



Winter 2011

Downsizing for the future: Whatcom County Adult Correction Facility and Sheriff's headquarters environmental impact assessment

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Downsizing for the Future:

**Whatcom County Adult Correction Facility and
Sheriff's Headquarters
Environmental Impact Assessment**

ESCI 436

Winter 2011

Western Washington University

Downsizing for the Future:
Whatcom County Adult Correction Facility and
Sheriff's Headquarters
Environmental Impact Assessment

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FACT SHEET

Project Title

Whatcom County Adult Correction Facility and Sheriff's Headquarters

Description of project

The Proposed Action is to build a new corrections facility and sheriff's headquarters. The facilities encompass a main jail, a work center, a jail support area, facilities management support, and a utility plant services building.

Legal description of location

The proposed site is located in unincorporated Whatcom County in Township 38 North, Range 2 East, Section 3. The 71.8-acre site is comprised of four contiguous tax parcels under single private ownership, and is situated in the northwestern portion of Bellingham's Urban Growth Area (UGA).

Proposer

Whatcom County Administrative Services Department Facilities Management

Lead agency

Huxley Environmental Consultants Inc.
ES 413 Western Washington University
Bellingham, WA 98225

Permits

Agency	Permits
Federal Aviation Administration	<ul style="list-style-type: none">• Notice of Proposed Construction
U.S. Army Corps of Engineers	<ul style="list-style-type: none">• Clean Water Act Section 404 Permit
Washington State Department of Ecology	<ul style="list-style-type: none">• Department of Ecology Construction Stormwater General Permit• Coastal Zone Management Act Consistency Determination• Clean Water Act Section 401 Certification
Washington Department of Fish and Wildlife	<ul style="list-style-type: none">• Department of Fish and Wildlife Habitat Management Plan
State Historic Preservation Officer	<ul style="list-style-type: none">• Department of Archaeology and Historic Preservation; Washington State Executive Order 0505, environmental review of

	capital projects for historic, cultural, and tribal resources
Whatcom County	<ul style="list-style-type: none"> • Critical Areas Management Report and Mitigation Plan • Grading Permit • Major Project Permit • Zoning and Comprehensive Plan and Map Amendment • Stormwater Management Report • Building Permit
City of Bellingham	<ul style="list-style-type: none"> • Interlocal Agreement between the City of Bellingham and Whatcom County Concerning Annexation and Development within the City of Bellingham UGA (1997) • Bellingham City Council Policy Regarding Utility Service Zone Extensions (2004)

Contributions by each of the authors

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Bellingham, WA

Disclaimer

This report represents a class project that was carried out by students of Western Washington University, Huxley College of the Environment. It has not been undertaken at the request of any persons representing local governments or private individuals, nor does it necessarily represent the opinion or position of individuals from government or the private sector.

TABLE OF CONTENTS

Fact Sheet	i
Acronyms and Abbreviations	1
Glossary	2
Summary	3
1 Alternative	4
2 Geology and soils	9
3 Air	12
4 Water	16
5 Wetlands	18
6 Plants	23
7 Wildlife	25
8 Environmental Health	27
9 Land Use and Recreation	31
10 Aesthetics, Light and Glare	37
11 Historical and Cultural Preservation	40
12 Transportation	41
13 Public Services and Utilities	50
14 Climate Change	55
15 References	57
Appendix A: List of Tables	60
Appendix B: List of Figures	61
Appendix C: Letter	61

ACRONYMS AND ABBREVIATIONS

ADT	Average daily traffic
ALS	Average length of stay
CAA	Clean Air Act
CARA	Critical Aquifer Recharge Area
DBH	Diameter at breast height
DPS	Distinct population segment
EIA	Environmental Impact Assessment
EPF	Essential public facility
ESU	Evolutionarily significant unit
FAA	Federal Aviation Administration
FTE	Full time employee
FVS	A wetland's functional value score
FWCA	Fish and wildlife habitat conservation areas, under GMA (see below)
GMA	Growth management act
ITE	Institute of Transportation Engineers
LEED	Leadership in energy and environmental design
LII	Light industrial impact
LOS	Level of service
NAAQS	National Ambient Air Quality Standards
NWCAA	Northwest Clean Air Agency
OWSC	One-way stop-controlled
PM	Peak hours
Signal	Signalized intersection
SWPPP	Stormwater pollution prevention plan
UGA	Urban growth area
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
WCC	Whatcom County Code

WDFW	Washington Department of Fish and Wildlife
WDNR	Washington State Department of Natural Resources
WSDE	Washington State Department of Ecology
WSDOT	Washington State Department of Transportation
WTA	Whatcom Transportation Authority

GLOSSARY

Anadromous - the characteristic of salmon to migrate from freshwater to saltwater during adolescence. Mature salmon will return to their birthplace to spawn.

Cumulative Impacts - project impacts, in combination with impacts from past, present, and reasonably foreseeable future actions.

Delineate - to define and draw the boundaries of a specific land area, pertaining to wetlands.

Distinct Population Segment (DPS) – a designation given to a specific division of fish.

Evolutionarily Significant Unit (ESU) - a subunit of species used to classify a group of fish that may be genetically different from other fish of the same species due to geographic isolation.

Forested Vegetation - consists of woody plants that are 20 feet or taller.

Fugitive Dust - particulate matter not collected by a capture system that is entrained in the ambient air and is caused from human and/or natural activities, such as movement of soil, vehicles, equipment, and wind.

Functional Value - quantifies a wetland's functional value based on its quality of water, habitat, and hydrologic capacity.

Jacking - a construction method that involves jacking a casing through the earth from within a pit while simultaneously removing the spoil inside the encasement. The casing supports the soil around it as the spoil is removed.

Mitigation Measures - actions taken to reduce adverse impacts on the environment.

Palustrine - a classification given to wetlands that contain fresh water and are dominated by trees, shrubs, and emergent vegetation.

Particulate Matter - minuscule particles of solid or liquid suspended in the air, including dust, dirt, soot, smoke, and liquid droplets directly emitted into the air by sources such as factories, power plants, cars, construction activity, fires, and natural windblown dust. Normally reported in PM_{2.5} (particles smaller than 2.5 micrometers) and PM₁₀ (particles smaller than 10 micrometers).

Turbidity - a measure of the degree to which water loses its transparency due to the presence of suspended particulates.

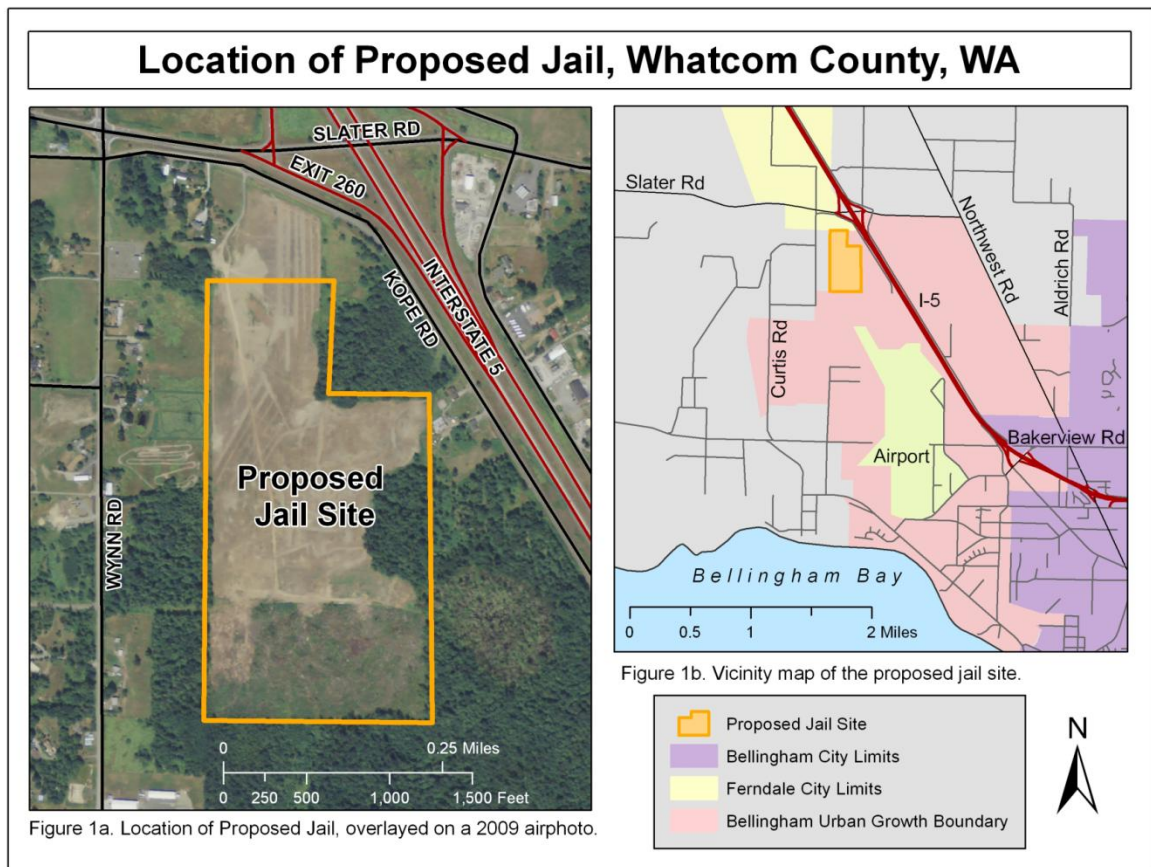
SUMMARY

Purpose

The purpose of this environmental impact assessment (EIA) is to determine the effects of constructing and operating the proposed Adult Corrections Facilities and Sheriffs Headquarters in Whatcom County, Washington. This EIA addresses the positive and negative impacts associated with the proposed action, alternative action and no action alternative.

Site Description

The proposed site for the new Whatcom County Adult Corrections Facilities and Sheriffs Headquarters is located off the Slater Road Exit, southwest of the I-5 corridor. The southern-most portion of the 71.8 acre site lies approximately 3,000 feet northwest of the Bellingham International airport. The site sits on the northwestern portion of Bellingham’s urban growth area (UGA) and is currently managed as agricultural land.



Problem Description

The current county jail is overcrowded. To accommodate the need for more beds, a new jail needs to be built. In 2004, the voters of Whatcom County passed a tax increase to fund a new correctional facility and sheriff's headquarters. This EIA addresses one possible site for the new jail.

Description of Proposed Action, Alternative, and No Action

Proposed Action

The proposed action is to build a new Whatcom County correctional facility and sheriff's headquarters on a 71.8 acre site near Slater Road and Interstate 5 in Bellingham, Washington. The entire facility would consist of a main jail, work center, jail support area, sheriff's headquarters, facilities management support, and a utility plant services building.

The jail would be built in three phases. The initial phase would be completed in 2015, the second phase would be completed in 2025, and the final phase would be completed in 2050. The estimated cost of construction for phase I is \$139,251,701. The cost of acquiring the land is valued at \$2.7-3.4 million. Wetlands mitigation is valued at \$3.4 million. The final phase would house 2,450 inmates. The projected expansion of the building would compensate for population growth over the next 50 years or more. The building would be a one-story design.

Alternative

The alternative is to build a new Whatcom County correctional facility and sheriff's headquarters on same site as the proposed action. The building would house approximately 500-600 inmates in a one-story facility. The alternative calls for an investment in social outreach programs and expansion of prevention programs to decrease the jail population. The alternative would have similar environmental impacts as the proposed action because it is on the same site. However, those impacts would be lessened due to a smaller building footprint and reduced energy needs.

No Action

By taking no action, it is assumed that the current Whatcom County jail and interim work center, located in downtown Bellingham, would continue to house all inmates. The current jail is overcrowded and dilapidated. Much of the electrical, plumbing and security systems are failing. This site is considered by many to be unsafe for inmates and staff.

Recommendation

The proposed action overestimates jail population growth in Whatcom County; however the no action alternative is dangerous and irresponsible. The authors of this EIA recommend the alternative. The alternative would minimize the environmental impacts of the proposed jail by reducing the footprint and energy demands of the new building. By utilizing prevention programs to decrease the jail

population, overall environmental impacts of the new jail would be lessened. If an unforeseen rise in jail population occurs in the future, the large acreage of the site is adequate for expansion.

Decision Matrix

Element of the Environment	Proposed Action	Alternative	No Action
Geology and Soils	(-) --	(-) -	O
Air	(-) --	(-) -	O
Water	(---) --	(-) -	O
Wetlands	(-) --	(-) -	O
Plants	(-) --	(-) --	O
Wildlife	(-) -	(-) -	O
Environmental Health	(-) -	(-) -	O
Land Use and Recreation	(--)-	(--)-	O
Aesthetics, Light and Glare	(-) --	(-) --	O
Historical and Cultural Preservation	O	O	O
Transportation	(-) -	(-) -	O
Public Services and Utilities	(-) -	(-) -	O
Climate Change	O	O	O

Key	
* To ***	Significant long-term positive impact
- To ---	Significant long-term negative impact
O	No impact
()	Short term

1 ALTERNATIVE

Description

The alternative is a downsized version of the proposed action. The alternative would hold approximately 500-600 beds. The alternative jail would be supplemented with social outreach programs to decrease the jail population and average length of stay (ALS). This jail would be located on the same site as the proposed action, and would retain a single-story design. However, this alternative calls for a jail with a smaller footprint and fewer beds. A smaller jail would equate to reduced environmental impacts for all elements of the environment. This alternative is modeled after the recently built jail in Des Moines, Washington and other programs that are being implemented around the country.

Whatcom County currently employs electronic home monitoring, electronic home detention, work release, a one-day offender program, work crews, and drug court as alternatives to incarceration (Alternative Corrections Center, Whatcom County, 2010). These alternatives reduce the ALS and overall prison population, contributing to a decreased need for beds. The alternative jail would expand these programs and add additional prevention programs.

The expansion and implementation of these programs would result in a decreased need for beds. This could eventually eliminate the need for expansion. By taking steps to limit jail expansion, the adverse environmental impacts of the jail would be greatly reduced. A smaller size would equate to a smaller building footprint, lower utility costs, and decreased mitigation measures.

The following examples illustrate programs that have been implemented by other cities and counties to improve efficiency, thereby reducing environmental impacts of their correctional facilities.

- The jail in Des Moines, Washington cost \$58-million to construct and can house 813 inmates on a 14-acre parcel. The jail is a single-story design. The size and cost of this jail more closely match the budget and needs of Whatcom County (SCORE 2007).
- Franklin County in Ohio had plans to build a \$154-million jail after being short of 400 beds. The county decided not to build the jail, and instead implemented several policy changes. They invested in diversion programs that offer alternatives to incarceration. They also changed their policy on lower-level offenses, allowing police to issue summons instead of making arrests for those offenses. Between 2006 and 2009, the county's average daily population was reduced by 13 percent (Shubik-Richards 2010).
- In Spokane County, Washington the ALS has been reduced from 18 days to 12 days between 2008 and 2010 by expediting plea agreements and offering new alternatives to sentences. These alternatives include the use of day-reporting centers where defendants and offenders check-in daily and are supervised in the community. The county also expanded its use of drug court to decrease the number of inmates being held on drug charges. The average daily population shrunk by 36 percent during this time, and jail staff was cut by 80 positions (Shubik-Richards 2010).

Environmental Impacts and Mitigation

Overall, the environmental impacts of the alternative would be similar to the impacts of the proposed action. However, these impacts would be lessened due to the scale of the alternative. The alternative building is smaller and would therefore require less construction work, energy costs, and habitat destruction. Mitigation of each impact of the alternative is also similar to mitigation of the impacts of the proposed alternative. Mitigation costs would be reduced in the alternative due to the lessened impacts.

ELEMENTS OF THE ENVIRONMENT

The following sections list the elements of the environment that will be significantly impacted by the proposed action.

2 GEOLOGY AND SOILS

2.1 Affected Environment

Geologic Setting and Topography

According to topographic data compiled by the City of Bellingham (2009), elevations on the site range from 82 feet to 164 feet above sea level. The majority of the site is hilly with a north-facing aspect and is currently managed as agricultural land; however a small patch of forest occupies the eastern-most portion of the site. Average surface grades range from 0% to 8%, with the steepest slopes along the western site boundary averaging 10% (Figure 2).

Soil Characteristics

A 1992 Soil Survey of Whatcom County conducted by the United States Department of Agriculture (USDA) identifies two major soil types on-site:

- Whatcom Silt Loam: A very deep, moderately well drained soil formed in a mixture of loess and volcanic ash over glaciomarine drift. This soil type predominates in the higher areas of glaciomarine drift plains (USDA 1992).
- Whatcom-Labounty Silt Loam: A very deep, poorly drained soil formed in a mixture of loess and volcanic ash over glaciomarine drift. This soil type predominates in the depressional areas of glaciomarine drift plains (USDA 1992).

Whatcom silt loam found on 8% to 10% slopes in the west-central and eastern portions of the site is categorized as Farmland of Statewide Significance by the USDA Natural Resources Conservation Service (NRCS) (2010). The southwest corner of the site contains Whatcom silt loam on 0% to 8% slopes and is rated as Prime Farmland. According to information compiled in the draft environmental impact statement, the remainder of the site is dominated by Whatcom-Labounty silt loam and could be considered prime farmland if properly drained.

Geological Hazards

The site does not have landside, erosion, alluvial fan, volcanic, tsunami, or mine hazards according to the Whatcom County Critical Areas Ordinance Map for Geologically Hazardous Areas (2006a). It is located in a seismically active area; however the area is not prone to ground rupture or liquefaction (GeoEngineers 2008a, 2008b).

2.2 Environmental Impacts

The proposed construction plan would eventually involve excavating approximately 402,000 cubic yards of earth. Construction activities such as clearing, soil stockpiling, grading, and truck traffic could lead to temporary erosion. Soils exposed to stormwater runoff have the potential to erode, especially during periods of increased precipitation. Soil erosion could increase sedimentation in surrounding water bodies, and temporarily affect water quality. Air quality could also be affected by the addition of particulate matter into the air. To minimize the potential impacts of erosion and sedimentation, best management practices (BMPs) that incorporate erosion control measures will be implemented.

Development will require the construction of new water and sewer lines on the site. In order to connect with existing utilities, additional excavation upwards of 12,000 cubic yards will be necessary (Draft EIS estimate). Excess soil would be hauled to an off-site disposal location to avoid environmental impacts.

2.3 Mitigation Measures

The following are proposed measures to mitigate impacts associated with geology and soils as mentioned in the Draft Environmental Impact Statement.

- Limit clearing and land-disturbing activities to the minimum area needed to construct the project.
- Employ temporary (e.g. straw, mulch, plastic sheeting, and erosion control blankets) and permanent (e.g. hydroseeding) cover measures to protect disturbed areas.
- Restrict length of time soils would be allowed to remain unprotected.
- Install barriers (e.g., silt fences, straw bale barriers, and sediment ponds or basins) prior to upslope grading to prevent sediment from leaving the site and entering downstream waterways via runoff.
- Stabilize unsurfaced construction site entrances, roads, and parking areas used by construction traffic with rock pads to minimize erosion and tracking of sediment off-site.
- Construct ditches and/or dikes to intercept surface water runoff and divert it away from exposed soils in the construction areas to a sediment trap or pond.
- Implement preventative measures as needed, such as watering or covering exposed soils, during summer months to minimize wind transport of soils.
- Designate practices to be used for disposal of unsuitable soils or any other materials that cannot be re-used at the construction site.
- Restore the construction area and seed, plant, or mulch as soon as possible after grading to prevent erosion.
- For work within riparian buffers, wetlands, and wetland buffers, comply with the conditions dictated by permits/approvals received for the project.
- Conduct weekly reviews of all on-site erosion and sediment control measures every 6 to 8 days during the wet season. During the dry season, conduct monthly reviews within 24 hours of any storm event greater than 0.5 inches of rain in 24 hours or less. Perform maintenance as soon as a problem is discovered.

3 AIR

3.1 Affected Environment

Air Quality Standards

The U.S. Environmental Protection Agency (USEPA) is required by the Clean Air Act (CAA) to implement National Ambient Air Quality Standards (NAAQS) for pollutants and contaminants harmful to the general public and the environment. There are two types of national air quality standards set forth by the CAA: primary and secondary. Primary standards are in place to protect public health, specifically “sensitive” populations (e.g. children, the elderly, and people with health conditions such as asthma). The criteria for secondary standards are set to protect the public welfare, such as protection against damage to animals, crops, vegetation, infrastructure, and decreased visibility (USEPA 2005).

Two agencies have jurisdiction over ambient air quality standards in Whatcom County, pertaining to the proposed facility: (1) the USEPA (which oversees responsibility through an agreement with the Washington State Department of Ecology), and (2) the Northwest Clean Air Agency (NWCAA). The NWCAA was created through state law to serve members of Whatcom, Island, and Skagit Counties by enforcing federal, state, and local air quality standards.

USEPA, as part of the CAA, implemented air quality standards for six pollutants, listed in Table 1. NAAQS target concentrations for the given pollutants, as to not be surpassed over an allotted amount of time.

Air Quality Monitoring

The NWCAA operates five air quality monitoring stations within its three-county jurisdiction. The stations closest to the proposed site are located within Bellingham City limits, at the Bellingham-Yew Street station (2412 Yew Street) and the Custer-Loomis station (1330 Loomis Trail Road). The Custer-Loomis Station is one of 11 sites within Washington’s ozone-monitoring network, which takes continuous measurements. This site has not exceeded the 1- or 8-hour NAAQS standard for ozone in the past 3 years (Ecology 2010a).

Table 1. National Ambient Air Quality Standards (USEPA 2005)

Pollutant	Primary Standards	Averaging Times	Secondary Standards
Carbon monoxide	9 ppm (10mg/m ³)	8-hour ¹	None
	35 ppm (40mg/m ³)	1-hour ¹	None
Lead	1.5 µg/m ³	Quarterly Average	Same as Primary
Nitrogen dioxide	0.053 ppm (100 g/m ³)	Annual (Arithmetic Mean)	Same as Primary
Particulate Matter (PM ₁₀)	50 µg/m ³	Annual ² (Arithmetic Mean)	Same as Primary
	150 µg/m ³	24-hour ¹	
Particulate Matter (PM _{2.5})	15.0 µg/m ³	Annual ³ (Arithmetic Mean)	Same as Primary
	65 µg/m ³	24-hour ⁴	
Ozone	0.08 ppm	8-hour ⁵	Same as Primary
Sulfur Oxides	0.03 ppm	Annual (Arithmetic Mean)	-----
	0.14 µg/m ³	24-hour ¹	-----
	-----	3-hour ¹	0.5 ppm (1,300 µg/m ³)

ppm = parts per million.

mg/m³ = milligrams per cubic meter.

µg/m³ = micrograms per cubic meter.

1. Not to be exceeded more than once per year.

2. To attain this standard, the 3-year average of the weighted annual mean PM₁₀ concentration at each monitor within an area must not exceed 50 µg/m³.

3. To attain this standard, the 3-year average of the weighted annual mean PM_{2.5} concentration from single or multiple community-oriented monitors must not exceed 15.0 µg/m³.

4. To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 65 µg/m³.

5. To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm

3.2 Environmental Impacts

Direct Impacts – Construction

Air quality will temporarily be impacted by construction activity, including exhaust from machinery, particulate matter (PM₁₀ and PM_{2.5}), and miniscule amounts of carbon monoxide (CO) and oxides of nitrogen. The sources of particulates likely come from dust cleared from construction areas, excavation, uncovered accumulation of debris, and exhaust from machinery. Particulate emission may become noticeable if left unmitigated. Dust becomes a greater nuisance during warm, dry, or windy weather conditions as construction equipment lift more dust from the ground.

Operation

During operation of the proposed facility, CO emissions would increase as a result of traffic influxes associated with new traffic patterns. It is estimated that the proposed Whatcom County Adult Corrections facilities and Sheriff's Headquarters would generate an additional 170 vehicle trips in 2015 and an additional 204 in 2025 during maximum PM hours. Overall, the proposed facility is expected to create an approximated 1,998 total vehicle trips daily in 2015, both entering and exiting the facility's grounds (Whatcom County Planning and Development Services 2010).

It is doubtful that CO emissions would exceed regulations under the NAAQS. Currently, Whatcom County is successfully staying within NAAQS for all six criteria pollutants. CO emissions from construction machinery would stay below levels set under the NAAQS. Thus, it is expected that the proposed project should not harm Whatcom County's air quality attainment status.

A utility building would also operate to serve the facilities. The facilities would use natural gas heating, and an emergency diesel generator would be used as a backup power supply for short-term power outages. Minor emissions may be a consequence of use of the diesel generator.

The proposed project would abide by current building codes standards which include energy conservation principles and requirements. The facility would be an example of Whatcom County's climate protection requirements for design and construction. The design goal for the project will exemplify sustainability, and rank a level of LEED (Leadership in Energy and Environmental Design) Silver. LEED is an internationally-recognized green building certification system, where building design principles incorporate efficient use of resources, emissions reduction, and improved environmental quality.

Indirect Impacts

Indirect impacts to air quality resulting from direct impacts of construction and operation could include visual obstruction and adverse health effects. It is assumed that no negative indirect impacts would occur.

Cumulative Impacts

Construction and operation of the facility would not drastically affect the air quality in the vicinity, so no cumulative effects are to be expected. However, if other projects were happening concurrently, short-term cumulative effects to air quality could be expected. Whatcom County would assess the potential for cumulative impacts as a result of simultaneously occurring projects.

3.3 Mitigation Measures

Mitigation Measures during Construction

Impacts associated with dust from construction of the project are unlikely to be significant. Contractors would adhere to regulatory measures and employ suitable dust control action.

Measures to lessen the impact of fugitive dust during construction may include the following:

- Water dry patches of exposed soil during dry weather
- Cover excavated soil carried from the construction site
- Remove dirt/mud from all vehicles upon leaving the construction area
- Install rock platforms at the entrances and exits of the construction site
- Eliminate soil from public roadways

Emissions from vehicles during construction would be minor and short-term. Mitigation measures to reduce vehicular emissions would include the following:

- Equip construction vehicles and machinery with devices regulating emissions
- Provide flaggers in construction zones to accelerate traffic flow
- Mandate contractors to use emission control technologies

Measures during Operation

Mitigation measures addressing air quality during facilities operations would include the following:

- Encourage construction and facilities employees to use public transit and carpool systems to lessen environmental impacts associated with individual vehicular transit
- Encourage non-vehicular forms of transportation such as the use of pedestrian and bike designated routes

3.3 Significant Unavoidable Adverse Impacts

If the mitigation strategies listed above are employed, there would be no considerable or unavoidable impacts related to air quality during construction or operation.

4 WATER

4.1 Affected Environment

Surface Water

The site is located in the headwaters of the Silver Creek drainage basin, which is a tributary of the Nooksack River. Terrestrial water bodies on the site consist of 15 wetlands and one unnamed perennial stream located in the southeastern portion of the site. The aquatic life use designation of the unnamed stream under Washington Administrative Code (WAC) 173-201A-600 is Core Summer Salmonid Habitat. Other potential uses of the stream determined under WAC 173-201A-600 include primary contact recreation, water supply, stock watering, wildlife habitat, harvesting, commerce and navigation, boating, and aesthetic values.

The Statewide Water Quality Assessment 303(d) list developed by the Washington State Department of Ecology is used to classify and prioritize water bodies for protection. Category 5 water bodies on the 303(d) list do not meet the state's water quality standards. The unnamed perennial stream on the site is not on the 303(d) list; however a TMDL study conducted by Joy et al. (2000) placed Silver Creek, the receiving waters of this unnamed stream, on the 303(d) list for elevated levels of fecal coliform and low dissolved oxygen.

Groundwater

Whatcom County Code (WCC 16.16.510) designates Critical Aquifer Recharge Areas (CARAs) as having low, moderate, or high susceptibility to impairment and as wellhead protection areas. The site is located within an area of moderate aquifer susceptibility due to the hydrogeological characteristics of the area. The site also overlaps a wellhead protection area for a Group A well (servicing more than 24 people for 60 or more days per year), which is located north of I-5 (Whatcom County Planning and Development Services 2010). Whatcom County designates all wellhead protection areas as highly susceptible CARAs.

4.2 Environmental Impacts

Surface Water

Ground-clearing activities to facilitate construction would remove vegetation and alter soil stability through exposure to erosive forces. This could increase turbidity in receiving waterways through the addition of suspended solids, especially during periods of increased rainfall. Stormwater runoff from construction sites could contain trace amounts of petroleum products, solvents, and sediment; however stormwater runoff would be controlled by collection and disposal via culverts and ditches and the implementation of stormwater detention ponds and filter strips.

Groundwater

Soil compaction resulting from construction activities may decrease ground surface permeability and result in decreased infiltration of precipitation. This could result in the reduction of shallow ground water recharge in the area. Also, spills from construction equipment could infiltrate soils and contaminate shallow groundwater.

4.3 Mitigation Measures

Construction

The follow list describes measures that could be taken to reduce environmental impacts during construction as mentioned in the Draft Environmental Impact Statement:

- Obtain a National Pollutant Discharge Elimination System (NPDES) Stormwater Construction General Permit from the Washington State Department of Ecology prior to construction. The permit would consist of guidelines and measures to minimize or avoid effects on water quality during construction.
- Reduce the width of construction corridors through sensitive areas to lessen temporary impacts.
- Stabilize exposed soils with vegetative cover or other erosion control treatment during immediately following construction.
- Use erosion control best management practices (BMPs) for temporary erosion control of areas such as stockpiles during construction.
- Implement a temporary erosion and sediment control (TESC) plan to address erosion control (including directing runoff away from unstabilized soils, slowing runoff with structures and installing silt fences to catch sediment).
- Inspect and monitor erosion control measures.
- Develop, implement, and maintain a stormwater pollution prevention plan (SWPPP) to minimize erosion resulting from rainfall runoff at construction sites and to reduce, eliminate, and prevent the pollution of stormwater.
- Develop, implement, and maintain a spill prevention control and countermeasures plan to manage toxic materials associated with construction activities (including the protocols for dealing with equipment leaks, disposal of oily wastes, cleanup of any spills, and proper storage of petroleum products/chemicals).

Operations

Detention ponds would be implemented to control surface water flow and filter strips would be used to treat runoff from parking areas and other impervious surfaces.

5 WETLANDS

5.1 Affected Environment

Wetlands within and bordering the project site were identified and delineated by reviewing existing wetland inventory documents for the North Pacific region. Wetland boundaries were determined by using Washington State Wetlands Identification and Delineation Manual (WSDE 1997) and by reviewing information gathered in Whatcom County Adult Corrections Facility and Sheriffs Headquarters: Draft Environmental Impact Statement.

There are several wetland types in the Pacific Northwest. Wetland classifications were made for the site using the Cowardin Classification system (Cowardin et al. 1979). Table 2 summarizes the Cowardin Classification categories. The Slater Road site contains palustrine system wetlands with forested, emergent, and open water wetland classes. Each wetland was approximated in size and mapped according to current GIS data for the site.

Table 2. Cowardin Classification Summary

System	Class	Characteristics
Palustrine	Aquatic Bed	Dominated by plants that grow on or below the water's surface for most of the growing season
Palustrine	Emergent	Dominated by erect or rooted herbaceous plants
Palustrine	Scrub-Shrub	Dominated by woody shrubs, tree saplings, or stunted trees less than 20 feet tall
Palustrine	Forested	Dominated by woody plants or trees that are 20 feet or taller
Palustrine	Open Water	Unvegetated areas that are inundated for long periods of time where water depth is greater than 2 meters

Source: Cowardin et al. 1979

The majority of wetlands located on the site are either slope or depressional wetlands that are fed by groundwater discharge or surface-water runoff from adjacent areas. Slope wetlands are those located on a gradient in which water flows in one direction and is not impounded. Depressional wetlands are those located either in a topographic depression with no or limited access to an outlet or on a flat where the primary water source is groundwater.

Whatcom County (WCC 16.16.630) requires buffers around each wetland. Buffer width is determined using a wetland's rating (Category I – IV), its functional value score (FVS), and the intensity of land use as defined by Whatcom County code (low, medium, or high). Wetlands that are of exceptional value in terms of providing water quality, hydrologic and/or wildlife habitat functions or have sensitive or irreplaceable characteristics are classified as category I wetlands. Wetlands that offer limited resource value and lack special habitat features are classified as Category IV wetlands. Category II and category III have intermediate resource values. The project is assumed to be a high-intensity land-use.

Typically, Category I and Category II wetlands have a higher functional value score than Category III or Category IV wetlands. A higher functional value means that a larger buffer should be maintained around the wetland (Table 3). The majority of the wetlands that would be affected are classified as either Category III or Category IV, and none are classified as Category I (Table 4).

Table 3. Whatcom County Required Wetland Buffer Widths

Ratings	Standard Buffer Requirements (Sq ft.)		
	FVS < 20	FVS is between 20 and 28	FVS > 28
Category I	100	150	300
Category II	100	150	275
Category III	80	150	150
Category IV	50	50	50

*FVS is the functional value score

Table 4. Wetlands Summary for the Proposed Site

Wetland	Approx. area (acre)	Cowardin Classification	Functional Value Score	Ecology Rating	Whatcom County Minimum buffer width (feet)
1	0.35	PSS/PFO	18	II	100
2	1.02	PEM	12	III	80
3	0.43	PEM/PFO	21	II	150
4	6.50	PEM/PFO	21	III	150
5	0.06	PFO	14	IV	50
6	3.26	PEM/PSS	26	II	150
7	0.09	PEM	10	IV	50
8	1.12	PEM	15	III	80
9	0.16	PEM/PSS	12	III	80
10	0.05	PEM/PSS	11	III	80
11	0.13	PEM	10	III	80
12	0.28	PEM	9	III	80
13	6.03	PEM	10	III	80
14	0.06	PEM	10	IV	50
15	0.02	PSS	14	IV	50

PEM = Palustrine, emergent wetland

PSS = Palustrine, scrub-shrub wetland

PFO = Palustrine, forested wetland

Wetlands and Streams Near Proposed Jail Site

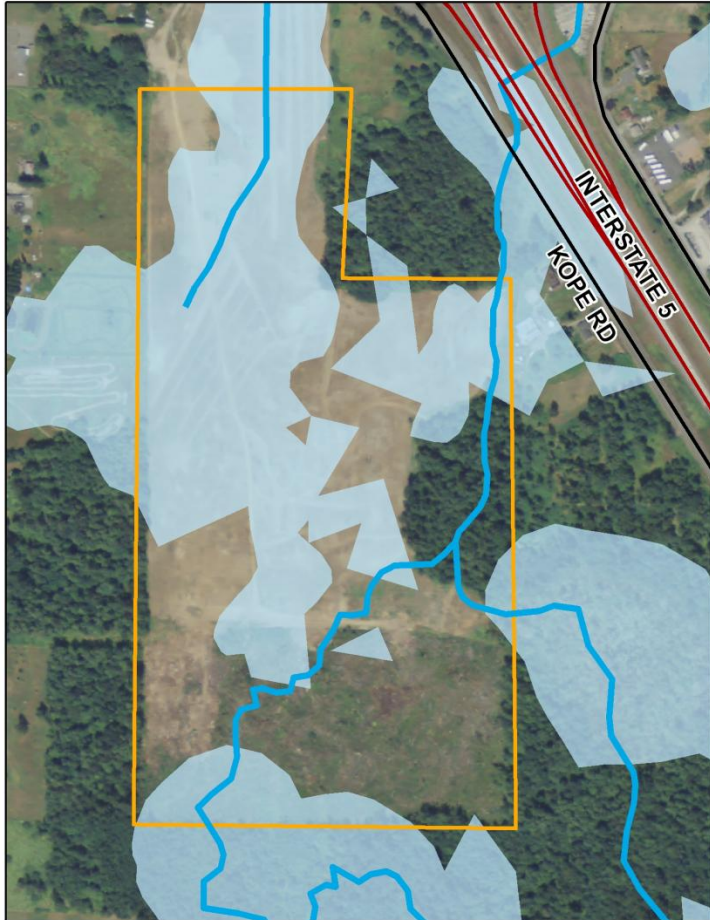
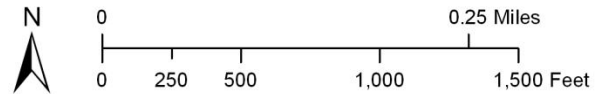


Figure 3. The streams and wetlands in this map were compiled from the 2004 Critical Areas Update to the Critical Areas Ordinance, as detailed in Chapter 16.16 of Whatcom County Code.

Sources: WWU, 2004
FEMA, 2004



5.2 Environmental Impacts

The proposed action requires construction in several wetlands which are scattered throughout the site. Wetlands that are adjacent to the site would also be directly affected by construction, both in the long and short term. Direct impacts throughout the site could include the filling of the wetland, alteration of wetland soil topography, and the removal of wetland vegetation. There would be no direct impacts upslope or downslope of the project site, though there is potential for siltation or erosion to indirectly affect habitat downslope of the site. Alterations in water quality or inputs of pollution could impact species diversity in surrounding wetlands. Furthermore, the new facilities would cause some fragmentation of the wetlands, likely reducing species diversity for those habitats.

Removal of vegetation and an increase in impervious surfaces within the site would alter the timing of stormflow flowing into the wetlands and could decrease the watershed's capacity for water storage. Furthermore, an increase in stormflow volume running into the watershed could contribute to high levels of sedimentation and loss of habitat downslope of the site.

5.3 Mitigation Measures

Federal, state, and county regulations require that mitigation efforts for wetlands abide by the following sequence:

1. Avoid the impacts altogether by not taking a certain action or parts of an action, moving the action.
2. Minimize adverse impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps to avoid or reduce impacts.
3. Rectify the adverse impact by repairing, rehabilitating, or restoring the affected environment.
4. Reduce or eliminate the adverse impact over time by preservation and maintenance operations during the life of the action.
5. Compensate for the impact by replacing, enhancing, or providing substitute resources or environments and monitoring the adverse impact and the mitigation project and taking appropriate corrective measures.

Avoidance measures would be used to eliminate impacts of the proposed facility. Where avoidance measures are not feasible, mitigation measures may be used to reduce impacts on the wetlands. Implementing water quality and flow control facilities in the project would minimize effects of run-off from impervious surfaces. Where impacts can neither be avoided nor minimized, the project proponent would coordinate with regulatory agencies to provide compensatory mitigation for unavoidable impacts to the wetlands.

Preliminary data collected for the Whatcom County Adult Corrections Facility and Sheriffs Headquarters: Draft Environmental Impact Statement estimates that a total of 9.22 acres of wetlands would be permanently affected by construction. Current development plans for the facility have been designed in such a way as to minimize impacts to the three Category II wetlands, but several less functionally

valuable wetlands on the site would be destroyed by construction activities. Compensatory mitigation would need to be utilized in order to achieve the federal, state and county requirements of no net loss of wetland area or function. Buffers around wetlands should be preserved according to the Whatcom County standard buffer length requirements outlined in Table 3.

According to the Whatcom County GIS data, ten of the fifteen on-site wetlands would be completely destroyed and some wetlands would be fragmented by the proposed project (Figure 3). Compensatory mitigation action will need to be taken to compensate for the wetlands destroyed by the proposed project. These efforts should be taken to improve the remaining on-site wetlands and to restore any wetlands fragmented by construction on the site. Compensatory mitigation efforts done elsewhere will not necessarily restore lost ecosystem habitat to full functionality, and would result in an overall net-loss of wetland habitat (Race and Fonseca 1996). Whatcom County will need to work with local, state, and federal agencies to determine the appropriate magnitude of compensation mitigation required to meet state and federal laws.

In addition to these compensation mitigation regulations, the following would be implemented in order to minimize impact on surrounding wetlands:

- Temporary erosion and sediment control (TESC) plan. This would be used to regulate the clearing and removal of vegetation and alterations to the landscape including grading, filling, ditching, embankment, compaction, and excavation.
- Spill prevention control countermeasures (SPCC) plan. This would be used to identify potential spills and implements the materials and methods for clean-up.
- Project designs that would maintain the main hydrologic functions of off-site wetlands.

6 PLANTS

6.1 Affected Environment

Plant species on the site are a mixture of coniferous and deciduous trees, native shrubs, and other non-native species in disturbed wetlands. On-site vegetation consists mostly of Douglas-fir (*Psuedotsuga menziesii*), western hemlock (*Tsuga heterophylla*), and western red cedar (*Thuja plicata*). The understory is composed primarily of swordfern (*Polystichum minutum*). Vine maple saplings (*Acer circinatum*) and salmonberry (*Rubus spectabilis*) are shrubs also commonly found in the understory. The logged south portion of the site is dominated by regenerating saplings and shrubs such as snowberry (*Symphoricarpos albus*), bigleaf maple (*Acer macrophyllum*), and black cottonwood (*Populus balsamifera*).

Undisturbed forested wetlands in the area consist mainly of red alder (*Alnus rubra*) and Douglas-fir (*Psuedotsuga menziesii*). The understory in these areas is primarily composed of salmonberry (*Rubus spectabilis*). Wetlands in the logged portion are dominated by regenerating quaking aspen (*Populus tremuloides*) and skunk cabbage (*Lysitichon americanum*) (Cooke 2010). The Washington State Department of Natural Resources (WDNR) has no records of special-status plant species currently occupying the site, though care should be taken to minimize the removal of wetland plants, as this could lead to a reduction in wetland function.

Agriculture and logging activities have altered the site's species composition. Much of the community structure is in the early emergent stage. This stage is composed mostly of herbaceous vegetation, shrubs, and young saplings with some larger forested areas sparsely distributed. However, the majority of the area is maintained agricultural land that is dominated by wheat (Table 5).

Table 5. Site Vegetation Community-type Distribution

Community Type	Estimated land area (acres)	Estimated wetland area (acres)	Percent (%) of project site
Managed cropland	44.5	11.0	60%
Shrub	18.4	1.9	25%
Forest	7.0	3.2	9%
Herbaceous vegetation	4.7	3.3	6%

6.2 Environmental Impacts

The proposed action would primarily affect grasses and emergent plant species in the managed cropland. With the exception of forested land, less than 50% of original land area would be available for each vegetation community-type (Table 6). Construction of the facility would not have any long-term or cumulative impacts on vegetation growth around the site. However, as with any site, construction activities have the potential to introduce non-native or invasive plant species, which could be a long-term detriment to native plant communities.

Table 6. Estimated Vegetation Community-type Remaining after Construction

Community Type	Estimated land area (acres)	Estimated area removed in project	Percent (%) of pre-construction land remaining
Managed cropland	44.5	31.6	29%
Shrub	18.4	9.9	46%
Forest	7	0.8	89%
Herbaceous vegetation	4.7	2.6	45%

6.3 Mitigation Measures

Mitigation measures taken would include preservation of native plant communities in as much of the surrounding wetlands as possible. Invasive species removal may be necessary to achieve this goal. Planting additional native species in disturbed areas around the site would restore some wildlife habitat lost to construction activities. Unavoidable impacts to wetland vegetation will need to be compensated, preferably in wetlands surrounding the affected site. Native wetland species, in particular, will need to be replanted in the remaining wetland areas to restore lost wetland function. Whatcom County should seek guidance from local and state resource agencies in order to determine how much re-planting would be necessary.

7 WILDLIFE

7.1 Affected Environment

Terrestrial Wildlife

The ponded wetlands within the site attract wetland bird species such as Wilson’s snipe (*Gallinago delicata*) and great blue heron (*Ardea herodias*), but there have been no reported great blue heron nests on or near the site. Bald eagles have also been sighted in and around the area foraging in the Nooksack River basin. They are currently listed by the U.S. Fish and Wildlife Service (USFWS) as a sensitive species and their nests and roosting habitats are protected by three laws:

- State Bald Eagle Protection Act (RCW 77.12.655)
- Federal Bald and Golden Eagle Protection Act
- Migratory Bird Treaty Act

However, because of the site’s agricultural land-use history and disturbance, the site lacks tall, mature trees usually selected by bald eagles for roosting or nesting, and the area has no reported bald eagle nests (USFWS 2007). The managed agricultural areas provide habitat for small rodents and foraging area for birds of prey such as red-tailed hawks (*Buteo jamaicensis*).

Aquatic Wildlife

One of the site’s streams discharges into Silver Creek. Though Silver Creek does not contain any endangered species, it does contain Coho salmon (*Oncorhynchus kisutch*), which is listed as a species of concern under the Endangered Species Act (WDFW 2011). Silver Creek is also known to contain Chum salmon (*Oncorhynchus keta*) and Coastal cutthroat trout (*Oncorhynchus clarki clarki*) (Ecology 2010). Anadromous fish are listed differently than other wildlife species because a single species that spawns in one area is usually genetically different than fish of the same species that spawn elsewhere. Thus, salmon species are divided into evolutionarily significant units (ESU) under the Endangered Species Act for each distinct population segment (DPS). Dividing a species of salmon in this way ensures that proper protections are in place for vulnerable, genetically isolated units of species.

Table 7. Status Listing of Salmonid Species Present in Silver Creek under State and Federal Guidelines

Salmon Species	Scientific Name	State Status (ESU/DPS)	Federal Status (ESU/DPS)
Chum salmon (fall run)	<i>Oncorhynchus keta</i>	State candidate	Threatened
Coho salmon	<i>Oncorhynchus kisutch</i>	State candidate	Threatened
Coastal cutthroat trout	<i>Oncorhynchus clarki clarki</i>	*N/A	Listing not warranted

Source: Washington Department of Fish and Wildlife 2011

*Information not available for Puget Sound Region

Chinook salmon (*Oncorhynchus tshawytscha*) and Steelhead (*Oncorhynchus mykiss*) occur in the nearby Nooksack River basin. Both are listed as threatened under the Endangered Species Act (WDFD 2011).

7.2 Environmental Impacts

Short-term impacts would arise from construction. Noise from construction activities could result in short and long-term avoidance by migratory and resident wildlife species. Long-term impacts would be present at the site after construction of the facility has been completed. The facility itself would disrupt wildlife movement and would likely alter wildlife behavioral patterns. Removal of vegetation would eliminate habitat, especially for birds and small mammals. However, habitat that is considered of higher-quality would be left intact under the current development plans. These wooded areas would provide the best option for wildlife movement and would be preserved in the site.

The stream on the eastern portion of the site has been identified by Whatcom County as having potential use by anadromous or resident fish species. Nearby stream habitat would generally be unaffected by the construction phase of this project. The construction of paved surfaces would increase stormflow into the watershed and has the potential to damage or destroy fish habitat, especially in the unnamed stream. However, if best-management and drainage practices are followed, the potential for these impacts would be small. The proposed project has been sited to avoid direct and permanent impacts to this stream. The construction of water and sewer pipelines may result in temporary stream crossings by workers. This may result in some brief disturbance of the stream, but any effects would be minimized by open-cut trench and directional drilling methods.

7.3 Mitigation Measures

Seeds and native vegetation would be planted to restore wildlife habitat lost during the construction phase of development. Buffers around wetlands and the unnamed stream would be preserved and maintained during all phases of development to prevent sedimentation into aquatic habitats. Planners must also consider best mitigation methods to replace disturbed terrestrial habitat which will likely include enhancing habitats elsewhere.

Nesting habitat would be preserved to its fullest extent and could include the following methods as per recommendations in the bald eagle management plan (Stofel 2005):

- Retain known perch trees and all conifers with a DBH greater than or equal to 24 inches.
- Retain all cottonwoods greater than or equal to 20 inches DBH.
- Retain at least 50% of pre-clearing or pre-construction conifer stand with diameter distributions representative of the original stand.
- Windowing or low limbing of trees is acceptable provided that no more than 30% of the live crown is removed. Topping of trees is not allowed.

8 ENVIRONMENTAL HEALTH

8.1 Affected Environment

Noise

Whatcom County has adopted applicable noise standards from Washington State Administrative Code (WAC) section 173-60. These standards are based on the Environmental Designations for Noise Abatement (EDNA), which establish maximum permissible environmental noise levels based on land use. There are EDNA designations outlined in (WAC 173-60-030):

- Class A: Lands where people reside and sleep (such as single-family residential homes and/ or recreational areas).
- Class B: Lands requiring protection against noise interference with speech such as commercial/ recreational areas).
- Class C: Non-residential lands where economic activities are of such a nature that higher noise levels are anticipated (such as agricultural or industrial areas).

There are several single family residences near the site, which would be classified as Class A EDNA areas. The maximum permissible noise levels originating from an industrial zoned site that would be received by Class A EDNA and Class C EDNA areas are summarized in Table 8.

Table 8. State of Washington Noise Regulations for Current Land Use at Sites

Maximum Permissible Noise levels (dBA) from a Class C EDNA (Current Use)			
Statistical Descriptor	Class A EDNA Receiver		Class C EDNA Receiver
	Daytime (7 AM – 10 PM)	Nighttime (10 PM – 7 AM)	Anytime
L_{eq}	60	50	70
L_{15}	65	55	75
L_5	70	60	80
$L_{1.5}$	75	65	85

1. Standard applies at the property line of the receiving property
2. Equivalent Noise Level (Leq): The energy average A-weighted noise level during the measurement period.
3. Percentile noise level: The A-weighted noise level exceeding during n% of the measurement period.

Source: WAC 173-60-040

If the proposed site is selected for construction, the existing Light Impact Industrial (LII) zoning designation would be changed to a Public zoning designation to support the operation and the site would be classified as a Class A EDNA (which includes health and correctional facilities). Table 9 summarizes the maximum permissible levels applicable to noise originating from Class A EDNA.

Table 9: State of Washington Noise Regulations for Future Land Use at Sites

Maximum Permissible Noise levels (dBA) from a Class C EDNA (Current Use)			
Statistical Descriptor	Class A EDNA Receiver		Class C EDNA Receiver
	Daytime (7 AM – 10 PM)	Nighttime (10 PM – 7 AM)	Anytime
L_{eq}	55	45	60
L_{15}	60	50	65
L_5	65	55	70
$L_{1.5}$	70	60	75

Source: WAC -173-60-040

The following activities are exempted from the limits presented in Tables 8 and 9 (WAC 173-60-050):

- Construction noise (including blasting) between the hours of 7 AM and 10 PM
- Motor vehicles operated on public highways
- Motor vehicles operated off public highways, except when such noise affects residential receivers
- Noise from electrical substation, exempted from the nighttime limits

Hazardous Materials

An Environmental Site Assessment (ESA) conducted in 2008 revealed that there were no major environmental health hazard conditions present at the site. Household garbage and a few parked cars were found in two abandoned dairy barns located in the northwest corner of the site. The barns were demolished and the garbage and vehicles were disposed of at an off-site location.

8.2 Environmental Impacts

Noise

Construction activities such as excavation, grading, and road building would temporarily create excessive noise. Typical noise levels generated from construction equipment as determined by the USEPA are summarized in Table 10. According to Whatcom County Adult Corrections Facility and Sheriffs Headquarters: Draft Environmental Impact Statement, areas within 1,900 feet of the construction site could expect to experience noise levels of 60 dBA and greater while areas within 750 feet of the construction site would experience noise levels upwards of 70 dBA.

Noise related to operational activities would peak during the offender’s legally mandated outdoor recreation time. Whatcom County Municipal Code has adopted Standards for Correctional Facilities, which require noise levels to comply with the Washington State noise standards established in WAC 173-60. Frequent use of sirens is not expected to occur in conjunction with operation; however there will likely be an increase in the number of Emergency Medical Service (EMS) sirens in the area as the current jail averages one to two EMS calls per month. An increase in noise associated with vehicular

traffic is expected to result from operating the new facility; however traffic generated noise near single-family residential areas would be minimal.

Table 10. Typical Construction Equipment Noise Levels

Type of Equipment	Noise Level in dBA at 50 feet
Bulldozer	80
Front loader	72-84
Jack hammer or rock drill	81-98
Backhoe	72-93
Scraper and grader	80-93
Electrical generator	71-82
Concrete pump	81-83
Concrete vibrator	76
Concrete and dump trucks	83-90
Air compressor	74-87
Pneumatic tools	81-98
Roller (compactor)	73-75
Saws	73-82

Source: USEPA 1971

Hazardous Materials

Petroleum products such as fossil fuels, lubricants, and solvents used during construction activities have the potential to enter the environment through spills or leakage. A Stormwater Pollution Prevention Plan (SWPPP) would be implemented and would prescribe Best Management Practices (BMPs) to minimize the risks of spills or leakage. However, if accidental contamination of surface water, groundwater, or air were to occur this could impact wildlife and vegetation, as well as humans in the vicinity of the site.

8.3 Mitigation Measures

Noise

Contractors would be expected to comply with all the state and local regulations relating to construction noise. The Draft Environmental Impact Statement suggested the following measures to reduce the effects of construction noise:

- Install sound control devices on construction equipment. No equipment would have unmuffled exhaust.
- Require the contractor, as directed by the project construction manager, to implement appropriate additional noise mitigation measures, possibly including changing the location of stationary construction equipment, shutting off idling equipment, rescheduling construction activity, or installing acoustic barriers around stationary sources of construction noise.

- Operate equipment only during the hours approved by Whatcom County

To reduce noise associated with operation, the following measures would be implemented:

- Comply with the Whatcom County Light Zoning requirements, which specify that no use shall exceed the maximum environmental noise level established in WAC -173-60.
- Enclose the emergency generator to provide sound attenuation.

Hazardous Materials

Contractors would be required to provide an emergency response plan and demonstrate knowledge of proper hazardous material storage, handling, and emergency procedures, including proper spill notification and response requirements.

The following construction BMPs could be implemented to prevent the release of contaminants into the environment;

- Maintain spill containment and cleanup materials at all active construction areas and where equipment fueling was conducted.
- Conduct fueling operations on paved areas whenever possible.
- Store fuels and other potential contaminants away from excavation sites in secured contaminant areas.
- Conduct regular inspections, maintenance, and repairs on fuel hoses, hydraulic equipment, lubrication equipment, and chemical/petroleum storage containers.
- Require the contractor to use BMPs during construction in accordance with Ecology's Stormwater Management Manual for Western Washington (Ecology 2005).
- Incorporate measures into the project design to avoid impacts from hazardous materials. These measures would include Spill Prevention Control and Countermeasures (SPCC) Plans for the vehicle storage area and power plant, and standard fire prevention and response plans.

9 LAND USE & RECREATION

9.1 Affected Environment

City and County Zoning

The proposed project is within the boundaries of Bellingham's UGA. The proposed project area has been designated as Light Impact Industrial (LII), by the Whatcom County Comprehensive Plan (Whatcom County 2008d). Existing County zoning remains the same in the City's UGA until an annexation process begins.

The proposed use of the site is considered an Essential Public Facility (EPF) under Washington state law. Other examples of EPF's include airports, state-run education facilities, mental health facilities, group homes, correctional facilities, solid waste handling facilities, in-patient facilities, and state or regional transportation facilities, because they are often difficult to site. Other examples are defined in RCW 71.09.020.

The proposed Adult Corrections Facilities and Sheriff's Headquarters would be permitted within the LII zone as an exception given its status as an EPF. The facility would meet compliance regarding code criteria cited under Whatcom County Municipal Code (2010 Municipal Code Title 20 Zoning, Section 20.66). The project would require a Major Project Permit if the project qualified. A Major Project Permit is a legislative decision, made by Whatcom County Council. The site could be annexed into the City of Bellingham by 2015. As part of an annexation, the City of Bellingham would establish future zoning and land use regulations regarding the proposed project.

Airport Safety Zone 6

The proposed site is within the Airport Safety Zone 6 of the Bellingham International Airport. Whatcom County is required by a Binding Site Review, to assess projects or improvements within 10,000 feet of the airport (Ordinance No. 2005-004 Adopting Comprehensive Plan and County Code Amendments Relating to Airport / Land Use Compatibility Planning, adopted January 25, 2005 by the Whatcom County Council). Any land uses within Airport Safety Zones 1 through 6 will adhere to regulations in the California Airport Land Use Planning Handbook (Shutt Moen Associates 2002).

Building height standards are also addressed in the Whatcom County Comprehensive Plan Policy 2XX-5(a), to ensure public safety within FAA zones.

The Bellingham International Airport's safety zones are defined by the type of approach and aircraft that use the airport, not by the amount of incoming and outgoing flights. The safety zones have been developed according to accident and data analysis derived from the California Airport Land Use Planning Handbook (2002). The handbook also outlines a framework for acceptable densities and population levels within certain safety zones. The use of formulas allows professionals to determine the maximum acceptable densities, thereby reducing risk. The proposed facility would adhere to risk-reduction standards, being made of reinforced materials such as steel on concrete.

Population projections for the total number of residents within Airport Safety Zone 6 would allow a maximum of 10,771 residents. The actual resulting population would be estimated at 3,316 in 2050 (including inmates, sheriff’s staff, visitors, facilities personnel, and sheriff’s headquarters staff). The maximum allowable number of people per acre would be 900. Realistic density or maximum number of people per acre is projected to be 276 per acre.

Table 11. Safety Compatibility Qualities in Airport Safety Zone

Safety Compatibility Qualities	Zone 6 (Traffic Pattern Zone)
Risk Factors	Generally low likelihood of accident occurrence at most airports; risk concern primarily with uses for which potential consequences are severe. Zone includes all other portions of regular traffic patterns and pattern entry routes.
Residential Uses	Allow ¹ residential uses
Nonresidential uses	Allow most uses; prohibit outdoor stadiums and similar uses with very high intensities.
Hazardous Materials	No restrictions.
Children’s schools, day care centers, hospitals, nursing homes	Avoid

Source: Modified from Table 9C in California Airport Land Use Planning Handbook (Shutt Moen Associates 2002).

Terms used in this table are defined as follows:

Allow: Use is acceptable. Limit: Use is acceptable only if density/intensity restrictions are met.

Avoid: Use generally should not be permitted unless no feasible alternative is available.

Prohibit: Use should not be permitted under any circumstances.

Navigable Airspace

The proposed project could possibly act as an impediment to the Bellingham International Airport, given the area’s proximity to the airfield.

The proposed project would result in a maximum building height of 45 feet. Given the maximum building height, the top of the highest building would reach an elevation of 175 feet, above mean sea level (MSL).

According to the Height Hazards portion of the Whatcom County Comprehensive Plan, Chapter Two: Land use, Goal 2XX, Policy 2XX-5(a) Height Hazards, the proposed project should not be of concern at an elevation of 175 feet. Bellingham International Airport is at an elevation of 170 feet, and the top of the highest proposed structure is 175 feet, the project should not pose a concern to airport operations according to FAA regulations on Objects Affecting Navigable Airspace.

Land Use

The proposed project would be constructed on land which is currently under private ownership. The majority of the property is currently maintained for agriculture. Surrounding properties are rural residences, agricultural land, airport operations land, or open space. Since 1951, the majority of the

surrounding area has been designated as land for agricultural use. There are currently no structures on the site. The site also contains an unnamed stream and a number of wetlands designated by Whatcom County as environmentally-sensitive.

Recreation

There are no recognized or designated public recreation areas on the proposed project site. There are four recreation areas within two miles of the proposed project site. A WDFW hunting area is used seasonally, and is located on the east bank of the Nooksack River, which is west of the site. Located north of the site are Tennant Lake Interpretive Center, Hovander Homestead Park, and part of the Whatcom County Park Network between the Nooksack River and Ferndale City Limits (Whatcom County Parks Department 2008).

Located northeast of the site between West Smith Road and Larson road is the recreational property owned by Bellingham Gun Club. Additional recreational areas include Bennett Hill Park, to the southeast of the site, near the intersection of Hollywood Avenue and Alderwood Avenue (Whatcom County Parks Department 2008).

9.2 Environmental Impacts

Direct Impacts

Land Use

In 2050, it is projected that when fully constructed the Whatcom County Adult Corrections Facility and Sheriff's Headquarters will employ 893 staff members (Omni 2008). A total of 2,450 inmate beds will occupy the facility upon completion in 2050.

No structures, residential or nonresidential, will be removed, replaced, or demolished during construction. The lack of buildings for both residential and business use was one of the main criteria for ultimately choosing this site.

Recreation

No areas of public recreational use would be demolished, or removed from the site due to the current absence of any such use.

Table 12. Maximum Residential and Nonresidential Density in Airport Safety Zone

Current Setting	Zone 6 (Traffic Pattern Zone)
Maximum Residential Density	
Average number of dwellings per gross acre	
Rural farmland / open space (minimally developed)	No limit
Rural farmland (mostly / partially undeveloped)	No limit
Urban (heavily developed)	No limit
Maximum Nonresidential Density	
Average number of people per gross area	
Rural farmland / open space (minimally developed)	150
Rural / suburban (mostly to partially undeveloped)	150
Urban (heavily developed)	No limit
Multipliers for above numbers¹	
Maximum number of people per single acre	x 3.0
Bonus for special risk-reduction building design	x 2.0

Source: Modified from Table 9C in California Airport Land Use Planning Handbook (Shutt Moen Associates 2002). Multipliers are cumulative (e.g., maximum intensity per single acre in traffic pattern zone is 3.0 times the average intensity for the site, but with risk-reduction building design is $3.0 \times 2.0 = 6.0$ times the average density).

Indirect Impacts

Construction and operation of the proposed jail facilities are not predicted to raise local crime rates. It is thought that the facilities will possibly decrease crime rates in the vicinity given the presence of law enforcement, according to Literature Review of Impacts to Communities in Siting Correctional Facilities (Fehr 1995). Since the beginning of its operation in 1984, the existing jail has had three inmate escapes. The inmates who escaped were lower-security workers who fled during work related duties, outside of the jail. After taking the inmates back into custody, facilities management made changes to further secure the facility.

The proposed project would be built within Safety Zone 6 of the Bellingham International Airport, and although it poses insignificant danger to air traffic accidents, Whatcom County Sheriff's Office has voiced concern for such accidents. Security issues and inmate safety have been working principles incorporated into the facility's design, in the case of natural disasters, or air traffic accidents. In addition to safety, and seismic design code, the facility would maintain fire control technologies, and staff would frequently engage in emergency drills and procedures; including both natural disasters and aircraft crashes.

If the facility were struck by an aircraft, the damage sustained during the event would be lessened due to the facility's design, compared to the substantial damage a residential or commercial building may sustain. Additionally, inmates are able-bodied and more readily able to evacuate unlike residents at

schools, nursing homes, or hospitals that are listed as inappropriate land uses within Airport Safety Zone 6 (Table 11). The new jail would have a much more secure perimeter around the facility, allowing for rapid evacuation and temporary on-site containment grounds for inmates.

Explicit effects the proposed facility may have on property values within the immediate area are currently unknown. Research studies from the University of Florida, the University of Wisconsin, the Washington Council on Crime and Delinquency, and the National Institute of Corrections, however, have shown that corrections facilities do not have a negative effect on property values.

9.3 Mitigation Measures

Land Use

The proposed facilities must comply with Whatcom County Municipal Code and Chapter 20.66.708:

New facilities developed in the Bellingham Urban Fringe Subarea shall be designed, constructed, operated, and maintained so as to be harmonious and appropriate in appearance with the existing or intended character of the general vicinity, and such uses shall not change the essential character of the same area (Whatcom County 2008b).

The project would adhere to local standards currently held between the City of Bellingham and Whatcom County regarding the annexation and development within the UGA of the City of Bellingham (City of Bellingham and Whatcom County 1997).

Table 13: Assessment of Land Use Compatibility and Allowable Site Densities For the Proposed Site in Airport Safety Zone 6

Parameter	Proposed Site
Prohibited use	No
Site acreage	71.81
Maximum nonresidential intensity; average number of people per gross acre	150
Maximum number of people allowed on the site	10,771
Estimated maximum number of inmates, staff and visitors in 2050 on-site ¹	3,316
Multipliers to determine maximum number of people allowed per acre	X 3.0
Bonus for special risk-reduction building design; concrete and steel hardened	X 2.0
Factored maximum number of people per acre allowed	900 ²
Actual maximum people per acre in 4 inmate pods of 64 inmates each; plus ten staff and 10 visitors	276

1. Assumes all 2,450 inmates, 2/3 of 575-person sheriff staff, all visitors (165) and facilities staff (65), as well as sheriff's headquarters staff (253), for 2050 occupancy.

2. Calculated by multiplying 3.0 and 2.0 multipliers to 150 (maximum nonresidential use)

Recreation

No mitigation measures would need to be implemented because there are no recreational areas to remove or relocate.

9.4 Significant Unavoidable Adverse Impacts

Significant unavoidable adverse impacts would be an increase in building density in the currently rural, agricultural area.

10 AESTHETICS, LIGHT AND GLARE

10.1 Affected Environment

Aesthetics

The proposed project site is in a low lying area, with views of surrounding agricultural land, composed of shrubbery and trees. The area's character is mostly rural, with light industrial uses with few buildings.

Light and Glare

Whatcom County Municipal Code and Supplementary Requirements for Lighting, Chapter 20.80.523, and Heat, Light, or Glare, Chapter 20.66.702, issued the following requisites:

Any parking area which is intended to be used primarily during non-daylight hours shall be properly illuminated to avoid accidents. Any lights used to illuminate a parking lot shall be so arranged as to direct the light away from the adjoining property and the public road (Whatcom County 2008b). All operations and facilities producing heat, light or glare, including exterior lighting, shall be so constructed, screened or used as to not unreasonably infringe upon the use and enjoyment of property beyond the boundaries of the district (Whatcom County 2008b).

10.2 Environmental Impacts

The facilities on the proposed sights are expected to be between 40 and 45 feet above ground level. Building heights are to adhere to limitations implemented under the LII zoning district, addressed by the Whatcom County Municipal Code (Whatcom County 2008b). In the LII Zone, there are no underlying height limitations; rather, all building setbacks are to be increased by 1 foot per each foot of building height, above 35 feet.

Building type and specific characteristics have not been officially determined at this point of the project proposal. It is projected that the facilities will likely be one- and two- story buildings, constructed with reinforced concrete encased by a lighter-steel framed facilities management support building. The structures would incorporate colors and building surfaces to assimilate to the area's qualities.

Direct Impacts

Aesthetics

The greater part of the 71.8-acre proposed project site would be significantly disrupted during construction. Paved parking lots, vehicle lanes, eight one- and two-story structures, fencing, lighting, signage, both loading and storage facilities, stormwater detention ponds, and landscaping will cover nearly 80% of the proposed project site.

The proposed project would be slightly buffered from nearby thoroughfares, such as I-5, Kope Road, and Wynn Road. It is anticipated that current vegetation and forested areas along the adjacent southern,

southeastern, and southwestern areas of the site would act as a visual buffer around the facilities. The site would be clearly visible however, from parcels of land to the north, northeast, and northwest. The proposed project is anticipated to be constructed and landscaped in a manner most fitting to the surrounding area's character.

Light and Glare

Light and glare from vehicle travel on immediate thoroughfares would be visible to those using the proposed facility. Sources of light and glare from the proposed project would emanate from additional elevated lighting, and automotive traffic. Lighting would adhere to Whatcom County Municipal Code and Supplementary Requirements for Lighting during the night hours.

Additional lighting and glare from passing vehicular travel related to the proposed project may be considered a nuisance by nearby residents. Although light and glare may be considered a nuisance, it would not create a safety risk or negatively impact views because of the site's location. Preservation of current vegetation and construction of properly designed screened lighting fixtures on the site would decrease the amount of light and glare.

10.3 Indirect and Cumulative Impacts

The proposed project would alter the area's aesthetic character by adding lighting and infrastructure where little to none currently exists. If other development was to occur in the area, the area's rural character would be compromised and become more of an urbanized environment.

10.4 Mitigation Measures

Under the Whatcom County Municipal Code and Chapter 20.66.708, the proposed project would adhere to certain aesthetic standards. The code states new facilities developed in the Bellingham Urban Fringe Subarea shall be designed, constructed, operated, and maintained so as to be harmonious and appropriate in appearance with the existing or intended character of the general vicinity, and such uses shall not change the essential character of the same area (Whatcom County 2008b).

The proposed project would surpass Whatcom County Municipal Code landscaping requirements addressed under the LII zone (Chapter 20.80.300) and the City of Bellingham Municipal Code for landscaping in an LI zone. This part of the code states that existing vegetation can be used to meet or exceed all or part of the landscaping requirements. Landscaped buffers would be placed throughout parking areas to dampen the visual prominence of the facility.

Light and Glare

The proposed site would adhere to Whatcom County Municipal Code and the Supplementary Requirements for Lighting, Chapter 20.80.523, and heat, Light or Glare, Chapter 20.66.702.

Reduce light and glare after completion of the facility's construction would include:

- Require all artificial lighting to be shaded/ partially covered, as to make it indirect, reducing glare to surrounding residences.
- Increase the height of lighting poles.
- Limit the operation of lights during night hours, complying with Whatcom County regulations.
- Use plants and vegetation as barriers from light sources, to reduce glare.

Night time construction would be conducted under compliance with Whatcom County regulations. Lighting would be strategically placed, and directed as to not impact surrounding residences.

10.5 Significant Unavoidable Adverse Impacts

The proposed project would leave an unavoidable impact on the area's aesthetic character by turning a rural, vegetated area, into a developed area noted by buildings, lighting, and parking facilities.

The proposed project would create an unavoidably significant amount of night lighting to the site, and surrounding area. The project would adhere to Whatcom County codes for appropriate illumination measures.

11 HISTORIC AND CULTURAL PRESERVATION

11.1 Affected Environment

According to the Final Report of the Cultural Resource Assessment for the Whatcom County Corrections Facility Site Selection Process, Whatcom County, Washington (Alfred Reid 2008), the site does not contain any places or objects listed on local, state, or national preservation registers. The cultural resource assessment indicates that the site has a low potential to contain historic camps; however, the site's proximity to the lower Nooksack River Delta suggests there may be a possibility of encountering historic resources.

11.2 Environmental Impacts

The cultural resource assessment (Alfred Reid 2008) states that due to the site's proximity to the lower Nooksack River Delta, the complete absence of historic evidence in the area cannot be assured. Therefore, it is possible that construction on the site could adversely affect unknown cultural resources in the area.

11.3 Mitigation Measures

If any unexpected cultural resources were found during construction on the site, work cessation followed by mitigation measures would be implemented. Cultural resources would be required to undergo analysis by a professional archaeologist who would determine the cultural significance of discovered materials. If cultural significance was determined, the contractor would be forced to notify the Nooksack Tribe of Indians, Lummi Nation, and the Washington State Department of Archaeology and Historic Preservation.

If construction activities overturn human remains, all work on site would be required to cease until significance is evaluated. The contractor would be required to contact the following agencies:

- The Whatcom County Medical Examiner
- Whatcom County Sheriff's Office
- The Lummi Nation
- Nooksack Tribe of Indians
- Washington State Department of Archaeology and Historic Preservation

12 TRANSPORTATION

12.1 Affected Environment

Roads

Road Network

Table 14 shows streets, arterials, and highways that serve the proposed site. Access roads would likely include I-5, Slater Road, and Wynn Road.

Five intersections need improvements as determined by project studies analyzing potential impacts:

- I-5 northbound off-ramp and Slater Road (unsignalized)
- I-5 southbound on-ramp and Slater Road (unsignalized)
- Slater Road and Rural Avenue (signalized)
- Rural Avenue and Kope Road (unsignalized)
- Marine Drive and Wynn Road (unsignalized)

Other less significant intersections in the proposed project study area were considered in the analysis, but are not discussed in detail because of the low volumes of traffic on a daily basis.

Daily traffic volumes and PM peak hour turning movement counts were performed June 17 through 19, 2008. Table 14 shows the current 2008 PM peak hour turning movement traffic volumes for the studied intersections in addition to average daily traffic (ADT) for the major roadways affected by the project.

Table 14. Intersection Level of Service Description

Level of Service	Intersection Delay (sec / vehicle)	General Description
A	0 – 10.0	Little to no congestion or delays.
B	10.1 – 20.0	Limited congestion. Short delays.
C	20.1 – 35.0	Some congestion. Average delays.
D	35.1 – 55.0	Moderate congestion and delays.
E	55.1 – 80.0	Extensive congestion and delays.
F	80.0	Total breakdown with extreme delays.

Operational Analysis

Transportation specialists, including engineers and planners, often use a ranking system referred to as level of service (LOS) to measure and assess operations status of a roadway network. LOS is an assessment and narrative of intersection operations, ranking from LOS A (signifying little or no traffic delay for side street traffic) to LOS F (indicating significant traffic setbacks for side streets). See Table 14 for more explanation on each LOS provision.

A detailed PM peak hour LOS study was performed at the five major intersections in the proposed project study area, for 2008 conditions (HDR 2010b). Table 15 shows the results for the LOS study. Other less-trafficked intersections are all considered to be LOS B or above (limited congestion, with few delays).

Table 15. 2008 Existing Level of Service

Location	Control Type	2008 Existing PM Peak	2008 Existing PM Peak
		Control Delay / Vehicle	Level of Service
1-5 Northbound/ Slater Rd	OWSC	430.1	F
I-5 Southbound/ Slater Rd	OWSC	351.7	F
Slater Rd/ Rural Ave	Signal	16.6	B
Rural Ave/ Kope Rd	OWSC	8.8	A
Marine Dr/ Wynn Rd	OWSC	14.1	B

1. OWSC = One-way stop-controlled intersection. Signal = Signalized intersection. Unsignalized and signalized intersections were analyzed using Synchro.
2. Control delay, measured in seconds per vehicle, is a measure of all the delay attributable to traffic control measures such as traffic signals or stop signs. At signalized intersections and all-way stop-controlled intersections, the delay reported is the average of all the control delay experienced for all the movements. At one-way or two-way stop-controlled intersections, the reported delay is for only one movement.

The intersections of Slater road at both I-5 ramps operated at LOS F, (total breakdown with extreme delays; see Table 14) at this time. Both intersections are one-way stop-controlled making left turns onto Slater road particularly difficult. PM peak hours create significant amounts of congestion at both ramps.

The westbound approach at the Slater Road intersection with the I-5 southbound ramp is also subject to long delays and congestion during PM peak hours. The approach is a two-lane roadway causing vehicles traveling westward through the intersection to become trapped behind vehicles waiting to turn left onto the I-5 southbound on-ramp.

Traffic Safety Analysis

Past collision data for the study area for were gathered from Whatcom County and the Washington State Department of Transportation (WSDOT) for the most recent three-year interval (2005-2007). Given the provided data, there are no explicit locations with a high collision rate on any of the proposed project roads or at any of the intersections.

Public Transit

Neighborhoods south of the proposed site are serviced by the Whatcom Transportation Authority bus service. Service on Marine Drive is provided by the Whatcom Transportation Authority Bus Route 50, Gooseberry Point to Downtown. The closest transit stop is located at the intersection of Hoff Road and Bayon Road, just 1.8 miles southwest of the proposed project site (Whatcom Transportation Authority 2008).

12.2 Future Conditions

Whatcom County's Six-Year Transportation Improvement Program (Whatcom County 2009) has issued a plan of improvement at Slater Road intersections including plans to construct turn lanes from Imhof Road and Ferndale Road. The City of Ferndale's Comprehensive Plan (2007) addresses a proposed project at the Labounty Drive/Slater Road intersection to include turn signals.

Traffic Volumes

To forecast future vehicular travel volumes in the proposed project area, baseline traffic figures were gathered from Whatcom County, WSDOT, and recent calculations. Future traffic volume forecasting was based on calculated straight-line growth rate of 2.2% between 2005 and 2015, and a rate of 1.1% between 2015 and 2025. Traffic volume projections for 2050 were not calculated as part of the analysis, due to unknown factors such as land use and roadway improvements in the far future.

Vehicle trip generation figures were derived from estimated staffing levels provided by Omni (2008), revealed in Table 16. Visitor trips were not included in the count due to the dispersal and inconsistency of trips throughout the day often avoiding the peak PM hour period.

TABLE 16. Projected Staffing Levels

Facility	2015	2025
Sheriff's Office	129	166
Facilities Management Support	47	53
Jail	250	320

Table 17 covers PM peak hour as well as daily trip generation for the proposed Whatcom County Adult Corrections Facilities and Sheriff's Headquarters. The trip generation forecasting for the facility includes the expected trips during the PM peak hour on nearby roads because the shift coverage for staff would

ensue outside of PM peak hours. The projected trip generation was derived from PM peak hour calculations since most employees work a conventional shift.

TABLE 17. Trip Generation Summary: PM Peak Hour

Facility	Number of Employees	Trip Generation Rate			PM Peak Hour Trips		
		In	Out	Total	In ²	Out ²	Total ³
2015							
Jail	250	0.06	0.17	0.23	15	43	58
Sheriff's Office and Facilities Management	176 ¹ (ITE Equation Rate used [7 th Ed., p. 1176])				17	95	112
2015 Net New PM Peak Hour Trips Generated =					32	138	170
2025							
Jail	320	0.06	0.17	0.23	19	54	73
Sheriff's Office and Facilities Management	219 ¹ (ITE Equation Rate used [7 th Ed., p. 1176])				20	111	131
2025 Net New PM Peak Hour Trips Generated =					39	165	204

Source: ITE = Institute of Transportation Engineers

The Institute of Transportation Engineers (ITE) trip generation rate suggests development can be anticipated to generate a total of 170 additional PM peak hour trips in 2015 and 204 trips in 2025, (Table 17).

Project Trip Distribution

Trip generation and distribution for the proposed project were derived from the distribution of vehicles when entering the road network during PM peak hours, projected previously gathered traffic count data. Table 18 indicates the anticipated 2015 and 2025 PM peak hour project trip assignments. The given volumes were used in operational analysis.

TABLE 18 Trip Generation Summary: Anticipated PM peak hours for 2015 and 2025

Location	Entering				Exiting			
	2008 Volume	2008 Percent	2015	2025	2008 Volume	2008 Percent	2015	2025
I-5 northbound ramp	547	22%	7	8	76	4%	6	7
I-5 Southbound Ramp	138	5%	2	2	514	28%	39	46
Slater Rd east of I-5 northbound	591	23%	7	9	227	12%	17	21
Slater Rd west of Rural Ave	666	26%	8	10	564	31%	43	51
Rural Ave north of Slater Rd	132	5%	2	2	55	3%	4	5
Marine dr west of Country Ln	157	6%	2	3	170	9%	13	15
Marine Dr east of Wynn Rd	296	12%	4	5	218	12%	16	20
TOTAL	2,527		32³	39³	1,824		138³	165³

¹ Percent is the observed network total volume for each network entry or exit link.

² The 2015 and 2025 entering and exiting volumes for each entry/exit point to the network are determined by applying the 2008 percent for that entry/exit point to the total generated trips.

³ These total numbers are the total trips calculated in Table 13-5.

Operational Analysis

The proposed project is anticipated to be in operation by 2015. A PM peak hour LOS was conducted for the five study intersections, for 2015 and 2025 for project operations, and if the project were not constructed. Table 19 shows the calculations for the LOS study. The low-volume intersections in the study are anticipated to operate at a LOS C or greater for 2015 and 2015 under facilities operation and the no action alternative.

All vehicle trips generated were considered in the proposed project operations analysis. The information analysis can be considered to be a worst case circumstance.

Table 19: Level of Service Analyses Results

Location	Control Type ¹	Control Delay/Veh	LOS ³	Control Delay/Veh	LOS ³	Control Delay/Veh	LOS ³	Control Delay/Veh	LOS ³	Control Delay/Veh	LOS ³
I-5 northbound at Slater Rd	OWSC	430.1	F	854.1	F	>1,000 ⁴	F	>1,000 ⁴	F	>1,000 ⁴	F
I-5 southbound at Slater Rd	OWSC	351.7	F	>1,000 ⁴	F	>1,000 ⁴	F	>1,000 ⁴	F	>1,000 ⁴	F
Slater Rd at Rural Ave	Signal	16.6	B	20.0	B	21.0	C	24.0	C	25.5	C
Rural Ave at Kope Rd	OWSC	8.8	A	8.8	A	10.1	B	8.9	A	10.5	B
Marine Dr at Wynn Rd	OWSC	14.1	B	15.6	C	17.8	C	17.0	C	19.3	C

1 OWSC = One-way stop-controlled intersection. Signal = Signalized intersection. Unsignalized and signalized intersections were analyzed using Synchro 7.

2 Control delay, measured in seconds per vehicle, is a measure of all the delay attributable to traffic control measures, such as traffic signals or stop signs.

3 LOS is the level of service, a concept based on the *Highway Capacity Manual* (Transportation Research Board 2000) for unsignalized and signalized intersections.

4 When the volume/capacity ratio exceeds a certain point, the control delay is indeterminate.

Traffic Safety Analysis

A growing collision rate can be related to the growth in traffic volume for the year 2015. An increased chance of rear-end collisions may result from congestion at the unsignalized intersection of Slater Road and I-5. The proposed facility however, is not anticipated to be a significant contributor to future collisions.

Depending upon the siting of driveways and additional left turn lanes, traffic congestion may result at the intersection of Rural Avenue and Kope Road. The proposed project site has the option of utilizing driveway access from Kope Road, Wynn Road, or both. It was assumed that access points would be on Kope Road for traffic analysis because Kope Road access point would create the most strain on the traffic network because of the numerous left turn lanes near Rural Avenue and Kope Road intersection. Collision risks should be minor due to the low volume of traffic on these roadways if driveways are appropriately located.

12.3 Environmental Impacts

Direct Impacts

Frontage Roadway Improvements

Roads local to the project area would require frontage roadway improvements. Wynn Road, Kope Road, and Rural Avenue do not have shoulders currently. Segments of some roads fail to meet Whatcom County road standards and would therefore need improvements.

It is expected that the proposed project site would be annexed by the City of Bellingham. Under annexation the City of Bellingham would require roads in the project area to comply with Urban Arterial standards.

Roughly 4,000 feet of frontage redevelopment would be required at the intersection of Slater Road, along a 22-foot-wide section of road (two 11-foot-wide vehicular travel lanes, as well as a curb and gutter on both sides) and a 5-foot-wide sidewalks would be constructed on both sides of Wynn Road and Rural Road. Kope Road would require around 3,200 feet of frontage improvements: two 11-foot-wide travel lanes (with a curb and gutter on both sides), as well as a 5-foot-wide sidewalk on the southern and western sides of the road.

Road Use

All intersections within the study area for the proposed project are anticipated to function at LOS C or greater during the PM peak hour along with the project development. Congestion and waiting at I-5 onramps is currently a strain on the traffic network and is anticipated to persist into the future.

The majority of law-enforcement traffic would take place during off-peak hours, stated by Whatcom County Sheriff's Office. The proposed project site location, being near the I-5 Slater Road exit, would decrease commute time for law enforcement traffic in comparison with congested routes from coming from the north to the current Bellingham Jail (Northwest Avenue, Hannegan to Sunset, and the Guide Meridian). Travel as a whole would be decreased in Bellingham's downtown area between the current jail and the work center, which are currently separated by 3.5 miles. Offenders may often be transported between the jail and the work center two to four times daily for re-housing, court appearances, and medical appointments. Limited storage in the main jail forces facility staff to make frequent trips between facilities to restock supplies. Trips would be significantly reduced by the construction of one single facility.

Proposed construction, upgrades to surrounding roads, and implementation of utilities infrastructure would cause temporary traffic congestion, and alter the traffic network; this would include construction vehicles entering and leaving the site.

Public Transit

Means of transportation are not anticipated to change. The area will likely continue to be serviced by bus for public transportation purposes in the future. The facility could be serviced by the Whatcom County Transit Authority, under the condition the route to the site was approved by the Whatcom County Council and rezoned under the use of Whatcom County Adult Corrections Facilities and Sheriff's Headquarters.

12.4 Indirect and Cumulative Impacts

Drivers may choose to use alternative routes to reach desired destinations in order to avoid congestion on roadways during periods of construction. Future development would likely increase the need for additional roadway development and renovations.

12.5 Mitigation Measures

During Construction

During roadway construction, mitigation measures could include:

- Ensure the safety of motorists, pedestrians and cyclists with placement of signage, steel plates, barricades and other traffic safety implements at the entrances, exits, and areas of obstruction.
- Flaggers would regulate traffic flow through construction areas.
- Traffic control measures would adhere to regulations set forth Whatcom County's Department of Public Works.
- A traffic control plan would identify and address construction areas including construction hours, and information on dates of project operation.

During Operations

- Traffic flows would be enhanced through frontage improvement and meet the City of Bellingham and Whatcom County Transportation Concurrency Requirements.
- An additional mitigation measure could include the development of carpooling or flextime plans for employees.
- Video visitation technologies would reduce the overall trip generation and traffic to the proposed facility.

Reduction in Transportation Needs

One of the focuses of the new facility is on communication strategy, which is expected to decrease the amount of transportation to the facility as a whole. Rather than using direct inmate visitation, the Whatcom County Sheriff's Office plans on implementing video visitation technology to increase visitation opportunities and decrease overall vehicle trip generation to the current, and proposed jail facility. Additionally, these new technologies would lower staffing costs of transporting inmates to and from visitation rooms.

Video technologies are also being considered for arraignment. The Sheriff's Office is confident the majority of inmates' court appearances could be dealt with via live streaming video with exception of trial and felony cases. Personnel from jurisdictions of Lummi Nation, Ferndale and Bellingham currently drive from their respective locations to pick up offenders for court appearances on a weekly basis. For this reason, the Sheriff's Office hopes to expand this new system and create a technology-based infrastructure.

The new jail would have at least one courtroom. The courtroom would grant officials to option to try an offender on-site rather than transport them off-site, which poses security risks. Trials would be available for public viewing, via streaming video.

12.6 Significant Unavoidable Adverse Impacts

The proposed project would result in increased vehicle traffic to and from the site, and increase carbon emissions from fuel consumption. However, fuel consumption would be decreased by the fewer number of trips required between the existing jail and sheriff's work center, which would both cease operations upon the commencement of Whatcom County Adult Corrections' Facilities and Sheriff's Headquarters operations.

13 PUBLIC SERVICES AND UTILITIES

13.1 Affected Environment

Public services and utilities pertain to law enforcement, fire and emergency response, life safety, and educational institutions. Utilities include natural gas, water, sanitary sewer, electrical power, and telecommunications.

Public Services

Law Enforcement

Whatcom County Sheriff's Department alongside Ferndale and Bellingham police departments currently provides services to the proposed project area. Superior and district court services are provided by the Whatcom County Courthouse for the cities of Ferndale and Bellingham.

Fire and Life Safety

Whatcom County Emergency Management Services and the Whatcom County Fire District 7 Station 43 currently provide service to the proposed project site.

Utilities

The utilities currently available to the proposed project site include electricity and telephone. Additionally, a gas utility pipeline currently traverses the northern portion of the proposed site. Proposed utilities and providers to the immediate area are listed in Table 20.

Table 20: Utilities in the Vicinity of the Proposed Site

Utility	Provider
Electricity	Puget Sound Energy
Gas	Cascade Natural Gas
Water Supply	City of Bellingham (Marietta Water Storage Reservoir) *
Sewer	City of Bellingham*
Solid Waste	Private System Managed Under County Ordinances
Telephone	Verizon
Cable	Comcast
Internet	Various Providers

* Subject to Interlocal Agreement or Annexation Agreement (City of Bellingham and Whatcom County 1997)

Water

Water would potentially be supplied by the City of Bellingham's Marietta Water Storage Reservoir. Construction of pipelines would be necessary to deliver water to the proposed site from the 2,500,000 gallon reservoir.

Sanitary Sewer

No sanitary sewer services are currently accessible in the proposed project area or in the close surrounding area. Construction of sewer pipelines to the proposed site would be necessary.

Electrical Power

Puget Sound Energy electrical utilities are accessible to the proposed project site.

Natural Gas

A natural gas pipeline (8 inches in diameter, 380 psi) is currently present on the proposed site, below ground toward the site's northern boundary. Construction would require the pipeline to be permanently moved no closer than 100 feet from any surrounding structure. The new location of the pipeline would place it underneath an unnamed stream on the site located along the eastern boundary of the property.

Telecommunications

Comcast contributes cable lines and server technologies to the proposed project area.

13.2 Environmental Impacts

Public Services

Construction and implementation of utility infrastructure on the site may impede traffic flow and localized access to road networks. Additionally, response times for emergency management teams, police, and fire departments may be adversely affected because of congestion.

Law Enforcement

Upon commencement of facility operations the new jail would be independent in supplying its own law enforcement team under direction of the Sheriff's Headquarters.

Fire and Safety

Water demand for the proposed facility was determined according to an estimated 2,500 gallons per day for a 3 hour period, ascertained by the City of Bellingham Municipal Code and the 2006 International Fire Code. The facility itself would be constructed according to Uniform Building Code and the International Fire Code.

The Whatcom County Adult Corrections Facilities and Sheriff's Headquarters is anticipated to house 2,450 inmates by its projected completion date in 2050. The proposed facility is required by Whatcom County Code and Title 1.28 to have a healthcare service provider for inmates under contract stated in the section titled Standards for Corrections Facilities. The facility itself would serve as the primary healthcare provider for inmates, with an additional 24-hour emergency and dental care plan (Whatcom County 2008b).

Schools

By its anticipated completion in 2050, the facility is estimated to require 893 staff members (Omni 2008). The current jail in downtown Bellingham had a total of 275 employees in 2008 (Omni 2008). It is expected that an additional 618 new full time employees (FTEs) will be required to adequately operate the proposed facility. If FTEs are guardians of dependents and relocate within the vicinity of the proposed project area, an increased strain may be placed on nearby schools. However, increases in student populations will be factored into the school district's capital facilities plan. The proposed project, being an Essential Public Facility (EPF) would have a smaller environmental impression than residential development and therefore have less overall impact.

Direct Impacts – Utilities

All previously listed utilities would necessitate underground connection to surrounding utilities hubs. Upgrades to the proposed project site would include implementation of storm drainage, stormwater detention, sanitary sewer, potable water, fire suppression, telecommunications, power, and natural gas. All of the listed utilities would meet or surpass requirements addressed under the City of Bellingham Municipal Code.

Water

The Marietta Reservoir in the City of Bellingham would provide water to the proposed site and is located above Marietta Avenue to the southwest of the site. The new jail would require a storage facility to hold roughly 1,200,000 gallons according to inmate population projections and a requirement of 2,500 gallons per minute three hours, as addressed by the Bellingham Municipal Code.

In order to reach the southwestern portion of the project site, roughly 2,000 feet of 12-inch diameter pipe would be necessary to meet service requirements. To properly deliver water to the site, utilities would need to connect to the 12-inch diameter pipeline where a water meter, vault, and backflow assembly would be attached.

Stormwater

In order to uphold high water quality standards, 5 acres of detention pond may be required to address stormwater requirements.

Sanitary Sewer

Wastewater would be transported from the proposed site to the City of Bellingham wastewater treatment plant. This would be accomplished by wastewater pipelines or mains utilizing gravitational force for transport; however, topography and overall distance from the current city infrastructure would call for the installation of at least one pump. The pump will allow the wastewater to be transported to a location where it will again be subject to the force of gravity and arrive at the city's wastewater treatment plant. Proposed construction would consist of a sanitary sewer collection system, force main, a pump station with two 35-horsepower pumps, a metering vault, and a wastewater screening system (HDR 2010a).

Off-site improvements to infrastructure would require 11,000 feet of 8-inch-diameter sewer main. The main would deliver the water eastward from the site, toward I-5, and then flow southbound to Bakerview Road, connecting to a city sewer line. Exact situation of the pipeline is yet to be determined.

Current wastewater treatment facilities would be assessed to determine whether they are capable of handling additional wastewater associated with the facility's operation.

Natural Gas

Reconstruction and relocation of a natural gas line would be required under proposed development. Its size would depend on numerous requirements such as heat and placement requirements.

Electric Power

Power would be provided to the new jail by Puget Sound Energy. Upgrades and additions to the electrical utilities would entail implementation of a line extension to a switch, junction vaults, and two transformers to satisfy the demand the complete facility would eventually require. A supplementary power source such as a backup generator and reserve fuel supply would be located on site in the case of a power outage.

Telecommunications

Verizon would potentially provide service to the proposed facility, and Comcast would possibly provide cable television and server technologies to the site.

13.3 Indirect and Cumulative Impacts

The new jail would require new infrastructure and use of resources such as electricity and natural gas that could be used for future development.

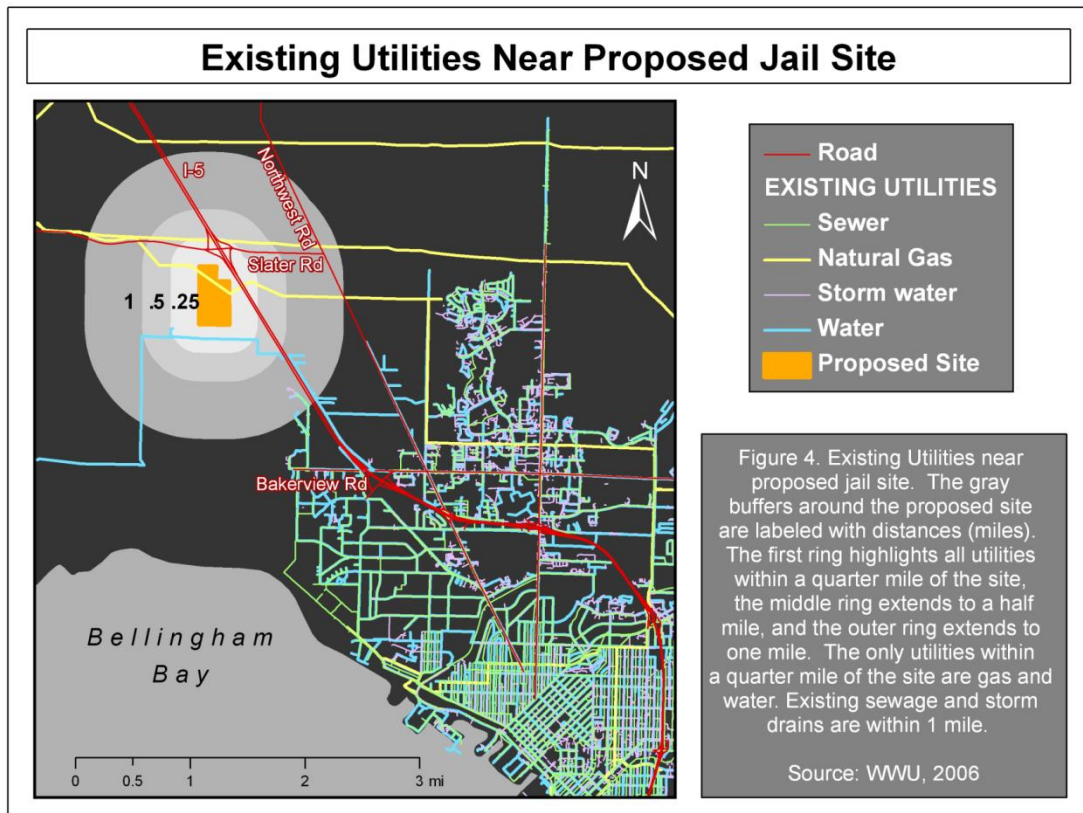
13.4 Mitigation Measures

The following mitigation measures would be taken to lessen the impact on public services and utilities:

- Notify public transit authority, school district, law enforcement and fire/emergency service providers of upcoming construction dates in advance, and keep them throughout the construction process.
- Provide construction dates and notifications of road closures to nearby residents.
- Ensure utility and road improvements are concurrent with the City of Bellingham Municipal Code and Engineering Design Standards.
- Coordinate improvement plans with Bellingham School District to incorporate the influx of students into its capital facilities plan.

13.5 Significant Unavoidable Adverse Impacts

The proposed facility would use electrical power, non-renewable energy resources, natural gas, gasoline, and diesel fuel during construction of the new jail as well as during operation. However, these impacts may be compensated for by the efficiency of such a new facility, which would create less of a demand for such resources.



14 CLIMATE CHANGE

14.1 Affected Environment

The majority of the scientific community agrees that global climate change is occurring today and will persist into the foreseeable future. Climate change predictions are made using computer generated models. Generally referred to as GCMs (General Circulation Models), the computer models incorporate properties of physics, chemistry, and thermodynamics to describe large scale oceanic-atmospheric circulation patterns.

The climate of the Pacific Northwest is strongly influenced by two large scale patterns in climate variability: El Nino/Southern Oscillation (ENSO) and the Pacific Decadal Oscillation (PDO). Variation associated with ENSO and PDO account for approximately 40% of the increase in average winter temperature (Mote et al. 2005). The cyclical nature of these climate systems coupled with complex local geographic features make long-term local climate change predictions complicated. Despite variations associated with ENSO and PDO, current predictions estimate on average the region will experience warmer temperatures.

Historic climate data indicate a 2.3°F increase in average temperature occurred during the 20th century in the Puget Sound region. According to Climate Impacts Group (CIG) temperature is predicted to increase year round while precipitation is expected to increase in the winter and decrease in the summer (CIG 2009).

14.2 Environmental Impacts

Impact of Climate Change on the Project

The site's elevation ranges from approximately 82 to 164 feet above sea level. The predicted rise in sea level associated with global climate change is not expected to affect facilities at this elevation. Increases in winter rainfall associated with climate change may have the potential to increase stormwater runoff from impervious surfaces, which could complicate stormwater management at the proposed facility.

Impact of the Project on Climate Change

Project activities at the site are not expected to directly affect climate in the region; however greenhouse gasses emitted during construction and operation contribute to global climate change.

Cumulative Impacts

Climate Change will impact the hydrology of the water systems located on the site. Increased flows from snowmelt driven systems in the winter and decreased summer flows would be expected. Changes in rainfall could lead to flooding of stormwater retention ponds or decreases in water supply.

14.3 Mitigation Measures

The following are proposed measures to mitigate impacts of climate change on the site as mentioned in (Draft Environmental Impact Statement).

- The high efficiency design of the facility would minimize emissions of greenhouse gases.
- Vehicle emissions would be reduced during construction, operation, and transportation by emphasizing the mitigation measures listed in the transportation section.
- The county would utilize the adaptive management process to deal with unforeseen circumstances. In adaptive management, decisions are made as part of an ongoing science-based process in response to changing conditions.

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APPENDIX A: LIST OF TABLES

Table 1: National Ambient Air Quality Standards (USEPA 2005).....	13
Table 2: Cowardin Classification Summary.....	18
Table 3: Whatcom County Required Wetland Buffer Widths	19
Table 4: Wetlands Summary for the Proposed Site	19
Table 5: Site Vegetation Community-type Distribution	23
Table 6: Estimated Vegetation Community-type Remaining after Construction	24
Table 7: Status Listing of Salmonid Species Present in Silver Creek under State and Federal Guidelines	25
Table 8. State of Washington Noise Regulations for Current Land Use at Sites	27
Table 9: State of Washington Noise Regulations for Future Land Use at Sites	28
Table 10. Typical Construction Equipment Noise Levels	29
Table 11: Safety Compatibility Qualities in Airport Safety Zone	32
Table 12: Maximum Residential and Nonresidential Density in Airport Safety Zone	34
Table 13: Assessment of Land Use Compatibility and Allowable Site Densities for the Proposed Site in Airport Safety Zone 6	35
Table 14: Intersection Level of Service Description	41
Table 15: 2008 Existing Level of Service	42
TABLE 16: Projected Staffing Levels	43
TABLE 17: Trip Generation Summary: PM Peak Hour	44
TABLE 18 Trip Generation Summary: Anticipated PM peak hours for 2015 and 2025	45
Table 19: Level of Service Analyses Results	46
Table 20: Utilities in the Vicinity of the Proposed Site	50

APPENDIX B: LIST OF FIGURES

Figure 1a: Location of Proposed Jail	4
Figure 1b: Vicinity Map of Proposed Jail Site	4
Figure 2: Soil Features and Terrain of Proposed Jail Site	11
Figure 3: Wetlands and Streams near Proposed Jail Site	20
Figure 4: Existing Utilities near Proposed Jail Site	54

APPENDIX C: LETTER

Dear Concerned Citizen,

We have prepared an environmental impact assessment (EIA) on the proposed Whatcom County correctional facility. This report was created purely as an academic exercise, and will have no foreseen effect on the decisions or actions of the Whatcom County Council.

The proposed action includes building a new correction facility and sheriff's headquarters on a 71.8 acre site near Slater Road in Bellingham, Washington. This facility would provide space for up to 2,450 inmates. We have assessed the environmental impacts of this action, as well as the impacts of two alternatives. The first alternative is to build a smaller jail on the same site. This jail would house approximately 500-600 inmates, and will be supplemented with social outreach programs to reduce the need for beds. The second alternative is the no action alternative. In this alternative, the current county jail and interim work center, located in downtown Bellingham, would continue to house all inmates.

Our team recommends the first alternative of a 500-600 bed jail and improved social outreach programs. This alternative would lessen the environmental impacts of the facility.

We hope this EIA is informative and clear in summarizing the environmental issues of building a new correctional facility.

Sincerely,

The Whatcom County Jail EIA Team