential and commercial purposes would be necessary over time, given projected population growth within the CTUIR Community Water and Sewer Plan boundaries. The 1999 Plan concludes that adding or replacing the existing wastewater collection line between Mission and Pendleton would be necessary at some point in the future, at an estimated cost of \$5 million. The Plan discusses acquiring or constructing additional wells to meet projected demand for drinking water with future residential and commercial needs.

### **Cumulative Impact**

---

CTUIR members employed at the business park may be required to seek housing off-Reservation and may then lose both the cultural

and financial benefits (exemption from Oregon State Income tax) of living and working on-Reservation.

***There may be additional usage of the Mission Community Water and Sewer system, and increased demand for utility services, resulting from commercial development proposed along Highway 331 north of Interstate 84.***

### **Alternative C (58 acres)**

#### **Direct Impact**

---

There would be an additional 10.5 acre feet of water withdrawn from the CTUIR Community Water system each year for employee consumptive use, incidental industrial use, landscaping and irrigation. This would be approximately 1.4% of the current water under permit to the CTUIR from the CTUIR Community Water system.

Although this level of water could be supplied by the aquifer which serves the existing community system (see Section 3.3), the community system is at its current maximum permitted capacity. A new water permit would be required from CTUIR Water Resources Commission before this additional water could be made available.

There would be no impact to the CTUIR wastewater system.

#### **Indirect Impact**

---

Demand for on-Reservation housing would likely continue to be strong, due to the current shortage of housing, relatively high housing prices, and barriers to home construction. It is likely that there would continue to be 100 low-income CTUIR members waiting for affordable housing, and an unknown number of CTUIR members waiting for opportunities to purchase homes.

The estimated average wage at an anchor distribution warehouse tenant would likely be in the \$9-\$15/hour range; that of an industrial assembly may be slightly higher. With average annual salaries of approximately \$19,000 to \$31,200, the demand is likely to be for affordable rental units and entry-level homes, which are already in very short supply on the Reservation. Already tribal members are seeking homes off-Reservation due to the shortage of affordable homes on the Reservation (Roloff 2004). Without construction of additional moderately priced housing on the Reservation, employees at the Business Park would likely be required to seek housing off-Reservation, whether in Pendleton or beyond.

The 1999 CTUIR Water and Sewer Master Plan projects that future upgrades in the Mission wastewater collection system and expansion of the water system for residential and commercial purposes would be necessary over time, given projected population growth within the CTUIR Community Water and Sewer Plan boundaries. The 1999 Plan concludes that adding or replacing the existing wastewater collection line between Mission and Pendleton would be necessary at some point in the future, at an estimated cost of \$5 million. The Plan discusses acquiring or constructing additional wells to meet projected demand for drinking water with future residential and commercial needs.

### **Cumulative Impact**

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CTUIR members employed at the business park may be required to seek housing off-Reservation and may then lose both the cultural and financial benefits (exemption from Oregon State Income tax) of living and working on-Reservation.

***There may be additional usage of the Mission Community Water and Sewer system, and increased demand for utility services, resulting from commercial development proposed along Highway 331 north of Interstate 84.***

### **Alternative D**

Impacts are the same as Alternative C, with the following exception.

### **Direct Impact**

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There would be an additional 13.54 acre feet of water withdrawn from the CTUIR Community Water system each year for employee consumptive use, incidental industrial use, landscaping and irrigation. This would be approximately 1.8% of the current water under permit to the CTUIR from the CTUIR Community Water system.

Although this level of water could be supplied by the aquifer which serves the existing community system (see Section 3.3), the community system is at its current maximum permitted capacity. A new water permit would be required from CTUIR Water Resources Commission before this additional water could be made available.

The CTUIR Mission Community wastewater collection system would be collecting an estimated additional 4,125 gallons per day (15 gallons per day water usage times estimated employees). This would be an increase of less than 1% in the total 85,000 gallons per day estimated wastewater flows (as measured in 1999)(White

Shield/Cooper JV 1999) and a small fraction of the 1.0 million gallon per day capacity of that system allowed by a 1978 agreement with the City of Pendleton (1978 Transfer Agreement between the Indian Health Service and the Confederated Tribes of the Umatilla Indian Reservation and the City of Pendleton).

## ***Alternative E***

### **Direct Impact**

---

There would be an additional 22.10 acre feet of water withdrawn from the CTUIR Community Water system each year for employee consumptive use, incidental industrial use, landscaping and irrigation. This would be approximately 2.9% of the current water under permit to the CTUIR from the CTUIR Community Water system.

Although this level of water could be supplied by the aquifer, which serves the existing community system, the community system is at its current maximum permitted capacity. A new water permit would be required from CTUIR Water Resources Commission before this additional water could be made available.

The CTUIR Mission Community wastewater collection system would be collecting an estimated additional 8,190 gallons per day (15 gallons per day water usage times estimated employees). This would be an increase of less than 1% in the total 85,000 gallons per day estimated wastewater flows in the collection system (as measured in 1999)(White Shield/Cooper JV 1999) and a small fraction of the 1.0 million gallon per day capacity of that system allowed by a 1978 agreement with the City of Pendleton (1978 Transfer Agreement between the Indian Health Service and the Confederated Tribes of the Umatilla Indian Reservation and the City of Pendleton).

### **Indirect Impact**

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Same as Alternative C, D.

### **Cumulative Impact**

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Same as Alternative C, D.

**Table 3-44  
Infrastructure Effects Summary**

<b>Issue</b>	<b>Alternative A</b>	<b>Alternative B</b>	<b>Alternative C</b>	<b>Alternative D</b>	<b>Alternative E</b>
<b>Direct Impacts</b>					
Electrical, Gas, and Telecommunications		More detailed analysis of capacity of current system to meet specific industrial demands			
Mission Community Water and Sewer System	Future upgrades required to meet projected population growth in Mission.				
	No immediate impact on existing water or sewer system.	Additional 10.5 acre feet per year from Community Water system.	Additional 13.54 acre feet per year from Community Water system.  Additional delivery of 4,125 gallons per day to the Community Wastewater collection line.	Additional 22.10 acre feet per year from Community Water system.  Additional delivery of 8,190 gallons per day to the Community Wastewater collection line.	
<b>Indirect Impact</b>					
Housing	Continued strong demand for housing of all types on Reservation.  Need for construction of affordable housing on the Reservation to accommodate existing workforce.	Continued strong demand for housing of all types on Reservation.  Need for construction of affordable housing on the Reservation to accommodate existing and projected workforce.			
<b>Cumulative Impact</b>					
Housing	CTUIR member employees may only find affordable housing off-Reservation, losing financial benefits of living and working on-Reservation.				