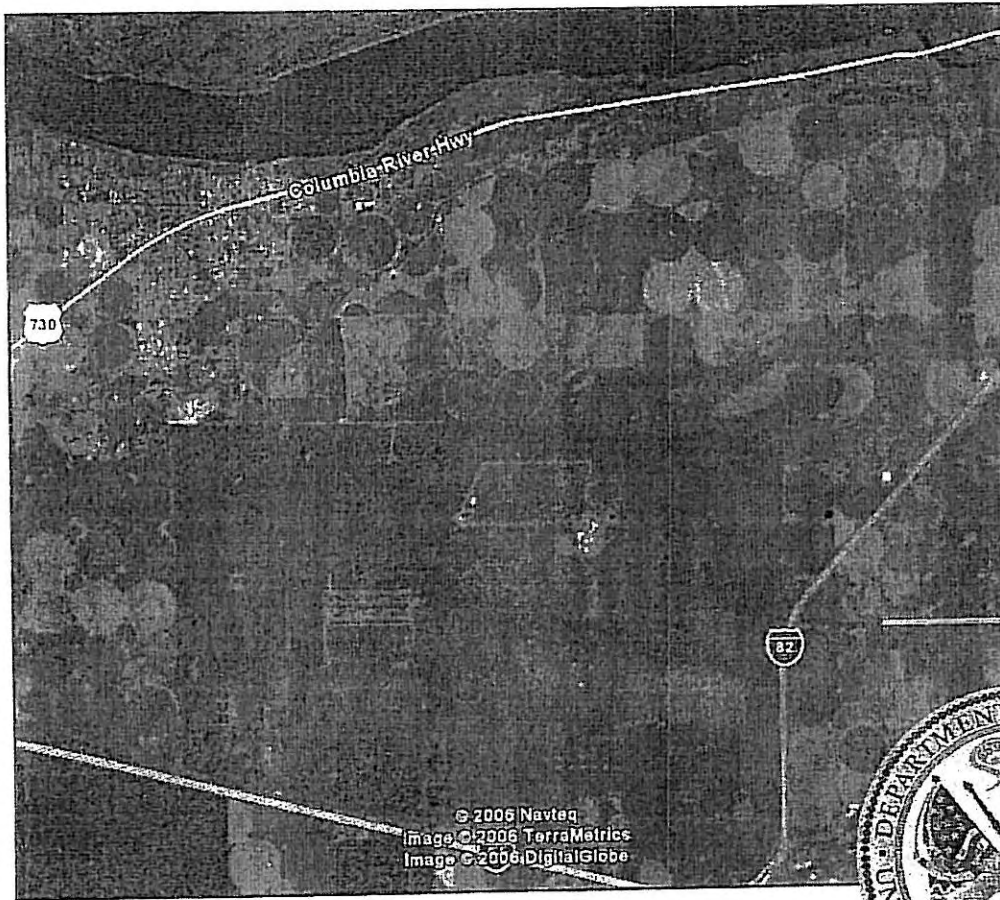


Umatilla Chemical Depot
Mr. Phillip Ferguson

Umatilla Chemical Depot

Umatilla, OR



Site Assessment Report

Transition from the Army to the Community



May 2, 2006
Umatilla Chemical Depot
Umatilla, OR
Site Assessment Report

Umatilla Chemical Depot Umatilla, OR

Site Assessment Report *Transition from the Army to the Community*



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I. EXECUTIVE SUMMARY

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UCD is an active Army facility with a contractor providing chemical demilitarization services. The Oregon National Guard, The Red Cross, The Oregon State Police and The Defense Logistics Agency are tenants. The principal features on the site are warehousing and administrative facilities with over 1,000 storage "igloos" the most numerous structures on the facility. There are more than 3.6 million square feet of Army-owned facilities at UCD. The warehousing and administrative facilities are in a variety of conditions from good to poor. The installation is bordered primarily by farmland. Heavy rail lines transit next to the site from East to West. The intersection of a major east-west interstate and a north-south interstate is adjacent to the facility.

The real estate market and labor conditions in the region limit the range of opportunities that could take place at UCD. The economy surrounding Umatilla has been driven by agriculture. However, there has been an increased emphasis on food manufacturing and processing. Many of the manufacturing jobs in the area concern food manufacturing. There are various industrial parks that support the trucking, warehousing and distribution sectors in the area. The labor costs in Umatilla are competitive as compared to the national average. However, there is a higher unemployment rate in the area compared to the national average and employment tends to be seasonal.



B. SITE ASSESSMENT CONCLUSION AND NEXT STEPS

Based on the research and discussions conducted as part of this study, below are some high level findings and considerations as the Army and Community focus on re-use opportunities:

- UCD has several industrial buildings which could provide value in re-use, but there are competing industrial parks nearby – the reuse opportunities should first investigate market potential for reuse of these facilities in order to expedite transfer and the positive effects of retaining jobs in a community that could benefit from economic stimulus.
- There is a freight yard at UCD which could be adapted for use as a consolidation yard by the Union Pacific Railroad.
- The best opportunities for reuse include a near-term opportunity for warehouse and distribution or agricultural uses. Additional uses could be found in renewable energy opportunities such as wind or bio-mass electrical generation.

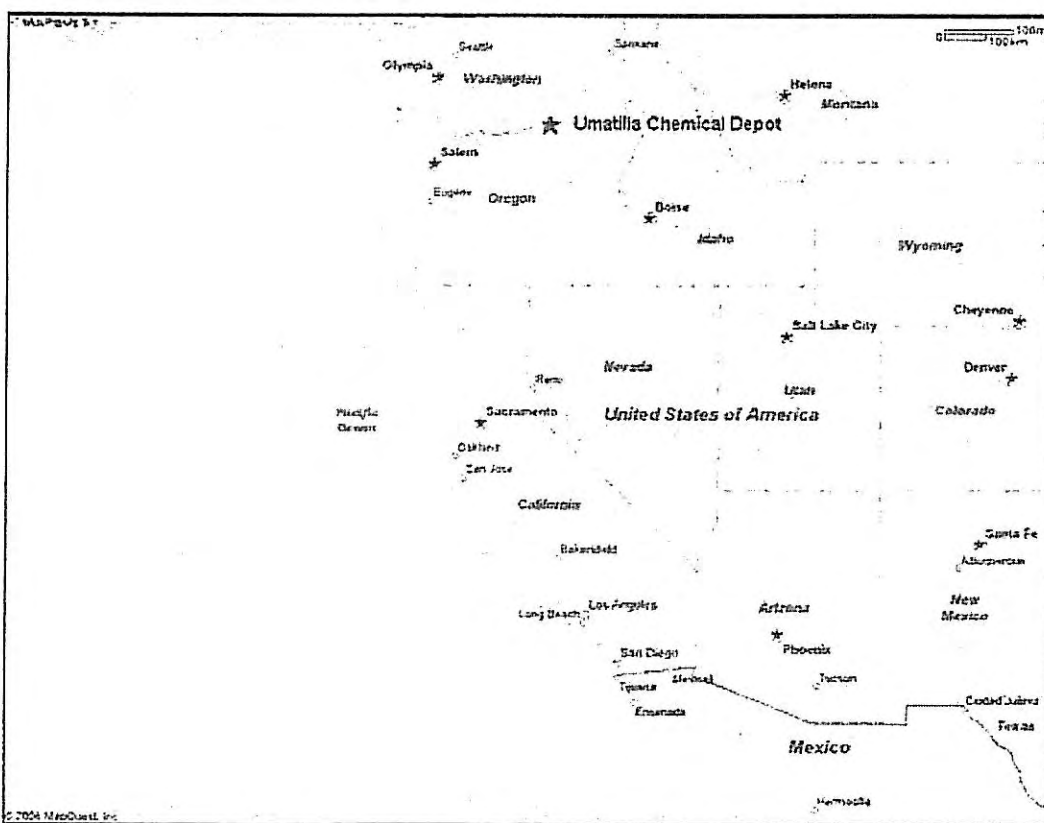


II. REGIONAL CONTEXT

A. LOCATION / CONTEXT

Umatilla is located in the Pacific Northwest in north central Oregon. Umatilla is approximately 3 miles south of the Columbia River on the border of Umatilla (pop. 59,250) and Morrow Counties (pop. 7,650) just south of Washington State. Umatilla and Morrow County form the southern end of the Columbia Basin and Umatilla County is along the Oregon Trail. The primary cities within a 150-mile radius of Umatilla are Spokane, WA (pop. 195,629) and Portland, OR (pop. 529,121). (See map and table below).

Umatilla, OR – National View



Source: Mapquest

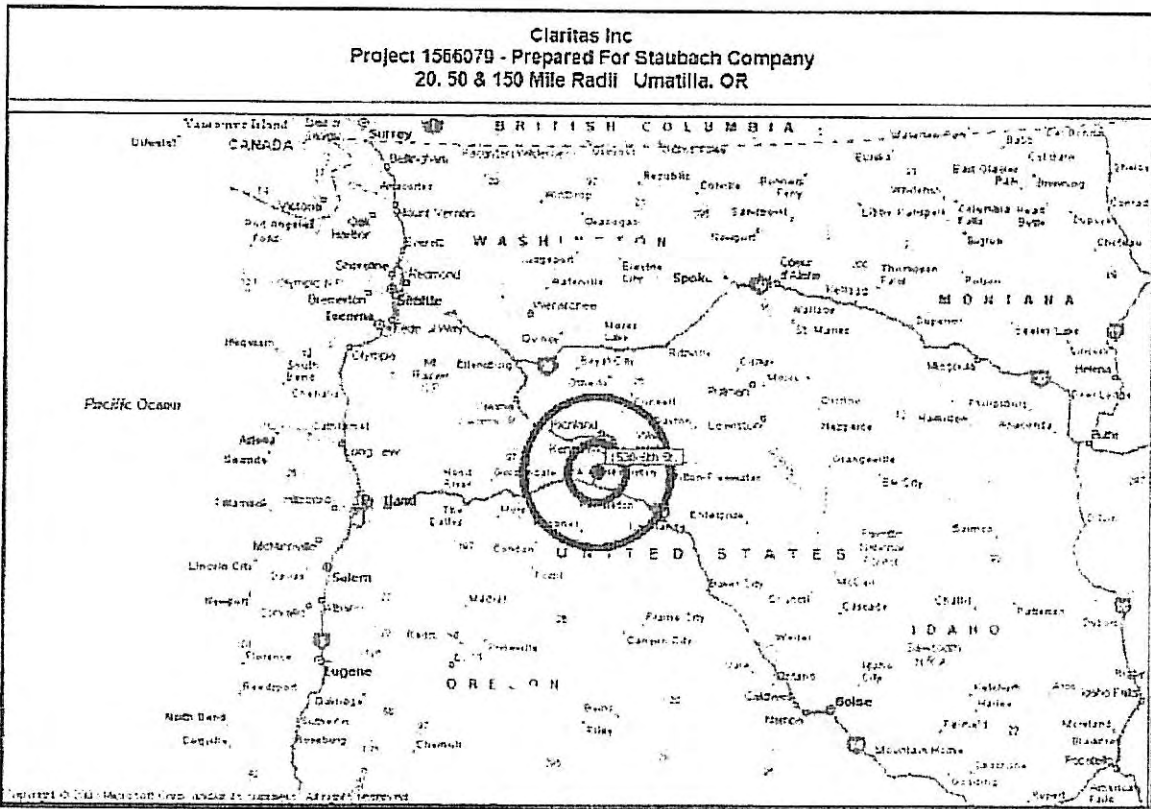
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Source: Mapquest



Umatilla, OR – Regional View

Below is a regional view of Umatilla. The red circle indicates a 20-mile radius from Umatilla, the blue circle is a 50-mile radius from Umatilla and the yellow circle indicates a 150-mile radius from Umatilla.



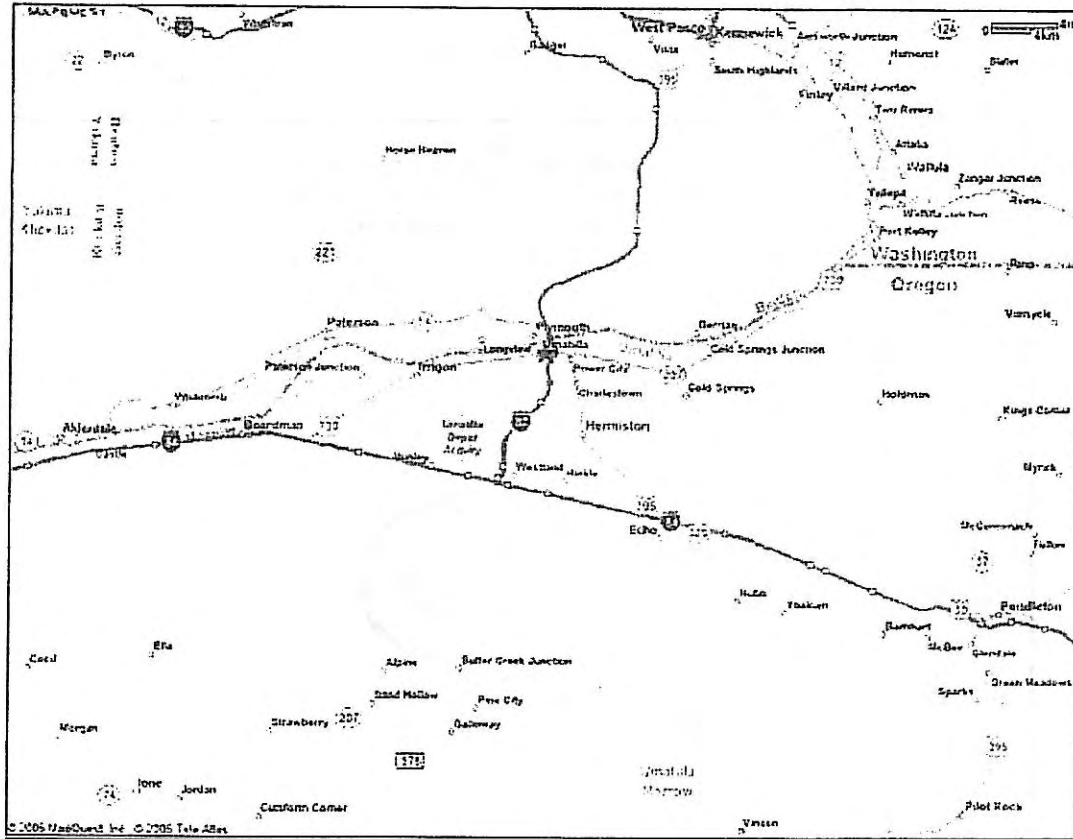
Source: Claritas

The Umatilla Chemical Depot is located about 4 miles southwest of Umatilla (pop. 4,978) and about 12 miles northwest of Hermiston (pop. 10,050). Umatilla is located on US Highway 730. The area is characterized by rolling hills in a rural setting. The depot is located south of US Highway 730 and northwest of the intersection of Interstate 84 and Interstate 82. The depot has easy access to both Interstate 84 and Interstate 82. The depot consists of approximately 19,728 acres. The Army owns approximately 17,054 acres and the remaining acreage is covered by restrictive easements.¹ Umatilla is located near the following cities: Hermiston, OR (5.8 miles), Irrigon, OR (11.5 miles), Stanfield, OR (12.1 miles), Echo, OR (15.2 miles), Highland, WA (22.3 miles), Kennewick, WA (22.9 miles), West Pasco, WA (25.2 miles) and Richland, WA (25.2 miles).

¹ <http://www.globalsecurity.org/wmd/facility/umatilla.htm>



Umatilla, OR – Local View



Source: Mapquest



B. TRANSPORTATION INFRASTRUCTURE

MAJOR ROAD NETWORKS

The Umatilla area has excellent access to a major road network. The northeastern corner of the Umatilla Chemical Depot is adjacent to the intersection of Interstate 84 and Interstate 82. Interstate 84 is a principal avenue of approach west into Portland and provides access to Interstate 5 which runs north-south along the west coast of the United States. Interstate 84 provides access to Boise and Salt Lake City to the East and to other major interstates that run east-west or north-south to other parts of the country. Interstate 82 travels north to the tri-cities in Washington (Kennewick, Pasco and Richland) – these cities are 22 miles from Umatilla. The Depot also has close access to US Highway 730 which runs north of the Depot and US Highway 395 which runs north-south and is located east of the Depot.

RAIL AND AIRPORT SYSTEMS

Umatilla is serviced by Union Pacific Railroad which has a line that runs daily through Umatilla and the Port of Umatilla. Rail car loading facilities are available to and from Columbia River barges.²

There are two commercial airports within 35 miles of Umatilla in Pasco, WA and in Pendleton, OR. The Tri-Cities Airport in Pasco, WA is served by four air carriers which provide flights to areas such as Seattle, Portland, Salt Lake City and Denver. The Pendleton Airport (Eastern Oregon Regional Airport) has flights to connecting airports. Other smaller and public-use airports closer to Umatilla include the Hermiston Municipal Airport (7 miles south of Umatilla), Vista Field in Kennewick, WA (23 miles north of Umatilla), and the Airport in Boardman at the Port of Morrow (20 miles west of Umatilla).³

The Port of Umatilla is located on the Columbia River and serves the Eastern Oregon regional economy with a focus on the commercial, industrial, agricultural, maritime, surface, transportation, distribution, and recreational sectors. The Port of Umatilla operates three terminals which handle containerized and bulk cargo, a full service container on barge operation, grain loading facility, and petroleum distribution complex. The facilities have multi-modal access to world markets by river, rail and highway.

The Port handles grain, frozen food products, compressed alfalfa, fuel, fertilizers and wood products. Products are shipped up-river to Lewiston, Idaho and down-river to the Port of Portland with cargo intended for destinations in many parts of the world to include Asia and the Middle East.

Furthermore, the Port currently owns four parcels of industrial land, which are located in Hermiston, Umatilla, and Pendleton. The Port sells or leases land to expanding businesses that create jobs and increase capital investment in Umatilla County.⁴

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C. DEMOGRAPHIC SUMMARY

POPULATION STATISTICS

The population in Umatilla is 4,978 people. In 2005, however, there were an estimated 53,318 people within 20 miles of the Umatilla Chemical Depot. This number increases seven-fold as the radius grows within 50 miles of the Depot. The area between 50-150 miles from the Umatilla Chemical Depot has a much higher density than the immediate area of Umatilla. There were an estimated 1.4 million people in 2005 within 150 miles of the Depot. The area around Umatilla had a 9.6% increase in population since the last U.S. Census. In the 1990s, however, there was a 44.3% growth in the population within 20 miles of Umatilla. (See table below)

Population of Umatilla, OR area

Umatilla,	0 - 20 miles	0 - 50 miles	0 - 150 miles	USA
2010 Projection	57,950	412,520	1,457,321	309,574,407
2005 Estimate	53,318	381,119	1,383,135	295,140,073
2000 Census	48,637	350,722	1,311,061	281,421,906
1990 Census	33,698	284,144	1,089,204	248,709,873
Growth 2005 - 2010	8.7%	8.3%	5.4%	4.8%
Growth 2000 - 2005	9.6%	8.7%	5.5%	4.8%
Growth 1990 - 2000	44.3%	23.4%	20.4%	13.1%

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AGE-DISTRIBUTION

More than 55% of the population in the immediate area of Umatilla is between 21 and 64 years-old. This age distribution is consistent with the area 50-150 miles from the Depot. This higher percentage of the population between 21-64 years of age translates to a more robust workforce in the Umatilla area. (See table and graph below)

Population by age in the Umatilla area

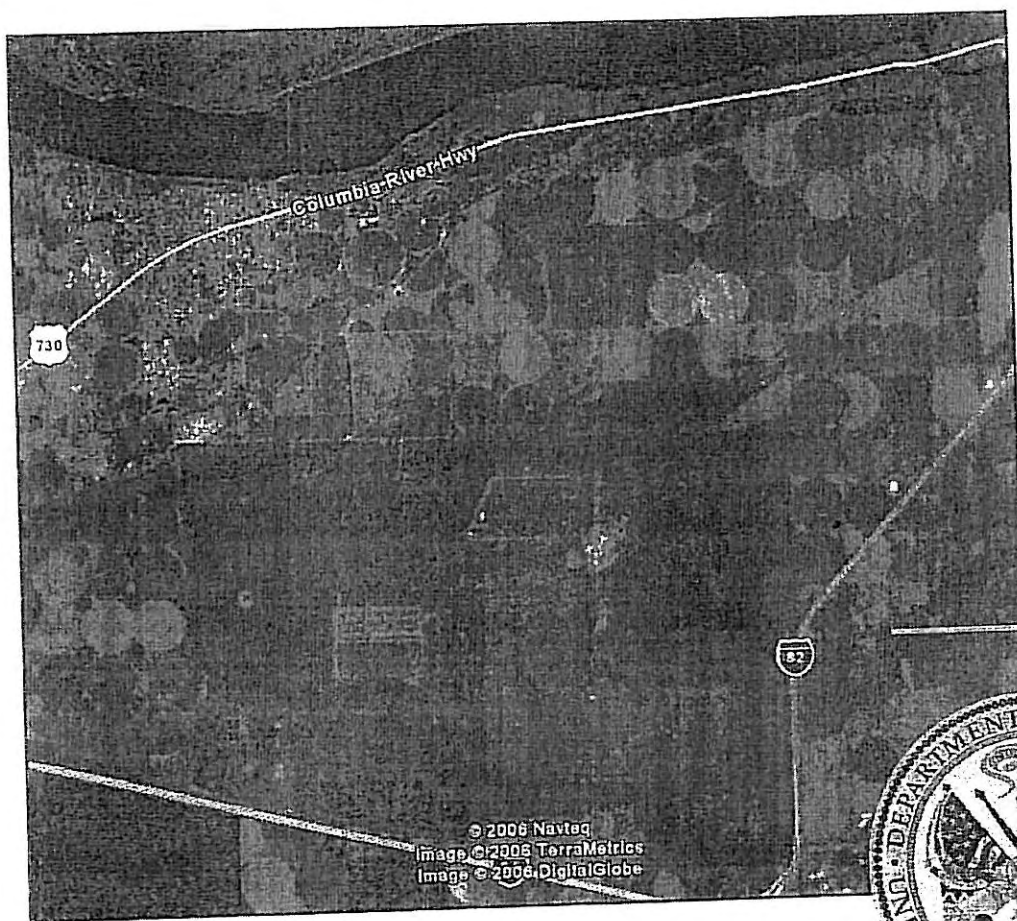
Umatilla, OR	0-20 miles	%	0-50 miles	%	0-150 miles	%	USA	%
16+	39,695	74.5	286,229	75.1	1,067,883	77.2	230,146,414	77.9
18+	37,836	71.0	273,346	71.7	1,022,803	74.0	221,671,466	75.1
21+	35,20	66.4	254,674	66.8	952,198	68.8	208,781,848	70.7
65+	5,323	10.0	41,304	10.8	170,769	12.4	37,055,843	12.5

Source: Claritas

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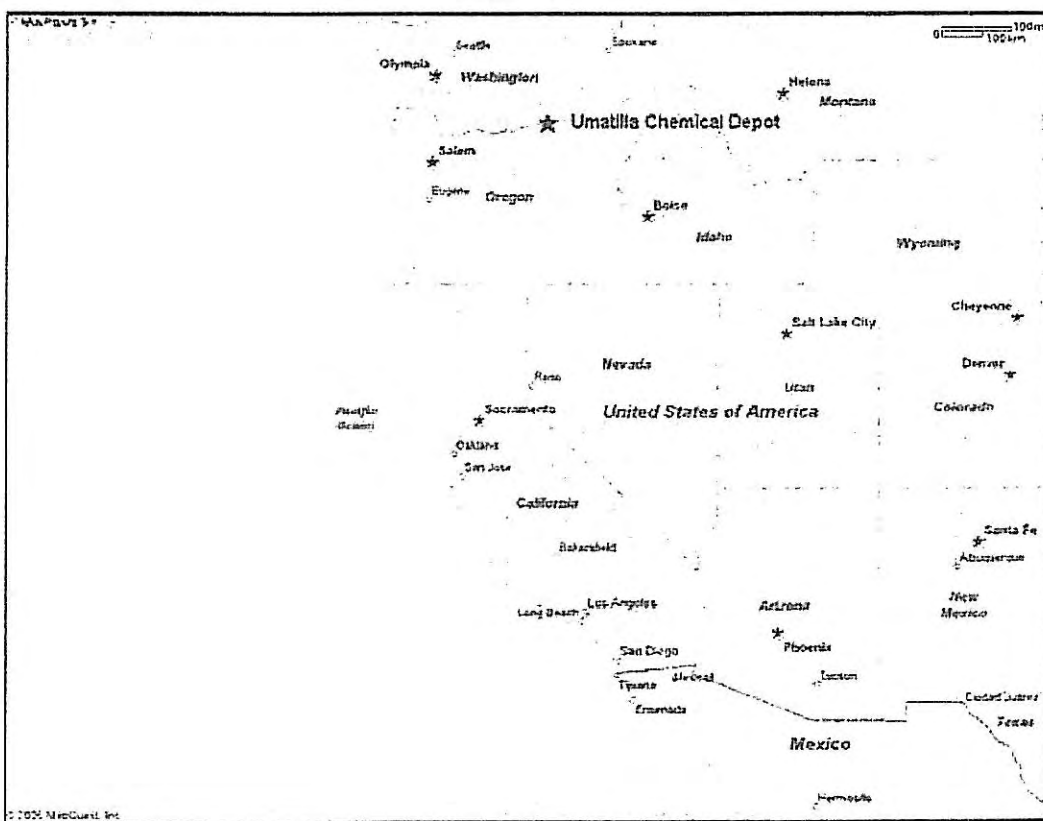


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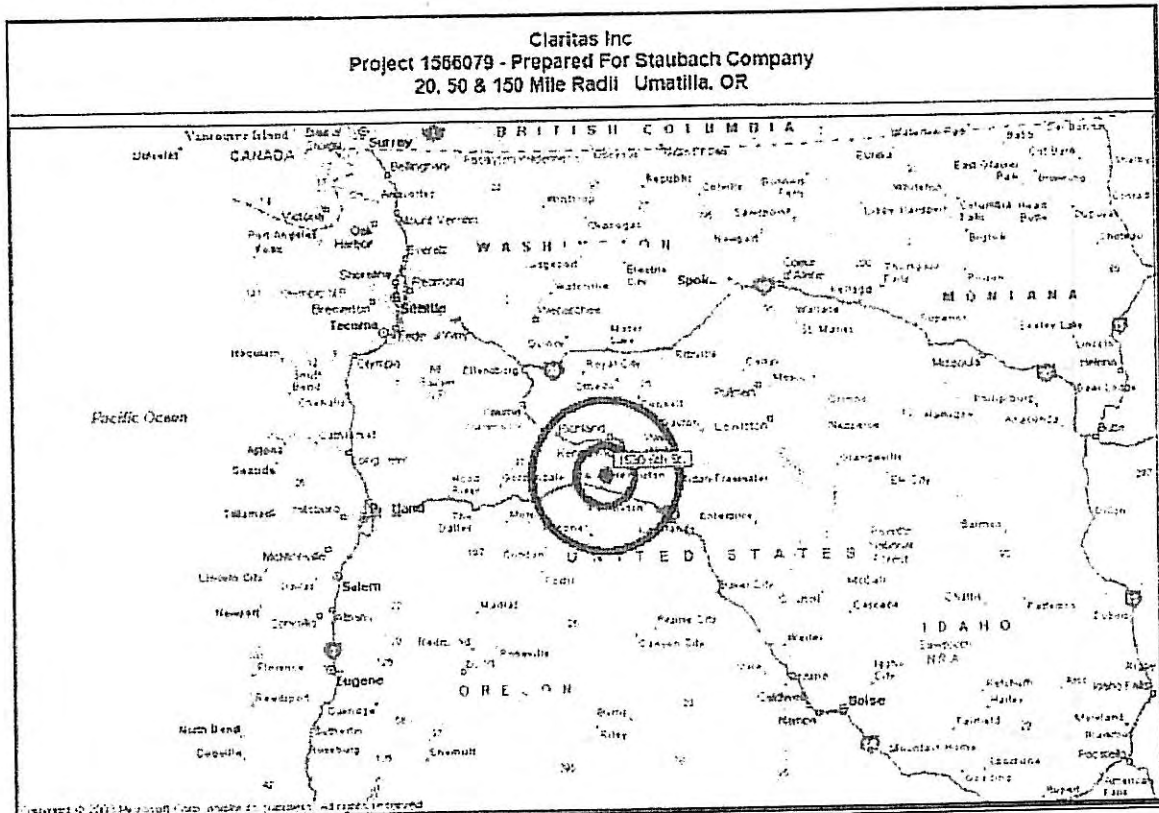
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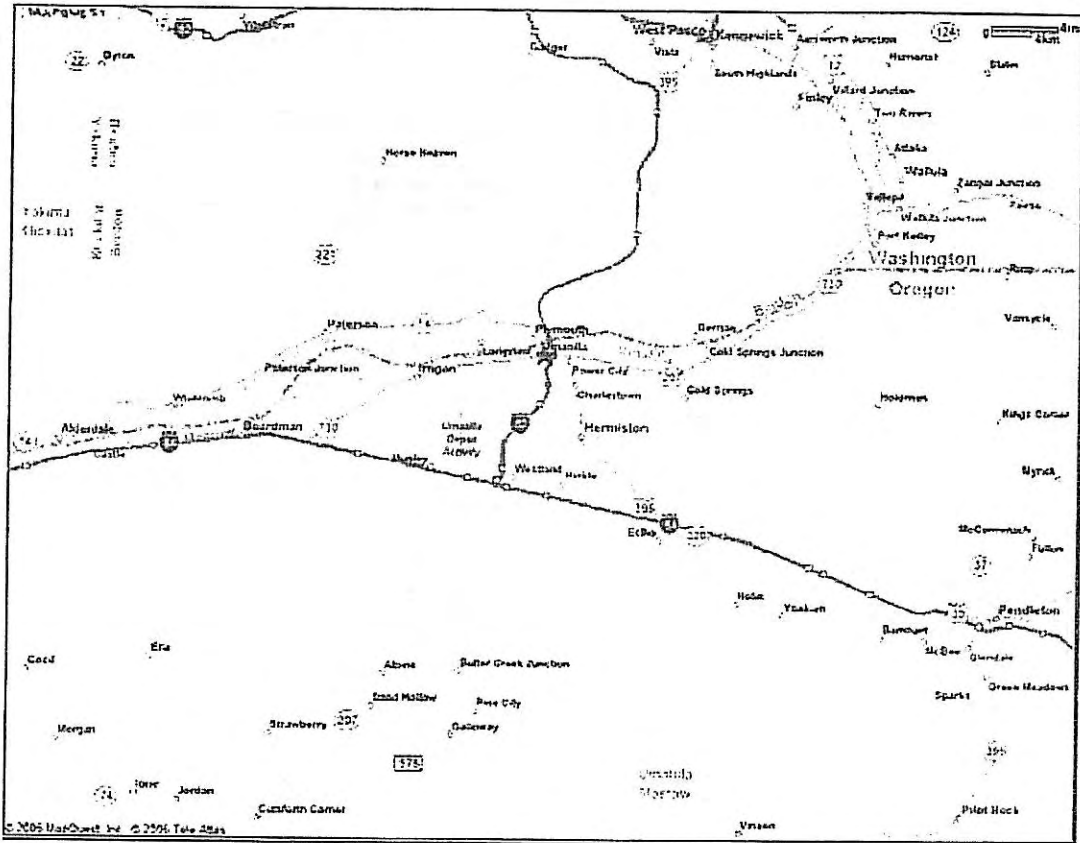
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More than 55% of the population in the immediate area of Umatilla is between 21 and 64 years-old. This age distribution is consistent with the area 50-150 miles from the Depot. This higher percentage of the population between 21-64 years of age translates to a more robust workforce in the Umatilla area. (See table and graph below)

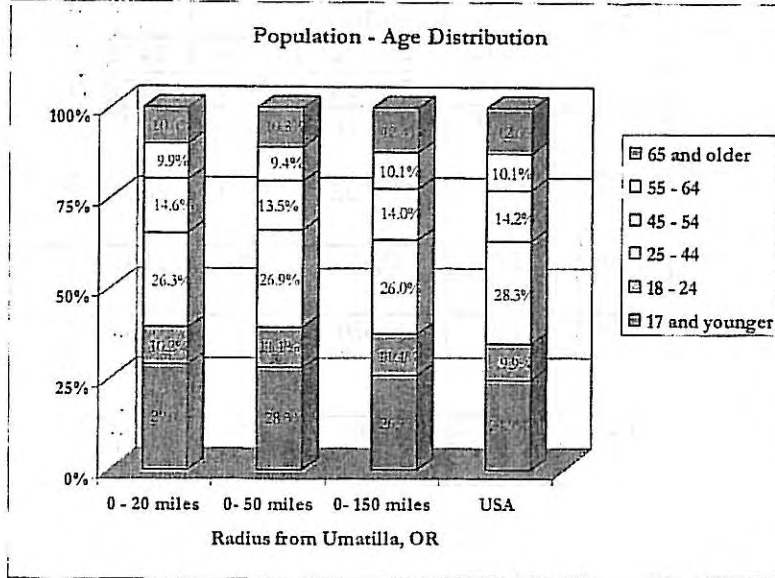
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21+	35,20	66.4	254,674	66.8	952,198	68.8	208,781,848	70.7
65+	5,323	10.0	41,304	10.8	170,769	12.4	37,055,843	12.5

Source: Claritas



Population - Age Distribution in Umatilla, OR



Source: Claritas

EDUCATION

The college or university with more than 2000 students closest to Umatilla is 30 miles away at the Columbia Basin College in Pasco, WA (full-time enrollment 3,529). Other universities and colleges include: Walla Walla Community College, WA about 69 miles away in Walla Walla, WA (full-time enrollment of 2,812); Eastern Oregon University about 96 miles away in La Grande, OR (full-time enrollment of 2,192); Yakima Valley Community College about 100 miles in Yakima, WA (full-time enrollment of 2,906); Central Washington University about 112 miles in Ellensburg, WA (full-time enrollment of 7,420); Wenatchee Valley College about 125 miles in Wenatchee, WA (full-time enrollment of 2,074) and Washington State University about 133 miles in Pullman, WA (full-time enrollment of 18,110).

The area within 20 miles of Umatilla has a lower percentage of the population with a bachelor's degree with approximately 10.14% of the population achieving a bachelor's degree than the national average. However, the population within 150 miles of Umatilla has a higher percentage of the population with a bachelor's degree. Interestingly the area within 20 miles of Umatilla has a higher percentage of the population with a doctorate degree than the national average. (See Table on next page)



Education - Level in Umatilla, OR area

Umatilla, OR	0 - 20 miles	%	0 - 50 miles	%	0 - 150 miles	%	USA	%
H.S. or GED	9,370	28.93	58,009	25.12	236,712	27.38	54,729,757	28.44
Some college	7,704	23.78	53,309	23.09	211,638	24.48	40,718,117	21.16
Associate degree	2,255	6.96	18,924	8.20	62,724	7.25	12,241,341	6.36
Bachelor's Degree	3,283	10.14	29,565	12.80	116,232	13.44	30,208,987	15.70
Master's Degree	1,328	4.10	12,060	5.22	42,668	4.94	11,419,749	5.93
Professional School Degree	468	1.44	2,795	1.21	13,350	1.54	3,808,958	1.98
Doctorate Degree	392	1.21	3,074	1.33	10,006	1.16	1,865,872	0.97

Source: Claritas

INCOME / FINANCIAL STATISTICS

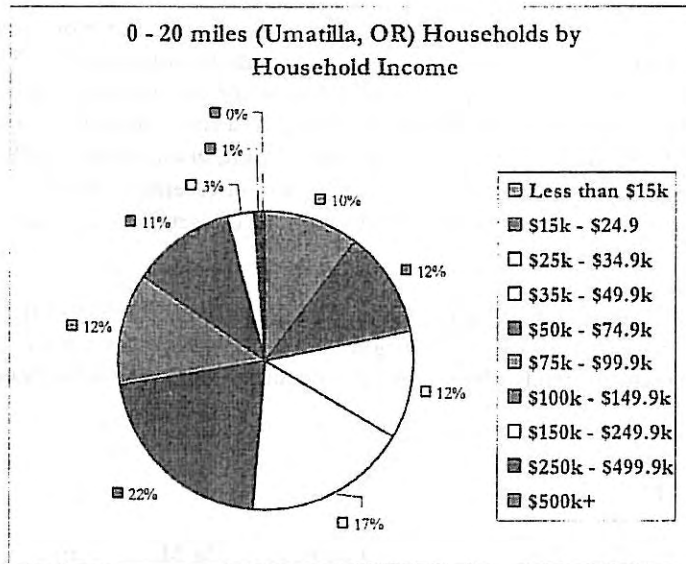
The per capita income in Umatilla is \$11,469. Umatilla County ranked 29th of the 36 counties in Oregon in terms of highest per capita income and Morrow County ranked 33rd.⁵ However, within 20 miles of Umatilla, the per capita income is \$21,176. This per capita income is higher than the area within 50 and 150 miles of Umatilla. The 2005 estimated median household income was \$49,054 and the average household income was \$61,721. The median household income for the region surrounding Umatilla is higher than the median household income of \$41,994 for the United States. Approximately 19.4% of the population and 15.6% of families are below the poverty line. Out of the total population, 24.2% of those under the age of 18 and 21.1% of those 65 and older are living below the poverty line.⁶ (See graphs below)

⁵ http://en.wikipedia.org/wiki/Oregon_locations_by_per_capita_income

⁶ http://en.wikipedia.org/wiki/Umatilla_Oregon

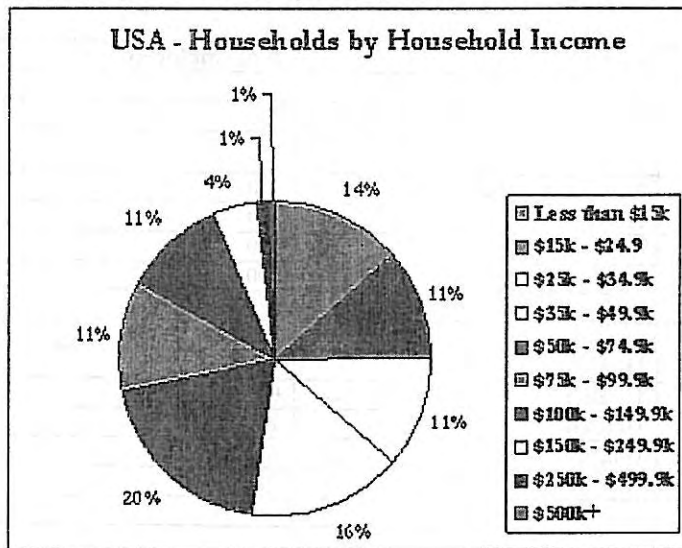


2005 Est. Households by Household Income in Umatilla, OR area



Source: Claritas

2005 Est. Households by Household Income in USA



Source: Claritas



D. ECONOMIC SUMMARY

ECONOMIC CONDITION FOR REGION

Historically, the Umatilla area has relied heavily on agriculture to drive its economy, but more recently farmers and businesses have looked to diversify its agricultural base to include food processing. Today, the principal industries in the Umatilla area include agriculture, food processing and wood products. In 2003, 57% of the total manufacturing jobs in Umatilla County were in food manufacturing providing 2,300 jobs in the County.⁷ Important agricultural products include wheat, fruit, grain, timber, cattle, and sheep.⁸ However, the region has had to face increased foreign competition recently. The Columbia River is an integral part of the area's economy as it facilitates the movement of agricultural goods to the market.

The 2004 unemployment rate in both Umatilla and Morrow County was 8.2% which is higher than the 2004 national unemployment rate of 5.5% and higher than Oregon's 2004 unemployment rate of 7.4%.⁹ Both counties experience underlying seasonal trends which affect the unemployment rate throughout the year.

MAJOR INDUSTRIES AND EMPLOYERS

The major employers in Umatilla include Two Rivers Correctional Institution, JM Manufacturing, Gilroy Food and Boise Cascade.

Major Employers in the area

Major Employer	City	# of employees
Wal-Mart Distribution Center	Hermiston	650
Wal-Mart Super Center	Hermiston	230
Washington Demilitarization	Hermiston	
Lamb Weston	Hermiston - Boardman	540
Hermiston Foods	Hermiston	300
Two Rivers Correctional Institution	Umatilla	430
Union Pacific Railroad	Hermiston	300
Hermiston Public Schools	Hermiston	370
Express Personnel Services	Hermiston	200-500
Gilroy Foods	Umatilla	60
JM Manufacturing	Umatilla	95
Boise Cascade	Umatilla	16
Forest Recovery	Umatilla	27
Marlette Homes		
Good Shepherd Health Care System		
Umatilla Chemical Depot		
Home Depot		

Source: http://www.umatilla.org/chamber-community_profile.htm

7 http://www.wafpa.org/eweb/docs/Governmental_Affairs/Oregon/hermiston-closure-tudy.pdf

8 <http://arcweb.sos.state.or.us/county/epumatillahome.html>

9 <http://www.ers.usda.gov/Data/Unemployment/RDLst2.asp?ST=OR>



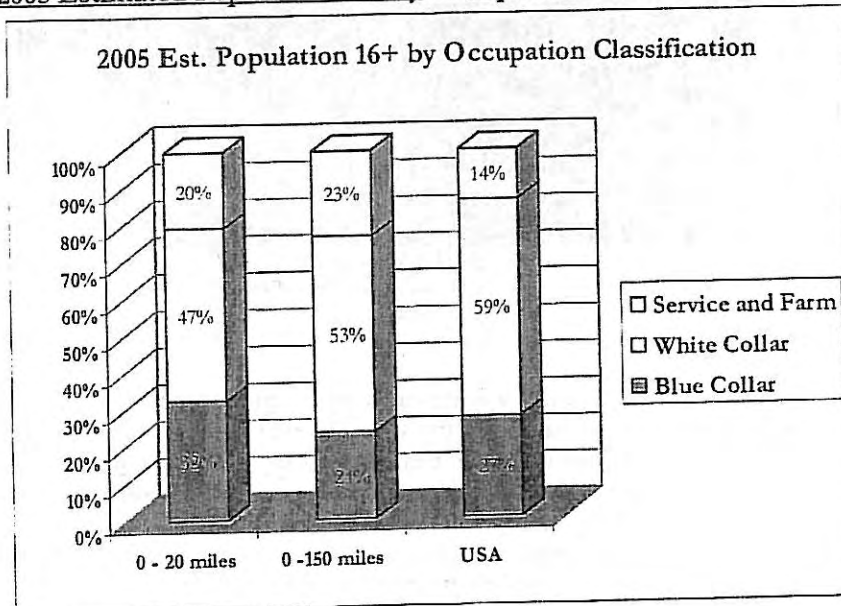
There are several industrial parks in the Umatilla area which house a variety of companies; however, there are parks with land still available for use. The industrial parks include the McNary Industrial Park, which is the Port's largest industrial park. This park is adjacent to Highway 730 and one mile from Interstate 82. Furthermore, part of the park is accessed by rail and the barge dock in the Port is adjacent to the park. Current tenants include Hagerman Trucking, Boise Cascade, Pendleton Grain Growers, Tidewater, and the Two Rivers Correctional Institution.

Another Industrial Park in the area is the Pendleton Industrial Park which is located near Interstate 84 (with good visibility from the freeway) in Pendleton (approximately 43 miles from Umatilla). The Eastern Oregon Regional Airport is only two miles from the park and the park it also serviced by a rail spur. Current tenants include Continental Mills, Lippert Components and Keystone R/V's.

The Westland Industrial Park is located at the intersection of Interstate 82 and 84, about four miles southwest of Hermiston. This park is favorable for trucking and warehousing operations. Current tenants include United Parcel Service, Hammell Transport Service, and Big Basin Packing.

The Hermiston Industrial Park is immediately south of Hermiston, along Highway 395. This site is best suited for small light industrial or commercial business. There is a 1 million SF Wal-Mart Distribution Center that is adjacent to the Park.¹⁰

2005 Estimated Population 16+ by Occupation Classification in Umatilla, OR area



Source: Claritas

Approximately 32% of Umatilla's labor force works in blue collar jobs with 47% working in white collar jobs. (See chart above)

¹⁰ <http://www.portofumatilla.com/port.htm>



III SITE SUMMARY

A. SITE DESCRIPTION

The following section provides a discussion of various factors bearing on redevelopment of the installation. These factors include natural and cultural resource issues, environmental factors, condition of facilities, and utility and transportation infrastructure. The Umatilla Chemical Depot (UMCD) consists of approximately 19,729 acres and is located ten miles west of Hermiston, OR.

The principal entrance to UMCD is via Highway 84, a four lane east-west running highway. Land use in the immediate vicinity of the facility is primarily agricultural and open. The site itself is a highly developed industrial area, the principal features of which are active and inactive chemical weapons demolition and storage facilities. The site contains no areas of non-developable wetlands. Surveys for cultural resources on the Depot are not complete, however, there are currently no known cultural limitations on the site.



Aerial View of the UMCD
Provided by Google Earth

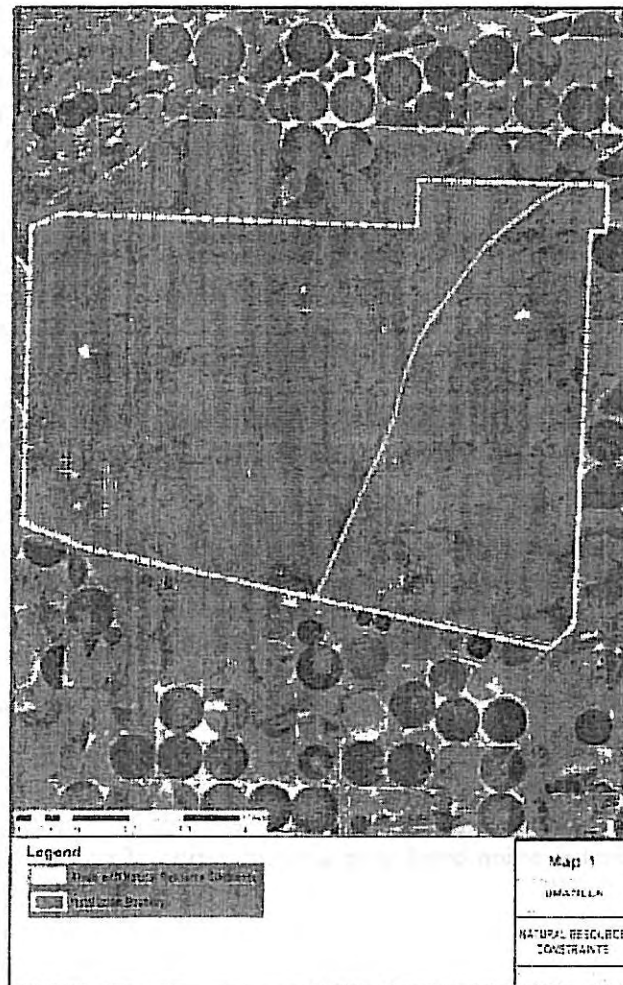
The historical mission of the facility has been as a chemical weapons production and storage facility. There are currently areas of environmental limitations of this Government Owned / Contractor-Operated site, associated with two landfills and the groundwater treatment facility. The physical infrastructure available throughout the site includes water, sewer, gas, telephone and electric. The road infrastructure, in and around the Post is suitable to support continued use as an industrial park. In addition, there are approximately 3.6M square feet of Army owned facilities on the property, including active chemical storage and several administrative buildings, some of which are fully operational.



B. NATURAL RESOURCES ¹

Map1 identifies areas of the installation where redevelopment must take into account the presence of various natural resources. There is no surface water on the installation due to the small amount of precipitation and the porous soils. Groundwater at the site occurs primarily in two settings. The first (lower) is a vertical sequence of confined aquifers in the Columbia River Basalt. The other (upper) is an unconfined aquifer within the overlying alluvial deposits. Water in the upper or alluvial deposits has been significantly affected by facility activities and is largely unavailable for either drinking water or agricultural purposes. The water supply for UMDC is obtained from seven on-site wells installed into the basalt aquifers.

There is no critical animal habitat at this site. Pronghorn antelope are common on UMDC and the Oregon Department of Fish and Wildlife manages the antelope herd.





C. CULTURAL RESOURCES¹³

There are no historically significant structures at UMDC. However, the headquarters building and the fire house are both examples of early WWII construction and are considered historic properties of minor importance. Additionally, one historic archeological resource and one potential prehistoric site exist at UMDC. The first is an "Old Emigrant Wagon Road" that is possibly associated with the Oregon Trail. Early Land Survey information and aerial photographs show this road crossing the northeastern corner of UMDC. The potential prehistoric site is located on the west rim of Coyote Coulee and is identified by isolated lithic flake tools scattered on the ground surface. These artifacts were most probably used by early Native American Indians in conjunction with hunting at this location. Neither site is expected to significantly interfere with redevelopment activity. Therefore, no cultural resource map was developed for this report.

D. ENVIRONMENTAL LIMITATIONS¹⁴

The facility initially served as an ammunition storage facility. Subsequently, ammunition demolition and renovation activities were initiated. Chemical agent-filled munitions, one-ton containers of chemical agents, conventional munitions and missile fuel components have been stored at the Depot. No chemical weapons have been used or manufactured at UMDC. No manufacturing operations have been conducted at UMDC. However, munitions testing, rework, demolition, and disassembly operations have been performed in several areas throughout the facility.

These various missions and activities have resulted in releases of contaminants to the environment in portions of the installation. The US Army began investigating and remediating these sites in 1979 and site was named to the National Priority List in 1987 due to the Washout Lagoons. Environmental remediation and investigation have been taking place since the 1980's and the entire facility has been thoroughly examined and environmental issues have been largely resolved.

A total of 10 sites were originally identified and all but three of these sites have been fully remediated. The three remaining sites or issues are the closed landfill, the active landfill, and the ground water remediation system.

There are 5 inactive landfills at UMCD. The most significant of these landfills is shown on Map 2 and is just to the west of the administration area. These landfills have been thoroughly studied. In August of 1993, a Record of Decision was created between the Army, USEPA and the Oregon Department of Environmental Quality. It was determined that no action needed to be taken in regard to these landfills because they do not pose an unacceptable risk to human health or the environment. The major consideration for development is that these sites cannot be used without extensive engineering modifications.

There is an active landfill in the northeastern corner of the site. The landfill is essentially closed and receives only clean and or remediated soil and cover material. Analysis of this facility resulted in a decision of no further action based upon a determination of no adverse risk to human health or the environment.

¹³ The data presented in this section are taken from the draft Environmental Condition of Property Report – The Former Umatilla Chemical Depot (AEC, 2005), and interviews with facility staff.

¹⁴ The information presented in this section is derived from the draft Installation Action Plan (AEC, 2006); the draft Umatilla Chemical Depot, BRAC 2005 Implementation Plan (Unknown, 2005), and interviews with facility staff.

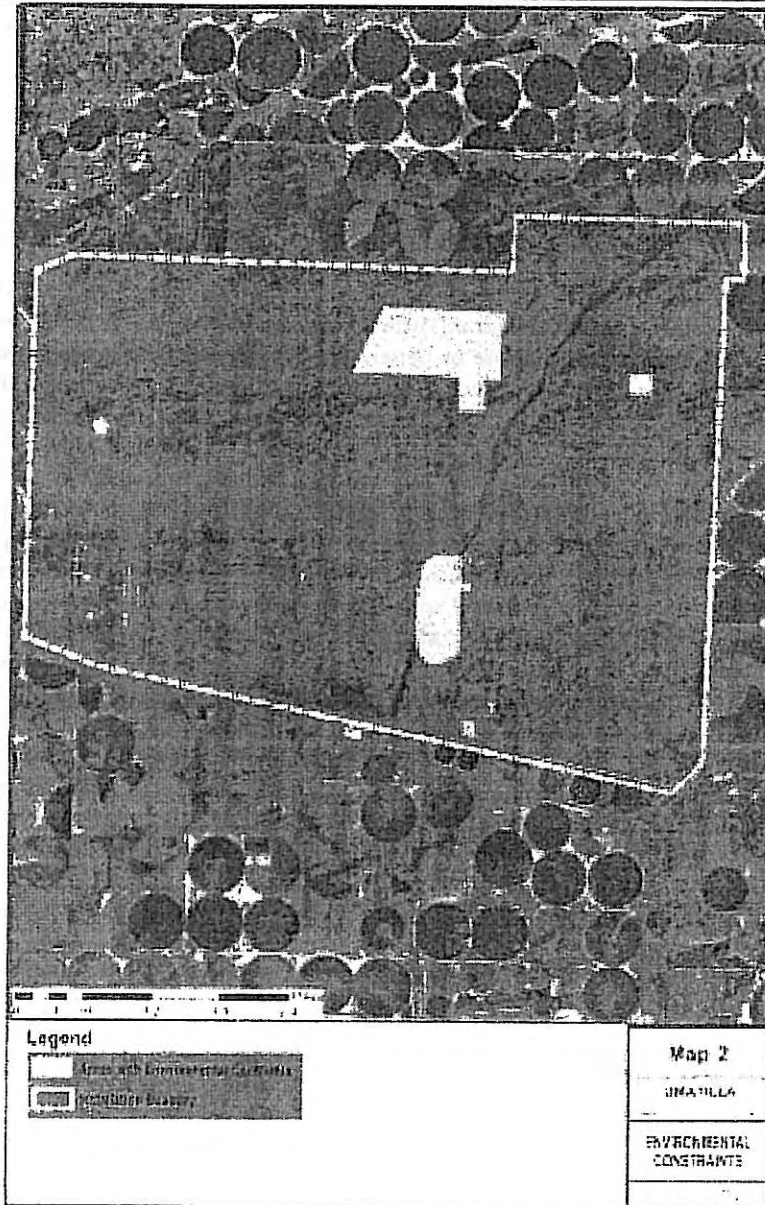


Map 2 shows the location of the groundwater treatment plant. This plant extracts shallow groundwater from the immediate area and re-injects the water up-gradient in order to remove residuals of RDX and TNT. This process has been effective, but there is a plume of contamination under this site and this is also indicated on Map 2. It is anticipated that this facility will remain in operation for the foreseeable future. This plant presents little impediment to development except for operation and maintenance of the plant, extraction wells and discharge.

Map 2 shows now abandoned sites of environmental interest. The map identifies areas that based on contamination or other environmental conditions: (1) are recommended only for highly restricted uses; (2) are reusable for industrial/commercial purpose or better; or, (3) are essentially unrestricted in terms of future use. These areas are color-coded "Red", "Yellow", or "Green", respectively. On the map, however, only the Red and Yellow designations are indicated; any area not otherwise designated is assumed to be Green (unrestricted).

The US Army began storing chemical munitions at UMCD in 1962 and continued this program until 1969. The Umatilla Chemical Disposal Facility was designed and completed by 2001 and began munitions disposal in 2004. The facility consists of incinerators, brine reduction equipment (flash evaporators and drum dryers), waste storage areas, and laboratory and support facilities. The present expectation is that the work of Chemical Demilitarization will be complete in 2007 and that the facility will need to be decommissioned and the storage areas cleaned prior to any redevelopment use of the area and buffer area. Additionally, the extent of testing that may be required by the regulators is still unknown.

UMCD has 1.39 acre small arms firing rand, a 2.99 area obstacle course, a 4.44 area track vehicle driver course and .43 acres of fire/rescue training areas. It is anticipated that some level of environmental remediation will be required for these sites after the demilitarization activity is complete.





E. EXISTING FACILITY ANALYSIS¹⁵

Umatilla Chemical Depot (UMCD) is a government-owned, government-operated (GOGO) Army installation occupying approximately 19,729 acres in Hermiston and Morrow Counties, Oregon. The depot stores chemical agent in a complex of igloos.

FACILITY CONDITION

Initial construction of facilities at UCD began in 1941. The depot consists of approximately 1,222 buildings (includes approximately 1,000 igloos) totaling approximately 3.6M square feet (SF) and 189 structures totaling approximately 18KSF. There are 6 family housing units located on UCD. Additionally, there are three barracks buildings with an approximate 400-person capacity depending on the configuration of the facility. The Depot has a medical center and fire department. This installation has no non-appropriated fund facilities. The Army and Air Force Exchange Service (AAFES) operates a small exchange branch on site.

Special features of some facilities include: 90 of the igloos and 8 administrative buildings have intrusion detection systems, several areas have security surveillance cameras, and the installation has 11 miles of sensor fencing; a fitness center and an in-ground pool which was recently remodeled.

Overall, the building/facility conditions vary with the type of building, actual use and age. Map 4 provides an assessment of the facilities by area. The assessment of the condition of the facilities is based on the following range. The information was provided by UMCD personnel.

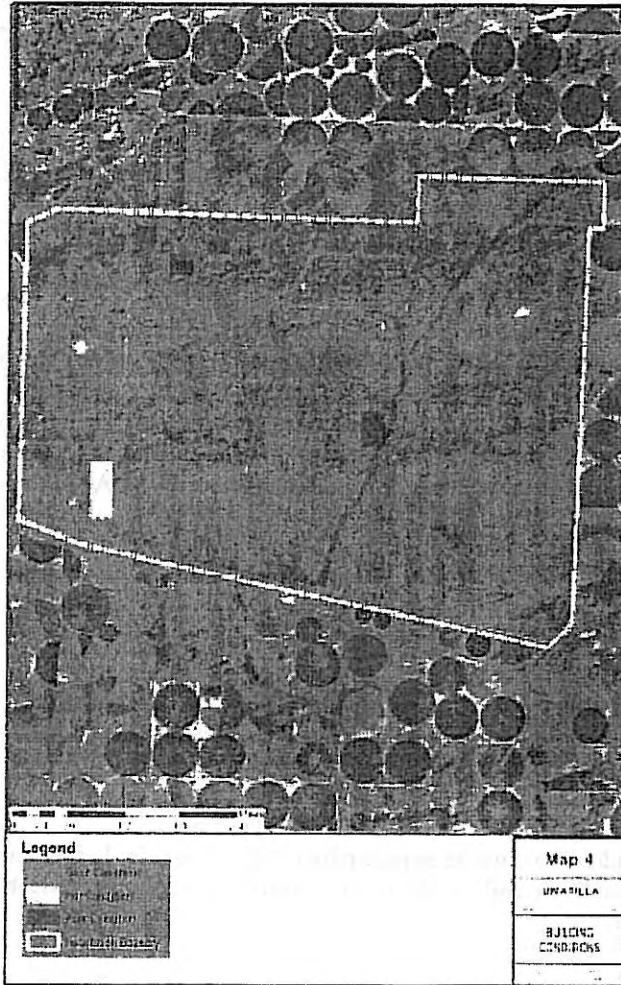
Green – structures are in good condition and readily adaptable for like reuse

Amber – structures are in fair condition but would require minor repair/upgrades before reuse

Red – structures are in poor condition and would require significant repair/upgrade before reuse – demolition may be a viable option.

This narrative provides a brief description of each area highlighted on Map 4. The facilities in the main administrative area located in the southeast corner of the installation are in good condition and are currently occupied. These buildings consist of office, vehicle maintenance and shop facilities. The warehouse facilities directly north of the administrative area are also in good condition and recently remodeled. Continuing north of this area, are the munitions maintenance buildings that are in poor condition and have not been used for over 25 years. The 90x200 foot prefab building adjacent to these buildings was constructed in 1994 for storage and is in good condition. The facilities in the extreme southwest corner of the installation are warehouses which are in good condition. The warehouses adjacent to these are in fair condition but have been vacant for over 25 years. The munitions maintenance buildings located in the northwest corner of the installation are unoccupied and in poor condition.

¹⁵ References for the information are: Environmental Condition of Property Report – Riverbank AAP, 2005; and discussions with installation personnel.





F. UTILITY AND TRANSPORTATION INFRASTRUCTURE

Only the administrative area is served with a piped sanitary sewer system leading to a treatment facility. The system was installed in the 1940's. Concrete pipes 6 to 10 inches in diameter collect sewage from this area and convey to a treatment site approximately 5,000 ft. west. The treatment facility consists of two septic tank that discharge to a percolation drain field. Only one of the tanks is presently in service (43,000 gpd capacity). The condition of the collection system, including all subsystems, is unknown. Due to the age of the system, rehabilitation is likely to be required if additional loads are added to the system. Individual septic tanks and drain fields provide for treatment of domestic sewage at locations other than the administrative area. In some cases, such as the Warehouse Area, several buildings are connected to one septic tank. The condition of these isolated systems is unknown; however, many of the buildings are now inactive and the systems receive no attention.

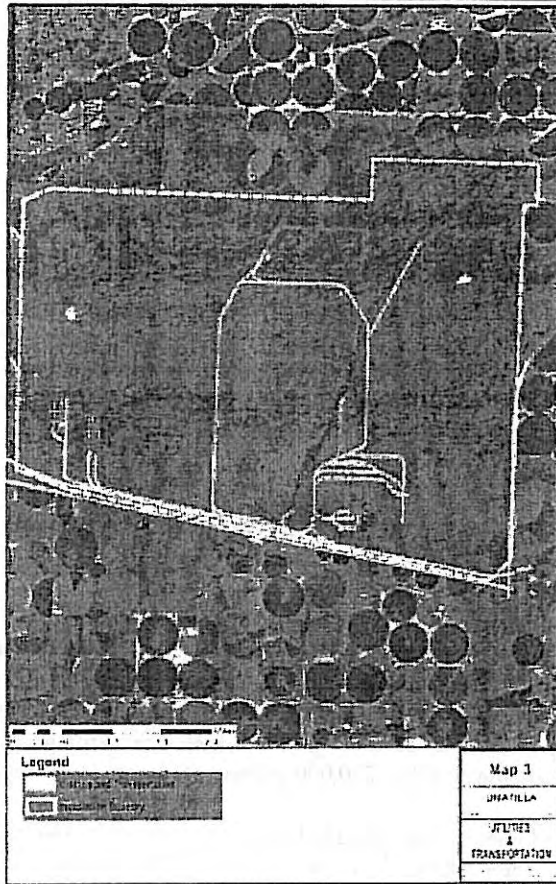
In the administrative area, a storm sewer collection system of catch basins and concrete pipe collects surface water and conveys it to the southwest corner of the administrative area.

The UMCD water system consists of wells, pipelines, and storage reservoirs. Chlorination at the well head is the only treatment required for the system. The system is divided into two subsystems. One part serves the northwest and north-central portions of the facility and the other system serves the warehouse and administrative areas. The chemical storage areas are not served by water supply. The northern system includes three wells providing 2,030 gpm and has 120,000 gallons of elevated storage. The southern system includes three wells providing 2,120 gpm and has 250,000 gallons of elevated storage.

Power is provided to UMCD by overhead lines of the Umatilla Electric Cooperative Association (UECA). The service is provided at 12,470 volts, three phase, four wire, 60 hertz. The facility has a sub-station located east of the main entrance. From this substation, the site electrical system is fed on overhead lines on wooden poles located along roadways similar to a rural electric distribution system. The lines date from original construction and the poles are in poor condition. The UECA has stated that the feeder to the facility is capable of supplying 10,000 KW and the cooperative has some excess capacity.

The telephone service from Pacific Northwest Bell Telephone Co. enters the facility on the southeast corner of the property. Services are a combination of overhead and underground lines going to all areas of the site. The administrative area is served by underground service. Remote areas have special mine-type units mounted on posts, or provisions for portable telephones.

The transportation infrastructure of UMCD is shown in Map 3. To the extent that transportation infrastructure is readily evident from the aerial photographs; they are not separately identified on the map. The site is bounded on the east by I-82 and on the south by I-84. Additionally, a spur line of the Union Pacific Railway serves the entire south boundary of the facility. The site also contains a rail car classification and storage yard. The facility contains about 190 miles of internal roadway, of which 160 miles are paved. Additionally, UMCD has about 50 miles of rail road track: most of the track is 75 - pound rail, and the main-line is 100 pound rail. Both the paved roads and the rail road track are in good condition.





IV. LEGAL / REGULATORY AND CONSTRAINTS SUMMARY

A. LEGAL / CONTRACTUAL ISSUES

Ownership

Umatilla Chemical Depot (UCD) is owned by the United States of America on behalf of the US Army¹⁶. Approximately 17,055 acres are owned in fee and 2,674 acres are purchased easements.

Contracts and Out Grants

There are a 16 out grants currently held by UCD. Nine of these are easements. The remaining 7 include licenses to:

- The Oregon National Guard
- The Oregon State Police
- The American Red Cross
- The Defense Logistics Agency

None of the out grants will impact transfer.

Easements

There are nine easements primarily for utilities which serve the post.

Reversionary Rights

There do not appear to be any reversionary rights that would affect BRAC conveyance.

B. REGULATORY CONSIDERATIONS

Unique Laws and Issues

The surrounding counties have formed a single LRA which should ease communications with the Army.

C. ZONING AND LAND USE CONSIDERATIONS

Neighboring Uses

The predominant land use surrounding the property is agricultural.

D. TIMING CONSIDERATIONS

Mission

The demilitarization mission is scheduled to complete sometime between FY 12 and FY16. This large time gap is due to the fact that the process for demilitarization is still in the nascent stages and time to complete is difficult to predict a completion. While the schedule will become firm as the processes are matured, it is apparent that at least part of the facility can not be transferred in accordance with the BRAC timeline.

¹⁶ Unless noted other wise information was taken from the Umatilla Chemical Depot BRAC 2005 Implementation Plan of 10/07/05.



Environmental

There are 69 CERCLA/RCRA sites and approximately 300 other contaminated acres. Most of the contamination from VX production will be cleaned up this year, but there is an active range that will remain open until the facility closes.

Other

There do not appear to be any other issues that would affect the transfer timeline.

E. SUMMARY OF FINDINGS

Opportunities

The opportunities at UCD appear to be agriculture and industrial.

Constraints

There do not appear to be any legal or business issues that would constrain the property during transfer for the above uses. The completion of the demilitarization of the chemical weapons and the subsequent cleanup will likely cause the timeline to extend beyond 2011.



V. REAL ESTATE MARKET

A. REAL ESTATE MARKET OVERVIEW

The real estate market in Umatilla is underdeveloped and therefore, is not tracked in a sophisticated manner. Investigation of the real estate market was mostly conducted through observation, discussion, and anecdotal evidence. Where possible, these qualitative findings are supplemented with empirical data gathered from local or national resources.

The individual segments of the Umatilla area real estate market are discussed as follows:

Office:

- No formal office market exists within greater Umatilla County. Office space is mainly comprised of office condos on top of retail stores, or other converted buildings. There is no formal office market comprised of office buildings with space for lease.
- Given the lack of industry growth in Umatilla County, current and future demand for office space is low.

Retail:

- Retail space is mainly comprised of street retail, scattered highway commercial uses and local family establishments supporting the local population. Retail establishments are mainly located within neighboring downtown Hermiston.
- Consumer spending statistics provided by Claritas provide insight into the vitality of the Umatilla County retail market. As indicated in the table below, the annual per capita retail expenditures for a 20 mile and 50 mile radius around Umatilla are only 84% of the U.S. Average.

Area (radius)	Avg. HH Spending/Yr.	Index to USA Avg.
20 Miles	46,357	100
50 Miles	44,951	97
150 Miles	43,113	93

Residential:

- The residential market mainly consists of older established homes and scattered new development. There has been a moderate amount of new home construction in Umatilla County.
- Demand for new residential home construction is somewhat flat, given the average buying power in the community and the moderate population growth.
- The median home price within a 20 mile radius of UCDD is \$133,762; slightly lower than the U.S. median home price of \$149,314.



- Approximately 41% of homes within a 20 mile radius of UCD are valued at more than \$150,000, according to Claritas. In the U.S. 48% of all homes are valued at more than \$150,000.
- Approximately 72% of all homes within a 20 mile radius of UCD are owner-occupied, higher than the national average of 67%.

Industrial:

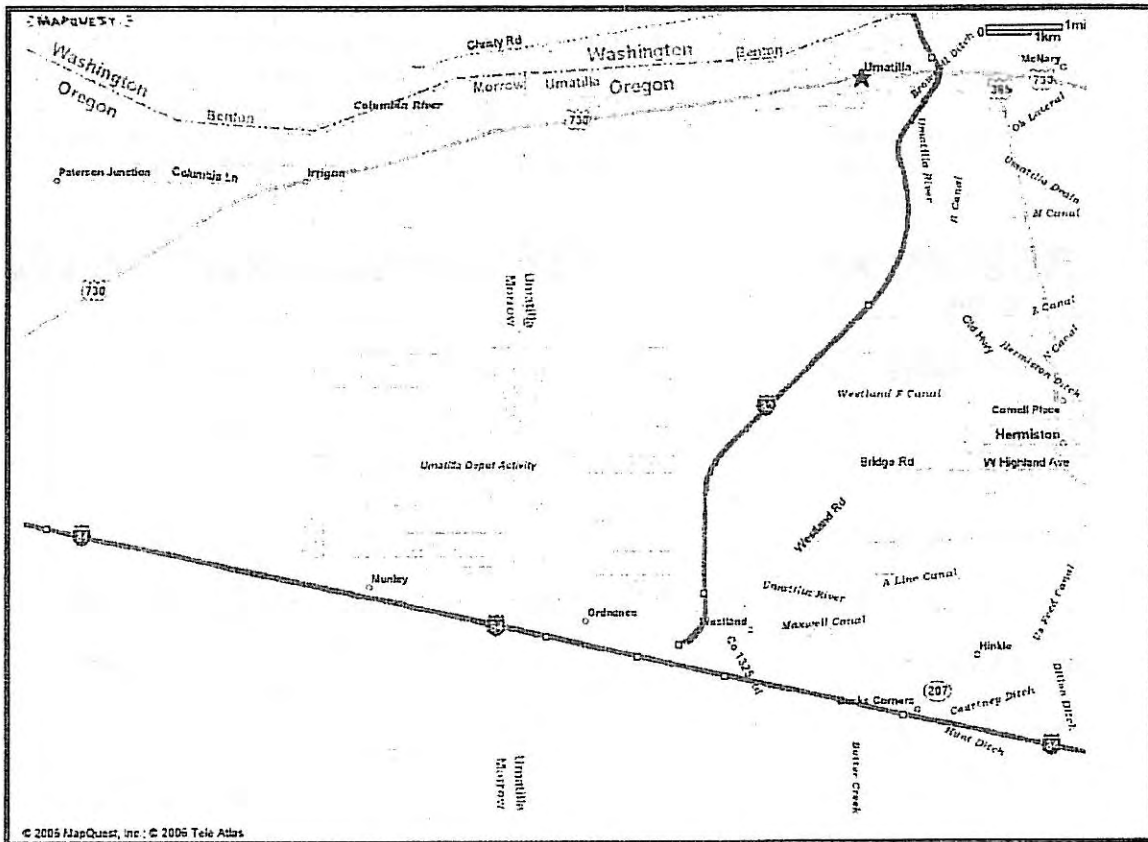
- No formal industrial market exists within Umatilla County. Industrial space is mainly comprised of built to suit light manufacturing operations. There is only a small number of industrial buildings with space for lease.
- Given the lack of industry growth in Umatilla County, current and future demand for industrial space is low.



B. NEIGHBORHOOD ANALYSIS

Determining the likely use or redevelopment potential of a site can be a function of the development patterns of the surrounding neighborhood. The density and type of development surrounding a site can be a strong indicator of the potential demand for a site.

The map below provides a street level overview of the area immediately surrounding Umatilla.



The area immediately surrounding the UCD site can generally be characterized as low density residential and agricultural uses. Immediately to the south of the site is I-84, which provides access to Portland to the west. On the eastern boundary of the site is I-82, which provides access from I-84 across the Columbia River to Washington. Further to the east of UCD is the town of Hermiston, which is characterized by medium density older homes; street retail “mom & pop” commercial establishments and local business establishments.

The neighborhood surrounding UCD can be summarized as being mostly agricultural, with vast amounts of undeveloped or agricultural land. The abundant supply of open, developable land surrounding UCD would indicate low land value and a lack of intrinsic development opportunities for the UCD site.



C. REAL ESTATE MARKET RATING

In the absence of sophisticated empirical data, a more qualitative scoring system was used to indicate the vitality of the various segments of the real estate market. In order to ascribe a rating to the different market segments within the Umatilla area, a qualitative rating system was employed. While somewhat subjective, it is intended to capture the quality of each real estate market segment in the absence of an abundance of statistical metrics.

The following table represents the overall rating of the various real estate market segments. A score of "1" indicates a market that is below national standards in terms of vitality. Such a market sector would suffer from low demand, downward or flat trends, and low investment appeal. A score of "2" would indicate a market that is at or around the national average in terms of overall health and vitality. Such a market segment would be somewhat neutral; it would not be suffering from low demand or downward or flat trends, but it also wouldn't necessarily be outpacing metrics typical across the U.S. A score of "3" would indicate a market segment that is doing very well relative to the entire country. It would reflect a market segment experiencing very strong demand, upward trends or sustainable high growth rates, and high investment appeal.

	Office	Retail	Residential	Industrial
Market Size	1	1	1	1
Demand	1	1	1	1
Land/Building Value	1	1	1	1
Market Trend	1	1	1	1

1 = Below National Levels; 2 = At or Around National Avg.; 3 = Above National Avg.

D. SUMMARY OF FINDINGS

The real estate market in the Umatilla area suffers from low to moderate demand and low land and building values. As a result, demand for the UCD site would most likely not be driven from development demand encroaching upon the site. Demand, if any, would have to evolve from self-contained uses such as manufacturing or processing companies that require the specific characteristics of the UCD site, and surrounding area.



VI. OPPORTUNITIES

The City of Umatilla has access to a diverse transportation network which connects it to other areas in the Pacific Northwest and beyond. Umatilla has excellent access to freight transportation facilities and direct highway access which includes two Interstates, I-82 & I-84 and two U.S. Highways, Hwy 730 and Hwy 395. Umatilla's diverse transportation network includes the Union Pacific Railroad line which runs through Umatilla and the Port of Umatilla which has railroad car-loading access available to and from the river barges. Furthermore, the Municipal Airport in Hermiston is accessible for smaller commercial and private airplanes and the commercial airports in Pendleton, Oregon & Pasco, Washington are within 35 miles of the Umatilla area.

The economy surrounding Umatilla has been driven by agriculture. However, there has been an increased emphasis on food manufacturing and processing. In 2003, close to 60% of the manufacturing jobs in Umatilla County were in food manufacturing. There are also various industrial parks that support the trucking, warehousing and distribution sectors. The labor costs in Umatilla are competitive as compared to the national average. However, there is a higher unemployment rate in the area as compared to the national average.



A. STRENGTH ANALYSIS

The table below is an overall qualitative summary of some of the strengths for the region and for the area surrounding the site. The chart is intended to focus on the strengths of the location to be able to attract uses. The chart intentionally does not describe weaknesses since weaknesses may be able to be mitigated or corrected over time. Overall, the strengths for the region and its immediate surroundings are shown below¹⁷:

Regional Strengths		
Criteria / Factor	Strength?	Comment
Extensive Road / Highway Infrastructure	Yes	Good highway infrastructure
Extensive Rail Networks	Yes	Strong connections to Points in NW USA
Good Commercial Airport Access		2 small commercial airports
Good Port Access	Yes	Port of Umatilla
Population Size / Density / Growth	Yes	1.4 M people 15 miles, growing
Similar US Average Age	Yes	Age distribution conducive to business and industry
Availability of Higher Education / Vocational Schools		
Above US Average Education Level		
Above US Average Median Household Income		
Positive Economic Environment / Job Growth	Yes	Regional Economy is growing
Lower than US Average Cost of Living		
Lower than US Average Labor costs		
Local Strengths		
Criteria / Factor	Strength?	Comment
Extensive Road / Highway Infrastructure	Yes	Near major highways (I-84 & I-82)
Extensive Rail Networks	Yes	Major rail lines pass through community
Good Commercial Airport Access		
Population Size / Density / Growth		Decreasing population
Similar US Average Age		
Availability of Higher Education / Vocational Schools	Yes	Local Community College
Above US Average Education Level		
Above US Average Median Household Income		
Positive Economic Environment / Job Growth		
Lower than US Average Cost of Living	Yes	Lower cost part of NW USA
Lower than US Average Labor costs	Yes	Lower cost part of NW USA

Overall, the location is advantageous because of its proximity to the Portland, Oregon, and other major cities in northwest USA. The location benefits from a good transportation network. The area surrounding Umatilla is advantageous because of its lower cost.

¹⁷ The strength matrix is a summary of a few key factors discussed in previous sections.

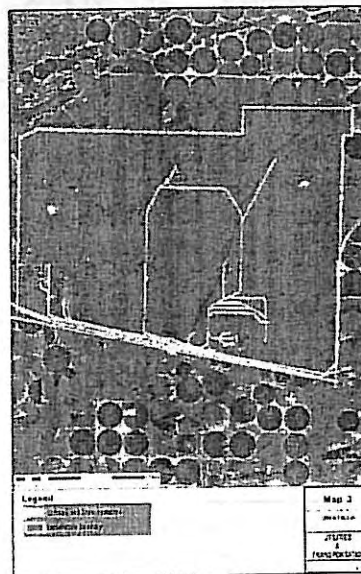
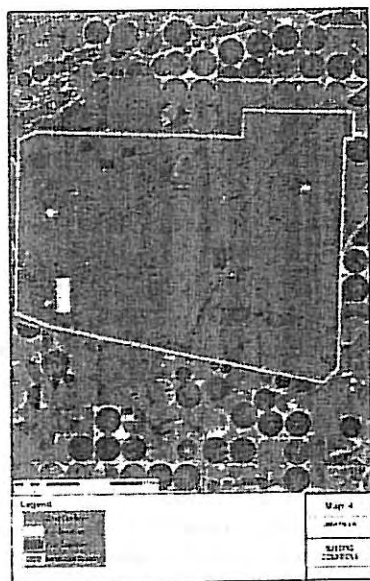


Below is a summary of the strengths associated with the site itself:

Site-Specific Strengths		
Criteria / Factor	Strength?	Comment
Size of Contiguous Developable Land	Yes	Many acres of potential development
Site Topography Conducive to Development	Yes	Mostly flat terrain
Roads - Access to Site	Yes	Very close proximity to local highways
Roads - Existing On-Site Infrastructure	Yes	Good existing road structure
Rail - Service to Site	Yes	Rail spurs onto current industrial portion of site
Rail - Existing On-Site Infrastructure	Yes	Rail spurs onto current industrial portion of site
Continued Army / Federal Presence		
Minimal Legal / Contractual Challenges	Yes	
Few Deed Restrictions / Easements	Yes	
Streamlined Zoning / Entitlement Process	Yes	Local community leaders supportive of development
Reusable Existing Utilities	Yes	Site and Utilities are well maintained
Reusable Existing Facilities	Yes	Some industrial facilities are immediately reusable
Unique Natural Resources		
Unique Natural Amenities		
Unique Cultural Resources		
Unique Historical Resources		

Overall, the site has accessed to good transportation systems including on-site rail and road networks. The site itself has a unique mix of recreational areas and amenities with industrial uses.

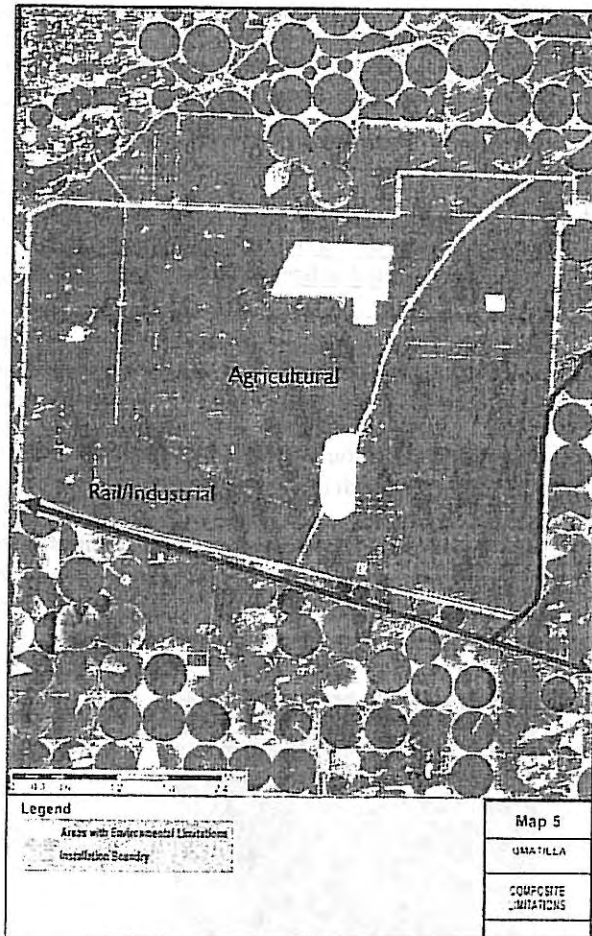
The map on the left below is the building quality map from section 3. There are a few facilities that are reusable, depending upon the best future use. The buildings appear to be in good enough condition to continue to operate. The map on the right is the infrastructure quality map. The infrastructure is acceptable for current use, but may require upgrades to fulfill the needs of alternative reuse options.





B. SITE POTENTIAL ANALYSIS

Based on the site analysis from section 3, below is a summary analysis of the potential opportunities and constraints offered by the site. The areas are divided into broad categories of potential uses based on the conditions of the site, access, adjacent land uses, and other site-specific issues. The analysis is intended to offer an idea of overall observations of considerations for future land-use alternatives.



The site analysis demonstrates that the highest profile access points are to the south of the site. The area to the Southwest of the site could be utilized for rail-based development. Agriculture could be considered on other parts of the site until greater demand for alternative uses are identified. A great portion of the site will be environmentally suitable for industrial uses¹⁸.

¹⁸ For purposes of determining potential re-use alternatives based on environmental condition, the following broad categories have been defined: 1) Industrial/commercial use (Although the nature of the constraint has to be taken into account when making decision regarding future use and not just the fact of contamination, assuming a site is acceptable for industrial use and has been cleaned up to a level consistent with a worker exposure risk assessment scenario would be similar for industrial or commercial (office / Retail) level uses) 2) residential or cleaner use.



The following chart identifies the specific types of uses that might be most likely given the site analysis and the real estate market analysis. The re-use opportunities are identified as low to high potential for the ability for the use to be incorporated somewhere into the overall site.

The most likely re-use opportunities, given the location and site characteristics, are shown in the table below:

Criteria / Factor	Dense Uses						Open Uses		
	Retail	Office	Residential	Industrial	Leisure / Hospitality	Institutional	Agricultural	Conservation	Mining / Natural Resources
Adjacent Synergistic Land Uses									
Local Land Use Market Inventory									
Local Available Similar Development Parcels									
Local Land Use Demand									
Current Land / Facility Use									
Most Probably Land Use Opportunities									

Scale = Low = Medium = High

- Retail includes Wholesale Retail and Retail Trade
- Office includes Professional & Business Services, IT, Financial Activities, Federal office uses
- Industrial includes Warehousing, Manufacturing, Transportation, Utilities uses
- Recreation includes Hospitality / Leisure and related income-generating recreation activities
- Institutional includes Educational, Health Services, and civic uses
- Open includes Conservation, Natural Resources and Mining uses



C. OPPORTUNITY MATRIX

There are a few opportunities which could be considered for the site, given the site location, the variety of site conditions and infrastructure on the land. Many of the opportunities are tempered by the fact that there is a modest demand for development in the area surrounding the site. The opportunity matrix below arrays many of the specific reuse opportunities that were investigated or discussed over the course of the study period. The opportunities are not all mutually exclusive; there may be opportunities that can be combined together into a single realistic reuse plan¹⁹.

While it is possible for some of the opportunities to come to fruition, a rating scale has been developed to help identify the most likely beneficial uses. The rating scale is based on low (1) to high/beneficial (3) scale. The five "impact factors" are described below:

Jobs – the number of jobs that would be created in the community to support the potential re-use opportunity

Timing – the estimated period of time required to fully realize the development of the opportunity on the site

Risk – the level of risk in terms of financial or market exposure that the developer or community would incur by pursuing the particular opportunity

Value – the potential total final economic value that would be created by the opportunity

Reality – the overall reality, given the real estate analysis, that the opportunity could be implemented

¹⁹ The opportunity matrix categories include generic opportunity names, economic industry, description and / or logistics that are required to execute the opportunity, the land type, and the appropriate environmental class of clean-up that is required for the opportunity.



Below is a summary of the opportunities which were uncovered:

Umatilla Opportunity Matrix					Impact Factors					
Opportunity Name	Industry	Description / Logistics	Land-use Type	Appropriate Environl. Class.	Jobs	Timing	Risk	Value	Reality	Average
Rail Car Control Yard	Manufacturing	Umatilla has extensive rail facilities, and substantial available land for this land-intensive use.	Industrial	Industrial	2	2	3	2	3	2.4
Agriculture	Agriculture	Umatilla is located in a very fertile / crop producing region and is surrounded by agricultural land. A portion of the site can produce revenues from agricultural uses pending increased demand for more profitable uses.	Agricultural	Unrestricted	1	3	3	1	3	2.2
Ethanol / Bio Diesel Plant	Utilities	US is looking for new energy sources and Umatilla is not far from major population centers; could be a good generation and transmission site.	Industrial	Industrial	3	2	2	2	1	2
Industrial Park	Manufacturing	Umatilla's infrastructure can support industrial uses, especially chemical manufacturing or environmentally challenging uses.	Industrial	Industrial	3	1	1	3	1	1.8
Rail Car Restoration and Storage	Manufacturing	Umatilla currently has rail lines and can engage restoration and storage of rail cars for income.	Industrial	Industrial	1	1	1	2	3	1.6

As the table above shows, the highest ranked opportunities are industrial and agriculture.



D. ANALYSIS OF OPTIONS

DESCRIPTION OF BEST OPPORTUNITIES

The best opportunities for the site include industrially – based uses, agriculture, and taking advantage of the rail location to provide rail operations and/or repair.

INDUSTRY STATISTICS AND HEALTH

Based on the opportunity matrix, there are several industries that should be considered to provide income and jobs on the site. Below is a summary of a few of the key industries that might be appropriate for this site.

Agriculture, Forestry and Fishing

The agriculture, forestry and fishing industry includes establishments that provide consumers with a range of food and non-food products. These establishments primarily include farms, ranches, dairies, greenhouses, nurseries, orchards and hatcheries. The agricultural sector is divided into two major groups: animal and crop production. Agricultural and livestock establishments are concentrated in certain parts of the United States. For example, citrus fruit is concentrated in Florida, Arizona and California; tobacco, cotton, rice and peanuts are primarily grown in the southern states; hogs, grains, potatoes and range fed cattle are mostly tended to in the Plain States; cattle primarily graze in the southwest and west and most vegetables and fruits are grown in California.²⁰

According to the Bureau of Labor Statistics, the agriculture, forestry and fishing industry provided approximately 2.1 million jobs in 2004, making it one of the largest industries in the United States. The workers in this industry tend to be older than workers in the other industries. For example, in 2004, approximately 30% of the workers in this industry were older than 55-years-old, almost double of the percentage of 55+ year-old workers in all the other industries.²¹

According to the Bureau of Labor Statistics, the overall employment in agriculture, forestry and fishing is expected to decline 11% through 2014. This is due in part to low agricultural prices, an increase of imports of lumber and fish and the mechanization of many functions. Furthermore, establishments continue to produce more goods than is required domestically and internationally.²²

Most of the small agricultural-production establishments hire less than 5 workers. The recent trend in the agriculture sector has shifted toward vertical integration where agribusinesses have started to integrate all the stages of the agricultural process (from production through the distribution to the consumers) into one company.²³

²⁰ Bureau of Labor Statistics – Occupational Outlook Handbook, 2006-2007 Edition (Bulletin 2601)

²¹ Bureau of Labor Statistics – Occupational Outlook Handbook, 2006-2007 Edition (Bulletin 2601)

²² Bureau of Labor Statistics – Occupational Outlook Handbook, 2006-2007 Edition (Bulletin 2601)

²³ <http://www.investor.reuters.com/business/Industry>



The leading players in the crop production sector in the United States include Cargill, Archer Daniels Midland, Bunge and Cenex Harvest States. The table below lists the companies that hire the most employees in the crop sector (revenues for the highest-employing companies are also listed).

Company	# Employees	Revenue (M)
Industry Average	10,923	\$1,217.1
Fresh Del Monte Produce, Inc.	37,000	\$3,259.7
Hines Horticulture, Inc.	3,260	\$327.9
SunOpta, Inc. (USA)	1,230	\$426.1
The Andersons, Inc.	1,224	\$1,296.7
Delta and Pine Land Company	528	\$358.5
ML Macadamia Orchards, L.P.	259	\$15.8
Cresud Inc. (ADR)	248	\$31.7
Landec Corporation	167	\$211.1
Alico, Inc.	155	\$54.5
Know Nursery	106	\$7.8

Source: Reuters.com

Important factors in the agriculture industry are access to low-cost open land, access to a transportation and distribution network and proximity to markets. Furthermore, it is favorable for the industry to be situated in a rural area that has both a favorable climate and natural resources such as fertile soil. There is a low requirement for a highly skilled or educated workforce because much of the training occurs on the job.

Food Manufacturing/Food Processing

The food manufacturing industry includes establishments that connect farmers and other agricultural producers with consumers. In food processing, workers process raw food products into finished goods that are then distributed to and sold by grocers or wholesalers, restaurants or institutional food services. Although food manufacturing is present in all states, there are sector concentrations in certain regions of the country. In 2004, a quarter of the workers in animal slaughtering and processing were located in California, Illinois, Iowa, Pennsylvania and Texas. About one third of all cheese manufacturing workers in 2004 were employed in Wisconsin. Furthermore, California accounted for one-fifth of fruit and vegetable preserving and specialty food manufacturing. Food manufacturing also includes bakeries and tortilla manufacturing, sugar and confectionary product manufacturing, grain and oilseed manufacturing and seafood product preparation and packaging.²⁴

Food processing is one of the largest manufacturing sectors in the country with approximately 10% of all manufacturing shipments (by value) in the United States.²⁵ According to the Bureau of Labor Statistics, the food processing sector provided approximately 725,000 jobs in 2004. Furthermore, the processed food industry grew by more than 10% from 1998 until 2004.²⁶

According to the Bureau of Labor Statistics, the overall employment in food processing is expected to grow on par with all occupations through 2014. Although automation has impacted food manufacturing jobs, the demand for more processed and diverse foods and the presence of expanding export markets will continue to encourage modest increases in food manufacturing jobs. Furthermore, food

²⁴ Bureau of Labor Statistics – Occupational Outlook Handbook, 2006-2007 Edition (Bulletin 2600)

²⁵ <http://www.investor.reuters.com/business/Industry>

²⁶ <http://www.investor.reuters.com/business/Industry>



manufacturing will remain stable or grow because it is not highly sensitive to economic changes or conditions.²⁷

Consolidation has been a trend in the food manufacturing industry with 415 mergers and acquisitions in 2003 as companies focused on greater efficiencies and on the expansion of product lines.²⁸ Establishments that employed 500 or more workers accounted for 36% of all jobs.²⁹

The leading players in the United States include Unilever, Archer Daniels Midland Company, Kraft Foods, Tyson Foods and Bunge. The table below lists the companies that hire the most employees in the food processing sector (revenues for the highest-employing companies are also listed).

Company	# Employees	Revenue (M)
Industry Average	82,371	\$21,844.3
Unilever N.V. (ADR)	227,000	\$47,663.2
Unilever plc (ADR)	223,000	\$47,663.2
Sara Lee Corp.	137,000	\$19,131.0
Tyson Foods, Inc.	114,000	\$6,497.0
Kraft Foods Inc.	94,000	\$34,113.0
Groupe Danone	89,449	\$14,923.1
Smithfield Foods, Inc.	51,290	\$11,726.9
H.J. Heinz Company	41,000	\$8,692.3
ConAgra Foods, Inc.	38,000	\$12,311.2
Pilgrim's Pride Corp.	35,400	\$5641.8

Source: Reuters.com

Important drivers in the food manufacturing industry include comprehensive and direct access to a transportation network, contiguous land for a facility and natural disposal operations and plentiful space to accommodate expansion, proximity to population centers, competitive labor costs and access to a trainable workforce.

Oil and gas industry

The oil and natural gas extraction industry includes establishments that provide approximately three-fifths of our nations energy needs. Furthermore, this industry provides the raw materials for plastics, chemicals, medicines, fertilizers and synthetic fibers. The primary functions of the oil and gas extraction industry include finding, developing and extracting oil and gas. The majority of the oil and gas extraction establishments are located in California, Louisiana, Oklahoma and Texas whereas a quarter of the workers in this industry work in one of 42 states.³⁰ The United States is the world leading location for oil and gas extraction companies outside of Europe.³¹

According to the Bureau of Labor Statistics, the oil and gas extraction industry employed approximately 316,000 people in 2004, where more than half were not directly employed by the oil and gas extraction companies. More than 55% of the workers in this industry tend to be between the ages of 35 and 54 year.³²

27 Bureau of Labor Statistics - Occupational Outlook Handbook, 2006-2007 Edition (Bulletin 2600)

28 <http://www.investor.reuters.com/business/Industry>

29 Bureau of Labor Statistics - Occupational Outlook Handbook, 2006-2007 Edition (Bulletin 2600)

30 Bureau of Labor Statistics - Occupational Outlook Handbook, 2006-2007 Edition (Bulletin 2601)

31 <http://www.investor.reuters.com/business/Industry>

32 Bureau of Labor Statistics - Occupational Outlook Handbook, 2006-2007 Edition (Bulletin 2601)



According to the Bureau of Labor Statistics, the overall employment in the oil and gas extraction industry is expected to decline 6% through 2014 despite the projected growth in the worldwide demand for oil and gas. This decline is partly due to environmental concerns and the fact that oil and gas are a limited resource.

More than half of the establishments have less than 5 workers whereas the other half is employed in establishments with 20+ workers. As reserves are depleted, companies have begun to look overseas. A recent trend in the oil and gas extraction industry is to explore other alternatives and future energy mix strategies. Companies are exploring new ventures such as wind farms or the use of ethanol as an alternative fuel source.³³

Leading players in the oil and gas extraction industry in the United States include the recently merged ExxonMobil and ConocoPhillips. The table below lists the companies that hire the most employees in the oil and gas extraction industry (revenues for the highest-employing companies are also listed).

Company	# Employees	Revenue (M)
Industry Average	122,308	\$203,994.7
PetroChina Company Limited (ADR)	439,220	\$68,770.7
China Petroleum & Chemical Corp. (ADR)	389,451	\$88,766.5
TOTAL S.A. (ADR)	111,401	\$147,230.9
Royal Dutch Shell plc (ADR)	109,000	\$306,731.0
BP plc (ADR)	102,900	\$267,345.0
ExxonMobil Corporation	83,700	\$370,680.0
Eni S.p.A. (ADR)	71,497	\$76,559.3
Chevron Corporation	59,000	\$198,200.0
Petroleo Brasileiro S.A. (ADR)	52,037	\$56,324.0
ConocoPhillips	35,600	\$183,364.0

Source: Reuters.com

Important factors in the oil and gas extraction industry are the presence of the natural resource and access to a transportation network which include not only highways or rail but waterways and pipelines. There is not a requirement for a large or highly educated workforce. It is more favorable that the area is rural or not highly developed but provides the room to extract the gas or oil.

Truck Transportation and Warehousing

The truck transportation and warehousing industry includes establishments that connect manufacturers and consumers. Trucking and warehousing companies pick up, transport, store and deliver a range of goods. This industry includes general freight trucking, specialized freight trucking and warehousing and storage. Although trucking and warehousing establishments are situated throughout the United States, they are heavily clustered around major interstate highways and in highly industrialized regions of the country such as in New Jersey, Texas and California.³⁴

The trucking industry is estimated to carry three-quarters of the value and two-thirds of the weight of total freight that is shipped in the US.³⁵ According to the Bureau of Labor Statistics, the truck transportation and warehousing industry provided approximately 1.9 million jobs in 2004.

³³ <http://www.investor.reuters.com/business/Industry>

³⁴ Bureau of Labor Statistics – Occupational Outlook Handbook, 2006-2007 Edition (Bulletin 2600)

³⁵ <http://www.investor.reuters.com/business/Industry>



According to the Bureau of Labor Statistics, the overall employment in trucking and warehousing is expected to grow 14% through 2014, on par with all industries combined. As long as the national economy continues to grow, there will be an increased need to store, transport and distribute goods from producers to consumers.

Most of the truck transportation and warehousing industry have establishments with 20 workers or less. However, consolidation has been a recent trend in the trucking and warehousing industry. Due to high fuel prices, insurance premiums and added security requirements, some establishments have been forced to close down.³⁶ Furthermore, high fuel prices have encouraged the use of rail over the use of truck transportation.³⁷ However, technology advancements and reduced operating costs have increased the efficiency in the trucking and warehousing industry.

The leading players in the United States include United Parcel Service, Fedex Corporation, Roadway Corporation and Yellow Corporation. The table below lists the companies that hire the most employees in the trucking industry (revenues for the highest-employing companies are also listed).

Company	# Employees	Revenue (M)
Industry Average	294,598	\$30,862.8
United Parcel Service	407,000	\$42,581.0
TNT N.V. (ADR)	128,307	\$12,109.3
YRC Worldwide Inc.	68,000	\$8,741.6
Swift Transportation Co.	21,900	\$3,197.5
CNF, Inc.	21,800	\$4,169.6
Consolidated Freightways	18,100	\$2,018.1
J.B. Hunt Transport Services, Inc.	16,370	\$3,127.9
Werner Enterprises, Inc.	13,722	\$1,971.8
Arkansas Best Corporation	12,327	\$1,860.3
Old Dominion Freight Line	9,736	\$1,061.4

Source: Reuters.com

Important factors in the trucking and warehousing industry include a diversified and redundant transportation network which provides convenient access to highways, railway, ports and airports. Furthermore, establishments should be in close proximity to population centers where there exists a demand for the goods being stored or transported. Furthermore, it is favorable for an establishment to be located in an area where ownership or leasing of a property is not expensive or cost prohibitive. Another driver includes access to an area which supports competitive labor wages.

Pharmaceutical and Medicine Manufacturing Industry

The pharmaceutical and medicine manufacturing industry includes establishments that make pharmaceutical preparations or finished drugs; biological products, such as serums and vaccines; bulk chemicals and botanicals used in making finished drugs; and diagnostic substances such as pregnancy and blood glucose kits.³⁸ Many new drugs are projected to be developed and delivered in the coming years.

According to the Bureau of Labor Statistics, the pharmaceutical and medicine manufacturing industry employed approximately 291,000 workers in 2004. Pharmaceutical and medicine manufacturing establishments typically employ many workers. Nearly 60 percent of the industry's jobs in 2004 were in

³⁶ <http://www.investor.reuters.com/business/Industry>

³⁷ <http://www.investor.reuters.com/business/Industry>

³⁸ Bureau of Labor Statistics – Occupational Outlook Handbook, 2006-2007 Edition (Bulletin 2601)



establishments that employed more than 500 workers with most jobs concentrated in California, Illinois, Texas, Indiana, New Jersey, New York, North Carolina, and Pennsylvania.³⁹

According to the Bureau of Labor Statistics, the overall employment in the pharmaceutical and medicine manufacturing industry is expected to increase by about 26% through 2014, as compared with the 14% expected growth for all industries combined. The pharmaceutical and medicine manufacturing industry is among the fastest growing manufacturing industries. This growth, however, is expected to be slower than the growth experienced in the previous 10-year period. The pharmaceutical and medicine manufacturing industry is not highly sensitive to changes in economic conditions - i.e. work is likely to be relatively stable in this industry.⁴⁰

Recent trends in the industry include genomics companies focusing more on profitability as they have begun to develop products in-house to continue growth as the market has been saturated with technology agreements. Furthermore, the opportunities for biotech companies will continue to grow as farmers use biotech to remain competitive in terms of crop yields in the face of increasing cost pressures.⁴¹

Leading players in the United States include MedImmune, Amgen, Biogen Idec, Chiron and Genentech. The table below lists the companies that hire the most employees in the pharmaceutical and medicine manufacturing sector (revenues for the highest-employing companies are also listed).⁴²

Company	# Employees	Revenue (M)
Industry Average	22,984	\$11,814.1
Sanofi-aventis (ADR)	96,439	\$30,183.3
Cardinal Health, Inc.	55,000	\$77,852.5
Novo Nordisk A/S (ADR)	22,007	\$5,467.6
Amgen, Inc.	16,500	\$12,430.0
Teva Pharmaceutical Industries Ltd (ADR)	14,700	\$5,250.4
Altana AG (ADR)	13,276	\$3,953.7
Hospira, Inc.	13,000	\$2,626.7
AmerisourceBergen Corp.	12,300	\$55,593.6
Genentech, Inc.	9,500	\$6,633.4
Genzyme Corporation	8,200	\$2,734.8

Source: Reuters.com

Important factors for establishments in the pharmaceutical and medicine manufacturing industry are proximity to other manufacturing companies to create synergies, proximity to research institutions, access to highly trained individuals, a competitive labor cost environment and the availability of a trainable workforce.

Computer and Electronic Product Manufacturing Industry

The computer and electronic product manufacturing industry includes establishments that primarily produce computers, computer-related products, including printers, communications equipment, and home electronic equipment, as well as a wide range of goods used for both commercial and military purposes. Furthermore, many electronics products or components are used in other industries' products, such as cars, toys, and appliances. The industry also includes the manufacture of semiconductors—silicon or computer “chips,” or integrated circuits.⁴³

According to the Bureau of Labor Statistics, the computer and electronic product manufacturing industry employed approximately 1.3 million people in 2004. More than 60% of the establishments employ 250+

³⁹ Bureau of Labor Statistics – Occupational Outlook Handbook, 2006-2007 Edition (Bulletin 2601)

⁴⁰ Bureau of Labor Statistics – Occupational Outlook Handbook, 2006-2007 Edition (Bulletin 2601)

⁴¹ <http://www.investor.reuters.com/business/industry>

⁴² <http://www.investor.reuters.com/business/industry>

⁴³ Bureau of Labor Statistics – Occupational Outlook Handbook, 2006-2007 Edition (Bulletin 2601)



workers; however, there are establishments that employ only one or a few workers.⁴⁴ Although electronics-manufacturing plants are found throughout the country, there is a high concentration of integrated circuit, software and computer firms in "Silicon Valley" near San Jose.

According to the Bureau of Labor Statistics, the overall employment in the computer and electronic product manufacturing industry is expected to decline by 7% through 2014, compared with the 14% growth expected in all industries. Employment is expected to decrease as the industry produces more and better products with fewer employees and as companies outsource some professional functions. Increased foreign competition will also continue to impact the industry.

Recent trends in the industry include the outsourcing of production to countries with lower labor and energy costs. For example, Dell handles the majority of their production processes in countries such as China which helps them lower production costs and maintain margins in a commodity market.⁴⁵ Furthermore, the growth of digital technology, artificial intelligence, and nanotechnology, the expansion of the Internet and the increasing demand for global information networking, will continue to create new opportunities.⁴⁶

Leading players in the United States include HP, Dell, Packard Bell, Gateway and Lenovo. Recently Apple has had success with its MP3 model, the i-pod. The table below lists the companies that hire the most employees in the computer hardware sector (revenues for the highest-employing companies are also listed).⁴⁷

Company	# Employees	Revenue (M)
Industry Average	172,603	\$59,823.9
International Business Machines Corp.	329,373	\$91,134.0
Dell, Inc.	65,200	\$55,908.0
Sun Microsystems, Inc.	31,000	\$11,664.0
Apple Computer, Inc.	14,800	\$16,190.0
Ingram Micro Inc.	13,000	\$28,808.3
Tech Data Corporation	8,500	\$20,482.9
Pomeroy IT Solutions, Inc.	3,526	\$768.2
Silicon Graphics, Inc.	2,423	\$645.5
Gateway, Inc.	1,800	\$3,854.1
Brooks Automation, Inc. (USA)	1,800	\$473.7

Source: Reuters.com

Important drivers for establishments in the computer and electronic product manufacturing industry include proximity to research institutions and other manufacturing companies to create synergies, access to an extensive transportation system, proximity to consumers (downstream manufacturers who use the products in their manufacturing of goods), access to some highly trained professionals but also access to a trainable workforce and in an environment of competitive labor costs.

Chemical Manufacturing Industry

The chemical manufacturing industry includes establishments that primarily produce and sell products that are used as intermediate products for other goods. Some establishments produce consumer products such as soap, bleach and cosmetics. The chemicals are generally classified into two groups: commodity chemicals and specialty chemicals. The commodity chemical manufacturers focus on the production of large quantities of basic and relatively inexpensive compounds. Commodity chemicals are produced in large plants which typically produce only one chemical. These basic chemicals are used to produce

⁴⁴ Bureau of Labor Statistics – Occupational Outlook Handbook, 2006-2007 Edition (Bulletin 2601)

⁴⁵ <http://www.investor.reuters.com/business/industry>

⁴⁶ Bureau of Labor Statistics – Occupational Outlook Handbook, 2006-2007 Edition (Bulletin 2601)

⁴⁷ <http://www.investor.reuters.com/business/industry>



everyday consumer goods. Specialty chemical manufacturers produce more expensive chemicals on a smaller scale. These specialty manufacturers have contracts with the larger chemical companies to supply them with their specialty chemicals.⁴⁸

According to the Bureau of Labor Statistics, the chemical and allied products industry employed approximately 596,000 workers in 2004. Chemical firms are concentrated in areas where there are other manufacturing businesses and where there is access to water or ports because chemical manufacturers use water in their process and they export their chemicals throughout the world. Chemical firms are found in the Great Lakes region (near the automotive industry); the West Coast (near the electronics industry) and along the Gulf Coast in Texas and Louisiana (near the petroleum and natural-gas production centers). Approximately 50% of the chemical manufacturing establishments in 2004 were in California, Illinois, New Jersey, New York, Ohio, Pennsylvania, South Carolina, Tennessee and Texas.⁴⁹

According to the Bureau of Labor Statistics, the overall employment in the chemical manufacturing industry, excluding pharmaceuticals and medicine, is expected to decline by 14% through 2014, as compared with the 14% growth expected for the entire economy. Employment will be impacted by more efficient production processes, increased plant automation, the state of the national and world economy, company mergers and consolidation and increased foreign competition and environmental health and safety concerns and legislation. It is expected that some production activities will be moved to developing countries in East Asia and Latin America.⁵⁰

Leading players in the United States include Bayer, Dow Chemical, E.I. du Pont de Nemours (DuPont), Huntsman Corporation, ExxonMobil and BASF. The table below lists the companies that hire the most employees in the chemical manufacturing sector (revenues for the highest-employing companies are also listed).⁵¹

Company	# Employees	Revenue (M)
Industry Average	28,453	\$13,254.5
BASF AG (ADR)	80,945	\$51,655.0
Akzo Nobel N.V. (ADR)	61,640	\$15,388.3
Imperial Chemical Industries PLC (ADR)	33,820	\$10,168.7
PPG Industries, Inc.	30,800	\$10,201.0
The BOC Group plc (ADR)	30,572	\$6,556.8
Sasol Limited (ADR)	30,004	\$12,076.4
Praxair, Inc.	27,306	\$7,656.0
Air Products & Chemicals, Inc.	20,200	\$8,251.1
Syngenta AG (ADR)	19,500	\$8,104.0
Monsanto Company	16,500	\$6,627.0

Source: Reuters.com

Important drivers in the chemical manufacturing industry are the proximity of facilities to other manufacturing companies to create synergies, access to water for use in the production of chemicals, and access to an extensive transportation system to include ports. Furthermore, it is favorable for the chemical manufacturing facilities to be located close to their markets (more specifically to manufacturers of consumer products); in an environment of competitive labor costs and in an area where there is a trainable workforce.

48 Bureau of Labor Statistics – Occupational Outlook Handbook, 2006-2007 Edition (Bulletin 2601)

49 Bureau of Labor Statistics – Occupational Outlook Handbook, 2006-2007 Edition (Bulletin 2601)

50 Bureau of Labor Statistics – Occupational Outlook Handbook, 2006-2007 Edition (Bulletin 2601)

51 Bureau of Labor Statistics – Occupational Outlook Handbook, 2006-2007 Edition (Bulletin 2601)



Wholesale Trade

The wholesale industry includes establishments that sell a range of goods to retail establishments, other businesses, governments and institutions such as universities and hospitals. The goods are used for the buying party's own use or for resale to consumers. These establishments serve as intermediaries between the manufacturer and final customer. Often these establishments store goods for manufacturers or retailers until the consumers require them. The two main types of wholesalers are merchant wholesalers and wholesale electronic markets, agents and brokers.⁵² Merchant wholesalers primarily store, sell and transport goods.

According to the Bureau of Labor Statistics, the wholesale trade industry provided approximately 5.7 million jobs in 2004. Although there are large establishments in this industry, there are many smaller establishments as compared to other industries.⁵³ Wholesalers are found throughout the country; however, about one third of all jobs are in California, New York, or Texas. Generally, wholesalers locate near the manufacturing and trading centers for their products.

According to the Bureau of Labor Statistics, the overall employment in wholesale trade industry is expected to increase by 8% through 2014; this is lower than the expected 14% growth for all industries combined. This slower rate of growth is due to consolidation and the spread of new technology in the industry.⁵⁴

The recent trends in the wholesale trade industry include continued consolidation into fewer and larger companies due to globalization and increasing costs. Multiple warehouses are consolidating into regional distribution centers which are more cost-efficient. There has been a resurgence of rail as the cost of fuel and cost of trucking have increased (due to fuel increases and shortages of drivers). Another trend is outsourcing the distribution of products to Third Party Logistics (3 PLs) providers. These providers are marketing to large manufacturers and retailers to store and/or distribute their products. New technologies will also impact the wholesale trade industry. As it becomes easier for firms to contact manufacturers directly, wholesale trade establishments will place more importance on customer service to retain customers.⁵⁵

Major players in the warehousing and distribution sector include 3rd Party Logistics providers such as Hixel Logistics, UPS Supply Chain Solutions, Maersk Logistics, Ryder System, Penske Logistics, Expeditors International, FEDEX SC Services, NYK Logistics, DHL Solutions and Kuehne + Nagel.

Important factors for wholesale trade establishments are proximity to population centers and to the market. The wholesale trade establishment also is interested in being located in close proximity to where it is receiving the products it will store and distribute - for example, a retail distributor prefers to be close to the market, a manufacturing distributor prefers to be close to the plant and a distributor which is receiving products from overseas prefers to be close to a port. Other drivers for wholesale trade establishments include access to an extensive transportation network, access to a trainable workforce and competitive labor costs.

⁵² Bureau of Labor Statistics – Occupational Outlook Handbook, 2006-2007 Edition (Bulletin 2601)

⁵³ Bureau of Labor Statistics – Occupational Outlook Handbook, 2006-2007 Edition (Bulletin 2601)

⁵⁴ Bureau of Labor Statistics – Occupational Outlook Handbook, 2006-2007 Edition (Bulletin 2601)

⁵⁵ <http://www.investor.reuters.com/business/Industry>



Utilities

The utilities industry includes establishments that focus on electric power generation, transmission, and distribution; that focus on natural gas distribution and that focuses on water, sewage and other systems all considered to be “public goods” and therefore typically highly-regulated.⁵⁶ The electric utilities market commanded a market value of more than \$220 billion in 2004.⁵⁷

According to the Bureau of Labor Statistics, the utilities industry provided approximately 570,000 jobs in 2004 with approximately 70% of the jobs found in electric power generation, transmission and distribution.

According to the Bureau of Labor Statistics, the overall employment in the utilities industry is expected to decline 1% through 2014, while all industries combined are expected to grow 14%. This decline is due in part to the pressures of increased efficiencies found in improved production methods and technology, to the renewed focus on energy conservation and to the competitive regulatory environment.⁵⁸

Recent trends in the utilities industry include a focus on discovering and exploiting more renewable sources of energy as stockpiles decline.⁵⁹ Furthermore, companies are looking for alternative energy sources such as wind-generated, ethanol or nuclear power to reduce the nation’s dependency on oil which along with international circumstances have caused utility prices to increase.⁶⁰ Additionally, as oil prices have increased, coal has become more attractive as an affordable, reliable and domestic answer.⁶¹ Generally there are more small companies involved in the development of many of these sources of energy and they should be considered.

The leading players in the larger US energy market include Duke Energy, American Electric Power, TXU and Exelon. The table below lists the companies that hire the most employees in the utilities industry (revenues for the highest-employing companies are also listed).

Company	# Employees	Revenue (M)
Industry Average	28,802	\$18,277.2
Suez SA (ADR)	160,712	NA
E.ON AG (ADR)	75,173	\$62,294.6
Enel S.p.A. (ADR)	51,778	\$40,916.6
Korea Electric Power Corporation (ADR)	32,557	\$25,135.8
The AES Corporation	30,000	\$10,636.0
Endesa S.A. (ADR)	27,294	\$21,899.3
The Southern Company	25,554	\$13,552.0
National Grid plc (ADR)	24,406	\$13,742.4
Huancng Power International, Inc. (ADR)	22,883	\$4,477.6
PG&E Corporation	19,800	\$11,703.0

Source: Reuters.com

56 Bureau of Labor Statistics – Occupational Outlook Handbook, 2006-2007 Edition (Bulletin 2601)

57 <http://www.investor.reuters.com/business/Industry>

58 Bureau of Labor Statistics – Occupational Outlook Handbook, 2006-2007 Edition (Bulletin 2601)

59 <http://www.investor.reuters.com/business/Industry>

60 <http://www.investor.reuters.com/business/Industry>

61 Energy Boom by Rick Killian in the January 2006 issue of Prairie Business.



Important factors in the utilities industry include a diversified transportation network with convenient access to highways, railway, and ports. Furthermore, it is more favorable if establishments are relatively close to population centers. There is not a high demand for a large workforce.



May 2, 2006
Umatilla Chemical Depot
Umatilla, OR
Site Assessment Report

E. CONCLUSIONS / FINDINGS

Based on the research and discussions conducted as part of this study, below are some high level findings and considerations as the Army and Community focus on re-use opportunities:

- UCD has several industrial buildings which could provide value in re-use, but there are competing industrial parks nearby – the reuse opportunities should first investigate market potential for reuse of these facilities in order to expedite transfer and the positive effects of retaining jobs in a community that could benefit from economic stimulus.
- There is a freight yard at UCD which could be adapted for use as a consolidation yard by the Union Pacific Railroad.
- The best opportunities for reuse include a near-term opportunity for warehouse and distribution or agricultural uses. Additional uses could be found in renewable energy opportunities such as wind or bio-mass electrical generation.

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