Final Environmental Assessment

Vernonia K-12 School Project

Flood Mitigation Assistance Grant Program
FMA-PJ-10-OR-2009-005

Columbia County

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Bothell, WA 98021-9796

Final Environmental Assessment
Vernonia K-12 School Project

City of Vernonia, Oregon

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Acronyms

AHERA	Asbestos Hazard Emergency Response Act
APE	Area of Potential Effects
AQI	Air Quality Index
ASTM	American Society for Testing and Materials
BA	Biological Assessment
BMPs	Best Management Practices
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
dB	Decibel
DEQ	Oregon Department of Environmental Quality
DLCD	Oregon Department of Land Conservation and Development
DOGAMI	Oregon Department of Geology and Mineral Industries
DPS	Distinct Population Segment
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ESU	Evolutionary Significant Unit
EUI	Energy Use Index
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FMA	Flood Mitigation Assistance
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
FSA	Farm Service Agency
HUC	Hydrologic Unit Code

Acronyms (continued)

LCWF	National Park Service Land and Water Conservation Fund
LEED	Leadership in Energy and Environmental Design
LID	Low Impact Development
MBTA	Migratory Bird Treaty Act
MOA	Memorandum of Agreement
MSFMCA	Magnuson-Stevens Fishery Conservation and Management Act
NAAQS	National Ambient Air Quality Standards
NCA	Noise Control Act
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NPDES	National Pollution Discharge Elimination System
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
OAR	Oregon Administrative Rules
OCMP	Oregon Coastal Management Program
ODA	Oregon Department of Agriculture
ODFW	Oregon Department of Fish and Wildlife
ODOT	Oregon Department of Transportation
OEM	Oregon Emergency Management Department
OHWM	Ordinary High Water Mark
OPRD	Oregon Parks and Recreation Department
ORWAP	Oregon Rapid Wetland Assessment Protocol
OSHA	Occupational Safety and Health Administration
PGIS	Pollutant-Generating Impervious Surfaces
SCORP	Oregon Statewide Comprehensive Outdoor Recreation Plan
SHPO	State Historic Preservation Officer
SLOPES	Standard Local Operating Procedures for Endangered Species
TMDL	Total Maximum Daily Load
TSP	Transportation System Plan
UGB	Urban Growth Boundary
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish & Wildlife Service

EXECUTIVE SUMMARY

Project

The Federal Emergency Management Agency (FEMA) is proposing to provide Flood Mitigation Assistance (FMA) program grant funding to acquire and demolish the existing Vernonia kindergarten through grade 12 (K-12) schools, which were extensively damaged by flooding of the Nehalem River and Rock Creek in December 2007. Proceeds from the FMA grant, along with other identified funding sources, will be utilized to construct a new school campus outside of the floodplain. Construction of the new school will involve the conversion of Spencer Park to a non-recreational use. Conversion of the park requires the development of a replacement park, in accordance with the National Park Service (NPS) Land and Water Conservation Fund (LWCF) requirements. The project also includes development of a mitigation wetland to compensate for unavoidable wetland impacts at the new school site.

This Environmental Assessment (EA) examines the potential environmental impacts of each project alternative in accordance with the National Environmental Policy Act (NEPA) and the applicable NEPA implementing regulations. The EA also documents compliance with applicable federal environmental laws, rules, and regulations. The Vernonia School District, in coordination with the City of Vernonia and Columbia County, has prepared this EA.

Purpose and Need

The purpose of the project is to reduce or eliminate flood damage risks to the school campus and to remove federal protection from Spencer Park to allow for construction of the proposed new school and to develop a new park to replace the value and recreational utility of Spencer Park. The project is needed in order to provide for the safety of students, staff, and the community; to avoid interruptions to school operations; and to alleviate or prevent future flood losses at the current location.

Alternatives

The following three alternatives were identified for analysis in this EA:

Alternative 1: No Action Alternative – FEMA would not provide funding for the project, the schools would continue to operate out of a combination of the two remaining school buildings and modular buildings. No impacts to Spencer Park or wetlands would occur.

Alternative 2: Boot Site (Proposed Action Alternative) –FEMA would provide funding to acquire and demolish the existing school buildings (Vernonia Middle School, Vernonia High School, Washington Grade School). A new school will be constructed outside of the floodplain. The Boot Site is located on the east side of Vernonia at the northern terminus of Missouri and Texas Avenues. The Proposed Action includes demolition of existing school buildings, construction of a new school, roadway improvements to Bridge Street and Missouri Avenue, removal of federal protection from Spencer Park, development of a new park at the existing school site to replace Spencer Park, and construction of a compensatory wetland mitigation project.

Alternative 3: Northwest Corner Site - Alternative 3 is similar to Alternative 2 but at a different location. The Northwest Corner Site encompasses the northwest corner of the city limits and adjacent area within the urban growth boundary. The existing school site would be converted to open-space uses after demolition. No impact to Spencer Park will occur under this alternative.

Environmental Impacts

No significant adverse effects are anticipated from any of the alternatives considered in this analysis. In most instances, mitigation, avoidance, or conservations measures are able to render potential adverse impacts minor or negligible. A summary of impacts is provided in Table ES-1. Resource areas where no impacts will occur are not included (Coastal Resources, Environmental Justice).

Table ES-1: Overview of Impacts*

AREA OF IMPACT	ALTERNATIVE		
	1	2	3
Land Use	None	Moderate	Moderate
Geology, Soils, Seismicity	None	Minor	Minor
Air Quality	None	Negligible	Negligible
Climate Change	None	Negligible	Minor
Water Resources	None	Negligible	Negligible
Wetlands	None	Minor	Minor
Floodplains	Moderate	Moderate (positive)	Moderate (positive)
Vegetation	Minor	Minor	Minor
Fish & Wildlife	None	Minor	Minor
Cultural Resources	None	Moderate	Moderate
Noise	None	Minor	Minor to Moderate
Traffic & Transportation	None	Moderate	Moderate
Utilities	None	Minor (positive)	Minor (positive)
Public Health and Safety	Minor to Major	Moderate (positive)	Moderate (positive)
Parks & Recreation	None	Moderate	None

* Impact is considered adverse unless otherwise noted.

Public Involvement

There has been extensive public involvement for the K-12 school project over the past few years from local planning efforts, annexation and zoning changes, and to comply with NEPA.

1.0 INTRODUCTION

Columbia County (County), in cooperation with the Vernonia School District (District) and the City of Vernonia (City), applied to the U.S. Department of Homeland Security's Federal Emergency Management Agency's (FEMA) Flood Mitigation Assistance (FMA) program for grant funding to acquire and demolish the existing kindergarten through grade 12 (K-12) schools. FEMA provides FMA funds to assist communities in addressing long-term risks of flood damage to structures insured under the National Flood Insurance Program. The existing elementary, middle, and high schools were extensively damaged by flooding of the Nehalem River and Rock Creek in December 2007. Proceeds from the FMA grant, along with other identified funding sources, would be used to build a new K-12 school in Vernonia outside of the floodplain.

The National Environmental Policy Act requires Federal agencies to evaluate the environmental impacts of their proposed actions to the natural and human environment before deciding to fund an action. This Environmental Assessment (EA) has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, the President's Council on Environmental Quality (CEQ) regulations to implement NEPA (40 Code of Federal Regulations (CFR) Parts 1500-1508), and FEMA's regulations implementing NEPA (44 CFR Part 10). FEMA is required to consider potential environmental impacts before funding or approving actions and projects. The purpose of this EA is to analyze the potential alternatives' environmental impacts of the Vernonia K-12 School Project. FEMA used the findings in this EA to determine whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI). This EA will also be in compliance with the NEPA implementing regulations of the U.S. Army Corps of Engineers (USACE), as discussed below.

1.1 Lead Agency

There are three federal agencies involved in the project with a responsibility to meet the requirements of NEPA: FEMA, the NPS, and the USACE. As the primary funder for the project, FEMA invited both the NPS and USACE to a lead/cooperating agency relationship consistent with CEQ guidelines. FEMA assumed a lead agency role for NEPA, with the USACE acting as a cooperating agency to collaborate on environmental and historic reviews, as well as on NEPA-related documents. Respective agency roles and responsibilities were outlined with the USACE.

1.1.1 National Park Service

In 2004, the City of Vernonia received a Land and Water Conservation Fund (LCWF) grant for acquisition and site development at Spencer Park, which is located on a portion of the proposed new school site (Boot Site). As such, Spencer Park is protected under Section 6(f)3 of the Land and Water Conservation Fund Act (Public Law 108-198). The NPS must approve any conversion of protected parkland to a use other than outdoor recreation. This approval requires the protected park to be replaced with a property of equal fair-market value and equivalent recreation utility elsewhere. The replacement property must constitute a viable recreation unit or be acquired as an addition to an existing recreation unit. Development of the replacement property may be required to ensure that a level of recreation utility is achieved similar to what was lost at the converted site. The NPS program is administered by the Oregon Parks and

Recreation Department (OPRD). NPS/OPRD will be responsible for ensuring that the appropriate resource studies/consultations are completed at the new park site and issue an independent NEPA decision document.

1.1.2 U.S. Army Corps of Engineers

Construction of the new school, associated outbuildings, and infrastructure would impact wetlands (waters of the United States) identified at the Boot Site. Under the authority of Section 404 of the Clean Water Act (CWA), the USACE is responsible for the evaluation of applications for permits for proposed actions that involve the discharge of dredged or fill materials into waters of the United States, including wetlands. The USACE would review the wetland fill permit application and the proposed Wetland Compensatory Mitigation Plan, which may include off-site work. The USACE will also participate in public involvement, review and comment on the EA and resource studies and consultations; and make a permit decision based on its independent review of the NEPA documentation and proposed project.

1.2 Background

In December 2007, the City of Vernonia experienced the second "100+ year flood" event in 11 years. The damaging flooding in 2007 and in 1996 both resulted in Presidential (FEMA) major disaster declarations. A combination of heavy rain on snow caused both the Nehalem River and Rock Creek to overflow their banks and caused severe flooding in the City. The flood caused widespread damage to homes, businesses, and public infrastructure including the schools. As much as 5 feet of water flowed into the elementary school, middle school, and high school. Some of this water was from the City's nearby wastewater treatment facility. Basic repairs were made to the elementary school and middle school; however, many issues remain with the buildings affecting long-term use of the facilities. The high school was substantially damaged and was partially demolished (only the gymnasium remains) in September 2008. Since the floods, the schools have operated out of a combination of classrooms located in the middle school, elementary school, and temporary modular buildings.

After the flood, the District began evaluating long-term options to the constraints associated with the current school site, including a search for suitable land outside of the floodplain on which to rebuild the schools. On April 15, 2008, Oregon Governor Kulongoski granted a request from Columbia County to designate the Vernonia Schools Project as an Oregon Solutions project. The mission of Oregon Solutions is to help groups develop sustainable solutions to community-based problems through a collaborative effort amongst stakeholders. The Oregon Solutions team has worked with the District and the City in finding a new location for the schools, assisting in the required land use applications, and leveraging funding for the project. In November 2009, Vernonia voters approved a bond measure to build a new K-12 school in Vernonia.

On August 3, 2010, Governor Kulongoski issued Executive Order No. 10-07 directing all state agencies with roles and responsibilities for oversight, funding, and regulation to cooperate and coordinate with local and federal entities and to prioritize their role in supporting the Vernonia K-12 school project.

1.3 NEPA Scoping

Given the scale of the project a formal NEPA scoping process was initiated by publishing and distributing a scoping notice explaining the NEPA process and describing the project to agencies and interested parties. The purpose and goals of the scoping process was to inform interested parties about the project, identify public and agency concerns, define the relevant environmental issues, determine the scope of alternatives to be analyzed, and ascertain state and local agency requirements which must be addressed. Public involvement included distributing a flyer to the school district, a 30-day public comment period, and a public open house was held on July 28, 2010. The public notice and scoping summary are included in Appendix A. The only public comments received as a result of this effort were during the public meeting. Comments were generally supportive of the new school proposal and related to clarification of the grant and environmental review processes.

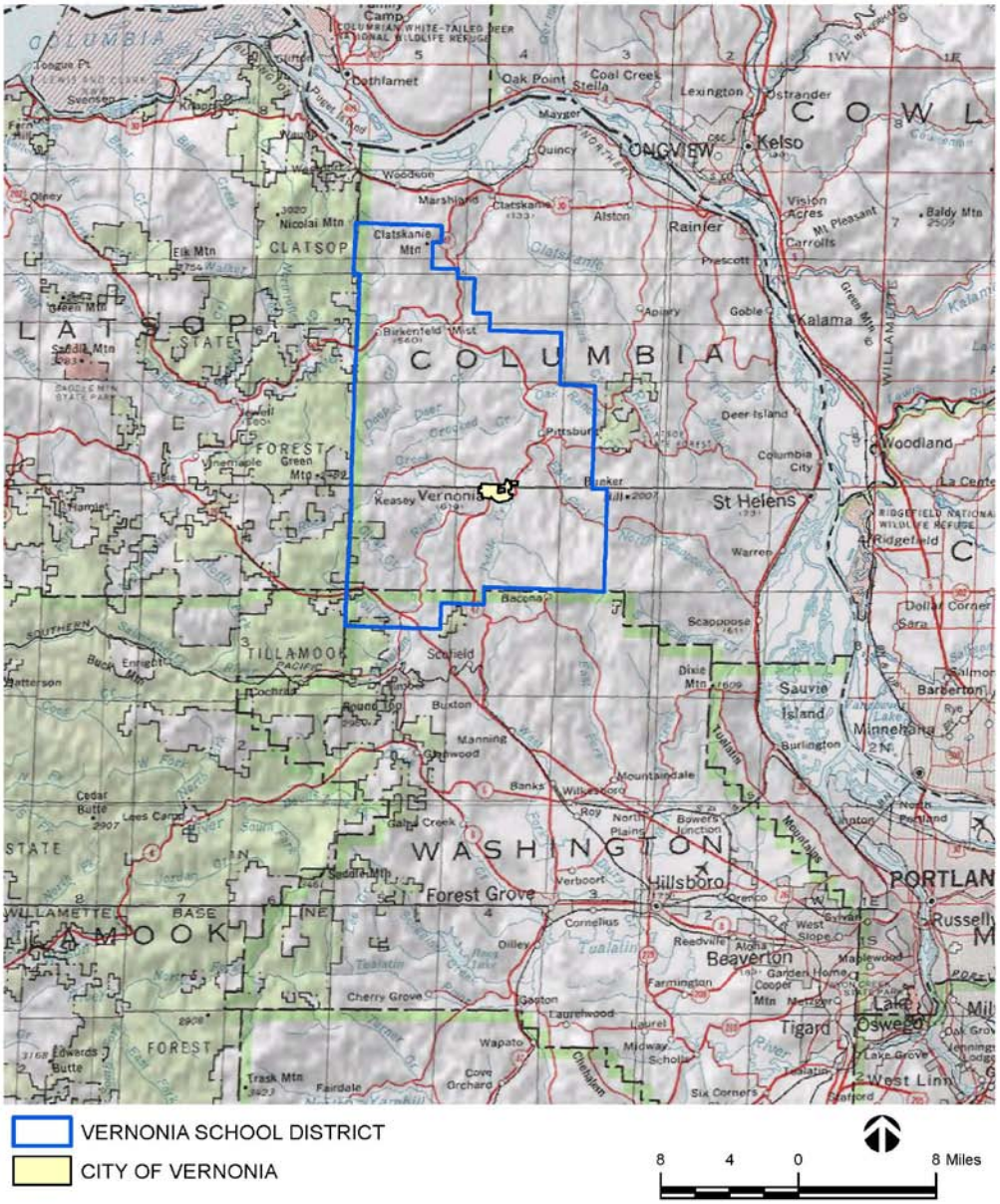
2.0 PURPOSE & NEED

The purpose of the FEMA FMA Program, created as part of the National Flood Insurance Reform Act of 1994 (42 USC 4101), is to provide assistance to communities to enable them to implement measures which would reduce or eliminate the long-term risk of flood damage to insured properties. The purpose of this project is to reduce or eliminate flood damage risks to the school campus.

The purpose of the NPS LWCF Stateside Assistance grant program is to provide funds to states, and through states to local agencies, for the acquisition and development of outdoor recreation resources. Lands that have received funding through LWCF are protected under the Land and Water Conservation Fund Act (Section 6(f)3). The protected park may be converted to a non-recreational use only after the NPS evaluates and approves the conversion. The purpose of this project is to remove federal protection from Spencer Park to allow for construction of the proposed new school and to develop a new park to replace the value and recreational utility of Spencer Park. A secondary purpose is to maintain City park amenities.

The City of Vernonia, located at the confluence of the Nehalem River and Rock Creek, has a history of severe flood events (Figure 2-1). Typically, rain on snow events have triggered the most severe flooding in the City which has resulted in repetitive flood losses over time. The Washington Grade School, Vernonia Middle School, and Vernonia High School (recently demolished) have all flooded twice within the last 11 years (1996 and 2007). During both of these events, floodwater covered the first floor of the school buildings with between 25 to 66 inches of water. The 2007 flood cost the District in excess of $7.5 million in recovery costs. In January 2008, the USACE provided the community with a Design Flood Hazard Study. This map was immediately adopted by the City of Vernonia and showed most of the school campus located within the 100-year floodplain. The project is needed in order to provide for the safety of students, staff, and the community; to avoid interruptions to school operations; and to alleviate or prevent future flood losses at the current location.

Figure 2-1: Project Location


VERNONIA SCHOOL DISTRICT
CITY OF VERNONIA
8 4 0 8 Miles
COLUMBIA
CLATSOP
WASHINGTON
TILLAMOOK
Vernonia
Clatskanie
Birkenfeld
Keasey
Pittsburg
Deer Island
Columbia City
St Helens
Scappoose
Scobfield
Buxton
Manning
Banks
Forest Grove
Hillsboro
Beaverton
Tigard
Lake Oswego
Cornelius
Gaston
Cherry Grove
Dilley
Wapato
Cove Orchard
Trask Mtn
Fairdale
Woodland
Ridgefield
Sauvie Island
Burlington
Mountaindale
Rainier
Kelso
Longview
Clatskanie Mtn
Nicolai Mtn
Elk Mtn
Saddle Mtn
Green Mtn
Dixie Mtn
Round Top
Cedar Butte
Edwards Butte
Scappoose Mtn
Dathlamet
Oak Point
Coal Creek
Stella
Lexington
Ostrander
Quincy
Woodson
Marshland
Alston
Vision Acres
Mt Pleasant
Carrolls
Prescott
Goble
Kalama
Apiary
Warren
Dollar Corner
Sara
Barberton
Minnehaha
Rye
Bowers Junction
North Plains
Roy
Verboort
Reedville
Aloha
West Slope
Garden Home
Cooper Mtn
Farmington
Laurelwood
Midway
Scholls
Six Corners
Lake Grove
West Linn
Russelville
Maplewood
Tualatin
Wilsonville
Galpin Creek
Sedalia Mtn
Lees Camp
Buck Mtn
Rocky Point
Hatterson
Olney
Swenson
Tongue Pt
Camp
COLUMBIAN WHITE-TAILED DEER NATIONAL WILDLIFE REFUGE
BIGGFIELD NATIONAL WILDLIFE REFUGE
WILLAMETTE
BASE
LINE
STATE
FOREST
SOUTHERN PACIFIC
NORTHERN PACIFIC
WILLAMETTE
Green Mtn
Green Mtn
Nehalem
Tillamook
Nehalem
Tualatin
Clatskanie
Columbia
Kalama
Green Mtn
Tualatin
Tualatin
Tualatin

3.0 ALTERNATIVES

The NEPA implementing regulations require that a range of reasonable alternatives be evaluated including the "No Action Alternative." Reasonable alternatives are any available alternative that meets the project purpose and need. This section provides a detailed discussion of the project alternatives, including the No Action and Proposed Alternative, which meet the purpose and need and were considered for the Vernonia K-12 School project.

Following the 2007 flood, the Vernonia School Board decided to analyze the potential to repair or rebuild the schools at their existing location or to build a new school outside of the floodplain. In addition to their primary function, schools serve the community by providing a place for public gatherings and shelter in the event of a disaster. It is important for such a facility to be centrally located and easily accessible by various means of transportation to ensure its accessibility to all members of the community. With this in mind, the search was guided by the following series of desired site characteristics:

- Flat site with a slope of less than 10%
- Located outside of the 100-year floodplain
- No significant wetlands
- Larger than 26 acres
- Access to existing transportation and utility infrastructure
- Within a ½ mile of the City center and existing park and school facilities
- Compatible land use with an attractive setting

After developing a list of six potential sites, each site was evaluated against the desired site criteria. Based on the initial evaluation, the Knott Street Site and two sites south of the City limits did not meet the desired criteria and were removed from the list. Refer to Section 3.4 – Alternatives Considered but Dismissed for further details.

The Northwest Corner Site, Existing School Complex, and Boot Site were selected for further evaluation. The three remaining sites were evaluated based on the following additional criteria and their forecasted costs:

- Land use process
- Land acquisition
- Transportation
- Flood-proofing
- Insurance
- Site improvements
- Utilities
- Community function

- Building design and construction
- Other issues

In order to properly evaluate each site, the following technical studies were completed:

- Site and Building Analysis – This study evaluated the physical condition of the existing school buildings and determined the costs to bring the buildings up to code.
- Hydraulic Technical Report – This study determined whether Washington Grade School and Vernonia Middle School could be protected from future flooding through the construction of floodwalls around them. The report analyzed the downstream effects of such a structure.
- Utilities Cost Forecast – This study analyzed the method and cost for extending public utilities to each of the sites.
- Transportation Assessment – This report compared the two vacant sites and provided information on existing transportation infrastructure, factors associated with extending or improving roads, and the associated costs.
- School Siting Comparison Report – This report summarized the technical studies described above and included an evaluation of the other identified site selection criteria.

At the conclusion of the site evaluation, the siting committee recommended the Boot Site as the site which best met the needs of the school district. The Northwest Corner Site was second in preference. The existing school site was determined to be the least preferable option due to safety and cost reasons (Figure 3-1). Table 3.0-1 summarizes the determining factors considered during the siting analysis. These results have been oversimplified; please refer to the School Siting Comparison Report for more detailed information.

The siting report also took into consideration the costs for each site associated with the following: land acquisition, transportation improvements, building costs, flood proofing, utility infrastructure, insurance, and incidentals). The analysis included a least cost and preferable cost level which assumed differences in scope and quality. Figure 3-2 summarizes the comparative costs. Mitigation costs associated with natural resource impacts were not included in the cost comparison because at the time of the siting analysis the extent of the impacts were not known. An estimated cost for construction of the proposed compensatory wetland mitigation project is $500,000 (2010 Dollars, U.S.).

Figure 3-1: Project Alternatives

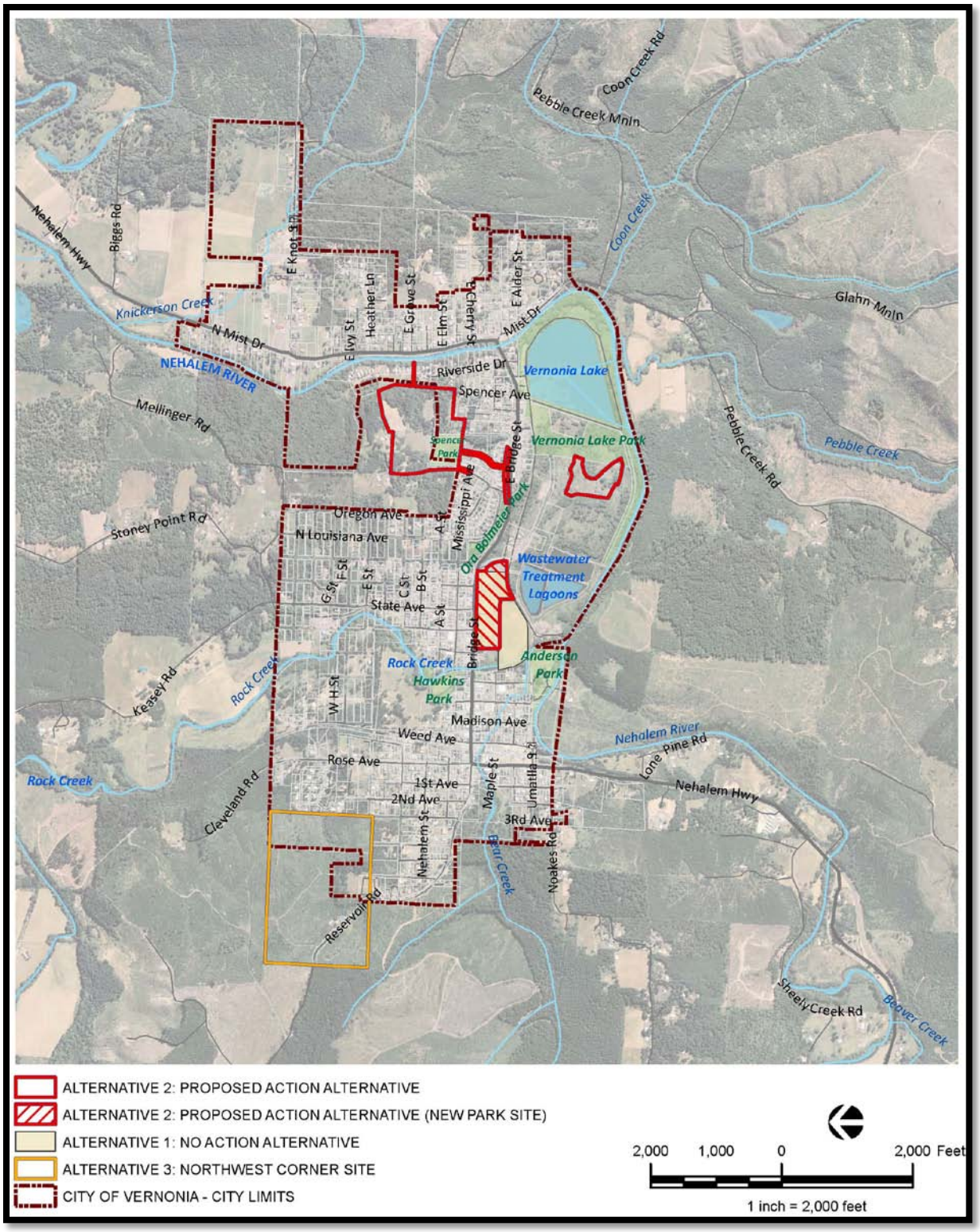
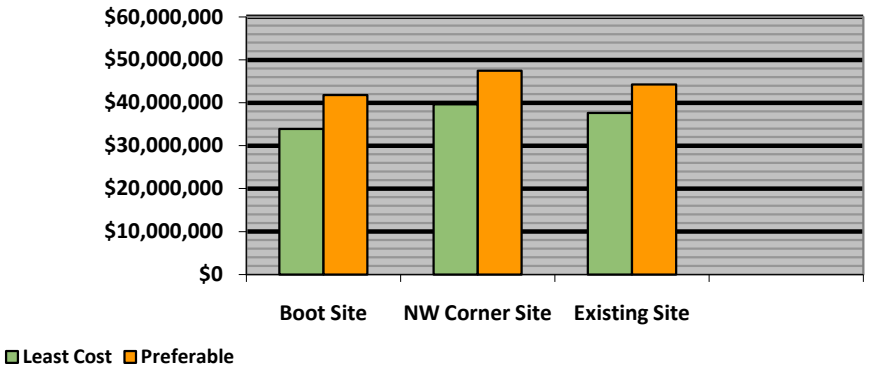


Table 3.0-1: Summary of School Siting Comparison Report

Task	Existing School Site	Northwest Corner Site	Boot Site (New School Site)
Bicycle & Pedestrian Access (relative ease of access)	Excellent	Poor	Good
Community Function (relative potential for the site to serve other community uses and around which future residential uses could be sited)	Excellent	Poor	Good
UGB Expansion (relative degree of difficulty of expanding the UGB to accommodate the school)	N/A	More difficult	Easier to justify
Ability to Insure (relative ease of acquiring insurance for the school facilities, not including cost)	Challenging	Typical	Typical
Ability to Acquire Land (relative ease of land acquisition, not including cost)	N/A	Easy (one owner)	Potentially challenging (multiple owners)
Site Improvements (relative degree of difficulty for improving site to accommodate school facilities)	Easy	Difficult	Difficult
Flood Mitigation (need for mitigating flooding and floodplain impacts)	Necessary	N/A	N/A

Figure 3-2: Comparative Costs of Alternatives



3.1 Alternative 1: No Action Alternative

NEPA requires the analysis of the “No Action Alternative,” against which the effects of the "Action Alternatives" can be evaluated and compared (Figure 3-1). Under the No Action Alternative, FEMA would not provide funding for the project, and the schools would continue to be operated out of a combination of the two remaining school buildings and modular buildings. Since the buildings are located within the 100-year floodplain, they would continue to be vulnerable to future flooding impacts including associated repair and recovery costs. Significant public safety risks would also persist for the Grade School in particular relative to its performance in a seismic event. Without FEMA assistance, the District could sponsor flood proofing and seismic retrofits to reduce its vulnerabilities to damage. Under this alternative, there would be no changes to Spencer Park.

The existing school campus is located between 199 and 299 Bridge Street. The 21-acre site is bounded on the north by Bridge Street, on the east by California Avenue, on the south by the Banks-Vernonia Trail, and on the east by Shay Park, Rock Creek, and an auto body shop. The site is located in the southwest quarter of Section 4, Township 4 North, Range 4 West of the Willamette Meridian in Columbia County, Oregon. The approximate center of the site is at latitude 45° 51' 27" north and longitude 123° 11' 17" west.

3.2 Alternative 2: Boot Site (Proposed Action)

Under the Proposed Action, FEMA would provide funding to acquire and demolish the existing school. Acquisition proceeds from the buy-out, coupled with other funding sources, would help build a new school outside of the floodplain. The existing school site would be transferred to the City of Vernonia, who would develop and maintain it as a park. The Proposed Action includes the demolition of the existing school buildings, construction of the new school, roadway improvements to Bridge Street and Missouri Avenue, removal of federal protection from Spencer Park, development of a new park to replace Spencer Park, and construction of a compensatory wetland mitigation project. These project elements and their locations are described in greater detail below.

The proposed new school site (referred to as the Boot Site in the Siting Comparison Study) was selected because it best meets the purpose and need of the project through provision of a safe environment for students, staff, and the community by relocating the schools outside of the 500-year floodplain. This move will eliminate the long-term risk of flood damage to the schools. The Boot Site also provides other desired site characteristics (discussed above) including a central location supportive of a community-centered school campus, access to existing utility and road infrastructure (extension will be easier and less costly than other sites), and ease of access for pedestrian and bicyclists.

a. Existing School Site

The current school campus is located along Bridge Street (Highway 47) between Grant Avenue on the west and California Avenue on the east. The school campus is bounded on the north by Bridge Street and residential uses, on the east by California Avenue and some forested land, on the south by the Banks-Vernonia Trail and the City's wastewater

treatment facility, and on the west by Rock Creek. The site is located within the 100-year floodplain of the Nehalem River and Rock Creek.

1. Existing School Site

The Washington Grade School, Vernonia Middle School, and the Vernonia High School gymnasium and cafeteria (the rest of the high school has been demolished), in addition to a number of modular buildings being used in lieu of the demolished high school building are present on the site. Other site improvements include parking lots, a covered basketball court, a play area, a softball field, grandstands, a concession/ restroom facility, maintenance shed, a wood shed, and an open field.

The Washington Grade School, Vernonia Middle School, the remainder of Vernonia High School, and all other structures present on the site (with the exception of the existing grandstands, restrooms, and the covered basketball court) would all be demolished as part of the proposed action. In addition, the temporary modular classrooms would be removed and all impervious surfaces eliminated. Consistent with FEMA's buyout requirements, the property would revert to open-space uses in perpetuity, which can include parks.

b. Boot Site

The Boot Site is located on the east side of Vernonia just west of the Nehalem River and north of Vernonia Lake at the northern terminus of Missouri and Texas Avenues. The site is within and just outside of the City of Vernonia's urban growth boundary (UGB) in Columbia County, Oregon. The portion of the property outside of the UGB was recently annexed into the City. The City approved the annexation on September 7, 2010.In June 2010, the Columbia County Department of Land Development Services responded favorably to the annexation and zone change request (Columbia County, 2010). The site is located in the northeast quarter of Section 4, Township 4 North, Range 5 West of the Willamette Meridian in Columbia County, Oregon. The center of the site is at latitude 45°51'36.7" north and longitude 123°10'44.4" west.

2. Spencer Park Looking Toward Boot Site

The site consists of mostly undeveloped land and Spencer Park, an existing City of Vernonia public park. Spencer Park is located in the southwest corner of the site and

includes a paved parking lot along the vacated Oklahoma Avenue right-of-way, a restroom facility, and sports fields. Forestland is primarily located in the northeast and northwest portion of the site with pastureland present in the center of the site north of Spencer Park. A residence, barn, and shop are located on the northwestern quadrant of the site.

The approximately 30-acre school site is bordered on the west by Texas Avenue and a forested residential neighborhood, on the south by the former Oklahoma Avenue and a residential neighborhood, by residences and forestland to the east, and by forestland to the north. Missouri and Texas Avenues, public roadways, provide access to the site from the south. Missouri Avenue is a local roadway with no sidewalks, curbs, or striped lanes. Missouri Avenue runs north/south and passes through a residential neighborhood prior to connecting with the vacated Oklahoma Avenue right-of-way at the southern edge of Spencer Park. This vacated right-of-way travels east/west along the southern edge of the school site, providing a connection between Missouri and Texas Avenues and diagonal parking spaces for people using Spencer Park. Texas Avenue runs parallel to Missouri Avenue and connects with the former Oklahoma Avenue at the southwestern corner of the school site. Like Missouri Avenue, Texas Avenues is a paved local road with no sidewalks, curbs, or striping.

3. Missouri Avenue Looking at the New School Site

The school site is situated on a hillslope and terrace above the Nehalem River. The site is located approximately 610 to 775 feet above mean sea level (AMSL) and is above the 500-year flood elevation of the Nehalem River. The site gradient slopes gently to the east-southeast towards the Nehalem River. Adjacent to Texas Avenue, the site slopes steeply upward towards the road. A waterway enters the northwest corner of the site through a culvert under Texas Avenue and then passes through another culvert before draining into a large wetland area occupying much of the open pasture in the middle of the property. This wetland area, as well as other wetlands present in the northeast section of the site, drain together and form a stream which flows east across the center of the school site. At the base of the hillslope along the eastern edge of the site, this unnamed tributary enters an approximately 285-foot-long, 8-inch-diameter culvert under Riverside Drive that discharges directly into the Nehalem River. Near the point where all the waters join in the center of the site, they flow through a small culvert beneath an access road. Plant communities at the school site include forested and pasture areas. Most of the pasture areas include wetlands.

Based on the 100% Design Development plans for the new school, the project would occupy approximately 23 acres at the new school site and would include the features listed below (BOORA, 2010). Selected site plans are included in Appendix B.

- 135,000 ft^2 K-12 school building
- 18,000 ft^2 outbuilding (district offices, science, woodshop, and art classrooms)
- 44,000 ft^2 parking lot
- Bus lane and drop-off circle
- Sidewalks
- Baseball and softball fields
- Football/track field
- Stormwater management facilities

A small strip adjacent to the southeast corner of the site will not be converted to educational uses and will be developed into a small neighborhood playground "tot lot" for younger children and maintained as a park by the City. All structures will be designed and constructed in accordance with the Oregon State Building Codes and appropriate seismic design and construction standards and practices.

The District elected to design the new school to at least meet the requirements of the U.S. Green Building Council's LEED (Leadership in Energy and Environmental Design) Silver Certification. The basis of this decision was because the District wanted to create a healthier and more productive learning environment, while also reducing long-term operating expenses. In general, a LEED-certified building is designed and built using strategies aimed at improving energy and water efficiency, reducing CO_2 emissions, improving indoor environmental quality, and providing stewardship of resources and sensitivity to their impacts. The LEED Scorecard completed for the proposed school is provided in Appendix C. As a community teaching facility, the new sustainable school will also provide powerful learning opportunities and curricula that link to emerging "green" economic opportunities for students and the larger community.

The new facility was sized to accommodate a minimum of 30 years of population growth and would have the capacity to educate up to 1,000 students. The new 135,000-square-foot building would provide integrated kindergarten through 12th grade facilities. The layout has been designed to minimize cross-traffic between the youngest and oldest students (www.vernoniaschools.org). The school would be a two-story structure and would include two gymnasiums, a climbing wall, computer and science labs, studios for art and shop instruction, a community garden, and a "living laboratory" for biology studies. Other site features include outdoor seating areas, outdoor classrooms, courtyard gardens, covered and uncovered play areas, covered bike parking, and a shed for the community garden.

Recreational facilities would be constructed on the north and east sides of the school buildings and would include a football/soccer field with a track, softball field, baseball field, and multi-use field. An 18,000-square-foot outbuilding would be constructed east of the school building and would be used for art, woodshop, and science classes, as well as housing school district offices.

Low-impact development principles have been incorporated into site design and stormwater treatment. The Site Plan has attempted to reduce the amount of impervious area on-site by placing parking areas towards the front of the site, limiting vehicle access within the site, and consolidating service facilities. Development of the school facilities would impact the wetlands present across the site.

In order to accommodate construction of the new school campus, existing buildings and structures currently present within the work limits will need to be demolished and removed including the following:

- Electric livestock fences throughout the site
- Chain-link fences located around the site (some will remain)
- Barn located in the northwest portion of the site
- Building located in the southeast corner of the site, east of Spencer Park
- French drain located along the northern and western edges of Spencer Park
- Dugouts and backstop at Spencer Park
- Asphalt /concrete pavement along the vacated Oklahoma Avenue right-of-way (parking area for Spencer Park), including paved trail providing access to the baseball/softball field
- Catch basins and storm drain lines in the former Oklahoma Avenue
- Storm drain lines and culverts located in the center of the site

c. Transportation Improvements

Roadway improvements would occur along Bridge Street and Missouri Avenue. Bridge Street improvements would occur from Texas Avenue to approximately 300 feet east of Missouri Avenue. Missouri Avenue improvements would occur along the entire length of the street. Transportation improvements will likely include the following:

<u>Bridge Street</u>

- 6-foot-wide concrete sidewalks and curbs
- 10-foot-wide concrete sidewalks and curbs on the south side of Bridge Street from Texas Avenue to Missouri Avenue
- 6-foot-wide asphalt paved shoulder/bike lane

- ADA ramps at all intersections and driveways from Texas Avenue to Missouri Avenue
- 12-foot-wide travel lanes
- 14-foot-wide, left-turn lane for Missouri Avenue
- Crosswalk providing access across Missouri Avenue on the south side of Bridge Street
- Crosswalk providing access across Bridge Street on the east side of Missouri Avenue
- Relocation of power and utility lines underground

<u>Missouri Avenue</u>

- Curb and gutter along both sides with tapering at driveway entrances
- Parallel parking along western side of street
- 10-foot-wide concrete sidewalk along eastern side of street
- 5-foot-wide planter strip between sidewalk and curb/gutter
- Paved road and underground stormwater runoff system
- Relocation of power and utility lines underground
- ADA ramps with detectable warning system and crosswalk at intersection of Alabama Avenue

d. Compensatory Wetland Mitigation Site

Compensatory wetland mitigation is proposed within the existing City of Vernonia-owned historic mill site, located approximately 0.4 mile southwest of the Boot Site, west of Vernonia Lake and east of the City's wastewater treatment lagoons. The site is located south of Bridge Street/OR 47 between the Nehalem River and California Avenue. The site is located in the southeast quarter of Section 4, Township 4 North, Range 4 West of the Willamette Meridian, Columbia County, Oregon. The center of the site is at latitude 45°51'13.4" north and longitude 123°10'45.6" west.

4. Mitigation Site

The site includes an undeveloped City park which consists of a bicycle skills park and trails. The site is bounded by private residences and forestland on the north, a public trail and Vernonia Lake on the east, forest and shrubland and the City's wastewater treatment lagoons to the west, and the Nehalem River and Banks-Vernonia Trail to the south.

The site is located on an alluvial floodplain terrace above the Nehalem River, is 613 to 615 feet AMSL, and is located within the 100-year flood plain of the Nehalem River. The site slopes gently to the east towards Vernonia Lake and south towards the Nehalem River. Three artificial ditches cross the site and drain several wetlands prior to discharging to the Nehalem River. Plant communities at the mitigation site include forested, shrub, and wetland areas.

Compensatory wetland mitigation for impacts associated with the proposed site development would be provided by creating a 5.84-acre wetland and 2.04 acres of buffer at the proposed mitigation site, resulting in a 7.51-acre wetland complex at the proposed mitigation site. The goal of the mitigation project is to offset the loss of aquatic ecosystem function and values when 3.74 acres of degraded wetland and 0.01 acre of intermittent stream are permanently lost as a result of the proposed action. Primary wetland hydrology will be provided by groundwater, with secondary hydrologic inputs from direct precipitation and up-gradient run-off.

e. New Park Site

Once removal of the existing site improvements has been completed, a new park would be constructed on an 11.82-acre portion of the existing school campus. The NPS requires the replacement park to replace the financial value and recreational utility of Spencer Park. A conceptual park design (Appendix B) was initiated with the desire to replace the recreational opportunities currently available at Spencer Park and to avoid impacts to the wetland located along the southern boundary in the center of the site. The new park would occupy 11.82 acres and, based on a conceptual plan, would include the following new facilities:

- Full-size baseball/softball field
- Two soccer fields (195x330 feet; 165x300 feet)
- Two parking areas for park users
- Restroom facility (20x20 feet)
- Children's play area (75x100 feet)
- Path system within the park
- Stormwater management facilities
- Irrigation system for all playfields

5. Site of Proposed Tot Lot

In addition, the existing covered basketball facility, grandstands, and children's play area will be retained for use in the new park, as approved by FEMA. Park facilities will be required to comply with FEMA's buy-out open-space requirements, a condition of the grant, which means that no impervious surfaces will be allowed within the park. FEMA

has agreed to allow the existing covered basketball court and grandstands to remain, and a restroom facility to be constructed at the new park.

3.3 Alternative 3: Northwest Corner Site

The Northwest Corner Site encompasses the northwest corner of the city limits and includes the adjacent area within the urban growth boundary. A 20-acre portion of the NW Corner Site (owned by the City of Vernonia) is located within both the City limits and UGB. The remaining 50 acres of City-owned land are outside of both the City limits and the UGB. The site is located atop a hill, above the 500-year flood plain, and is accessed via a dirt road (Reservoir Road), which provides access to a water reservoir located north of the site and a cemetery located in the south-central portion of the site. The cemetery would be excluded from the area required for school development. Site terrain is sloped and partially forested. The Northwest Corner Site has been previously logged and replanted. The site is over-grown with shrub species.

6. NW Corner Site, Forested Area

The site is currently owned by the City, and the proposed action would require the District to purchase the property. Construction at the Northwest Corner Site would involve a UGB expansion, site acquisition, major improvements to the transportation system, extension of utilities to the site, and construction of the new school. Additional resources and engineering studies would be required for this location. School facilities and design would be similar to those described under the proposed action but configured differently to fit the Northwest Corner Site.

7. NW Corner Site Southern Clearing

There is a drainage which runs along the east-central edge of the property and partially hydric soils are mapped across the site. A wetland delineation, and potentially a Wetland Mitigation Plan, will be required for development at this site. If stormwater from the site will be discharged to Rock Creek, a Biological Assessment will be required to evaluate the impacts of the stormwater on the threatened or endangered fish species present in the stream.

Under Alternative 3, FEMA would also provide funding to acquire and demolish the existing schools. Acquisition proceeds from the buy-out would help build a new school outside of the floodplain at the Northwest Corner Site. The existing school site would be required to be converted to open-space uses. All structures at the site would be required to be demolished and removed. There would be no change to Spencer Park under this alternative.

3.4 Alternatives Considered and Dismissed

a. Existing School Campus

Remaining at the existing school site would require constructing a new high school, flood-proofing the middle and elementary schools, and seismically upgrading the elementary school. All of the buildings would need to be flood-proofed and/or raised to 1-foot above the flood of record, as required by the City of Vernonia.

This alternative was rejected due to safety and financial reasons. The site's primary limitation is its location within the floodplain which renders it inaccessible during a flood event. While flood-proofed buildings would be protected under this alternative, access to and from the buildings would be restricted during certain flood events and clean up and repairs would still be required. This would disrupt school operations and would not allow the school to be utilized as a community emergency facility during flood events. In addition, the insurance costs associated with the current site would be substantial. Finally, it would be expensive to flood-proof each of the buildings and upgrade them to ensure that they meet the current seismic codes.

Washington Grade School, specifically, is an old building constructed in 1930 and, even after upgrades and repairs, would be costly to operate and maintain. Previously completed structural evaluations of Washington Grade School identified a series of structural deficiencies. The building is constructed with unreinforced masonry/brick; identified as extremely hazardous in terms of seismic risk. In 2006, the Oregon Department of Geology and Mineral Resources, as part of a Seismic Needs Assessment, rated the school as having a very high collapse potential during an earthquake.

b. Knott Street Site

The Knott Street Site is located in the northeast corner of the City. This site was dismissed from further consideration because it is not centrally located and pedestrian or bicycle access to the site would require students to use Highway 47. Construction at the site would require development of a new water reservoir to serve the school, construction of a new street over a salmon-bearing stream, and would result in wetland impacts. Finally, the property is zoned "Light Industrial" and is the only practical location for light industry within the City. This property was added to the urban growth boundary (UGB) in 1996 specifically for light industrial use.

c. Two Sites South of the City, Outside City Limits

These two sites were eliminated from consideration because they did not meet one or more of the preferred site characteristics. Specifically, the sites were not centrally located or easily accessible.

4.0 AFFECTED ENVIRONMENT & POTENTIAL IMPACTS

In this section, for each resource/area of concern the following is provided: a description of the physical setting and information on the existing conditions, a discussion of the relevant law or Executive Order or other requirement that may be triggered by the project, an evaluation of any short or long-term impacts on the resource/area of concern, the identification of any mitigation measures or best management practices (BMPs) that will be implemented to reduce or avoid impacts, and, where applicable, a summary of coordination with regulatory agencies responsible for the management of the particular resource/area of concern. Table 4.0-1 summarizes the potential impacts of each of the Alternatives presented in Section 3.0 – Alternatives. When possible, quantitative information is provided in each section to support the impact determination. Qualitatively, impacts were measured as follows:

None/Negligible: The resource area would not be affected, or changes would be either non-detectable or if detected, would have effects that would be slight and local. Impacts would be well below regulatory standards, as applicable.

Minor: Changes to the resource would be measurable, although the changes would be small and localized. Impacts would be within or below regulatory standards, as applicable. Mitigation measures would reduce any potential adverse effects.

Moderate: Changes to the resource would be measurable and have both localized and regional scale impacts. Impacts would be within or below regulatory standards, but historical conditions are being altered on a short-term basis. Mitigation measures would be necessary and the measures would reduce any potential adverse effects.

Major: Changes would be readily measurable and would have substantial consequences on a local and regional level. Impacts would exceed regulatory standards. Mitigation measures to offset the adverse effects would be required to reduce impacts, though long-term changes to the resource would be expected.

Table 4.0-1: Summary of Potential Impacts

AFFECTED ENVIRONMENT		IMPACTS	MITIGATION MEASURES/BMPs
Land Use	Alternative 1	**None.** Existing land uses would remain unaltered.	None required.
	Alternative 2	**Moderate.** A number of localized land use and zoning changes are required.	Project will abide by all applicable local, state, and federal regulation and land use approvals.
	Alternative 3	**Moderate.** See Alternative 2.	See Alternative 2.
Geology, Soils & Seismicity	Alternative 1	**None.** No site development. No agricultural uses exist at the site. Washington Grade School would continue to be a seismic risk.	None required.
	Alternative 2	**Minor**. Some disturbance as part of site development. In general, effects to geology and soils would be minor and temporary. The site is not being actively used for agriculture and is not zoned for agricultural uses.	– BMPs for erosion control during construction – Building constructed to meet seismicity standards
	Alternative 3	**Minor.** See Alternative 2. No agricultural uses exist at the site.	See Alternative 2.
Air Quality	Alternative 1	**None.** No site development will occur.	None required.
	Alternative 2	**Negligible.** Short and long-term impacts associated with construction and operation of the project would be minimal and would not represent a significant impact to air quality.	– BMPs for dust control – Equipment to meet Federal Clean Air standards – LEED Silver Standard – Asbestos abatement prior to demolition
	Alternative 3	**Negligible.** See Alternative 2.	See Alternative 2.
Climate Change	Alternative 1	**None.** No alteration to existing site conditions.	None.
	Alternative 2	**Negligible.**	LEED Design
	Alternative 3	**Minor.** Remote location and need for additional site clearing has potential for increased impact.	LEED Design
Water Resources	Alternative 1	**None.** No site development will occur.	None required.
	Alternative 2	**Negligible.** Combination of BMPs, low impact development techniques, the stormwater	– Erosion & sediment control BMPs

AFFECTED ENVIRONMENT		IMPACTS	MITIGATION MEASURES/BMPs
		management system, and decrease of impervious surfaces in floodplain will result in negligible impacts.	
	Alternative 3	**Negligible.** See Alternative 2.	See Alternative 2.
Wetlands	Alternative 1	**None.** No site development will occur.	None required.
	Alternative 2	**Minor**. There will be unavoidable impacts to 3.79 acres of wetlands at the Boot Site.	Construction of a compensatory wetland mitigation project will occur concurrently to project development.
	Alternative 3	**Minor.** Wetland presence is unknown; however, any wetlands could be avoided or mitigated as with Alternative 2.	A compensatory wetland mitigation project will be developed to mitigate for any wetland impacts.
Floodplains	Alternative 1	**Moderate.** Continued risk of adverse impacts from flood events.	None required.
	Alternative 2	**Moderate.** Positive impact on floodplain through removal of fill material, structures, and impervious surfaces.	Open-space use restrictions for park improvements.
	Alternative 3	**Moderate.** See Alternative 2	None.
Coastal Resources	Alternative 1	**None.** Existing land uses would remain unaltered.	None required.
	Alternative 2	**None.** Project is consistent with the comprehensive plan and land use regulations of the City of Vernonia.	A Coastal Zone Consistency Determination has been received from the Department of Land Conservation & Development
	Alternative 3	**None.** See Alternative 2.	See Alternative 2.
Vegetation	Alternative 1	**Minor**. Invasive plant species present at the site would remain and could potentially spread.	None required.
	Alternative 2	**Minor.** Development will result in removal of vegetation and trees.	– Removal of noxious weeds – Use of native species – Tree planting
	Alternative 3	**Minor.** Significant tree and shrub removal would be required for development.	See Alternative 2.

AFFECTED ENVIRONMENT		IMPACTS	MITIGATION MEASURES/BMPs
Fish & Wildlife Threatened & Endangered Species	Alternative 1	**None**. No change in existing conditions.	None.
	Alternative 2	**Minor.** Combination of beneficial (invasive species removal) and potentially adverse (site clearing) activities.	– Site clearing prior to migratory bird nesting season – Construction BMPs – Invasive species removal – Use of native species – Abide by in-water work window, when applicable
	Alternative 3	**Minor.** See Alternative 2.	See Alternative 2.
Cultural Resources	Alternative 1	**None.**	None required.
	Alternative 2	**Moderate.** The demolition of Washington Grade School, historic property, is an adverse effect.	– Recordation, salvage and reuse Arts & Crafts tiles and Craftsman style built-in bleachers. – Reuse cast bronze dedication plaque to cast new plaque for new school. – Installation of exhibit at New School.
	Alternative 3	**Moderate.** See Alternative 2.	See Alternative 2.
Environmental Justice	Alternative 1	**None.** No change to existing conditions would occur.	None required.
	Alternative 2	**None**. No minority or low-income populations are present in the project area.	None required.
	Alternative 3	**None.** See Alternative 2.	See Alternative 2.
Noise	Alternative 1	**None.** No change in existing noise levels will occur.	None.
	Alternative 2	**Minor.** Increased traffic noise for residents along Missouri Ave.	Construction BMPs for noise control. Much of the school traffic will be during the limited daytime hours.
	Alternative 3	**Minor to Moderate.** Increased noise on rural area due to increased traffic and school.	See Alternative 2.
Traffic & Transportation	Alternative 1	**None.** No alteration to existing traffic patterns or transportation systems will occur.	None required.

AFFECTED ENVIRONMENT		IMPACTS	MITIGATION MEASURES/BMPs
	Alternative 2	**Moderate.** Increased traffic along Missouri Ave will impact existing traffic patterns.	Street improvements, including but not limited to, sidewalks, bike lanes, left-turn lane, and cross-walks. Flashing lights and crossing guards will be provided at the Bridge Street/ Missouri Avenue cross-walk.
	Alternative 3	**Moderate.** Increased traffic along school access roads and increased area of roadway improvements.	None.
Utilities	Alternative 1	**None.** No change to utility services would be required.	None required.
	Alternative 2	**Minor.** Services are being transferred to a new location. Energy saving design features could result in minor positive impacts on energy demand.	LEED Silver Certification includes series of energy saving measures
	Alternative 3	**Minor.** See Alternative 2. Added impact to surrounding area due to need for construction of new pump station and water tank.	See Alternative 2.
Public Health & Safety	Alternative 1	**Minor to Major**. There would continue to be potential adverse effects from flooding, seismic events, and presence of asbestos containing materials and lead-base paint.	None required.
	Alternative 2	**Moderate.** There will be positive effects to public health and safety as a result of risks being either eliminated or significantly reduced.	– All construction activities would be performed using qualified personnel and in accordance with the standards specified in OSHA regulations – The new school will be designed and constructed in accordance with appropriate seismic design and construction standards and practices.
	Alternative 3	**Moderate.** See Alternative 2.	See Alternative 2.

AFFECTED ENVIRONMENT		IMPACTS	MITIGATION MEASURES/BMPs
Parks & Recreation (6(f) Resources)	Alternative 1	**None.** No 6(f) resources will be impacted.	None required.
	Alternative 2	**Moderate**. Spencer Park will be converted to a non-recreational use.	New Spencer Park will be developed as a replacement park. The new park will be of equal fair market and recreational value.
	Alternative 3	**None.** No 6(f) resources will be impacted.	None required.

Land Use

4.1 Land Use

The affected environments for the proposed alternatives include land within the City of Vernonia and its Urban Growth Boundary (UGB). The policies and regulations affecting the area include comprehensive land use plans, zoning and other relevant development ordinances. The State of Oregon requires that local comprehensive plans be consistent with the Statewide Planning goals. This section describes existing land use plans, policies, and regulations applicable to the alternatives presented. Existing land uses in the vicinity are also described.

4.1.1 Affected Environment

4.1.1.1 Alternative 1: No Action Alternative

The existing school campus is inside the City limits and is zoned General Residential. The area around the school campus is primarily zoned General Residential with some Light Industrial, Public Recreation, and General Commercial property. The intent of the General Residential zone is to provide for housing opportunities and related neighborhood uses within close proximity to the community services in the Downtown Zone. The General Commercial zone is intended to provide for a broad range of commercial operations and services. The site is currently used for educational purposes as a grade school, middle school, and high school; as well as associated for recreational uses.

4.1.1.2 Alternative 2: Boot Site (Proposed Alternative)

The new school site is located within and just outside the City's UGB. Land uses at the site consist of an existing city park (Spencer Park), pastureland, forestland, residences, and public roadways (Missouri Avenue, Texas Avenue, Bridge Street). Spencer Park is zoned as Public Recreation and the surrounding areas are zoned residential or low-density residential. Along Bridge Street, there are areas which are zoned Public Recreation (Ora Bolmeier Park) and General Commercial.

The new park will be developed on a portion of the existing school campus; adjacent uses are as described above.

The wetland mitigation site is located within Vernonia's UGB and Vernonia Lake Park. Existing land uses near the site include open space and a primarily undeveloped City park consisting of a bicycle skills park and trails. The proposed mitigation site is not located in the area of the skills park. The site is bounded by the Nehalem River on the south; a public trail, forestland, and shrubland to the west; private residences and forestland to the north; and Vernonia Lake and a public trail to the east. The site is zoned Low Density Residential and General Commercial. Low Density Residential zones are intended to provide a transition between areas of higher density and rural areas of the County.

4.1.1.3 Alternative 3: Northwest Corner Site

A 20-acre portion of the Northwest Corner Site is located within the City limits and the UGB of the City of Vernonia while the remaining 50 acres are outside of both boundaries. The entire site is subject to Columbia County zoning. The site and surrounding land within Columbia County is zoned for forestry uses. The site is currently undeveloped property on a steep, partially forested lot. Property surrounding the site, within the City limits, is zoned Residential (City of Vernonia, 2009).

4.1.2 Consequences of Alternatives

4.1.2.1 Alternative 1: No Action Alternative

Under the No Action Alternative, all existing land uses, which are compatible, would remain unaltered. No conflicts would arise with any existing local, state, or federal land use plans or regulations.

4.1.2.2 Alternative 2: Boot Site (Proposed Action)

The proposed project would be consistent with the City of Vernonia's zoning code designations and development standards that implement the Comprehensive Plan. Compliance will be assured during the permitting phase of the project. Because a portion of the proposed site is outside the UGB, the following land use actions were required: annexation of tax lots, zone changes, and a lot line adjustment. Construction of the project will require a conditional use approval and development permit from the City of Vernonia.

Three of the tax lot parcels (Lots 100, 300, 400) that make up the new school site were proposed for annexation into the City (Appendix D). One of these lots is currently owed by the District (Lot 300). The application for annexation was submitted to the City of Vernonia and was reviewed under a Type IV process; requiring review and approval by the Planning Commission and the City Council. The owners of each of the lots proposed for annexation signed consent to annex forms in support of the application.

Following annexation, seven (7) tax lot parcels required rezoning from their current designation to Institutional Public (Appendix D). Three of the tax lot parcels were zoned Community Service (Columbia County zoning), two parcels are zoned Residential, and Spencer Park will be rezoned from Public Recreation. All uses within an Institutional Public zone are reviewed by the City of Vernonia as a Conditional Use.

The Planning Commission held a public hearing on both the annexation and zone change applications on July 15, 2010, recommending approval to the Vernonia City Council. The City Council held a public hearing on July 19, 2010, concerning the two applications and approved both. On August 24, 2010, the Vernonia Planning Commission approved the Conditional Use and Site Development permit for construction of the new school and roadway improvements, subject to a series of conditions (Appendix D). In June 2010, the Columbia County Department of Land Development Services responded favorably to the annexation and zone change request (Columbia County, 2010).

The current school campus is zoned as General Residential. This site will be converted to a public recreational use with the development of New Spencer Park, and will require a zone amendment to Public Recreation. Public parks are not an approved use within the General Residential zone. The rezoning of the existing school site will occur after construction of the new school is complete and the existing school structures have been demolished.

Construction of the wetland mitigation site at the proposed location will complement the existing open space and park uses. Construction of a wetland mitigation site on the undeveloped park land will not impact existing land uses on or surrounding the site.

Although Alternative 2 requires a number of land use and zoning changes, these are localized, compatible with existing adjacent land uses; and thus are considered a moderate effect on local land use patterns. Potential indirect and cumulative effects from changes in land use are discussed in Section 5 – Cumulative Effects.

4.1.2.3 Alternative 3: Northwest Corner Site

Development of the Northwest Corner Site would require the annexation of land into the City limits. The UGB expansion required at the Northwest Corner site would likely be limited to the area necessary to accommodate the school campus. As such, the potential for significant, adjacent residential development would be limited (Oregon Solutions, 2009). Once annexed, the affected tax lots would require rezoning from their current designation to Institutional Public. Use of the Northwest Corner Site would require the conversion of forest land to educational uses.

Although Alternative 3 requires a number of land use and zoning changes, these would also be localized, compatible with existing adjacent land uses; and thus would be considered a moderate effect on local land use patterns. Potential indirect and cumulative effects from changes in land use are discussed in Section 5 – Cumulative Effects.

Physical Resources

4.2 Geology, Soils, & Seismicity

This section provides an overview of Vernonia's geologic setting including topography and soils. Also, Executive Order (EO) 12699 (Seismic Safety of Federal and Federally Assisted or Regulated New Building Construction) requires seismic safety to be considered for all new buildings receiving federal assistance.

With the intent to minimize urban sprawl, in 1981 Congress passed the Farmland Protection Policy Act (7 U.S.C. 4201 et seq.) (FPPA). Farmland as defined in the FPPA includes prime farmland, unique farmland, and land of statewide or local importance. To be subject to the FPPA, farmland does not need to be currently used for cropland. Farmland covered by the FPPA is determined by the United States Department of Agriculture Natural Resources Conservation Service (NRCS) and state or local agencies. The FPPA states that federal agencies must minimize the extent to which federal programs contribute to the unnecessary conversion of farmland to nonagricultural uses.

Prime farmland is defined as land with the best combination of physical and chemical characteristics for producing agricultural crops with minimum inputs and without intolerable soil erosion. Prime farmland includes land with these characteristics currently being used to produce livestock and timber. It does not include land already in or committed to urban development or water storage (7 U.S.C. 4201(c)(1)(A)). Unique farmland is defined as land other than prime farmland with the special combination of soil quality, location, growing season, and moisture supply needed to economically produce sustained high quality or high yields of specific crops when treated and managed according to acceptable farming methods (7 U.S.C. 4201(c)(1)(B)).

4.2.1 Affected Environment

Vernonia is located in the northern Coast Range Mountains of western Oregon. According to published geologic mapping (Newton, 1976), bedrock in the site vicinity consists of middle Oligocene to lower Miocene age sandstones and siltstone including the Scappoose Formation and the Pittsburg Bluff Formation. This unit underlies the area up to 200 feet in depth (from the surface). Below the Scappoose and Pittsburg Bluff Formations is the upper Eocene-lower Oligocene Keasey Formation which consists of mudstones with lesser amounts of micaceous sandstones, siltstones and shale. This assemblage of sediments is over 1,500 feet thick. The surface Kenusky silty clay loam mantles the bedrock, which is described by the Natural Resources Conservation Service soil map of Columbia County as poorly drained soils that occur on flat to moderate slopes (0 to 15 degree). The surface soils and upper Scappoose Formation were encountered in the exploration conducted as part of a geotechnical site investigation (described below). The Northwest Corner Site (Alternative 3) is in the same geologic setting but is underlain by the Keasey Formation.

A geotechnical investigation report was prepared for the Boot Site by PSI on October 22, 2009. Soils described in the report consist of approximately 2.5 feet of silt fill. The fill is underlain by

medium-stiff to stiff, silt and clay. Below this, medium-dense, gravely sand with clay was encountered in the borings from approximately 4 feet below ground the surface (bgs) in the southeast corner of the site to 15 feet bgs in the northwest corner (Site Layout; PSI, 2009). Soft to moderately hard, siltstone bedrock was encountered below the gravely sand unit to the depth of the explorations.

The City of Vernonia and surrounding areas lie within the seismically active Ring of Fire[1]. Historical seismic events have been related to three sources: the consumption of the Juan de Fuca plate between the Cascadia Subduction Zone and the North American plate; intraslab faults within the Juan de Fuca plate, and crustal faults in the North American plate. A number of significant earthquakes have occurred in Oregon and southwest Washington which may have been felt in Vernonia. In addition to these (Table 4.2-1), the Pacific Northwest Seismic Network reports there have been approximately 38 earthquakes in the northwest corner of Oregon with a magnitudes between 2.0 and 4.5 (in general, humans can feel earthquakes which are 2.3 or greater in magnitude). Not all of these would have been felt in Vernonia; however, they provide an idea of the magnitude of earthquakes in the region. Vernonia residents reported waking up to the Scotts Mills earthquake in the early morning (Personal Communication, Dan Brown, August 26, 2010). The District's maintenance supervisor reports evidence of minor cracking in the Grade School which may have been a result of either earthquake damage or settling of the building (Personal Communication, Ken Cox, 2010). No major damage has occurred to the building.

Table 4.2-1: Significant Earthquakes

Date	Magnitude	Location	Distance from Vernonia
February 28, 2001	6.8	Nisqually, Washington	120 miles north
March 25, 1993	5.6	Scotts Mills, Oregon	80 miles southeast
November 5, 1962	5.2	Vancouver, Washington	50 miles southeast
April 13, 1949	7.1	Olympia, Washington	100 miles north

The Washington Grade School has been the subject of two structural assessments and reports as well as a Seismic Needs Assessment by the Oregon Department of Geology and Mineral Industries (DOGAMI). In 2005, Senate Bill 2 directed DOGAMI to conduct a statewide seismic needs assessment of education and emergency facilities. The Vernonia Schools were assessed in accordance with FEMA's handbook, Rapid Visual Screening of Buildings for Potential Seismic Hazards. The DOGAMI assessment evaluated five key parameters to determine the relative seismic risk of a building (seismic zone, building structural type, building irregularities, construction date, and soil type) and to estimate the collapse potential for each building inspected. A rapid visual screening (RSV) value was calculated for each school. Buildings with scores less than 0.0 were considered to have a very high potential for collapse; 0.1-1.0 – high potential; 1.1-2.0 – moderate potential; and, greater than 2.0 has a low potential. Washington Grade School received a RSV score of -0.3 which implies a very high potential for collapse

[1] The Ring of Fire is an area where large numbers of earthquakes and volcanic eruptions occur in the basin of the Pacific Ocean.

(100%), while Vernonia High School has a high potential (>10%) with a RSV score of 0.9 and the Vernonia Middle School has a low potential (< 1%).[2] In addition, two structural evaluations were completed in 2001/2002 to assist in planning and remodeling decisions for the grade school through the identification of areas of potential deficiency in the buildings' structure relative to seismic and life safety risks. The exterior walls at the grade school are unreinforced masonry/brick (URM). The structural assessments documented a series of identified structural deficiencies including a lack of load transfer mechanisms, excessive shear stresses in existing lateral elements, and a lack of a complete load path to the foundations (WDY, 2001; Nishkian Dean, 2002).

Historically, the proposed new school site was used for pasture and timber harvesting with residences developed adjacent to the property. Some of areas of the site were wooded. Much of the site remains in similar uses except for a small area that has been developed for park land (Spencer Park). A Farm Classification map created using the NRCS Web Soil Survey identifies areas of prime farmland east, south, and west of the site but not existing at the proposed location. The proposed new school site is located within the urbanized area of Vernonia and therefore, the FPPA does not apply.

The proposed wetlands mitigation site is located approximately 0.4 miles south of the proposed new school site, adjacent to the west side of Vernonia Lake, and east of the City's wastewater treatment lagoons. Historically, the site was part of the Oregon-American Lumber Company mill. A Farm Classification map created using the NRCS Web Soil Survey identifies the proposed mitigation site as being within an area designated as farmland of statewide significance.

There are no agricultural uses or designations at the new Spencer Park site, since it is currently being used as a school campus within Vernonia's urbanized area.

The Northwest Corner Site has steeper slopes and timber lands. The site has been logged and replanted relatively recently. There are no agricultural uses at the site. The NRCS Farm Classification map created for the site shows the entire site as "not prime farmland."

4.2.2 Consequences of Alternatives

4.2.2.1 Alternative 1: No Action Alternative

Under the No Action Alternative, there would be no construction or ground disturbing activities; therefore, there would be no effects on the soils or geology of the area. The Washington Grade School would continue to be considered a seismic hazard. The 2001 Seismic Audit of the school concluded the grade school has structural deficiencies which would perform poorly in seismic events and would likely cause partial or total building collapse, unless retrofits were implemented (WDY, 2001). URM buildings are considered to be the most hazardous in terms of seismic risk (Nishkian Dean, 2002). Thus, the potential adverse consequences to public health and safety, including injury and loss of

[2] The collapse potential relates to the probability that the building will collapse if the maximum earthquake event considered likely in a reasonable amount of time (as determined by historical geological records) occurs, as determined by the U.S. Geological Survey.

life, in a significant seismic event are major. The size of a seismic event depends on the magnitude of the earthquake, the distance from the epicenter, and the intensity of the earthquake (groundshaking at a particular site). Vernonia is surrounded by faults which can produce earthquakes of felt magnitude and is therefore at risk for significant seismic events.

The site is currently in use as a school campus and within Vernonia's urbanized area; thus, no impacts to farmland would occur.

4.2.2.2 Alternative 2: Boot Site (Proposed Action)

A Geotechnical Engineering Evaluation was conducted at the new school site to evaluate subsurface conditions at the site and determine the suitability of the site for the planned improvements (PSI, 2009). The evaluation included design and construction recommendations and concluded that the site would be suitable for construction of the proposed improvements. The evaluation presents a series of recommendations for site preparation based on key geotechnical considerations identified during the site evaluation. The evaluation also presents seismic design parameters for the project site due to the potential earthquake-induced ground motion from known sources.

Site development at the proposed new school, new Spencer Park, and wetland mitigation sites would cause some disturbance of the shallow soils and near-surface geology as part of site preparation. All of these sites are relatively flat and would require minimum grading during construction. Best management practices will be implemented to prevent soils from eroding and dispersing off-site during construction. An Erosion and Sediment Control Plan, in conformance with applicable state and local regulations, will be developed for the site. The contractor, design engineer, and architect would, as required by EO 12699, follow appropriate seismic design and construction standards and practices for the new school. Thus public health and safety risks from seismic events would be significantly reduced. Washington Grade School would be demolished as part of the proposed action, thereby eliminating the existing seismic risk. In general, the Proposed Action would have minor adverse impacts to the geology and soils at the site locations, and will not be adversely affected by the locations' soil conditions.

Currently, the area designated as farmland of statewide significance is not used or zoned for agricultural uses and the project sites are within the Vernonia's urbanized area. The Farm Service Agency (FSA) Oregon State Office and the NRCS Columbia County Service Center were contacted to determine whether the proposed project would require their review or approval because of impacts to land designated as farmland of statewide significance. It was determined that neither FSA nor NRCS have a review/approval role because there is no commodity crop being annually planted on the land and because the sites are not currently zoned for agriculture (Stinnett, 2010). Thus, Alternative 2 would have no impact to farmland.

4.2.2.3 Alternative 3: Northwest Corner Site

Impacts to geology and soils at the Northwest Corner Site would closely resemble Alternative 2 impacts with one main exception: the Northwest Corner Site has steeper slopes than those present at the Boot Site. The increased slopes would require an increase in cuts and fills and would ultimately have a greater impact on the geology and soils. It would also be necessary to have a detailed site-specific geotechnical investigation for the Northwest Corner Site. Nonetheless, adverse impacts to geology and soils from this alternative would still be expected to be minor, and risks from seismic events would be as described for Alternative 2.

The site is does not have any designated farmland on it and is not currently being used for agricultural; therefore, no impacts to farmland will occur.

4.3 Air Quality

The Clean Air Act requires the Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) for pollutants determined to be harmful to public health and the environment. The Clean Air Act established two types of NAAQS: primary standards set limits to protect public health including "sensitive" populations (e.g., asthmatics, children, the elderly); and secondary standards set limits to protect public welfare. NAAQS have been established for six principle or criteria pollutants: sulfur dioxide (SO_2), carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), lead (Pb), and particulate matter with a diameter less than or equal to 10 micrometers (PM_{10}).

Any areas with pollutant levels meeting NAAQS are referred to as “attainment areas.” These areas are monitored regularly for compliance. Any areas that do not meet NAAQS are called “non-attainment areas.” Those areas that were previously non-attainment areas but are now meeting NAAQS are referred to as “maintenance areas.”

Columbia County, including the City of Vernonia, is located within an attainment area. The EPA developed the Air Quality Index (AQI) as a nationwide reporting standard for the criteria pollutants. The EPA AQI Report for Columbia County reports zero days in 2008 when the air quality was rated as unhealthy for public health or for sensitive populations (EPA, 2008).

4.3.1 Consequences of Alternatives

4.3.1.1 Alternative 1: No Action Alternative

Under the No Action Alternative, there would be no site development and, therefore, no changes to current air quality conditions. Traffic accessing the site will remain the same or increase slightly if the student body grows.

4.3.1.2 Alternative 2: Boot Site (Proposed Action)

Implementation of Alternative 2 would have localized temporary adverse impacts to air quality during construction. Construction activities at the Boot Site, the wetland mitigation site, and the existing school/new Spencer Park site could increase fugitive dust during site grading due to removal of vegetation and soils exposure. Fugitive dust

would be reduced by the implementation of appropriate sediment and erosion control BMPs typical for site development. Once the sites are developed, dust would no longer be created because the exposed areas would be built upon, landscaped, or paved.

Asbestos containing materials are present in Washington Grade School. Prior to demolition of the building a Pre-Demolition Asbestos Survey will be completed and all asbestos identified will be abated prior to any demolition activities which could disturb those materials. Asbestos abatement will be in compliance with the Clean Air Act's National Emission Standards for Hazardous Air Pollutants as implemented by the Oregon Department of Environmental Quality's (DEQ) guidance and regulations. As necessary, DEQ licensed abatement contractors and certified asbestos workers will perform the asbestos removal, including implementation of BMPs to minimize release of asbestos.

Temporary sources of emissions will also include construction equipment and heavy machinery used during construction and demolition activities at the sites and areas of roadway improvements. Heavy machinery is required to be manufactured to meet federal clean air standards; exhaust from equipment used for the proposed action will be required to be within these federal standards. Adverse impacts during construction would be minor, localized, and of short duration. The contractor will be required to keep all equipment in good working order to minimize air pollution. Estimates for the duration of construction for the different project activities are shown below. These activities will, to a large extent, occur concurrently.

Site development at Boot Site	15 months
Roadway Improvements	11 months
Wetland Mitigation site	6 months
Demolition of existing schools	3 months
New Spencer Park	6 months

Long-term impacts would include traffic generated by the new school, which will be relocated from the existing school location, so there will be a small shift in traffic patterns within the City of Vernonia. Increased traffic would be present during the school year, September through June. The new school footprint has been sized to accommodate 1,000 students.[3] The shared areas (e.g., gymnasium, library, and cafeteria) will be large enough for the increased student population; however, when the student population exceeds 750 additional classrooms will need to be added. This additional area has been accounted for in the footprint of the school at the Boot Site. Currently, there are approximately 630 students and teachers (Carr, 2009).

[3] The 1,000 student estimate was based on population projections for the area for the next 10 to 20 years. The school lost some students after the flood due to families moving out of the area or transferring the students to another district. The District expects some of these students to return when the new school is completed (Personal Communication from Steve Effros, August 26, 2010).

The Transportation Impact Analysis prepared for the proposed new school site, using the 1,000 student estimate, showed a net increase in the number of trips per day generated by the proposed action from 1,010 to 1,540. In the context of the volume of traffic along OR 47, these additional vehicle trips, which will take several years to materialize, can be considered minor. The Oregon Department of Transportation (ODOT) Traffic Volume data for Bridge Street (Highway #102, Nehalem Highway) lists the following traffic volumes: 6,600 at the existing school; 5,100 at Missouri Avenue intersection; and, 7,200 at the Rock Creek Bridge (ODOT, 2010). Assuming the new school reaches capacity, the traffic volume accessing the school will have increased by approximately 34% over current levels. Since the full capacity of the school is based on population projections for the area, it can be assumed that general traffic volumes in the area will be increasing at the same rate.

The new school would be constructed to at least the LEED Silver Standard and would include many energy saving measures resulting in reduced energy consumption and associated emissions. For a complete discussion of the LEED features in the new school please refer to Section 4.4 – Climate Change.

It is anticipated the short- and long-term adverse impacts associated with construction and operation of the new school would be minimal and thus represent a negligible change to existing air quality conditions. The construction of a combined K-12 school to at least the LEED Silver Standard will reduce the greenhouse gas emissions from the building and would reduce air pollution currently associated with the three existing school buildings.

Outside of short-term minor adverse construction related impacts, neither the wetland mitigation site nor the new park is anticipated to result in measurable air quality changes. Both areas will be maintained as open space supporting natural and recreational uses. Traffic accessing the park from Bridge Street will be minimal compared to the existing traffic volumes along the road. The park function is simply being relocated.

4.3.1.3 Alternative 3: Northwest Corner Site

Much of the discussion provided above for Alternative 2 is applicable for Alternative 3 although use of this site would preclude the need for relocating Spencer Park's function and possibly the need for wetland mitigation. Design of the new school, construction, and operation impacts will be the same regardless of the site; therefore, use of the Northwest Corner Site would be expected to have slightly less adverse impacts as the Boot Site because of the reduced construction areas. Adverse impacts to air quality would still be considered negligible.

4.4 Climate Change

The CEQ recently released draft guidance on how federal agencies should consider climate change in their action decision-making. The suggested threshold whereby quantitative analysis should be done in NEPA documents is for actions releasing over 25,000 metric tons of greenhouse gases per year (CEQ, 2010).

Vernonia is located in the western portion of Columbia County, Oregon, east of the Pacific Ocean and south of the Columbia River. Vernonia receives an average of 49 inches of precipitation per year (NCRS, 2002). The spring, fall, and winter months are cool and wet, and the summer months are typically warm and dry. In the warmest months, the average high temperature ranges between 69 and 75 degrees F. In the winter months, the high temperature ranges from 44 to 50 degrees F. The mean annual temperature in Vernonia is 48.8 degrees F.

Climate change can impact existing conditions in Oregon through a rise in average temperatures and shifting weather patterns. These alterations can impact local communities by causing more droughts in some areas and more rain and flooding in others. Impacts can also occur as a result of lower average snowpack causing lower stream flows in summers when both fish and farmers need water. Warmer waters also threaten salmon runs and river ecosystems (Oregon Global Warming Commission, 2010).

According to the Oregon Global Warming Commission, approximately 32% of the state's greenhouse gas emissions come from heating, cooling, and powering buildings. Transportation is the largest contributor.

The primary potential activities that could impact climate change as a function of this project include:

- Deforestation activities related to site clearing for the construction of the school. Trees and other vegetation act as a "carbon sink" for CO_2. Removal of vegetation will reduce the carbon sequestration associated with the parcel.
- Greenhouse gases will generated by construction activities related to building construction and related site improvements.
- Greenhouse gases will be generated during the on-going operation (heating/cooling/operations and maintenance) of the school.
- Greenhouse gases will be generated from fossil-fueled vehicles (e.g., cars and busses) used to transport people and goods to and from the site. These gasses include carbon dioxide, nitrous oxide, and methane.

4.4.1 Consequences of Alternatives

4.4.1.1 Alternative 1: No Action Alternative

Under the No Action Alternative, there would be no construction or change in existing land use at the project site. As such, no increase or decrease in the level of greenhouse gas emissions is anticipated. The site would be expected to continue to contribute to climate change at the same level as current. Because of the site's location in the floodplain and potential changes to annual snowpack and rainfall, there may be associated changes to existing flood conditions in the Nehalem River Watershed. Thus, flood risks to the site could increase or decrease depending on how and if the effects of climate change materialize in northwestern Oregon.

4.4.1.2 Alternative 2: Boot Site (Proposed Action)

Alternative 2 could contribute to climate change in the following ways:

1. Construction of the school would require site clearing, resulting in the loss of some trees, which sequester carbon. These impacts are considered relatively minor given that most of the site is not forested and the quantity of trees being planted as part of the proposed project exceeds the number being removed.
2. Construction of the new school will result in the release of greenhouse gases to the atmosphere from construction equipment, and vehicle travel related to the project. These outputs are considered relatively minor relative to the on-going operation over the life of the building (estimated at 100 years or more).
3. On-going operation of the school would require energy sources for lighting, heating, air conditioning, etc.

The new school building will use electricity, natural gas, and water. The new school would be constructed to at least the LEED Silver Standard and would include many energy saving measures resulting in a lower overall carbon footprint than a comparable campus built without LEED features. The amount of energy utilized by the space conditioning systems will be minimized through a high performance building envelope, low power consuming systems inside the building, and a mechanical system responsive to the site resources. The energy used by the building will be partially offset by on-site renewable energy systems such as photovoltaic (PV) panels to generate electricity and a bio-mass (wood pellets) boiler to heat water for radiant heating systems.

The new school is targeted to use 50% less energy and at least 40% less water than a standard code building. The initial energy performance goal for the school was an Energy Use Index (EUI) of 27 kBtu/square foot/year. In comparison, a new school built to code in the Willamette Valley typically has a EUI of 50 kBtu/square foot/year according to energy studies for similar schools and Energy Star data. The performance goal for the new Vernonia K-12 school was established as a level at which the annual capture of solar energy could potentially offset annual energy consumption. To meet this target, high performance standards were set for the building envelope, space conditioning systems, mechanical systems, and lighting.

Energy saving features incorporated in the building design includes the following:

- Highly insulated building envelope
- Radiant floor heating and cooling
- High efficiency condensing gas boiler system
- Water cooling tower and chilled water storage tank
- Heat recovery ventilators
- Air-to-air heat recovery heat exchangers with bypass
- Central high efficiency condensing gas-fired water heater
- Point-of-use, tankless, electric water heaters
- Windows and skylights to provide sufficient natural light during the daytime
- Occupancy sensors to for light control and demand controlled ventilation
- High roof reflectivity
- External shading
- Zoning
- Low-flow plumbing fixtures

An analysis of energy savings was conducted by SOLARC Architecture and Engineering on the proposed school design. The report presented details on the different energy saving strategies identified above (SOLARC, 2010). Calculations were made to estimate the greenhouse gas emissions from the on-going operation of the proposed school building. Using the figures from the report prepared by SOLARC (SOLARC, 2010), for both electricity and gas, a CO_2 equivalent was generated. Those figures are presented in Table 4.4-1. The conversion factor used for electricity (0.28 lbs/kilowatt) is based upon information compiled at a regional level and reflects a mix of power sources (hydro, nuclear, coal, biomass, etc.) used by regional utilities (U.S. Energy Information Administration, 2002). The conversion factor used for natural gas is a recognized industry standard.

Table 4.4-1: Estimated CO_2 Output from Power Sources

Power Source	Electricity	Natural Gas
Estimate Yearly Usage (MMbtu)	1,667.5	1,684
CO_2 Equivalent (lbs/kilowatt)	0.28	11.7
CO_2 Output (metric tons/year)	62.1	89.4

The CO_2 outputs shown in Table 4.4-1 total approximately 152 metric tons per year. This figure is substantially below the 25,000 metric ton threshold identified in the CEQ guidance, above which a more detailed analysis would be required.

In addition, the project will include the provision of sidewalks, bike lanes, and bike racks to encourage alternative modes of transportation. The transportation needs assessment completed during the siting study determined that due to the less central location of the Boot Site (as compared to the existing school site) it is to be expected that the number of students walking to the site will decrease, as fewer students will live within a reasonable walking distance (1 mile or less) of the school (Oregon Solutions, 2009). Busing service is provided to students who live greater than 1 mile from campus or who live west of Ora Bolmeier City Park. It is anticipated that students who are no longer able to walk to school will either utilize the bus service, bike, or drive to school.

Energy consumption data at the existing school site was not available for this study. Therefore, a direct comparison of energy consumption between the existing school and the proposed option was not made. However, given that the potential impacts related to site deforestation and facility construction are considered minor relative to the life cycle of the building, and that the on-going energy budget of the new building is projected to be modest, it is anticipated that the proposed project would have a negligible adverse impact on climate change. The new school is currently projected to use substantially less energy than typical elementary schools in Western Oregon (Personal Communication, SOLARC, 2010).

4.4.1.3 Alternative 3: Northwest Corner Site

Please refer to the discussion provided above for Alternative 2. Design of the school and construction impacts would likely be similar regardless of the site; therefore, construction of a new school at the Northwest Corner Site would be expected to have the same impacts as it would at the Boot Site (preferred location).

Even with the provision of pedestrian and bicycle facilities, it can be expected that more students will be bused, driven, or dropped-off due to the relatively remote location of the site and the steep grade. A large area of the Northwest Corner Site is forested. Removal of these trees would also have the potential to impact climate change.

In total, the adverse impacts relative to climate change would be expected to be slightly higher than the proposed action.

Water Resources

4.5 Water Resources (Surface, Ground, Water Quality)

4.5.1 Affected Environment

The City of Vernonia is located within Nehalem River Watershed (5th Field Hydrologic Unit Code (HUC) – 1710020201). The Boot Site and mitigation site are within the Coon Creek sub-watershed (6th Field HUC – 171002020109) while the existing school campus, New Spencer park site, and the Northwest Corner Site are within the Lower Rock Creek sub-watershed (6th Field HUC – 171002020106).

The Boot Site is situated on a hillslope and terrace above the Nehalem River, located approximately 0.2 miles east of the site. The Nehalem River flows south near the eastern edge of the new school site, it curves around Vernonia Lake and flows west across the southern boundary of the mitigation site. The river continues west to its confluence with Rock Creek south of the southwest corner of the existing school site. Just north of here is the confluence of Rock and Bear Creeks. Vernonia Lake is located east of the proposed wetland mitigation site. At the existing school campus, the Nehalem River flows northwest, approximately 500 feet south of the site, to its confluence with Rock Creek. The confluence of Rock and Bear Creeks is just north of the Nehalem River near the southwest corner of the existing school site.

The Northwest Corner Site is located northeast of a tributary to Bear Creek. Bear Creek flows into Rock Creek at the southwest corner of the existing school site and ultimately, via Rock Creek, into the Nehalem River.

The section of the Nehalem River near the proposed project tends to be incised, flowing below steeply sloping banks. The substrate of the river is composed of fines, gravels, and cobbles. Development within Vernonia has led to the channelization of the river in this area, resulting in higher velocities, a lack of stream complexity, and increased channel erosion and incision (MB&G, 2010). Riparian areas along the Nehalem River are relatively small, contributing to increased water temperatures in the river within this stretch. Water quality of the river has also been affected by erosion and sedimentation. The Nehalem River is not listed on the DEQ's 303(d) list of impaired waterbodies (DEQ, 2006); however, past listings for E. coli, fecal coliform, and temperature led to the establishment of total maximum daily loads (TMDLs) for these parameters within the reach adjacent to the project area. The Vernonia Sewage Treatment Plant discharges to the Nehalem River annually between November 1 and April 30.

The Boot Site is comprised of largely undeveloped lots and Spencer Park. Stormwater from the Spencer Park parking lot currently flows to existing French drains and enters the City's stormwater system. Stormwater from the undeveloped school site either infiltrates on-site or drains to the intermittent unnamed tributary bisecting the site. This tributary flows to a catch basin located east of the site. The catch basin connects to an existing 8-inch-diameter culvert which discharges directly to the Nehalem River east of the site.

4.5.2 Consequences of Alternatives

4.5.2.1 Alternative 1: No Action Alternative

Under the No Action Alternative, there would be no construction or changes to existing land uses; therefore, there would be no change in conditions relative to water resources.

4.5.2.2 Alternative 2: Boot Site (Proposed Action)

Stormwater runoff during construction and from the new school and road improvements has the potential to discharge pollutants-of-concern to the Nehalem River. Site work will include removal and clearing of surface vegetation and existing improvements, installation of underground utilities, connection to existing sanitary system, upgrades to the storm sewer system, and site landscaping. Impacts from stormwater have the potential to occur during project construction and as a result of the completed project. Pollutants of concern with the potential to be generated by the project include the following:

- Nutrients – Routine maintenance of landscaped areas will potentially include the use of fertilizers. Fertilizers may contribute nutrients (i.e., phosphorus) to stormwater runoff.
- Sediment – Site development activities, primarily during construction, will introduce the potential for sediment to enter stormwater.
- Oil/Grease – The completed project will include new roadways and parking lots which will contribute oil and grease to stormwater runoff. There is also the potential for other vehicle fluids to enter stormwater from cars in disrepair.
- Metals (i.e. zinc, copper, lead, etc.) – Metals from building components, exposed surfaces, and copper from vehicle brake pads have the potential to enter stormwater runoff.

Temporary erosion and sediment control BMPs will be employed during construction, per the National Pollution Discharge Elimination System (NPDES) permit requirements, to prevent or minimize the potential for pollutants to leave the site. Stormwater run-off impacts will be altered at both the Boot Site and the existing school campus through the addition/removal of impervious surfaces (Table 4.6-1). Low impact development (LID) techniques have been incorporated into the design of the site to minimize the amount of pollutant-generating impervious surfaces (PGIS) to help reduce the amount of pollutants generated on the site which would require treatment.

Table 4.5-1: Impervious Surfaces

Site	Existing (acres)	Alternative 2 (acres)	Increase/ Decrease
Boot Site	0.4	8.15	+ 7.75
New Spencer Park	6.78	0.78	- 6.00
Mitigation Site	n/a	n/a	n/a
Bridge Street (OR47)	0.93	1.14	+ 0.21
Missouri Avenue	0.32	0.77	+ 0.45
Total	8.43	10.94	+2.41

Site design purposefully minimized the creation of new impervious surfaces through locating parking towards the front of the site, limiting vehicle access within the site, and consolidating service facilities (e.g. loading docks, receiving bays) in one area of the site. Overall, the proposed project will result in an increase of approximately 2.41 acres of impervious surfaces. Development of the Boot Site will result in approximately 8.15 acres of new impervious surfaces (building roofs, roadways, parking lots, walkways). Of this, 3.15 acres is considered to be PGIS. This stormwater, in addition to 5 acres of non-PGIS areas (sidewalks and landscaped areas) will be treated prior to being discharged from the site. The remaining 3.7 acres of new non-PGIS area consists of run-off from the roof of the K-12 school building and the running track. A portion of the roof run-off will be collected in cisterns and reused as non-potable water within the building.

The proposed stormwater management system at the Boot Site will consists of vegetated flow-through planters, an underground conveyance system and a stormwater detention pond. The stormwater planters (water quality facilities) have been designed in accordance with the DEQ, Columbia County, and ODOT design standards for water quality pollution removal. The water quality treatment facilities have been designed as partial infiltration facilities to treat the pollutants of concern (sediment, metals, oil/grease, other petroleum products, nutrients). The facilities have been designed to remove approximately 80-percent of the total suspended solids from the run-off.

The Stormwater Management Plan identified six contributing areas which will require treatment at the Boot Site. A stormwater planter will be constructed to treat the runoff, through soil filtration, from each of these basins. The stormwater planters will vary in size and volume and have been designed to treat 50% of the 2-year, 24-hour storm event from their respective basins (KPFF, 2009). After treatment, the drainage will flow to an on-site detention facility designed to release the stormwater at the pre-developed peak flow rates. The detention pond will, through a controlled outfall, discharge the water at pre-developed flow rates into an existing drainage channel where it would flow east, through a culvert, and into the Nehalem River. Off-site drainage from the west that currently flows onto the Boot Site will also be collected and conveyed east to the Nehalem River, by-passing the school's drainage system. Finally, some of the

groundwater present across the site will be collected in a series of underground pipes and directed to the detention pond. The proposed routing of drainage from the site is not expected to affect any downstream wetland or waterways.

A new 30-inch stormwater outfall culvert will be installed to replace the existing 8-inch culvert located between the new school site and the Nehalem River. The new culvert will follow roughly the same alignment as the existing culvert. Once the new culvert is installed, the existing culvert will be capped at the upstream end and abandoned in place. The new energy dissipating outfall structure would be located above the ordinary high water mark (OHWM) and would include a tee to reduce velocity, rock to provide additional energy dissipation and rock lining for erosion control protection along the slope of the river to the OHWM.

The improvements to Bridge Street and Missouri Avenue will also require stormwater management. These proposed improvements will result in 63,600 square feet of new impervious surface. In order to manage the stormwater from the roadway improvements, the existing system components will be removed and a new storm system will be installed. New catch basin inlets will be installed and connected to a 15-inch storm main located within the roadways. The stormwater runoff from the road improvements will be collected and conveyed using catch basins and underground piping to an existing ditch inlet. The new system will converge with off-site drainage and flow to an existing outfall south of Lake View Drive, discharging to a constructed water quality facility. The water quality facility will be sized to meet ODOT standards and to treat the runoff from the upland basins as well as the new road improvements. The proposed road improvements and stormwater system will route the stormwater to the existing discharge point. The Stormwater Management Plan completed for roadway improvements, concluded that although the road improvements will generate additional stormwater runoff due to the increases in impervious are, the increase in stormwater runoff will not adversely affect the capacity of the existing downstream system and, therefore, flow control is not warranted for the road improvements (KPFF, 2010).

The new Spencer Park will have approximately 7,400 square feet of impervious surface (new and existing roofs) and approximately 27,000 square feet of pollutant-generating surface (parking lots and roadways). The imperviousness will be reduced by approximately 6 acres with development of the new park. Site work would include removal and clearing of existing buildings and utilities, installation of underground utilities, connection to existing sanitary system, installation of a new storm sewer system, and site landscaping. LID techniques have been incorporated into the site design to help reduce the amount of pollutants generated on the site which would require treatment. Stormwater planters would be integrated into landscaping across the site where the collected water would be conveyed and treated. Native soils at the New Spencer Park are assumed to have an infiltration rate lower than 2 inches per hour. Stormwater runoff from the gravel parking areas, driveways and walkways will sheet-flow to flow-through water quality swales. The swales will be designed to treat 50% of

the 2-year, 24-hour storm event and will be connected to a conveyance system. All stormwater from the roof areas will also flow into flow-through water quality swales that will treat the stormwater and discharge it to a conveyance system. The conveyance system will ultimately discharge the treated stormwater to the ODOT's stormwater pipe located in Bridge Street (Highway 47). The treated stormwater would eventually discharge to Rock Creek.

No stormwater management is needed for the compensatory wetland mitigation site. Hydrology at the mitigation site will be provided primarily by groundwater and secondarily by direct precipitation and run-off from adjacent up gradient land.

Overall, Alternative 2 is expected to have negligible adverse impacts on water quality due to inclusion of LID techniques in site design, the utilization of erosion and sediment control BMPs during construction, the stormwater management system, and the decrease in impervious surfaces at site locations within the 100-year floodplain. The proposed project will need to abide by the terms and conditions of a NPDES 1200-C permit and a CWA Section 401 Water Quality Certification as required by the DEQ for USACE Section 404 CWA permit.

4.5.2.3 Alternative 3: Northwest Corner Site

A Stormwater Management Plan would need to be completed for development at the Northwest Corner Site. The Plan would need to address stormwater improvements as a result of roadway improvements and site development. Similar to the proposed action, the stormwater system would need to be in compliance with the DEQ, Columbia County, and ODOT design standards for water quality pollution removal. The approach to stormwater management and permitting requirements at the new school site would be similar to that described above for the Boot Site. Use of the Northwest Corner Site will not require development of a new park and, therefore, the impacts associated with New Spencer Park would not be applicable under this alternative. Adverse impacts on water quality are also expected to be negligible with Alternative 3 for the same reasons that are described under Alternative 2.

4.6 Wetlands

EO 11990 requires federal agencies to avoid adverse impacts to wetlands when there is a practicable alternative for their actions. If there are no alternatives, any impacts to wetlands must be mitigated.

The USACE regulates the discharge of dredged or fill materials into waters of the U.S., including wetlands, pursuant to Section 404 of the CWA. The USACE regulations require wetland delineations to meet the criteria outlined in the USACE Wetland Delineation Manual and the appropriate regional supplement. The Western Mountains, Valleys, and Coast Region Interim Regional Supplement is applicable to wetlands in the Vernonia area. In addition, wetlands evaluation was completed consistent with FEMA's eight step decision-making process (44 CFR Part 9).

4.6.1 Affected Environment

Wetland delineations have been completed at the existing school site, the Boot Site, and at the proposed compensatory mitigation site (Appendix E). Wetlands and surface waters have been identified within each of those study areas (Figure 4.6-1). Table 4.6-1 summarizes the results of those reports and identifies those wetlands and surface waters determined to by jurisdictional (waters of the U.S.) by the USACE (shown in parenthesis).

Table 4.6-1: Wetlands and Waterways Present within the Project Study Areas

Location	Wetlands		Waterways	
	#	Total Acreage[1]	#	Total Acreage[1]
Boot Site	6 (5)	4.151 (4.125)	3 (2)	0.101 (0.1)
Mitigation Site[2]	7 (7)	2.7 (2.7)	4 (4)	1.12 (1.12)
Existing School Campus	2 (2)	0.70 (0.70)	1 (1)	0.05 (0.05)

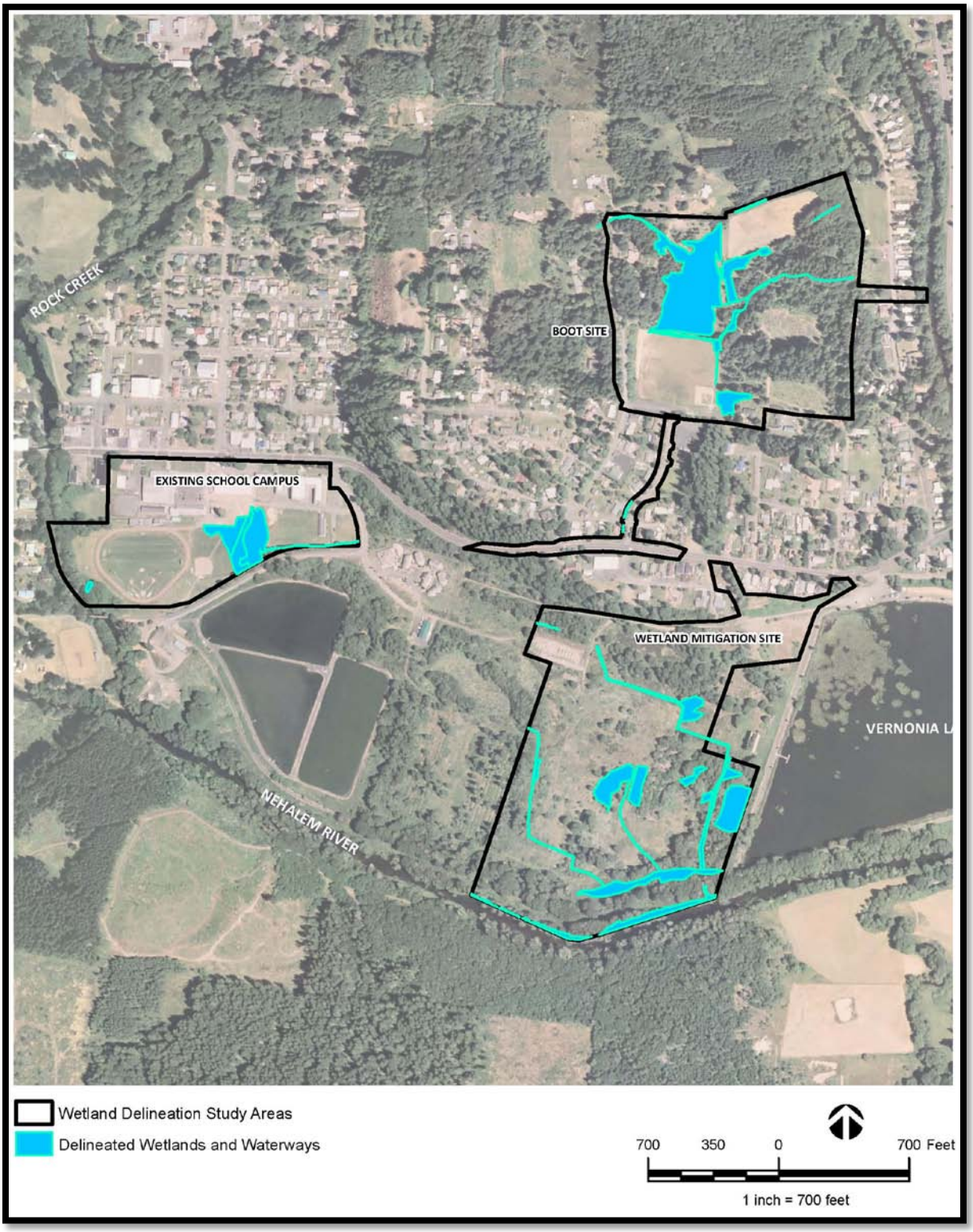
[1] Acres shown are what was documented within the study area of each report.
[2] None of these wetlands are located within the boundaries of the proposed mitigation site.

Wetland delineations were also completed at additional project areas where roadway or stormwater improvements are proposed. One small wetland was identified adjacent to Missouri Avenue and is included in the acreage calculated for the Boot Site. No other wetlands were documented in these areas (Personal Communication, MB&G, 2010).

The proposed compensatory wetland mitigation site is located approximately 0.4 miles southeast of the Boot Site within the floodplain of the Nehalem River. The site is flat with a slight slope southeast toward Vernonia Lake and the Nehalem River. There are no waters of the U.S. located within the boundaries of the mitigation site. There are, however, several wetlands in depressions near the site. The Nehalem River is located less than 500 feet from the site.

No wetland delineation has been completed at the Northwest Corner Site. Wetland inventories (local and national) show wetlands present in the vicinity of the site. In addition, the majority of the soils on the site are mapped by the Columbia County Soil Survey as having hydric inclusions.

Figure 4.6-1: Wetlands & Waterways



4.6.2 Consequences of Alternatives

4.6.2.1 Alternative 1: No Action Alternative

No actions with the potential to impact wetlands will occur as a result of the No Action Alternative.

4.6.2.2 Alternative 2: Boot Site (Proposed Action)

Construction of the new school campus will impact 3.81 acres of waters of the U.S. (3.74 acres of wetlands and 0.07 acres of surface waters) at the Boot Site. The practicability of alternatives and sites are discussed in Section 3.0 and approaches to avoid and minimize adverse wetland impacts are reflected in the site's design.

The wetland areas at the Boot Site have been disturbed through historic logging activities, livestock grazing, grading, and hay production. Of the six wetlands and three waters of the US on the new school site (MB&G, October 2009), impacts to one waters of the US and two wetlands will be avoided, and impacts to the remaining wetlands and waters have been minimized to the extent possible. Groundwater hydrology for the avoided portions of the wetlands will be maintained. Avoided wetlands and surface waters will be fenced during construction as no-work zones. In addition, excess groundwater from the site will be routed through a series of drains to outfall into the intermittent tributary of the Nehalem River present on the site. This tributary flows east-northeast across the Boot Site, originating in the eastern portion of the site.

Because of the unavoidable adverse impacts to waters of the U.S., compensatory wetland mitigation would be provided by creating a 6.21-acre wetland at a proposed mitigation site. The wetland mitigation site is located within the existing City of Vernonia-owned former Oregon-American Lumber mill site, approximately 0.4 miles southwest of the Boot Site. The goal of the mitigation project is to create 6.21 acres of Palustrine Emergent (PEM) wetland to replace the 3.74 acres of degraded wetland and 0.07 acre of intermittent stream which will be permanently lost as a result of site development. The creation of this wetland is intended to improve wetland and upland habitat at the site; provide high-quality amphibian, turtle, and songbird habitat; augment the amount of large woody debris in the watershed; and increase the flood storage capacity of the Nehalem River floodplain. The last two features listed specifically address two locally important functions and values: water storage and the widespread lack of large woody debris within the Nehalem River watershed.

Primary wetland hydrology at the mitigation site will be provided by groundwater, with secondary hydrologic inputs from direct precipitation and up-gradient runoff. The mitigation site will include the following features: microtopographic variations with mounds and shallow pools to provide amphibian habitat, placement of logs, root wads, and rocks to provide habitat complexity, planting of emergent vegetation, planting of shrubs on mounds and in adjacent buffer areas, and retention of existing trees in the southern portion of the site. All proposed plantings are species native to Oregon.

The wetland mitigation plan prepared for the project (MB&G, 2010) per USACE requirements, determined that the majority of impacted wetland functions are expected to have a net improvement as a result of the mitigation project (Appendix F). Using the Oregon Rapid Wetland Assessment Protocol (ORWAP) (Adamus et. al., 2009), the functional capacity of wetlands to be impacted and the predicted values for the mitigation site were calculated (Table 4.6-2).

Table 4.6-2: Function and Value Assessment Summary

Grouped Services	Impacted Wetlands		Mitigation Site		Difference	
	Function	Value	Function	Value	Function	Value
Hydrologic Function	0.00	7.64	3.50	7.22	+ 3.50	- 0.42
Water Quality Group	7.44	4.75	8.25	5.04	+ 0.81	+ 0.29
Carbon Sequestration	2.15	N/A	3.10	N/A	+ 0.95	N/A
Fish Support Group	2.19	10.00	6.14	10.00	+ 3.95	0.00
Aquatic Support Group	5.73	4.44	6.39	4.00	+ 0.66	0.00
Terrestrial Support Group	4.30	6.00	6.27	6.00	+ 1.97	0.00
Public Use & Recognition	N/A	1.90	N/A	1.55	N/A	- 0.35
Provisioning Services	N/A	0.00	N/A	0.00	N/A	0.00

The District will be responsible for maintenance of the mitigation site during the multi-year monitoring period, per the compensatory mitigation plan. The City of Vernonia's Public Works Department will be responsible for long-term site maintenance after completion of the monitoring period. Maintenance activities are expected to be minimal once the site is established.

Alternative 2 will result in permanent impacts to wetlands and waters at the Boot Site; however, the proposed wetland mitigation plan will compensate for those losses by creating a wetland which will provide higher quality grouped functions and similar values to the impacted wetlands. Wetlands identified at the New Spencer Park site will be avoided. The park amenities will be sited on the property such that they avoid areas where wetlands exist. Accordingly, adverse effects to wetlands from this alternative are minor.

4.6.2.3 Alternative 3: Northwest Corner Site

Impacts to wetlands at this site are unknown at this time. There is potential for wetlands to occur on the site, based on wetlands within the vicinity and soils with hydric inclusions present across the site. If this site is selected, at a minimum, a wetland delineation would need to be completed to evaluate the presence/absence of wetlands. However, given the size of the parcel, any wetlands present could likely be avoided or mitigated as with Alternative 2; thus, adverse impacts would likely be offset, negligible, or minor.

4.7 Floodplains

EO 11988 requires federal agencies to avoid adverse impacts associated with the occupancy and modification of floodplains through their actions. Where practicable alternatives exist, floodplain development is to be avoided. Floodplain refers to the 100-year floodplain (at least 1% annual chance of flooding) as delineated on FEMA Flood Insurance Rate Maps (FIRMs) for the National Flood Insurance Program (NFIP).

4.7.1 Affected Environment

In response to the December 2007 flood, the USACE completed a Design Flood Hazard Study in January 2008 and provided the community with updated flood maps which have been adopted by the City. These maps showed the existing school campus almost entirely within the 100-year floodplain (Appendix G). FEMA has also recently completed an updated flood study which also shows the campus in the floodplain (FEMA, 2010).

Both the proposed new school site (Boot Site including Spencer Park and areas of roadway improvements) and the Northwest Corner Site are located outside of the 500-year floodplain. The 2010 FEMA FIRM identifies the properties as being within "Zone X, Other Areas," defined as those areas determined to be above the 500-year floodplain (FEMA, 2010).

The New Spencer Park site and the wetland mitigation site are located within the 100-year floodplain of the Nehalem River or Rock Creek. The park site is currently developed as the existing school campus, and the wetland mitigation site is open space adjacent to an undeveloped park with a bicycle skills park and trails.

4.7.2 Consequences of Alternatives

4.7.2.1 Alternative 1: No Action Alternative

Under the No Action Alternative, FEMA would not provide funding to purchase the existing buildings and the campus would remain vulnerable to future flood losses. Spencer Park will not be converted to educational uses and the creation of a conversion park within the floodplain will not occur. The cost of recent flood damages and disruptions to school operations is described in Section 1 – Introduction and Section 2 – Purpose and Need. Although the school district maintains insurance for flood losses through the NFIP, the coverage limits require the district to supplement their coverage with private insurance which is cost prohibitive. Thus, adverse impacts to the school district from no action and continued flood risks are potentially moderate depending on the severity of a future flood.

4.7.2.2 Alternative 2: Boot Site (Proposed Action)

Under the proposed action, FEMA would provide grant funding to buy-out and demolish the buildings currently existing within the floodplain and the acquired property would revert to open space uses in perpetuity. Park amenities and wetlands mitigation projects are permitted uses under FEMA's buy-out open space restrictions. The New Spencer Park and the wetland mitigation site will both be developed within the floodplain. All buildings and impervious surfaces (with the exception of the covered basketball court, a

small bathroom/concession stand, and grandstands) will be removed from the site. This will result in the elimination of 292,369 square feet (6.78 acres) of impervious surfaces from the floodplain (Table 4.7-1). The existing covered basketball court and grandstands would remain as amenities for the new park (approx. 7,000 square feet) because they allow for the flow-through of flood waters.

Table 4.7-1: Impervious Area to be Removed at Existing School Site

Site	Area (sq ft)
Washington Grade School	56,068
Vernonia Middle School	17,650
Vernonia High School	40,950
Vernonia High School Shop	7,500
Parking/Driveways	170,201
TOTAL	292,369

Source: Carr, 2010.

The Washington Grade School has a basement which will be filled in with clean fill to match the surrounding grade. The 2.5 feet of gravel currently under the temporary modular buildings will be removed and the area graded to match the surrounding area. Once demolition and rough grading of the site has occurred, the disturbed area will be hydroseeded using a native seed mix as an erosion-control measure to stabilize the site until the park will be developed.

The removal of structures and impervious surfaces from within the 100-year floodplain will positively impact floodplain values, by enhancing the floodplains' capacity to detain and absorb flood waters and runoff from adjacent uplands and decrease the volume and speed of runoff into adjacent streams. The runoff volume for the 100-year, 24-hour storm event (4.5 inches) for the existing site and proposed new park layout are estimated at 83,200 cubic feet and 8,150 cubic feet, respectively. This is a 90-percent reduction in stormwater volume. The peak flow for the same storm event has the potential to be reduced from 7.19 cubic feet per second to 0.68 cubic feet per second. These reductions will not only aid in decreasing flood elevations but could possibly alleviate stream velocities and streambank erosion.

Development of the New Spencer Park will replace the park components currently available at Spencer Park including a ball field, multi-purpose playfields, a restroom facility, pathways, and parking. All parking areas and trails will be compacted gravel or pervious pavement. The only impervious surfaces to remain on the site will be the roofs of the grandstands (approx. 3,000 square feet), the covered basketball court (approx. 4,000 square feet), and the restroom (estimated at 400 square feet). Vegetation throughout the park will increase the surface roughness of the floodplain and aid in the slowing of overland flow. Vegetation also provides benefits to floodplains by promoting shallow groundwater recharge, depressional surface storage, and vegetative uptake. Replacing impervious surfaces with vegetation has the potential to reduce the velocity

and volume of water and can translate into reduced flood peaks and improved base flows.

The existing school campus, within the 100-year floodplain, was selected as the site for the New Spencer Park for a number of reasons. Conversion of Spencer Park to another use requires the development of a replacement park with the same amenities as the former park. During the extensive site selection process for the new school campus, it became clear that there was a very limited choice of flat, 5-acre parcels suitable for a major park within the City limits. The most practicable alternative seemed to be to use the existing school campus for the replacement park site. The land is currently within the City limits, is adequately served with utilities and transportation infrastructure, includes existing recreation and open-space amenities, and is owned outright by the school district. No additional land would have to be purchased. NPS regulations require that the value of the replacement park be nearly the same as the former park. Appraisals completed at each of the sites determined that Spencer Park has more value than the existing school site. Thus, the replacement park needed to be larger than 5 acres in order to equalize the values. The new Spencer Park at the existing school campus will encompass 11.82 acres. No practicable alternatives outside of the floodplain were identified that were affordable, and met space and functional needs. Thus although developing the new park in the floodplain will result in potential flood damages and some adverse floodplain impacts, these are considered negligible in light of the removal of the existing school facilities. Floodplain impacts will be minimized through the park design by limiting impervious surfaces, a flow through design of structures, and the avoidance of wetland habitat. The City will also maintain flood insurance on improvements.

The new school site is approximately 800 feet away from the floodplain of the Nehalem River; therefore, improvements to this site should not negatively impact the floodplain. In addition, the runoff from the increased impervious surfaces will be detained in an on-site detention facility that will release the stormwater at the pre-developed flow rates.

The compensatory mitigation site is located within the 100-year floodplain of the Nehalem River. Primary hydrology for the site will be provided by groundwater. Excavation at the site will occur to a depth of 4 feet below the existing soil surface (MB&G, 2010). The site will be graded to provide microtopographic variations across the site with mounds and shallow pools. A lower elevation across the site will decrease the volume of material in the floodplain which will result in an increase in flood water storage capacity. A net amount of 40,846 cubic yards of material will be removed from the site.

Overall, Alternative 2 will have a moderate positive effect on the floodplain through the removal of fill material, structures, and impervious surfaces and restoring floodplain values. Cumulative effects to floodplain values are discussed in Section 5.0 – Cumulative Effects.

4.7.2.3 Alternative 3: Northwest Corner Site

The Northwest Corner Site is not located within a floodplain; therefore, there will be no adverse impacts to the floodplain. Furthermore, the Northwest Corner Site will not require the development of a new park within the floodplain; therefore, once the existing school buildings are demolished, the area will revert to a natural state. Thus Alternative 3 will also have a moderate positive effect on the floodplain through the removal of fill material, structures, and impervious surfaces and restoring floodplain values.

If wetland impacts at this site necessitate a wetland mitigation project, it would likely occur at the same location as the mitigation project for Alternative 2 and any impacts to the floodplain would be similar to those discussed above. Cumulative effects to floodplain values are discussed in Section 5.0 – Cumulative Effects.

Coastal Resources

4.8 Coastal Zone

The federal Coastal Zone Management Act (CZMA) provides for the management of the nation's coastal resources through the Coastal Zone Management Program. The State of Oregon, through the Department of Land Conservation and Development (DLCD), participates in the Federal Coastal Zone Management Program. As a participant, Oregon has adopted the Oregon Coastal Management Program (OCMP) to ensure that Oregon's coastal and ocean resources are managed, conserved, and developed consistent with the statewide planning goals. The southwest corner of Columbia County is within the Oregon Coastal Zone which includes Vernonia. Section 307 of the CZMA requires federal projects to receive a coastal zone management plan consistency determination to document that the proposed action is consistent to the maximum extent practicable with the enforceable policies of the OCMP. The OCMP reviewed the project under the federal consistency provisions of the CZMA to ensure consistency with Oregon's statewide planning goals, the applicable acknowledged comprehensive plan, and selected state regulations (e.g., Oregon Removal-Fill law, water quality regulations, fish and wildlife protections).

4.8.1 Consequences of Alternatives

4.8.1.1 Alternative 1: No Action Alternative

Under the No Action Alternative, all existing land uses in the vicinity of the proposed project would remain unaltered. Thus there would be no change to existing conditions.

4.8.1.2 Alternative 2: Boot Site (Proposed Action)

Under the Proposed Action, no impacts to the coastal zone would occur. The OCMP provided a coastal zone consistency determination on September 28, 2010. The proposed project is consistent with the comprehensive plan and land use regulations of the City of Vernonia. A conditional use and development permit were required for the project. These approvals were received from the City of Vernonia on August 12, 2010.

4.8.1.3 Alternative 3: Northwest Corner Site

Under Alternative 3, no impacts to the coastal zone would be expected occur either. The project would be reviewed by the OCMP and would need to receive a coastal zone consistency determination, however, considering the nature of the action is similar to that proposed under Alternative 2, consistency is assumed.

Biological Resources

4.9 Vegetation

4.9.1 Affected Environment

This section provides an overview of existing site vegetation and impacts. EO 13112 (Invasive Species) requires federal agencies to avoid activities which are likely to cause or promote the introduction or spread of invasive species. The Oregon Department of Agriculture (ODA) is responsible for the Noxious Weed Control Program. The mission of the program is to prevent and limit the spread and impact of invasive exotic plant species (noxious weeds). In coordination with the Oregon State Weed Board, ODA developed a Noxious Weed Classification System to classify weeds in order to prioritize activities. Class A weeds occur in small infestations, but their presence in neighboring states make future occurrence seem imminent. Class B designated weeds are regionally abundant but may have limited distribution in some counties. Intensive control of these weeds is recommended.

The Endangered Species Act (ESA) establishes a program to conserve, protect, and restore threatened and endangered plant species and their habitats. Section 7 of the ESA (50 CFR 402) requires federal agencies to ensure that actions they authorize, fund, or carry out do not jeopardize the continued existence of listed plant and animal species and do not result in adverse impacts to designated critical habitat. Analysis is completed through a biological evaluation of the sites and alternative actions

4.9.1.1 Alternative 1: No Action Alternative

A Biological Assessment (BA) was completed of this site in August 2010 (Appendix H). The existing school campus site is flat without unique landscape features. The site is currently developed with school buildings and sport/recreational amenities or maintained as lawn, with vegetation on the site is limited to landscaped areas, grassy fields, and two wetland areas. One small wetland is located west of the baseball field in the southwest corner of the site, and a larger wetland is located in the south central portion of the site directly south of the area between Vernonia Middle School and Washington Grade School. The wetland is connected to an excavated ditch which extends from the eastern edge of the wetland to the eastern extent of the site.

Himalayan blackberry (*Rubus armeniacus*) and Scotch broom (*Cytisus scoparius*) are present at the site. Both of these species are classified as a Class B noxious weed. Reed canarygrass (*Phalaris arundinacea*), a non-native invasive species, is also present at the site.

4.9.1.2 Alternative 2: Boot Site (Proposed Action)

A BA was completed for these project areas in September and November 2009 (Appendix H).

Several different vegetation communities are present at the Boot Site. Spencer Park is maintained as lawn and consists of predominately introduced grass species. The rest of

the site consists of a mix of pasture/ hay fields, 2nd or 3rd growth native forest and wet meadows and riparian areas. Past disturbance in the form of logging, grazing, mowing, ditching and grading has influenced the current vegetation.

At the Boot Site, the upland forested areas are dominated by western red cedar (*Thuja plicata*), Douglas-fir (*Pseudotsuga menziesii*), bigleaf maple (*Acer macrophyllum*), western hemlock (*Tsuga heterophylla*) and Noble fir (*Abies procera*). Most of the trees are less than 40 years old. Shrubs include salal (*Gaultheria shallon*), common snowberry (*Symphoricarpos albus*), California blackberry (*Rubus ursinus*), Nootka rose (*Rosa nutkana*) and Himalayan blackberry. Herbaceous plants in the forested area include western swordfern (*Polystichum munitum*) and western brackenfern (*Pteridium aquilinum*) with American speedwell (*Veronica Americana*) and largeleaf avens (*Geum macrophyllum*) present in the wetter areas. Grasses present in the pasture and hay fields include annual bluegrass (*Poa annua*), colonial bentgrass (*Agrostis capillaris*), common velvet grass (*Holcus lanatus*), meadow foxtail (*Alopecurus pratensis*), orchardgrass (*Dactylis glomerata*), and perennial ryegrass (*Lolium perenne*). Herbaceous plants include common plantain (*Plantago major*), common sheep sorrel (*Rumex acetosella*), hairy cat's ear (*Hypochaeris radicata*), white clover (*Trifolium repens*), birds-foot trefoil (*Lotus corniculatus*) and oxeye daisy (*Leucanthemum vulgare*). Vegetation present in the wet meadow areas includes common rush (*Juncus effuses*), field horsetail (*Equisetum arvense*), and reed canarygrass.

The only trees at the compensatory wetland mitigation site are cultivated apples (*Malus sp.*). Shrubs include California blackberry, common snowberry, Nootka rose, Scotch broom and Himalayan blackberry in the drier portions of the site and Douglas spirea (*Spirea douglasii*) and Scouler's willow (*Salix scouleriana*) in the wetter areas. Grasses include colonial bentgrass, common velvetgrass, Kentucky bluegrass (*Poa pretense*), orchardgrass, and sweet vernal grass (*Anthoxanthum odoratum*). Herbaceous species include bird's-foot trefoil, common plantain, common sheep sorrel, hairy cat's ear, oxeye daisy, Saint-John's wort (*Hypericum perforatum*), field horsetail, western brackenfern, fireweed (*Chamerion angustifolium*), Queen Anne's lace (*Daucus carota*) and western swordfern.

The New Spencer Park is either developed (as the current school) or maintained as lawn, with some riparian and wetland areas along the south and east edges. Much of the vegetation at the wetland mitigation site is early successional and/or weedy species. Ornamental plantings are present in front of the high school and there are two large Douglas-fir trees in front of Vernonia Middle School. A large wetland is present near the center of the site. Grasses found in the lawn areas, including the north half of the wetland include bluegrass (*Poa sp.*), tall fescue (*Schedonorus phoenix*), perennial ryegrass, spike bentgrass (*Agrostis exarata*), and reed canarygrass. Herbaceous species found throughout the lawn areas include common dandelion (*Taraxacum officinale*), common plantain, creeping buttercup (*Ranunculus repens*), and white clover. The south half of the wetland is immature forest and dominated by Pacific willow (*Salix lasiandra*), red alder (*Alnus rubra*), Oregon ash (*Fraxinus latifolia*), clustered wild rose (*Rosa*

pisocarpa) and Himalayan blackberry. The dominant vegetation in the forested riparian community along Rock Creek on the western edge of the site includes Douglas-fir, bigleaf maple, western red cedar, Pacific crabapple (*Malus fusca*) and Pacific willow. Shrubs include common snowberry, Indian plum (*Oemleria cerasiformis*), red-osier dogwood (*Cornus sericea*), Himalayan blackberry, scotch broom, and salmonberry (*Rubus spectabilis*). Herbaceous species include reed canarygrass, bittersweet nightshade (*Solanum dulcamara*), cow parsnip (*Heracleum maximum*), jewelweed (*Impatiens capensis*), Oregon manroot (*Marah oreganus*) and stinging nettle (*Urtica dioica*).

Himalayan blackberry is present at all three of the sites. In addition, Scotch broom is present at the mitigation site and existing school site. Both Scotch broom and Himalayan blackberry are classified as a Class B noxious weed. Reed canarygrass is also present at the sites.

The Oregon Biodiversity Information Center (previously the Oregon Natural Heritage Information Center) maintains a database of rare, threatened, and endangered species in Oregon. A data request submitted to the Center documented the presence of listed species within a 2-mile radius of the project site. Two threatened plant species [Water howellia (*Howellia aquatilis*) and Nelson's checker-mallow (*Sidalcea nelsoniana*)] were identified as occurring within Columbia County; however, there was no documented presence of either of these species within the 2-mile radius search (DEA, 2009).

Water howellia is an annual aquatic species typically found in small, vernal, freshwater wetlands or other aquatic areas in wooded habitats which are immersed for the majority of the year and dry in the summer months (USFWS, 2009c). Nelson's checker-mallow most frequently occurs in Oregon ash swales and meadows with wet depressions or along streams (USFWS, 2009a). The plant primarily occurs in native wetland meadows with little or no shade and no woody species. The biological assessment indicated no suitable habitat is present within the project areas for either of these species, nor was any individual plants observed (Personal Communication, Kristen Currens, MB&G, July 27, 2010).

4.9.1.3 Alternative 3: Northwest Corner Site

A very limited biological evaluation was completed for this approximately 70-acre site in August 2010. The Northwest Corner Site can be generally characterized as a regenerating forest. The site was clear-cut relatively recently and is partially forested with stands of Douglas-fir (*Pseudotsuga* menziesii) intermixed with red alder, big leaf maple (*Acer macrophyllum)* and cascara (*Rhamnus purshiana*) trees. The site is very over-grown with shrub species. Major shrub and herbaceous species present on the site include: bentgrass (*Agrostis* sp.), Fescue (*Festuca* sp.), Thimbleberry (*Rubus parviflorus*), Salmonberry (*Rubus spectabilis*), Queen Anne's lace (*Daucus carota*), Swordfern (*Polystichum munitum*), Lady fern (*Athyrium filix-femina*), and Salal (*Gaultheria shallon*). Himalayan blackberry, Scotch broom, and reed canarygrass are all present at the site.

4.9.2 Consequences of Alternatives

4.9.2.1 Alternative 1: No Action Alternative

Under this alternative, no construction activities would occur and no vegetation would be impacted. Invasive plant species currently present at the site would remain and could potentially spread if control and maintenance activities do not occur resulting in a minor impact to vegetation.

4.9.2.2 Alternative 2: Boot Site (Proposed Action)

Under this alternative adverse impacts to vegetation would occur at the Boot Site and the mitigation site. The majority of species at these sites are primarily non-native weeds; the proposed landscaping and planting activities at each site will increase the variety of native plant species at each site while removing noxious weeds.

The limit of work area at the Boot Site is approximately 23 acres. The demolition plan for the Boot Site identifies approximately 160 trees to be removed during site development activities, while the planting plan calls for planting a total of approximately 260 trees made up of five species (3 native, 2 non-natives) across the site. The planting plan developed for the new school will utilize a majority of native species, with some introduced and ornamental species used in the landscaped areas on the school grounds. Only native species are proposed for use in areas of slope restoration and at the stormwater facilities. Scotch broom and Himalayan blackberry will be removed during site-clearing activities.

Twenty-one trees are proposed for removal along Missouri Avenue and one along Bridge Street in order to accommodate the proposed roadway improvements. Along Missouri Avenue, 12 existing trees will be retained and an additional 42 trees will be planted within the 4.5-foot planting strips located between the sidewalk and the road. In addition to the trees, the planting strips will include a mix of native and ornamental shrubs and ground cover. Additionally, any disturbed areas will be seeded with a lawn seed mix.

The wetland mitigation site will be grubbed, invasive species removed, the top 12 inches of topsoil stockpiled, and the site graded to create wetland habitat. Once grading is complete, the wetland mitigation site will be planted with species native to Oregon. Obligate and facultative wetland herbaceous species will be planted in the areas which will be inundated during a typical water year. The wet islands will be seeded and planted with a variety of shrub species. The upland buffers will be seeded and planted with clusters of trees and shrubs.

Demolition of the existing school building and removal of hardscapes will only impact grassy and landscaped areas. Adverse impacts to the site's vegetation as a result of new park development will be limited. The wetland area and existing trees will be protected and maintained. Grassy areas will be disturbed during demolition of the existing structures and subsequent site grading. This area will be seeded to stabilize the site

between demolition and park construction. Primarily native species will be used for plantings at the new park.

Development of the Boot Site will result in minor losses to native vegetation, given disturbance from the sites past land use. The use of native plant species and the removal of existing noxious weed and non-native invasive species at the Boot Site, new park, and the wetland mitigation site will offset adverse effects and result in minor long-term improvement to native vegetation stocks at the sites, especially the wetland mitigation site.

4.9.2.3 Alternative 3: Northwest Corner Site

Under this alternative, construction activities would necessarily impact vegetation present on the site. Since the site is partially forested, it can be assumed there would be a greater degree of tree removal required at this site than under Alternative 2. Although, additional site planning would need to occur to determine the exact footprint of the school campus on the site before precise estimates of vegetation impacts can occur, as with Alternative 2, about 23 acres are likely needed. Landscaping would be similar to that proposed under Alternative 2. A detailed site survey would need to be conducted to determine the presence/absence of invasive and threatened or endangered plant species at the site. Nonetheless, adverse impacts to native vegetation would likely be negligible to minor for this alternative as well, and some benefits would be realized through removal of noxious weeds and non-native invasive species.

4.10 Fish & Wildlife

The following section provides an overview of affected fish and wildlife resources including protected species. Compliance with Section 7 of the ESA is also discussed here. The Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) requires Federal agencies to consult with the National Marine Fisheries Service (NMFS) on any activities or proposed activities authorized, funded, or undertaken by the agency which have the potential to adversely affect essential fish habitat (EFH).The Migratory Bird Treaty Act (MBTA) provides that it is unlawful for anyone to kill, capture, collect, possess, buy, sell, trade, ship, import or export, any migratory bird, or part, or nest or egg thereof, unless they first obtain a Federal permit authorizing such actions pursuant to the MBTA regulations. This prohibition includes both direct and indirect acts, with the exception of habitat modification and harassment, unless they result in the direct loss of birds, nests, or eggs. The current list of species protected by the MBTA essentially includes all native species in Oregon.

4.10.1 Affected Environment

The Nehalem River and Rock Creek are both known to support coho salmon (*Oncorhynchus kisutch*) of the Oregon Coast Evolutionary Significant Unit (ESU), which is listed as threatened under the federal ESA. The Nehalem River and Rock Creek have both been designated as critical habitat for the coho salmon (from mouth to headwaters) (73 FR 7816). In addition, both streams also support steelhead trout (*Oncorhynchus mykiss*) (federal species of concern) of the Oregon Coast Distinct Population Segment (DPS) and Chinook salmon (*Oncorhynchus*

tshawytscha) (not warranted for listing) of the Oregon Coast ESU (69 FR 19975; StreamNet 2009). None of these fish are listed on the Oregon list of threatened and endangered species (ODFW, 2010).

EFH for the Pacific Coast Salmon fishery includes those waters and substrate necessary for salmon production needed to support a long-term sustainable fishery. As such, the EFH includes all streams, lakes, ponds, wetlands, and other viable water bodies and habitat historically accessible to salmon within Washington, Oregon, Idaho, and California. The Nehalem River and Rock Creek are considered EFH. However, none of the waters or wetlands within the project area is considered EFH.

Columbia County is within the Pacific Flyway for migratory birds. Migratory birds may be present at the project sites, specifically in vegetated areas.

The Columbian white-tailed deer (*Odocoileus virginianus leucurus*, Endangered), the Northern spotted owl (*Strix occidentalis caurina*, Threatened), and the streak horned lark (*Eremophila alpestris strigata*, Candidate species) were identified as occurring within Columbia County on the U.S. Fish and Wildlife Service (USFWS) Columbia County Species List. A data request was submitted to the Oregon Biodiversity Information Center (previously the Oregon Natural Heritage Information Center) for a list of rare, threatened, or endangered species in with a documented presence within a 2-mile radius of the project site. There was no documented presence of any of these federally-listed species (DEA, 2009). Furthermore, suitable habitat for the Columbian white-tailed deer and the Northern spotted owl is not present within the proposed Boot Site project area. Discussions with a USFWS Wildlife Biologist confirmed the lack of old growth and spotted owl habitat within and adjacent to the Boot Site (Personal Communication, Kristen Currens, MB&G, October 4, 2010). The Oregon Biodiversity Information Center report identified the bald eagle (*Haliaeetus leucocephalus*) as being observed in the vicinity. The bald eagle is listed as threatened on the Oregon threatened and endangered species list.

The forested area of the Northwest Corner Site has the potential to provide suitable habitat for the Northern spotted owl and the bald eagle due to the presence of older tree stands near the cemetery. The Streaked horned lark is associated with bare ground or sparsely vegetated habitats. There may be suitable habitat present at the Boot Site; however, frequent disturbance limits the habitat suitability. There is no suitable habitat at the existing school campus, the wetland mitigation site, or the Northwest Corner Site.

Potential habitats at the Boot Site include forested areas, pastures, and wetlands. There are a number of drainages traversing the site. Some of the forested areas have been harvested, which has resulted in the loss of native vegetation and the spread of noxious weeds. A large section of the forest has recently been clear-cut and replanted. The pasture areas have also been disturbed through mowing. Spencer Park consists of frequently maintained and mowed grass sports fields. Based on the disturbed nature of the Boot Site, there is limited habitat value for terrestrial wildlife. The grass field environment likely supports deer, voles, mice, other small mammals, reptiles, and a variety of passerine or song birds.

The proposed wetland mitigation site is located within the floodplain of the Nehalem River and is comprised of a disturbed upland herbaceous and scrub/shrub vegetation community. While there are no wetlands located within the boundaries of the mitigation site, several wetlands and ditches are present in the surrounding areas. The Nehalem River is located within 500 feet south and Vernonia Lake is approximately 650 feet east of the site. The mitigation site likely provides habitat for a variety of a variety of mammals, birds, and reptiles. Amphibian habitat is likely present within the surrounding wetland areas.

Habitat at the current school campus (New Spencer Park) is very limited due to the developed nature of the site. The riparian area along the western boundary of the site adjacent to Rock Creek likely provides habitat for birds, amphibians, and small mammals.

Habitat at the Northwest Corner Site consists of replanted timberlands with stands of Douglas fir intermixed with red alder, big leaf maple, cascara and a thick understory. The rest of the site has an abundance of shrub species. Rock Creek is located approximately 0.75 miles east of the site. Two drainages are present on the site; however, both appear to be ephemeral. During periods the rainy season, these drainages discharge water through a culvert on the eastern edge of the site under Roseview Heights Road. The Northwest Corner Site provides habitat for a variety of mammals, birds, reptiles, and amphibians.

4.10.2 Consequences of Alternatives

4.10.2.1 Alternative 1: No Action Alternative

Under the No Action Alternative, no impacts would occur because there would be no change in existing conditions for fish and wildlife, including threatened and endangered species, at the project site.

4.10.2.2 Alternative 2: Boot Site (Proposed Action)

The BA prepared for the project determined the proposed action may affect, but would not likely adversely affect coho salmon of the Oregon Coast ESU and may affect, but would not likely adversely modify designated critical habitat of the Oregon Coast coho salmon (MB&G, 2010; Appendix H). While the BA did not include a discussion of potential impacts to steelhead trout or Chinook salmon due to their non-ESA listing status, it can be assumed the analysis and conclusions provided in the BA can be extrapolated to apply to these species as well.

Factors considered in evaluating potential project impacts include the species' dependence on specific habitat components that will impact the abundance and distribution of habitat within the watershed and the project vicinity, habitat components in the project vicinity, distribution and population levels of the species, the possibility of direct effects to fish, the degree of effects to habitat, and the potential to mitigate for the adverse effects. Factors considered in evaluating project impacts in the BA included the potential for the project to impact water quality and in-stream and riparian habitat.

Potential impacts have been avoided or minimized through the incorporation of low impact development principles into the design of the project. Specifically, these include measures to minimize the potential effects from stormwater. At the new park site, with the exception of three structures, there will be no impervious surfaces on the site. The placement of parking areas and access roads at the front of the school site has minimized the amount of impervious surface at the site. In addition, roof runoff will be recycled for non-potable uses. Stormwater generated from the project's new impervious surfaces will not enter the Nehalem River or Rock Creek without prior treatment and detention. The proposed stormwater management system has been designed to meet the SLOPES IV (Standard Local Operating Procedures for Endangered Species) criteria for treating and detaining stormwater. In addition, construction best management practices will be required to avoid project impacts to water quality or habitat during construction. For a more detailed discussion of the proposed stormwater treatment please refer to Section 4.6 – Water Resources. The BA concluded that the project will not result in a quantifiable probability of "take" for coho salmon and will not cause an adverse impact to any critical habitat element or EFH, including riparian reserves, floodplain connectivity, off-channel habitat, large woody debris recruitment, and substrate conditions, because a majority of the proposed development will occur outside of these areas and above the OHWM of the Nehalem River and Rock Creek (MB&G, 2010).

Work impacting other aquatic resources, specifically the Unnamed Tributary and wetlands at the Boot Site, will not affect designated critical habitat due to its distance from the Nehalem River and Rock Creek, the project minimization measures, the compensatory wetland mitigation project, implementation of erosion and sediment control best management practices during construction, and site landscaping and restoration.

Site clearance, approximately 23 acres, to provide for development of the school will inevitably impact the habitat currently available for terrestrial and avian species at the Boot Site. Conversely, improvements will be made to the available habitat at the wetland mitigation site and the new park site through removal of invasive species and planting of native species. Habitat connectivity at these sites will be improved due to their proximity to riparian habitat along Rock Creek and the Nehalem River. Furthermore, trees proposed for removal at the Boot Site will be replaced at an approximately 1.5 to 1 replacement ratio which will offset some of the habitat impacts at the site.

Development of the compensatory wetland mitigation site will provide enhanced habitat for amphibians, turtles, and songbirds. The mitigation site will include the creation of microtopographic variations with mounds and shallow pools to provide amphibian habitat, placement of logs, root wads, and rocks to provide habitat complexity, planting of emergent vegetation, planting of shrubs on mounds and in adjacent buffer areas, and retention of existing trees in the southern portion of the site. All proposed plantings are species native to Oregon.

Habitat values at New Spencer Park would improve with the removal of all impervious surfaces, redevelopment of the site as a park, and establishment of associated landscaping. Trees currently present on the site will be retained. Landscaped areas will, to the extent possible, grouped into larger sections and feature multiple canopy layers.

Proposed clearing activities could have direct impacts to migratory bird nests during the nesting season. This potential impact will be avoided by conducting all clearing activities prior to February 15, prior to the start of the nesting season for most birds.

Consequently, adverse impacts to fish and wildlife resources, including habitat and protected species, are expected to be minor from this alternative. Some beneficial effects will be realized through removal of invasive plant species and native plantings. Cumulative effects to biological resources are discussed in Section 5 – Cumulative Effects. Informal consultation on the project's impacts to fisheries species has been initiated through the federal permitting process with the NMFS. The NMFS provided their concurrence with this finding on November 1, 2010 (Appendix D). In addition, informal discussions have occurred with USFWS and the Oregon Department of Fish and Wildlife (ODFW) to ensure their concerns in regards to the MBTA, ESA-listed species presence, fish passage, and in-water work timing have been addressed (Personal Communication, Kristen Currens, MB&G, October 4, 2010).

4.10.2.3 Alternative 3: Northwest Corner Site

The discussion regarding potential stormwater impacts provided above for Alternative 2 is applicable for Alternative 3; design of the new school, construction, and stormwater management will be similar regardless of the site. Use of the Northwest Corner Site would preclude the need for development of a new park and possibly construction of a compensatory wetland mitigation project. Habitat functions at the existing school site would still be improved because the buildings will be demolished, all impervious surfaces removed, and the site planted. Although a detailed biological assessment would need to be completed, construction at the Northwest Corner Site would have an increased potential to affect migratory birds due to the abundance of vegetation at the site and clearing of about 23 acres, relative to the Boot site. Conservation measures would have to be incorporated into the site design and development. Nonetheless, adverse impacts to fish and wildlife resources, including habitat and protected species, are expected to be minor from this alternative as well. Some beneficial effects will be realized through removal of invasive species and native plantings. Cumulative effects to biological resources are discussed in Section 5.0 – Cumulative Effects.

Cultural Resources

4.11 Cultural Resources

Cultural resources include properties of historical, cultural, and/or archaeological significance. For the purposes of this document, archaeological resources refers to prehistoric or historic-era subsurface sites or objects and historic resources refers to above-ground historic buildings, sites, object, structures, or districts currently listed or recommended for eligible for listing on the National Register of Historic Places (NRHP).

In addition to review under NEPA, consideration of impacts to cultural resources is mandated under Section 106 of the National Historic Preservation Act (NHPA) (36 CFR Part 800), which requires federal agencies to consider the effects of its undertakings on historic properties. Historic properties which may be impacted by the proposed action or alternatives must be identified within the project's area of potential effect. Historic properties are defined as archaeological sites, standing structures, or other historic resources listed in or determined eligible for listing in the NRHP.

For the proposed alternative, FEMA determined the Area of Potential Effects (APE) to include the current school campus and various structures therein, the new school site, the wetland mitigation site, and the area of roadway improvements. Cultural Resource Surveys and Reports have been conducted for all areas within the APE. The information provided below has been extracted from those reports; for greater detail, please refer to the complete report (WCR, 2009 & 2010).

4.11.1 Prehistoric & Historic Context

The City of Vernonia is located in Columbia County at the confluence of the Nehalem River and Rock Creek in the upper Nehalem River valley. Through the 1860s, the Nehalem Valley was remote from Euroamerican settlement centers located in western Oregon. The first Euroamerican settlers arrived in Vernonia in the early 1870s. The General Land Office map describes the present project area as forested with undergrowth (Ellis & Ogle, 2009). Originally, Vernonia was an agricultural community directed toward raising cattle. In the early 1900s, the community was transformed to a timber-based economy with the early 1900s boom in railroad logging operations in Clatsop and Columbia counties. During 1922 to 1923, the Oregon-American Company established a saw mill in Vernonia. The mill dominated the Vernonia economy until its closure in 1956.

The upper Nehalem Valley is home to the Clatskanie Indians, one of several Athapaskan-speaking groups who historically lived in western Washington and Oregon. The Clatskanie largely disappear from the historical record after the 1850s following their relocation to the Grand Ronde or Siletz reservations. The first Euroamerican settlers in the Nehalem Valley reported the presence of Indian trails heading from the Columbia River into the valley; but any reported encounters were with Chinook Indians (Ellis & Ogle, 2009).

State Historic Preservation Office files report one previously recorded archaeological resource as being present in the project vicinity. The 21-mile Portland, Astoria, and Pacific Railroad grade that runs between the towns of Banks and Vernonia (Site 35CO56) was completed in the 1920s and carried logs and lumber to and from the Oregon-American Company mill.

4.11.2 Historic Properties

The Washington Grade School was constructed in 1930 as a one-story brick school building with a basement, designed by the prominent Portland, Oregon, architect Francis Marion Stokes in the Classical Revival Georgian style. An addition was completed by 1950 which added two classroom wings on the east and the west sides. The grade school has been determined to be eligible for listing on the National Register of Historic Places under Criteria B and Criteria C: the building embodies the distinctive characteristics of a school building designed in a classical mode from the classical revival period.

In the area of the wetland mitigation site, structural remains and other debris from the former mill were identified and recorded as an archaeological site. While the mill is considered to be of local and regional historical significance under NHPA Criteria A and C, the minimal physical remains of the mill lack integrity. Under Criteria D, the mill may be eligible for listing based on the potential for archaeological remains. However, extensive archival and historical records are available for the mill, and any archaeological remains are unlikely to yield significant additional information about the mill or its operation. Therefore, the site is not considered eligible for listing on the National Register.

Willamette Cultural Resources Associates completed a cultural resources survey of the new school location on December 10, 2009 and of the wetland mitigation site on October 29, 2009. No evidence of archaeological or historical resources was observed at the proposed new school site and the Willamette Cultural Resources Associates concluded that "no archaeological or historical resources will be affected by construction at the proposed new school location" (Ellis & Ogle, 2009). Willamette Cultural Resources Associates updated the 2009 cultural resources survey in 2010 to include additional area along the southeastern edge of the new school site, along the proposed roadway improvements, the existing school campus, and the newly defined wetland mitigation site. This report supported the earlier finding that no archaeological or historic resources will be impacted by construction of the new school, and further determined that no impacts would occur at the proposed road improvements or at the wetland mitigation site (Bangs & Ellis, 2010). With regards to the development of the New Spencer Park at the existing school site, Willamette Cultural Resources identified the potential for archaeological deposits to exist based on the proximity of the site to the Nehalem River and Rock Creek and the historic presence of a “Hindu Bunkhouse” in the southeastern corner of the school campus.

4.11.3 Consequences of Alternatives

4.11.3.1 Alternative 1: No Action Alternative

Under the No Action Alternative, FEMA would not provide funding to purchase and demolish the existing school buildings; thus, no impacts to cultural resources or historic properties would be expected.

4.11.3.2 Alternative 2: Boot Site (Proposed Action)

Consultation with the State Historic Preservation Officer (SHPO) was initiated with the Cultural Resource Survey reports. The SHPO documented findings in letters on August 26, 2010 and October 28, 2010 (Appendix I). Consultation was also initiated with the Grand Ronde and Siletz Tribes regarding historic properties that may have cultural or religious significance to them within the APE, no comments were received.

Willamette Cultural Resources identified the potential for buried archaeological deposits at the current school campus and recommended that, during the development of New Spencer Park, all ground-disturbing activities be monitored within the framework of an Inadvertent Discovery and Monitoring Plan, approved by SHPO. In addition, SHPO recognized the "Hindu bunkhouse" located in the southeastern corner of the campus as potentially eligible for listing on the NRHP. The development of New Spencer Park will avoid this area. If site design changes, reevaluation will be necessary and potentially the use of archaeological monitoring during construction activities.

The adverse effect caused by the proposed demolition of the Washington Grade School requires execution of a Memorandum of Agreement (MOA) with affected consulting parties which stipulates treatment measures to resolve the adverse effect. Opportunity for public comment was provided regarding the Grade School as part of the NEPA scoping effort described in Section 1.3 – NEPA Scoping and Appendix A as well as during public involvement for the draft EA; no comments were received about demolition of the historic property. A Historic Resource Survey of the Washington Grade School was conducted in August 2010. The purpose of the survey was to document and assess the grade school and to develop recommendations for treatment measures for the adverse effect to Washington Grade School. These recommendations included identifying specific architectural or decorative features which could be salvaged and used in the new school buildings or at New Spencer Park, updating the City's historic resources literature, and incorporation of a plaque or exhibit about the historic Grade School within the park design. The County, District, and City's implementation of the MOA's stipulations will be a condition of FEMA grant approval. Thus the Proposed Action will result in a moderate adverse impact to cultural resources.

4.11.3.3 Alternative 3: Northwest Corner Site

An archaeological resources survey, including further tribal coordination, would need to be completed at the Northwest Corner Site to identify any cultural resources or historic properties if this alternative were selected. Impacts to Washington Grade School would be the same as those discussed above under Alternative 2, and are considered moderate. A search of the Oregon Historic Sites Database did not identify any sites in the vicinity of the Northwest Corner Site (OPRD, 2010). During the cultural resources survey completed for the proposed action, records on file with the SHPO were reviewed to identify any archaeological sites in the vicinity. Only one archaeological site was identified within a 2-mile radius of the project site, a 21-mile section of the Portland, Astoria, and Pacific Railroad grade between the towns of Banks and Vernonia (Willamette CRA, 2009). No sites were identified in proximity to the Northwest Corner

Site. There is a cemetery at the Northwest Corner Site. The development of the school would occur around this area, and the cemetery would not be impacted.

Socioeconomic Resources

4.12 Environmental Justice

EO 12898 (Environmental Justice) directs federal agencies to consider any potentially disproportionate high and adverse human health or environmental risks that federal agency activities, policies, or programs may pose to minority and/or low-income populations. Low-income populations are a group of individuals living in geographic proximity with household incomes at or below the poverty level, as identified by the U.S. Census Bureau. The CEQ Environmental Justice guidance document defines a "minority" as individuals who are American Indian, Alaskan Native, Asian or Pacific Islander, Black, or Hispanic (CEQ, 1997). A low income or minority population is present when members of either group constitutes greater than 50% of the population of the project area or "the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographical analysis."

4.12.1 Affected Environment

For the purposes of this EA, the affected area is considered to be the City of Vernonia and surrounding areas of Columbia County served by the Vernonia School District (Figure 2-1). Table 4.12-1 provides the 2000 Census data for Vernonia and Columbia County. The 2000 Census is the latest data available.[4]

Table 4.12-1: 2000 Census Data for City of Vernonia and Columbia County

Census Data	City of Vernonia	Columbia County
Population	2,228	43,560
Per Capita Income	$16,647	$20,078
Race		
▪ Caucasian	2,125	41,130
▪ Black/African American	4	105
▪ American Indian/Alaska Native	31	580
▪ Asian	11	255
▪ Native Hawaiian/Pacific Islander	2	43
▪ Hispanic/Latino	50	1,093
▪ Some Other Race	12	344
▪ Two or more races	43	1,103
Total Minority Population	98 (4.4%)	2,076 (4.8%)
Families Below Poverty Level	49	811
Individuals Below Poverty Level	216 (9.7%)	3,910 (9.1%)

Source: U.S. Census 2000

The District operates a high school, middle school, and two elementary schools and employs a total of 73 teachers, counselors, and support staff (Carr, 2009). The District currently provides education for approximately 608 students in kindergarten through grade 12. No formal

[4] At the time of this document, the 2010 Census data was not yet available.

statistics are available; however, the District estimates that approximately 98% of the school population is Caucasian (Personal Communication, Vernonia School District, 2010).

The neighborhoods surrounding the Boot Site are middle class in nature. The only distinct enclave of lower income housing in the area is about 6 blocks east of the Boot Site on Riverview Drive where there is a 37-space manufactured housing project. The residential area north of the site features a variety of large lot upper middle class style homes on 5 plus acre lots (Personal Communication, City of Vernonia, August 26, 2010).

4.12.2 Consequences of Alternatives

4.12.2.1 Alternative 1: No Action Alternative

Under this alternative, FEMA funding would not be provided, thus existing conditions would persist. There is potential for future flood impacts and resulting interruptions in school services with the schools remaining in the floodplain. These impacts would affect the entire population served by the school district equally. Additionally, Spencer Park would not be converted to a non-park use and recreational opportunities within the City would remain the same.

4.12.2.2 Alternative 2: Boot Site (Proposed Action)

Based on the above census data and the CEQ guidance, the residents within the project area do not represent a minority or low-income population. The proposed project will relocate all students, teachers, and staff from Vernonia High School, Vernonia Middle School, and Washington Grade School to a new school campus above of the 500-year floodplain. The new site is located approximately 0.4 miles northeast of the existing schools. Due to the less central location of the Boot Site as compared to the existing school site, transportation requirements may shift to slightly increased bussing, student driving, and parent drop-off.

The long-term benefit of the project will be to provide a safer school environment for students and staff by alleviating the concerns, financial burden, and service interruptions associated with repetitive flooding at the existing site. Thus, implementation of the proposed action would equally benefit all demographic groups represented in and served by the District.

Development of the wetland compensatory mitigation project and New Spencer Park is not anticipated to have any environmental justice impacts. The new park would be available for the same population as Spencer Park. Residents will have the opportunity to access recreational opportunities at the replacement park, albeit 0.4 miles from the current location.

Based on the discussion above, and given the demographics of the project area do not meet the definition of either a minority or low income population, Alternative 2 would have no disproportionate impacts.

4.12.2.3 Alternative 3: Northwest Corner Site

Development of the school campus at the Northwest Corner Site would affect the same population as discussed above under Alternative 2.

The location of the Northwest Corner Site is located approximately 1 mile northwest of the current school campus. The relative remoteness of the site from the center of town and the steep grade make trips via alternative modes of transportation (walking, biking) less likely. Thus, increased trips will come to the site via more parent drop-off, student driving, or increased bus service. The change in transportation mode and likely increased commute time, would equally affect the demographic groups represented in and served by the school district, but would disproportionately affect those students currently living close to the existing school campus that walk or bike. Given the demographics of the project area do not meet the definition of either a minority or low income population, Alternative 3 would have no disproportionate impacts.

4.13 Noise

Noise is generally defined as an unwanted sound. Sound is most commonly measured in decibels (dB). Federal agencies, such as the Department of Housing and Urban Development, and the Federal Highway Administration (FHWA) have developed limits above which noise levels must be abated for projects within their jurisdiction. In addition, under the authority of the Noise Control Act of 1972 (NCA), the EPA has provided guidelines for acceptable ambient noise levels which are considered normally unacceptable for noise-sensitive land uses such as residences, schools, or hospitals. Because FEMA has no nuisance noise standards, it defers to the above agency standards to evaluate noise effects related to its actions.

The City of Vernonia does not have a noise ordinance and deals with any noise complaints through their nuisance ordinance (Glass, 2009). In general, the City follows the noise regulations and guidelines promulgated by DEQ (Connell, 2009). DEQ defines a noise sensitive property as "... real property normally used for sleeping, or normally used as schools, churches, hospitals or public libraries..." (ORS 340-035-0015[38]). The State regulations set the maximum sound level for vehicles near noise sensitive properties (Table 4.13-1).

The FHWA has adopted noise standards that apply to traffic noise associated with its projects. The FHWA identified noise criteria and established procedures for evaluating road improvement projects in its Federal-Aid Highway Manual (U.S. Dept. of Transportation, 1982b). These criteria and procedures are now codified in 23 CFR 772. The FHWA defines a traffic noise impact as a predicted traffic noise level approaching or exceeding the noise abatement criteria, or when the predicted traffic noise levels substantially exceed the existing noise levels. The FHWA roadway noise abatement threshold for recreation areas, parks, residences, schools, churches, and other similar land uses is 67 dB (23 CFR 772). Table 4.13-1 shows the abatement threshold in relation to some common noise levels.

Table 4.13-1: Common Sound Levels & Standards

Noise Source	Distance/Time/ Speed	Sound Level (dBA)
Human Threshold of Pain	—	140
Siren	100 feet	130
Auto horn	100 feet	120
Chain saw	—	110
Lawn mower	3 feet	100
Heavy truck	50 feet	90
Busy urban street	Daytime	80
Automobile	50 mph	70
FHWA Abatement Level		***67***
Conversation	3 feet	60
Oregon Ambient Standard for Vehicles Near Noise Sensitive Properties	***7 am – 10 pm***	***60***
	10 pm – 7 am	***55***
Quiet Residential Area		50
Light auto traffic	100 feet	50
Library	—	40
Slight rustling of leaves	—	20
Threshold of Human Hearing	—	0

Source: EPA 1974; HUD; FHWA; ORS 340-035-030 Table 5

4.13.1 Affected Environment

The major noise source within the vicinity of each alternative principally originates from the vehicular traffic utilizing Bridge Street (Highway 47). Other noise sources in the area are associated with the surrounding commercial, residential, recreational, and educational uses, and include occasional aircraft. There are small airfields within 5 miles of the City of Vernonia. The Vernonia Municipal Airport is a city-owned public-use airport providing service for small aircraft (typically single engine planes) located two miles west of the city center. Bero Field and Stevens Mountain are private airports located south of the City.

The primary noise sensitive receptors near the Boot Site are the residences located along Missouri Avenue adjacent to where the roadway improvements will occur and new school will be built. The existing environment is a relatively quiet residential area where the main source of noise is from traffic along nearby roadways. Bridge Street is the most heavily travelled roadway in the area. In general, sound levels are highest closest to Bridge Street and quieter at locations further from this roadway. Existing traffic along Missouri Avenue is limited to homeowners and people accessing Spencer Park or the Catholic Church located at the north end of Missouri Avenue.

The Northwest Corner Site is relatively remote from the center of town, with noises in the area primarily related to the residential uses near the site. Ambient noise levels at this site are expected to be quieter than at the existing school campus or at the Boot Site.

4.13.2 Consequences of Alternatives

4.13.2.1 Alternative 1: No Action Alternative

Under the No Action Alternative, no construction would occur, and there would be no change in the existing noise levels at the site. Thus, there would be no impacts related to noise.

4.13.2.2 Alternative 2: Boot Site (Proposed Action)

Short-term adverse impacts to nearby residents would occur at the proposed project sites during construction. Impacts from construction noises will be mitigated to the extent possible through the use of construction best management practices to minimize noise from the construction site (e.g., limit time of day construction activities will occur; all vehicles will have mufflers; etc.).

Once constructed, noise sources at the new school site will include vehicles accessing the school or related recreational facilities, buses, delivery vehicles, voices during school use, and District equipment used for site maintenance. At the new park site, noise sources will include vehicles accessing the park, voices during park use, and City equipment used for park maintenance (e.g., mowers, string trimmers).

Residences and schools are both considered noise sensitive uses. The Boot Site is situated one-block north of Bridge Street (Highway 47) and is surrounded by residences and open space uses. There are no noise generators in the vicinity that will adversely affect school operation.

There are 10 residences along Missouri Avenue that will be impacted by the noise associated with increased traffic (pedestrian and vehicular) resulting from individuals accessing the school. Missouri Avenue is in a quiet residential neighborhood that experiences some increased traffic on weekends and evenings as individuals and families access the church and Spencer Park. Additional noise sources are generated by use of Spencer Park for softball, baseball, and soccer games and practices, the annual Vernonia Jamboree, and other community events. Based on Table 4.13-1 above, we can assume the ambient noise level of a quiet residential neighborhood (50 dB) is applicable.

Residents along Missouri Avenue would be primarily impacted by increased traffic noise along their street during the morning (approximately 7:30 to 8:15 a.m.) and afternoon hours (approximately 2:45 to 3:30 p.m.) when the students and staff will be arriving at and departing from the school. The afternoon impact may be more dispersed as students may not all vacate the school immediately at 3:00 p.m.; some may remain to

participate in after-school activities. Increased traffic may also occur during the evening when there are events at the school.

The ODOT Acoustical Team performed a conservative noise impact analysis for the project. The model assessed noise impacts at certain distances from the roadway and then the resulting indoor noise levels. ODOT used conservative input assumptions for the model, as follows: ADT (3,000), Peak Hour Trips (630 to 440 cars, 190 trucks), Speed limit (20, 25, & 35 mph). The results are provided in Table 4.13-2 below.

Table 4.13-2: Results of Noise-Level Analysis

Distance from Noise Source[1]	Exterior Noise Levels			Interior Noise Levels for 35 mph		
	20 mph	25 mph	35 mph	10 dBA reduction[4]	20 dBA reduction[5]	25 dBA reduction[6]
50[2]	67	67	69	59	49	44
100	64	64	65	55	45	40
150	63	62	64	54	44	39
200	61	61	62	52	42	37
950[3]	53	53	54	44	34	29

The speed limits along Bridge Street and Missouri Avenue, in the school zone, will be 25 mph. Using the conservative estimate of 35 mph, 50 feet from the noise source, the indoor noise levels do not exceed either the FHWA abatement level or the Oregon Ambient Standard for Vehicles near Noise Sensitive Properties (Table 4.13-1, above). In general, the smallest change in noise level a human ear can perceive is about 3 dBA. Increases of 5 dBA or more are clearly noticeable. The increased traffic along Missouri Avenue would result in a noticeable noise increase to the residences along the street. However, the level is below established thresholds above which some type of mitigation or abatement measures would be required.

Overall, the proposed action will have a minor impact on existing noise levels. The site would provide a quieter environment for students than the current location while increasing traffic-related noise for local residents within the vicinity of the Boot Site. Noise impacts during construction will be minimized through the timing of construction activities, the use of sound control devices on all equipment, and through locating any loud activities the largest feasible distance from any occupied dwelling and the strategic placement of material stockpiles between the operation and the affected dwelling or by other means.

4.13.2.3 Alternative 3: Northwest Corner Site

Noise impacts during construction would be similar to those discussed under Alternative 2. The noise impacts associated with school traffic being redirected to the Northwest Corner Site would have a greater impact on the surrounding area due to the rural nature of the site and surrounding land uses, as opposed to the more urban location of the existing school site and the Boot Site. In addition, the grade accessing the site is steeper which will result in increased noise produced by vehicles accelerating uphill and decelerating downhill. Like the Boot Site, the Northwest Corner Site would provide a quieter environment for students while increasing traffic-related noise for local residents resulting in minor to moderate adverse effect to existing noise levels.

4.14 Traffic & Transportation

The traffic generated by the school includes students, teachers, staff, and vendors driving to the school and parents and buses dropping-off and picking-up students before and after school. Community members will also access the site after school hours for community-related events.

4.14.1 Affected Environment

A Comparative Assessment of Transportation Needs was completed as part of the site selection process. This memorandum analyzed the transportation infrastructure requirements for the alternative sites, including site access (vehicular, pedestrian, bicycle), site accessibility, transportation improvements, additional land required, and cost estimates.

4.14.1.1 Alternative 1: No Action Alternative

The existing school site is located in the center of Vernonia at the intersection of State Avenue and Bridge Street (OR 47), two of the City's major transportation links for local and regional traffic. Site access occurs off of Bridge Street via unsignalized intersections with the campus. The site is well served by arterial and collector streets. Sidewalks provide pedestrian access to the site along both Bridge Street and State Avenue.

4.14.1.2 Alternative 2: Boot Site (Proposed Action)

The Boot Site is centrally located in Vernonia and serves vehicles and pedestrians by local access streets, Texas Avenue and Missouri Avenue, connecting it to Bridge Street (OR 47). Texas Avenue is approximately 20 feet wide with no sidewalk, bike lane, or planter strip, and is functionally classified as a local/unimproved street (Kittleson, 2009). Missouri Avenue is classified as a local street and is also 20 feet wide with no sidewalks, bike lanes, or planter strips. Pedestrian access to the site is provided along the roadside of the local streets due to the absence of sidewalks. Missouri Avenue currently has a 50-foot right-of-way. Within the City limits, Texas Avenue also has a 50-foot right-of-way. Outside of the urban growth boundary, the right-of-way for Texas Avenue is 60 feet. Oklahoma Avenue, between Texas Avenue and Missouri Avenue along the southern boundary of the site, is a vacated street that currently serves as a parking lot for Spencer Park.

4.14.1.3 Alternative 3: Northwest Corner Site

The Northwest Corner Site is located outside of the City of Vernonia's urban growth boundary in the northwest corner of the City limits. The site is atop a hill currently accessible by a dirt road (Reservoir Road) which provides access to a nearby water reservoir. The site is served by a limited transportation infrastructure focused on serving local residential traffic. There is currently no pedestrian or bicycle access to the site.

4.14.2 Consequences of Alternatives

4.14.2.1 Alternative 1: No Action Alternative

No impacts to traffic or transportation would occur under the No Action Alternative, because there would be no construction or alteration to the existing traffic patterns and transportation at the site.

4.14.2.2 Alternative 2: Boot Site (Proposed Action)

In the short-term, construction personnel and equipment would require access to the site which would temporarily increase traffic in the project area during construction. The proposed action will use Missouri Avenue to provide primary vehicular access to the school from Bridge Street. The Vernonia Transportation System Plan (TSP) designates Missouri Avenue as a local street. In order to provide primary school access, Missouri Avenue will be reclassified as an urban collector, improved, and extended into the school site. Vernonia Street Design Standards require urban collectors to have travel lanes, parking, bikeways, planting strips, and sidewalks. The proposed improvements to Missouri Avenue will primarily occur within the existing 50-foot right-of-way (Figure 4.14-1).

Street improvements to Bridge Street will be required to accommodate vehicular and pedestrian traffic generated by the new school site (Figure 4.16-2). To accommodate primary access to the site, Bridge Street will be upgraded to meet the requirements for a designation as an urban collector. The right-of-way for an urban collector street is 62 feet. As such, the acquisition of an additional 2 to 12 feet (approximately 0.22 acres) of additional right-of-way area will be required along Bridge Street for the widening (Kittleson, 2009); the majority of the acquisition will be on the south side of Bridge Street. This acquisition will impact 10 properties. Roadway designs are ongoing in cooperation with ODOT. The most recent designs included the improvements listed below.

Figure 4.14-1: Missouri Avenue Roadway Improvements

Figure 4.14-2: Bridge Street Roadway Improvements

EAST BRIDGE STREET ROAD IMPROVEMENTS
Vernonia School District
City of Vernonia
Lango Hansen Landscape Architects
EPR Consulting Engineers
MISSOURI AVENUE
EAST BRIDGE STREET
FIRE STATION
PIONEER MUSEUM
TEXAS AVENUE
Existing Utility Poles to be Relocated
Existing Utility Poles to be Removed
Existing Fire Hydrant to be Relocated
Existing Fire Hydrant to be Removed
Existing Fire Hydrant to Remain
Existing Mailbox to be Relocated
Existing Mailbox to be Removed
Existing Mailbox to Remain
Existing Trees to be Removed
Existing Trees to Remain
Existing Trees to be Pruned
Existing Shrub to be Removed
Existing Shrub to Remain
Existing Sign to be Relocated
Existing Sign to be Removed
Existing Sign to Remain
Existing Curb to be Removed
Existing Curb to Remain
Existing Curb to be Replaced
Existing Sidewalk to be Removed
Existing Sidewalk to Remain
Existing Sidewalk to be Replaced
Existing Asphalt to be Removed
Existing Asphalt to Remain
Existing Asphalt to be Replaced
Existing Gravel to be Removed
Existing Gravel to Remain
Existing Gravel to be Replaced
Existing Lot Impacted by Grading
Existing Lot Impacted by Grading
Existing Lot Impacted by Grading

Improvements to Bridge Street will include:

- 6- to 10-foot-wide sidewalks
- 6-foot-wide paved shoulder/bike lane
- 12-foot travel lanes
- 14-foot eastbound left-turn lane at Missouri Avenue intersection
- New driveway/roadway entrances and ADA ramps with detectable warning
- Crosswalks

Improvements to Missouri Avenue will include:

- 10-foot-wide sidewalk on east side only
- 4.5-foot planting/landscape strips
- 11-foot travel lanes (14-foot lanes at intersection with Bridge Street)
- 8-foot paved parking shoulder
- New driveway entrances and ADA ramps with detectable warning
- 12-foot left-turn/thru lane at Bridge Street intersection

The new school would shift existing school-related traffic in Vernonia from the existing site on Bridge Street to the new school at the terminus of Missouri Avenue. According to the District, there are currently approximately 630 students and teachers at the school (Personal Communication, Barb Carr, December 2009). The completed school will be able to serve 1,000 students; this number was developed based on the population forecasts for the area. The school district expects the student population to increase slightly in the short-term and, based on the population projections, increase to full capacity (1,000) gradually over the next 10 to 20 years. After the flood, the school district lost a number of students due to families relocating out of the area or parents transferring their kids to a different school district. The District anticipates that some of these families will return with the completion of the new school (Personal Communication, Ken Cox, 2009).

The Transportation Impact Analysis prepared for the proposed new school site, used the full capacity estimate to calculate traffic volumes (Table 4.14-1). Overall, assuming full capacity, there will be a net increase in the number of trips generated by the proposed action.

Table 4.14-1: Traffic Estimates – Alternative 2

Site Generated Trips	Existing Conditions (660 Students)	Proposed Alternative (1,000 Students)
AM Peak	305	460
Afternoon School Peak	190	295
PM Peak	95	145

* Estimates are based on the trip generation rates from the ITE Trip Generation Manual, 8th Edition. (Kittleson, 2010)

Due to the site being less central to the student population than the existing school site, it is expected that pedestrian and bicycle trips to the site will decline while vehicular trips will increase slightly (Kittleson, 2009).

The new school would increase traffic along Missouri Avenue as students, staff, and parents accessed the school, increasing traffic within the residential neighborhood. The houses along Missouri Avenue would be impacted by increased traffic during the morning (approximately 7:30 to 8:15 a.m.) and afternoon hours (approximately 2:45 to 3:30 p.m.) when the students and staff will be arriving at and departing from the school. The afternoon impact may be more dispersed as students may not all vacate the school immediately at 3:00 p.m.; some may remain to participate in after-school activities. Increased traffic may also occur during the evening when there are events at the school. They type of traffic along Missouri Avenue will also change to include buses and delivery trucks, in addition to cars. Currently, some traffic uses Missouri Avenue as access Spencer Park or the Catholic Church located on the corner of Missouri Avenue and the former Oklahoma Avenue. School traffic will cause an increase in the number of vehicles using Missouri Avenue.

The Transportation Impact Analysis concluded the proposed school campus at the Boot Site can be accommodated with limited mitigation to the Bridge Street/Missouri Avenue intersection and surrounding transportation network. Main recommendations incorporated into the design of the project to mitigate potential transportation impacts include the following actions:

- Provision of an eastbound left-turn lane at the Bridge Street/Missouri Avenue intersection
- Creation of a pedestrian refuge on east leg of the Bridge Street/Missouri Avenue intersection
- Extension of the 25 miles per hour speed zone along Bridge Street to encompass project area
- Provision of pedestrian-bicycle facilities along Bridge Street and Missouri Avenue

- Installation of school zone signage and flashing beacons to alert drivers of pedestrians
- Presence of crossing guards before and after school at the Bridge Street/ Missouri Avenue cross-walk.

These upgrades will help facilitate the movement of traffic along Bridge Street and Missouri Avenue. The traffic impact at the site will be tempered by the limited hours (approximately 1 hour in the morning and 1 hour in the afternoon) the traffic impact will primarily occur. Furthermore, the fact that Missouri Avenue is not a through street will limit non-school related traffic impacts.

Overall, the increase in the number of expected trips along Missouri Avenue can be considered a moderate adverse impact to existing traffic patterns. Bridge Street (Highway 47) is a busy thoroughfare and any transportation impacts along Bridge Street, in light of the proposed mitigation measures, can be considered negligible.

4.14.2.3 Alternative 3: Northwest Corner Site

In the short-term, construction personnel and equipment would require access to the site which would temporarily increase traffic in the project area during construction. During the school siting study, a Comparative Assessment of Transportation Needs was completed to evaluate the different transportation needs at each site. Two site access options were identified for the Northwest Corner Site. Option 1 involved widening Bridge Street to provide primary access to the site, and Option 2 would extend Rose Avenue north and construct a new road to provide access to the site. Option 1 assumes that approximately 0.75 miles of road would be improved, while Option 2 would improve approximately 0.90 miles of road. Both of these options would increase traffic volumes at the Rose Avenue-Bridge Street intersection and would require the inclusion of sidewalks and bicycle lanes (Oregon Solutions, 2009).

The Comparative Assessment of Transportation Needs estimated that, assuming full capacity (1,000 students); there will be an increase in the number of trips generated by the proposed action. The estimates provided above in Table 4.14-1 can provide an idea of the increase. These numbers were calculated as part of Transportation Impact Assessment but we can assume the impact of the new school being constructed at the Northwest Corner Site would be similar.

Due to the relatively remote site location and fewer students living within 1 mile of the site, it is anticipated that transportation requirements will shift to favoring increased bussing, parent drop-off, and more students driving, with an associated decrease in the number of students walking or biking to school. A detailed Transportation Impact Analysis will need to be completed for this site to determine more site specific impacts and recommended mitigation measures to be incorporated into a design. Nonetheless, adverse Traffic impacts will also be moderate due to the increased area of roadway

improvements which would be required, the relatively remote site location, and change to existing traffic patterns.

4.15 Utilities

This section provides an overview of Vernonia's utilities including domestic water, sanitary sewer, power, communications, and natural gas. The City's public water is provided by an intake on Rock Creek within the Upper Nehalem River Watershed. The geographic area providing the water to the intake extends upstream in a westerly direction, encompassing 61 square miles of watershed (DEQ, 2003). The project areas are located outside of the designated Drinking Water Protection Area (DEQ, 2003). West Oregon Electric Cooperative provides power to the City and NW Natural provides gas service. The presence of utilities to serve the project was also a factor in evaluating alternatives as discussed in Section 3.0 – Alternatives.

4.15.1 Consequences of Alternatives

4.15.1.1 Alternative 1: No Action Alternative

Under the no action alternative, no change in the utilities would occur at the existing site. Therefore, there would be no impact to utilities.

4.15.1.2 Alternative 2: Boot Site (Proposed Action)

All of the utility services are currently available in the project vicinity and the use associated with the school would be shifted from the current campus to the new site. The new school will require utility lines to be extended to the site from the nearby connections. Extension of the utility lines to the school site will involve the digging of trenches and the placement of fill. The following extensions will be required:

- The existing 2-inch potable waterline extending north from Texas Avenue will be upgraded to a 10-inch line to provide adequate fire protection at the school (Oregon Solutions, 2009). Separate 4-inch and 6-inch water lines will connect to the 10-inch line and will provide potable water to the site.
- A 10-inch gravity sanitary sewer service line will be extended to the school site from Bridge Street. An 8-inch sanitary sewer line will be used within the site.
- The site will tie into an existing 2-inch gas line, which has sufficient capacity for the new school.
- The above-ground pole mounted power, telephone, and cable lines extending up Missouri Avenue will be relocated underground. The school will connect to these underground lines where Missouri Avenue meets the school site. Transformers will be utilized to ensure the appropriate voltage is provided to the school (Oregon Solutions, 2009).

Run-off from the Boot Site currently discharges to the Nehalem River via an open channel. The project design has incorporated low-impact development techniques to reduce the amount of impervious surfaces requiring stormwater treatment. Run-off

from parking and roof areas will be collected through the use of catch basins and pipes. Stormwater for the proposed K-12 school will be collected through surface swales and underground pipes and conveyed to water quality facilities for treatment. After treatment, the drainage will flow to an on-site detention pond which will discharge to the Nehalem River, east of the school site. Off-site drainage from the west that currently flows onto the school site will also be collected and conveyed east to the Nehalem River, by-passing the school's drainage system. Section 4.5 – Water Resources provides additional discussion of stormwater impacts.

Aside from site work, the proposed project is anticipated to have negligible adverse impacts on utilities because the service is simply being transferred to a new location. In fact, the new school will contain a series of energy saving measures because of its LEED design (refer to Section 4.4 – Climate Change for a detailed discussion on energy saving measures). The square footage of the new school buildings exceeds that of the existing buildings (including the old high school) by approximately 25%; however, if the new school meets the design goal of reducing energy consumption by 50% better than current Oregon Energy Code for new buildings, it is likely there will be a decrease in the amount of energy consumed at the new school relative to the existing resulting in minor positive impacts on energy demand.

4.15.1.3 Alternative 3: Northwest Corner Site

The Northwest Corner Site will require utility lines to be extended to the site, along with the construction of a new 400,000-gallon water tank and pump station to serve the new facilities. Extension of the utility lines to the site will involve the digging of trenches and the placement of fill. The following extensions will be required:

- A 10-inch waterline will need to be extended to the site from the new water tank and booster pump station.
- An 8-inch sanitary sewer service line will need to be extended to the site from south of the cemetery along Bridge Street/Reservoir Road Elevations indicate that the site could be served by gravity, with no new pump station required.
- The site will tie into an existing 4-inch gas line south of the cemetery along Bridge Street/Reservoir Road, which has sufficient capacity to serve the new school.
- The site's power would tie into existing service along Reservoir Road, approximately 1,780 feet southwest of the site. Telephone and cable will be extended to the site from Bridge Street/Reservoir Road (Oregon Solutions, 2009).

As with the Boot Site, the project design would incorporate low-impact development techniques. A Stormwater Management Plan would need to be completed for development at the Northwest Corner Site. The plan would need to address stormwater improvements as a result of roadway improvements and site development. Similar to

the Boot Site, the stormwater system would need to be in compliance with the DEQ, Columbia County, and ODOT design standards for water quality pollution removal.

Adverse impacts to utilities, similar to Alternative 2, are expected to be negligible. However, an additional impact associated with this site is the need for a new pump station and water tank to be constructed for development of this site. As with Alternative 2, there would be minor positive impacts on energy use from LEED design features.

Public Health and Safety and Hazardous Materials

4.16 Public Health and Safety Hazardous Materials

This section covers a range of public health and safety issues including a discussion of hazardous materials. In particular, EO 13045 (Protection of Children from Environmental Health Risks and Safety Risks) requires federal agencies to identify and assess health and safety risks that may disproportionately affect children. Agencies must ensure their policies, programs, activities, and standards address disproportionate risks to children resulting from environmental health or safety risks.

There are a number of federal laws and regulations governing hazardous materials, including the Comprehensive Environmental Response, Compensation and Liability Act (42 USC 103), the National Emission Standard Hazardous Air Pollutants (40 CFR 61); the Resource Conservation and Recovery Act (40 CFR 261), and the Toxic Substance Control Act (40 CFR 763). In addition, the Oregon Administrative Rules (OAR) provide regulations for hazardous substances, including: Groundwater Quality Protection (OAR 340-040), Hazardous Substance Remedial Action Rules (OAR 340-122), Oil and Hazardous Materials Emergency Response Requirements (OAR 340-142), and Underground Storage Tank Rules (OAR 340-150).

The American Society for Testing and Materials (ASTM) has developed standards for the completion of Environmental Site Assessments (ASTM standard E1527-05). In general, a Phase I Environmental Site Assessment (Phase I) compiles information from a site reconnaissance, historical inquiries, regulatory records review, environmental interviews/questionnaires, and other available data sources to evaluate the environmental conditions at a site. A Phase II Environmental Site Assessment (Phase II) further investigates the site based on the identification of recognized environmental condition in the Phase I. A Phase II typically involves surface water, groundwater, soil, soil gas, or indoor air sampling to characterize the degree and extent of contamination at the site.

The Asbestos Hazard Emergency Response Act (AHERA) (40 CFR 763) requires schools to develop a management plan to safely guide the management of asbestos containing materials found in schools.

4.16.1 Affected Environment

As discussed in Section 4.5 – Water Resources, the existing school campus is currently located in the 100-year floodplain of Rock Creek and the Nehalem River and close to the City's wastewater treatment facility, including treatment ponds. During the December 2007 flood event, the school campus was flooded with contaminated water as a result of flood waters mixing with wastewater. During recovery, the District incurred significant costs for cleaning and decontaminating the school buildings to alleviate public health risks. Some of these costs were associated with the following activities:

- Replacing the bottom 4 feet of sheetrock/wall surfaces throughout the schools

- Hiring professional driers to dry out the buildings
- Conducting some mold abatement work, including the purchase of a commercial grade air purification machine for use in Washington Grade School
- Hiring a hazardous materials team to address science room chemical containers which had lost labeling during the flood

As discussed in Section 4.2 – Geology, Soils, and Seismicity, the school buildings were assessed for their performance in a seismic event. These seismic evaluations determined that Washington Grade School has a very high potential for collapse in the event of an earthquake.[5]

An analysis of the school buildings performed as part of the siting analysis neither observed nor suspected the presence of hazardous materials in the Vernonia Middle School. However, at the Washington Grade School asbestos containing material was observed in several areas (pipe wrap, floor, ceiling) and both lead paint and mold are suspected to be present throughout the building (Oregon Solutions, 2009). Triggers for dealing with the potential presence of lead-based paint are in relation to construction activities, not occupancy, and thus, there is no requirement to address the potential presence of these materials. The District follows standard asbestos containment practices, as outlined in their AHERA Management Plan, but has not taken any further abatement measures with regards to asbestos.

Both Phase I and Phase II environmental site assessments were completed at the different project locations in an effort to characterize the presence or absence of hazardous materials at the sites. The Phase I column of the table summarizes those features of the site which were determined to either be or have the potential to be a "recognized environmental condition," because of their potential to serve as a source for contamination of soil, groundwater, and surface water. As necessary, Phase II site investigations were undertaken to further characterize the degree and extent of contamination at the sites. Table 4.16-1 (next page) summarizes the results of those studies and associated recommendations.

[5] The collapse potential relates to the probability that the building will collapse if the maximum earthquake event considered likely in a reasonable amount of time (as determined by historical geological records) occurs, as determined by the U.S. Geological Survey.

Table 4.16-1: Summary of Phase I and Phase II Investigations

Location	Phase I	Phase II	Conclusion	Recommendations
Existing School Campus	Underground storage tanks, primarily heating oil, reported to have been located on the property at the former Administration Building, the high school, and the grade school (2 tanks).	Administration Building – No contamination present in soil samples High School – No contamination present in soil or groundwater samples Grade School – Moderate field evidence of heating oil contamination from 9-10 feet bgs – No contamination present in groundwater sample	– Contamination is limited to the area immediate around the former tank. – No contaminants exceeded any risk-based concentrations for occupational or residential property use – Decommissioning of all the tanks should meet the requirements for closure under DEQ's heating oil tank rules.	Oil tanks decommissioning should be certified by an Oregon DEQ-licensed heating oil tank decommissioning service provider.
	Two adjacent properties, an automotive repair facility and a former automotive fueling and repair facility, have the potential to have caused impacts on the site based on historical use.	Meyer's Auto Body – No contamination present in groundwater samples taken near property boundary NAPA Auto Parts (former gas station) – Gasoline hydrocarbons detected in soil and groundwater	Meyer's Auto Body – No detectable migration of potential contaminants onto the school property. NAPA Auto Parts – Site specific risk-based concentrations were calculated for gasoline and concluded none of the contaminants in the soil/groundwater samples exceed risk-based concentrations for any pathway	The apparent release, presumably originating from the former gas station site north of Bridge Street, should be reported to the owner of the property and DEQ so remedial measures can be taken to reduce future migration of contaminants onto the subject property.
Boot Site	Petroleum hydrocarbon staining observed adjacent to garage of a Texas Avenue residence. – Previous use of heating oil as a heat source – no evidence of an aboveground or underground storage tank at	Soil Sampling – Heavy oil (2,500 mg/kg) and diesel-range (118 mg/kg) petroleum contamination were detected in a sample collected near the garage of the residence.	Heavy oil-range petroleum is viscous and generally not very mobile in unsaturated soil; therefore, if the contamination is from occasional surface releases during auto repair, it is likely the detected contamination is limited in extent.	Future use and redevelopment of the property may require excavation and management of petroleum-contaminated soil. Under these scenarios, additional assessment along with preparation of a

Location	Phase I	Phase II	Conclusion	Recommendations
	the site	– No associated staining or petroleum odor was observed	This would need to be confirmed through additional shallow soil sampling.	contaminated media management plan is recommended.
	Potential for lead contamination in soils at Spencer Park. – Historic use as a shooting range prior to 1960 when metallic lead shot was the preferred material for users	Soil Sampling – Lead was detected above DEQ-established background concentrations – Three areas were not within the natural variability of lead in the environment – No lead shot or bullets observed	No human health risk present at the site for current or future receptors as the measured lead concentrations exceeded DEQ-established screening levels for two potential ecological receptors (birds and plants)	Leave the soil in the vicinity of the three samples with elevated lead concentrations in place to minimize the chance of spreading elevated lead in soil to other areas of the site. Cover soil with top soil or pavement to eliminate the direct contact pathway with birds and plants.
Wetland Mitigation Site	Site of former Oregon-American Lumber Company's Sawmill. – Potential sources of contamination as a result of site uses include: oils and greases from rail system and milling equipment, chemical carts and hydraulic hoses present within the former dry lumber sorter building, a machine shop, a locomotive shed, and a locomotive fuel tank. – Discolored surface water in the area at the north end of the mill site.	Groundwater Sampling – No contamination detected Soil Sampling – Heavy oil petroleum ranging from 69.5 to 5,360 mg/kg was present in several locations with limited lateral extent. – One location detected contamination below 6 inches bgs. Results were consistently low concentrations averaging less than 100 mg/kg.	Heavy oil may be a result of historical operations of the lumber mill but given the contamination was mostly observed in the top six inches, it may also be derived from flood deposits or public recreation activities in the years since the mill shut down.	If the regulating agencies are concerned about potential impacts from identified contamination to the future wetland habitat, a limited option analysis may be required to identify remedies best suited to the construction schedule, budget, and site constraints.

(Anderson Geological, 2010; CES, 2009; Northwest Geotech, Inc., 2009; Northwest Geotech, Inc. 2010a, 2010b, 2010c; PBS 2010b, 2010c, 2010d)

4.16.2 Consequences of Alternatives

4.16.2.1 Alternative 1: No Action Alternative

Under the No Action Alternative, there would be no change to existing public health and safety conditions and risks to the school campus. The school would continue to be susceptible to flooding impacts and associated potential adverse public health conditions. Public safety risks would persist with the Grade School as a result of its potential for collapse in a seismic event.

No action would occur with regards to the existing asbestos or potential lead-based paint and mold. The Grade School would continue to operate under their AHERA Management Plan and follow standard asbestos containment practices. It can be reasonably assumed that the school district may continue to monitor for mold, and abate as necessary, given the history of the building.

The underground storage tanks identified at the site will be decommissioned and certified by a DEQ-licensed heating oil tank decommissioning service provider.

With no action, potential adverse effects to public health and safety range from minor to major, depending on the magnitude of either an earthquake or flood event. Continued adverse effects to public health caused by the presence of asbestos containing materials and lead-based paint in the Grade School range from negligible to minor. Under this Alternative there would be no change to conditions at Spencer Park.

4.16.2.2 Alternative 2: Boot Site (Proposed Action)

Construction of the school at the Boot Site would remove the health and safety risks associated with the impacts of a flood event because the site is above the 500-year floodplain. Public safety risks from an earthquake would be significantly reduced since the new school would meet the current seismic design and construction standards and practices for new schools. Public health risks associated with exposure to asbestos containing materials and lead-based paint would be eliminated because the new school building's construction materials would not include such hazardous materials. If asbestos containing materials are used in the new school, the school would be bound by the AHERA regulations and will need to prepare plans for the management of the asbestos.

Per the Clean Air Acts' National Emission Standards for Hazardous Air Pollutants, as implemented by the DEQ, prior to demolition of the existing school building, a Pre-Demolition Asbestos Survey will need to be completed. Any asbestos containing material identified will need to be abated prior to demolition activities which could disturb those materials. In addition, a hazardous materials survey will need to be conducted to locate and identify hazardous materials such as mercury-containing products, PCBs, lead-based paint, and other hazardous materials. Handling and disposal of these materials will be guided by the requirements of the Occupational Safety and Health Administration (OSHA) and/or the Resources Conservation and Recovery Act.

School labs will be required to follow a protocol which prohibits disposing of any hazardous wastes down the drain. This material will be collected in designated containers and the school will be responsible for disposing of them in an appropriate manner. The school is being designed to meet LEED EQ Credit 5: Indoor Chemical & Pollutant Source Control which has different requirements designed to minimize the amount of dirt and particulates entering the building, address circulation and exhaust in rooms where hazardous gases or chemicals are present, provide air filtration, and provide containment drains to deal with hazardous waste.

School zone signage and flashing beacons will be installed at the Bridge Street and Missouri Avenue crosswalk to alert drivers of pedestrians. In addition, crossing guards will be present before and after school to ensure the safe crossing of students. Refer to Section 4.14 – Traffic & Transportation for additional information. In addition, the District, City, and ODOT have developed a Safe Routes to School (SRTS) approach for the new school. The primary goal of this program is to make bicycling and walking to school a safer and more appealing transportation choice for children from an early age. The SRTS program provides guidelines for developing safe pathways for children to walk and bicycle to the new school site by means of a primary route and several secondary routes. The primary route will follow Bridge St/Hwy 47 through the center of town (improvements discussed in Section 4.14 – Traffic & Transportation). Two secondary routes, a trail and some stairs will provide direct pedestrian access up the hill and along local streets to a secondary side entrance at the west side of the school site. In addition, a pedestrian-only entrance will be provided through the play fields on the east side of the school.

Thus Alternative 2 would result in moderate positive effects to public health and safety as a result of risks being either eliminated or significantly reduced. Section 7.0 - Permitting, Project Conditions, & Mitigation Measures outlines various mitigation measures to be implemented during the project that will address environmental conditions identified in Table 4.16-1.

4.16.2.3 Alternative 3: Northwest Corner Site

Construction of the school at the Northwest Corner Site would have the same consequences as described above relative to health and safety risks associated with a flood event, an earthquake, or exposure to hazardous materials. This site is also above the 500-year floodplain and the school would be designed and built as described above. Similarly, demolition requirements of the existing school buildings will be the same as those discussed above under Alternative 2. Similarly, this alternative would result in a moderate positive effect on public health and safety.

No environmental site assessments have been completed at the Northwest Corner Site. Based on the currently limited knowledge of site history, potential contaminant sources may be related to petroleum fueled equipment used during timber operations. In

addition, there is the potential for contaminated soil to be present at the cemetery (depending on its age) due to the historical use of arsenic in embalming fluids. If the project proceeded at this location, a Phase I ESA would need to be conducted.

Parks & Recreation

4.17 6 (f) Resources

As described in Section 1.0 – Introduction, in 2004, the City of Vernonia received an NPS LWCF grant for acquisition and site development at Spencer Park, thereby protecting it for public outdoor recreation under section 6(f)3 of the LWCF Act. With these funds, the City made improvements to Spencer Park and acquired 5,000 square feet of an adjoining property from the neighboring Catholic Church.

The City of Vernonia is proposing to remove federal protection from Spencer Park (4.6 acres) to allow for the construction of a new K-12 school and associated amenities. The City proposes to compensate this impact with the acquisition and development of a replacement park (New Spencer Park) on 11.82 acres of the existing school campus site (Figure 4.17-1). In addition, a small neighborhood park ("tot lot") will be constructed on the 8,300-square-foot lot adjacent to the Catholic Church.

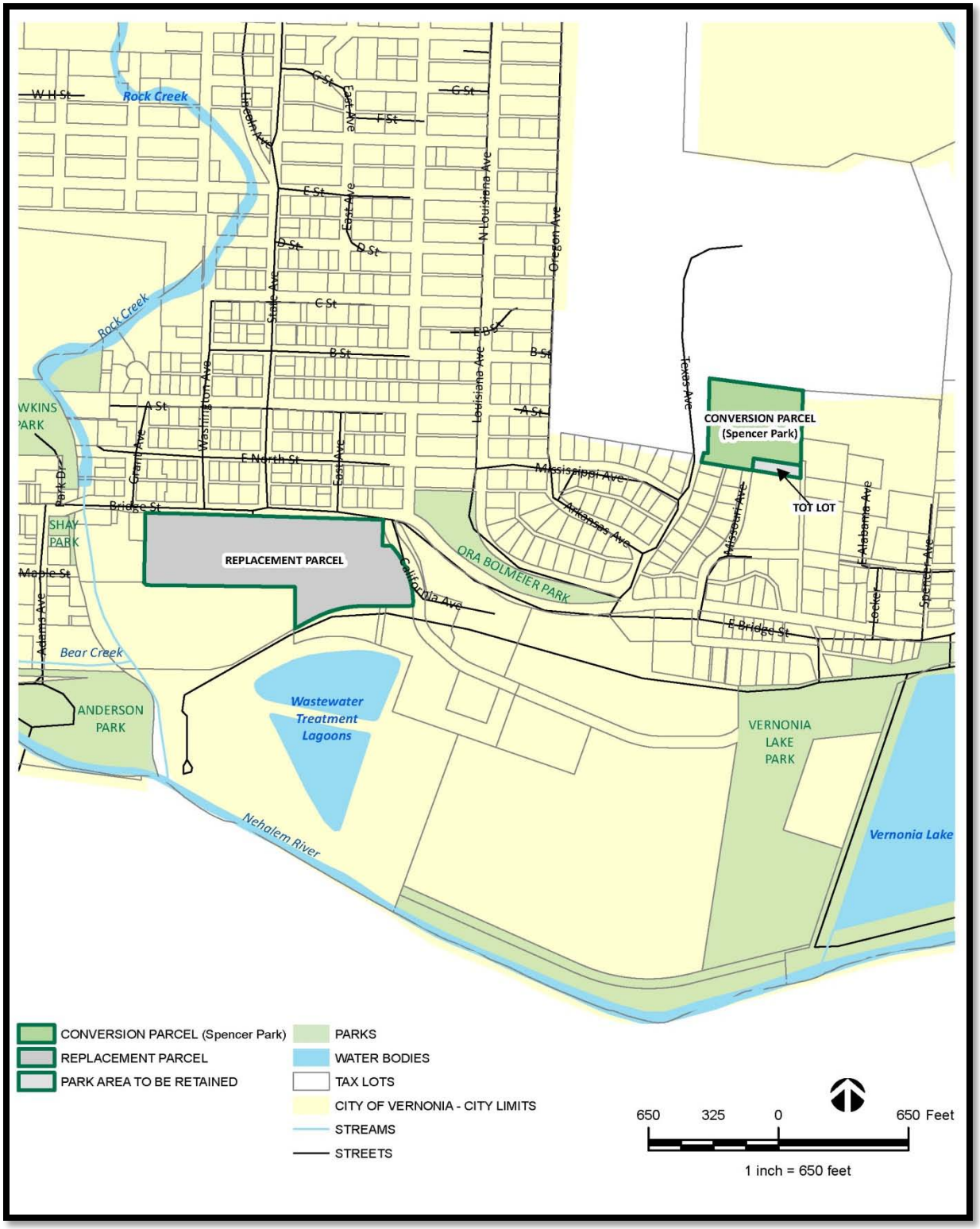
4.17.1 Affected Environment

Only Alternative 2, the proposed action, will impact a park protected by the LWCF. No existing park land is present at the existing school site or the Northwest Corner Site. For the purposes of this section of the EA, Spencer Park is considered to be the "Conversion Parcel" and the portion of the existing school campus to be used for development of New Spencer Park is considered to be the "Replacement Parcel."

Spencer Park is a multi-sports park with fields for baseball, softball, and soccer or football. The park also provides restrooms and parking facilities. The park is located at the north end of Missouri Avenue east of downtown Vernonia. The baseball field is located in the southeast corner of the site, while the soccer/football fields share the outfield area with the baseball field. The park occupies a 4.79-acre tax lot and is bordered by residential development, pasture, forest, and a church. The tax lot includes the park area and the vacated portion of Oklahoma Avenue. Parking for the site is provided along the vacated right-of-way. The restroom facility is located at the east end of this area.

The site is flat without unique landscape features. Improvements on the site include a baseball diamond with dugouts, soccer goal posts, parking, and a restroom facility. The ball field features a dirt in-field and a grass outfield. There are no conservation areas, recreational trails, or other recreational facilities, services, or opportunities present on the site. The park is open to the public and is accessible from Texas or Missouri Avenues. There is a small paved pathway providing access from the parking area to the ball field. There is a small paved pathway providing access to the baseball diamond from the parking area. There are no additional trails or paths providing access to other areas of the park.

Figure 4.17-1: Conversion & Replacement Park Locations



Spencer Park serves the population of the City of Vernonia and the surrounding unincorporated areas of Columbia County. Local soccer, baseball, and softball teams use the fields for practices and games. There are approximately 60 students who play soccer and 80 who play baseball/softball (Glass, 2009). The fields are also utilized for general community use. Other community events also occur at the site, including the annual Jamboree softball tournament sponsored by the Vernonia Chamber of Commerce. On average, 8 teams participate in the tournament each year.

The Replacement Parcel has school buildings, a covered basketball court, uncovered play area with structures, parking lots, and portable buildings present on the site. There is a wetland located along the southern boundary extending to the middle of the site, a wetland located along the western border near Rock Creek, and a ditch which runs along the southern edge of the property. On the south side of the ditch are the paved Banks-Vernonia Trail and a gravel road providing access to the City's wastewater treatment facility. Access to the trail is available along California Avenue. The site is accessible to individuals with disabilities. There are paved areas surrounding the school and providing access around the site.

4.17.2 Consequences of Alternatives

4.17.2.1 Alternative 1: No Action Alternative

Under the No Action Alternative, there will be no impacts to park or 6(f) resources. The recreational amenities present on the existing school campus, and accessible to the public outside of school hours, would remain vulnerable to flood damage.

4.17.2.2 Alternative 2: Boot Site (Proposed Action)

The City proposes to convert Spencer Park and replace it with a new park on the site of the existing school campus (Figures 4.17-2 & 4.17-3). New Spencer Park will be located on 11.82 acres of the school parcel which will be acquired through a land transfer with the District. After the land transfer, the City of Vernonia will be the owner and manager of the new park.

The NPS regulations require the Replacement Parcel to provide a similar recreational utility as what is currently available at the proposed Conversion Parcel. The recreational utility of Spencer Park is derived from the existing organized and informal recreational opportunities available at the site (described above). Development of the Replacement Parcel will replace the park components currently available at Spencer Park. New facilities to be constructed in the Replacement Park will include a full-size baseball/ softball field, restroom facility (20X20 feet), children’s play area (75X100 feet), soccer field (195X330 feet), soccer field (165X300 feet), parking areas for park users; irrigation system for playfields, and a path system within the park. In addition, the following existing improvements will be retained: covered basketball court, children’s play area, and grandstands (conceptual site plan in Appendix B). All new equipment and facilities will be built to current building code and safety standard (Appendix B – Site Plans). The Replacement Parcel will also provide pedestrian access to the Banks-Vernonia trail along the Nehalem River. The Replacement Parcel will also provide access to individuals with

mobility impairments, whereas such access is limited at the Conversion Parcel. Spencer Park is 4.79 acres; 4.6 acres of the park will be converted. The 8,300-square-foot (0.19 acre) lot located east of the intersection of Missouri Avenue and the vacated Oklahoma Avenue right-of-way will not be converted to educational uses and will be developed into a small neighborhood playground "tot lot" for younger children. The existing restrooms currently existing on this parcel will remain. The area of the lot not developed as the tot lot would be preserved as open space (Appendix B).

Prior to development of the Replacement Parcel, the District would be responsible for the demolition of all existing buildings, the removal of all impervious surfaces, rough grading of the site, and hydro seeding to provide erosion control. The existing covered basketball court and play area will not be removed, and will be included in the property exchange and become part of the new park. The Replacement Parcel will also include an irrigation system for all of the sports fields. Table 4.17-1 summarizes the proposed conversion.

Table 4.17-1: Summary of Park Conversion

	Conversion Parcel (Spencer Park)	Replacement Parcel (New Spencer Park)	Comment
Fair Market Value (DATE)	$240,000 $50,094/acres ($1.15/sq.ft.) February 12, 2010	$240,000 $22,000/acre ($0.51/sq.ft.) March 11, 2010	Value of acreage gained:$160,397 (7.22 acres x $0.51/sq.ft.)
Size (Acres)	4.6	11.82	Acreage Gained: 7.22
Amenities	Ball Field Multi-purpose Play Fields Parking Restroom	Ball Field 2 - Multi-purpose Play Fields Parking Restroom Covered Basketball Court Children's Play Areas Grandstands ADA Accessible Pathways	

NOTE: The real estate appraisals of the existing park site and the replacement park site were completed earlier than the surveyor's boundary survey and legal description completed for the Environmental Assessment; thus, the acreage figures are not the same. In this report, the boundary survey figures are used because they are the most accurate. In addition, after the appraisal was completed, School District 47J agreed to sell 11.82 acres (which evened-out the property line boundaries east and west), rather than the 11 acres used in the appraisal.

The conversion of Spencer Park and the acquisition of the Replacement Parcel would result in an increase to the amount of park and open space within the City of Vernonia. The recreational utility at the Replacement Parcel will exceed what is currently available at Spencer Park through the provision of additional park amenities. The same population who currently uses Spencer Park will be able to take advantage of the increased recreational opportunities available at the Replacement Parcel. Due to the location near the center of town, New Spencer Park will be more easily accessible than Spencer Park is currently.

Figure 4.17-2: Existing 6(f) Boundary

Figure 4.17-3: New 6(f) Boundary

The City expects the construction of the proposed improvements to the Replacement Parcel and to the tot lot to begin shortly after the school district moves into its new school complex and demolishes existing structures in 2011. It is estimated that the entire process will take not longer than 36 months before the new park is opened for use. The City of Vernonia will own and manage the new park and the tot lot when construction is completed. The City, the District, and local sports organizations have worked together to minimize the impact to recreational opportunities during the time between the conversion of Spencer Park to non-recreational uses and the development of New Spencer Park. The District has cooperated with local sports teams to make the school sports fields available for games and practices to the greatest extent possible, scheduling them around school activities. In addition, a local coach has developed a small baseball/softball field on his property which little league teams are able to use for practices.

The NPS EA guidance requires the applicant to address the relationship of the proposed park conversion to the Oregon Statewide Comprehensive Outdoor Recreation Plan (SCORP). The 2008-2012 SCORP addresses key demographic and social factors affecting outdoor recreation in the state, specifically : a rapidly aging population, fewer youth learning outdoor skills, an increasingly diverse population, and increasing health problems related to decreasing physical activity. At the core of each of these issues is the need to encourage Oregonians to become more physically active. This objective can be met through expanding outdoor recreation facilities and designing these facilities to meet the needs of the specific community. The Replacement Parcel will serve the community currently using Spencer Park and will also accommodate community activities and programs. The conversion is consistent with SCORP in that it provides replacement property available for outdoor recreation that would help fulfill the planning goals of the SCORP. The replacement property will provide opportunities for aging baby boomers, youth, and diverse populations.

Development of the New Spencer Park will occur within the 100-year floodplain of the Nehalem River and Rock Creek. The existing school campus, within the 100-year floodplain, was selected as the site for the New Spencer Park for the reasons outlined in Section 4.7 – Floodplains. One of the main reasons was the lack of available land of sufficient size to replace the recreational utility and fair market value of Spencer Park. Flood impacts to park amenities will be alleviated through the minimization of impervious surfaces at the park. All parking areas and trails will be compacted gravel or pervious pavement. The only impervious surfaces to remain on the site will be the roofs of the grandstands, the covered basketball court, and the restroom. During a flood event, access to the park amenities would be restricted. This impact would be temporary and impacts to the park amenities would be minimal. The restroom will be designed to allow floodwater to flow through, and both the basketball court and grandstands are open structures where floodwater is able to flow through as well. Section 4.7 – Floodplains concluded that overall, Alternative 2 will have a positive effect on the floodplain through the removal of fill material, structures, and impervious surfaces.

An Environmental Screening Form has been completed for Spencer Park (Conversion Parcel) and New Spencer Park (Replacement Parcel) and is included in Appendix J.

4.17.2.3 Alternative 3: Northwest Corner Site

Alternative 3 will not impact any park or 6(f) resources.

5.0 CUMULATIVE EFFECTS

The CEQ regulations for implementing NEPA require an assessment of cumulative effects during the decision-making process for federal projects. Cumulative effects are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR 1508.7).

There are some other recent, ongoing or near-term future actions in Vernonia with the potential for cumulative effects to the proposed action. The City of Vernonia is planning to construct improvements to the existing wastewater treatment plant, located within the 100-year floodplain of Rock Creek and the Nehalem River. The height of the levees surrounding the existing lagoons will be raised between 3 and 5 feet to protect the lagoons from future flood impacts. The project has the potential to impact the floodplain and wetlands in the area immediately adjacent to the lagoons. As such, the City will undertake the enhancement of the wetlands located between the lagoons and Vernonia Lake as part of the project. Floodplain impacts would be evaluated during permitting. Other actions planned within the City include development of a 65-unit subdivision north of the Boot Site. Additional foreseeable future actions include aquatic restoration projects within the watershed undertaken by the Upper Nehalem River Watershed Council. The Council is a non-profit organization dedicated to the protection, preservation, enhancement and restoration of the Nehalem Watershed which actively pursues the implementation of restoration and enhancement projects.

According to the USACE, 7 permits for the discharge of fill material into waters of the U.S. have been issued in Vernonia since 1993 for activities within the 100-year floodplain. In addition, one permit was issued for actions located outside of the 500-year floodplain. Aside from the aforementioned wastewater treatment plant upgrades, no permits are currently pending with the USACE in Vernonia.

The goal of the project is to replace the existing schools located within the 100-year floodplain that are regularly affected by flooding. The proposed project has a number of potential effects, both positive and negative, many of which will become negligible through the implementation of mitigation measures. The major cumulative effects will result from land clearing to construct the new school. The expected cumulative effects are expected to differ between the three alternatives.

Alternative 1: No Action Alternative

There will be no cumulative impacts associated with the No Action Alternative.

Alternative 2: Boot Site (Proposed Action)

In the City of Vernonia, the 100-year floodplain of Rock Creek and the Nehalem River has been developed with residential, commercial, industrial, and educational uses. As described in the Introduction, the City has had two significant floods in the past 20 years that caused major damage to structures in the floodplain. During the recovery of those floods, the most recent of which was 2007, the City has sought to reduce its vulnerabilities to flood damage through the elevation and buyout of residential properties and flood-proofing of commercial properties. The City is planning to acquire and demolish 40 properties and has elevated approximately 35 homes in the floodplain since 2007. Thus, removal of the school buildings from the floodplain, when combined with past, ongoing, and future flood hazard mitigation activities will result in a positive cumulative effect to floodplain values. Reduction in impervious surfaces within floodplains reduces peak flows and volumes and has the potential to decrease flood elevations.

Development patterns could be affected by the Proposed Action alternative. A new school at the Boot Site will infill an existing area within the City limits. Although the site was only recently annexed into the City, the City limits bordered the site on three sides. Existing development also borders much of the site, both within and outside the City limits. A 65-unit subdivision is proposed for development north of the Boot Site. The property has already been cleared and subdivided into lots (Oregon Solutions, 2009). Thus, a new school at the Boot Site is not expected to further change development patterns in the immediate area around the school. Development may also result in an incremental increase in noise in the area. However, the residential noises will be similar to what currently exists in the area and is not expected to result in adverse cumulative effects in the area.

Both the school and subdivision actions will result in an incremental loss of wildlife habitat and conversion of vegetated land. Site clearing will require the removal of wetland vegetation, upland habitat, and forest habitat. The removal of vegetation reduces available habitat for wildlife and the change in land use can limit the use of any remaining habitat by certain species of wildlife. Replacement plantings of trees and shrubs will help to offset the loss of vegetation; however, these plantings are not likely to fully offset the loss in habitat value. Mitigation of wetland impacts will also offset those losses. Future improvements to wetland habitat associated with the wastewater treatment plant project and Watershed Council projects will also aid in the improvement of habitat values in the area. Thus minor adverse cumulative effects will result to vegetation and wildlife habitat around the Boot Site.

Alternative 3: Northwest Corner Site

The Northwest Corner Site is likely to draw new development to a currently undeveloped area with few roads. The Northwest Corner Site is located in Columbia County on the fringe of town. Land use at this site and in the surrounding area is managed timberland. No immediate change in development practices would be expected, but over time, more development would be expected to occur in the vicinity of the school. This would incrementally contribute to additional traffic and more noise. As development progressed around the new school, more vegetation would be cleared and more wildlife habitat lost, and possibly wetlands as well. Because the area surrounding the Northwest Corner Site is undeveloped with few roads, wildlife habitat value is high, even though the land is actively managed for timber. Thus the

Northwest Corner Site would likely result in minor to moderate adverse cumulative effects to vegetation, wildlife, wetlands, traffic patterns, and noise levels. Cumulative benefits to floodplain values would be as described under the Boot Site.

6.0 AGENCY COORDINATION & PUBLIC INVOLVEMENT

Extensive public involvement and agency coordination has occurred for the K-12 school project over the past few years. The following section provides an overview.

6.1 Public Involvement

Prior to the start of the formal federal NEPA process, the selection of a site to construct the new school (including the decision to convert Spencer Park from park uses) was the focus of an Oregon Solutions project designated by Governor Kulongoski. Since 2008, the Oregon Solutions group held numerous meetings since its establishment, including public town halls, to develop the proposed project, discuss issues, and decide on the direction to take. Participants in the Oregon Solutions process included representatives from state, local, and federal agencies, State and Federal representatives, congressmen and senators, local companies, and schools. The K-12 school project has been a regular agenda item on public monthly school board meetings. In November 2009, Vernonia voters approved a bond measure to build a new K-12 school.

The project has also recently been an agenda item on numerous City public meetings for consideration and approval of annexation and zone change applications, and for review and approval of a Conditional Use and Site Development permit for the new school and roadway improvements. In addition, Columbia County held a public hearing to approve the annexation request.

Another opportunity for public involvement will be available during the New Spencer Park planning process to be undertaken by the City of Vernonia prior to final design and construction of the new park.

The NEPA process requires that opportunities be provided for public review and comment. In addition to the opportunities described above, this project provided formal opportunities for public involvement during the scoping process and during circulation of the draft EA. In addition to NEPA, public involvement is being conducted pursuant to EO 11988 (Floodplain Management); EO 11990 (Wetlands Protection); the Clean Water Act; and the National Historic Preservation Act.

A scoping document describing the NEPA process, project background, purpose and need, initial alternatives identified, and the key environmental and historic issues identified during preliminary scoping efforts was prepared and made available to the public at the school district offices, on the school district web site, and during a public scoping meeting. A flyer was distributed to all mailing addresses within the boundary of the Vernonia School District, as well as to tribes, various stakeholders and interest groups, announcing the time, purpose, and location of the scoping meeting.

A public scoping meeting was held on July 28, 2010, at Vernonia High School Cafeteria, with notice published in local newspapers. The public comment period was open from July 21, 2010, until August 20, 2010, few comments were received. A copy of the public notice and scoping summary are provided in Appendix A.

The USACE issued a Public Notice for the CWA Section 404 permit application submitted for the project on August 26, 2010. The public comment period on the permit was open from August 26, 2010, to September 27, 2010. The USACE did not receive any public comments during this time. The USACE permit and public notice is limited to the activities at the Boot Site and the proposed compensatory wetland mitigation site.

The draft EA was made available for public review and comment from October 4 to November 2, 2010. A public meeting soliciting comments on the draft document was held on Thursday, October 14, 2010, at the Vernonia Middle School Cafeteria. A notice of the public meeting and availability of the draft EA was published in local papers as well as mailed to the above mentioned distribution list (Appendix A). The draft EA was posted on FEMA's, the School Districts, and the City of Vernonia's websites. FEMA considered substantive comments to the draft EA, in collaboration with the Vernonia School District, Columbia County, City of Vernonia, NPS, ORPD, Oregon Emergency Management Department (OEM), and USACE. Appendix A provides a summary of the comments received.

6.2 Agency Coordination

The following agencies were consulted during the preparation of this document as well as for regulatory authorizations and permitting:

- City of Vernonia
- Columbia County
- Community Action Team
- Farm Service Agency
- National Marine Fisheries Service
- Natural Resources Conservation Service
- Oregon Department of Emergency Management
- Oregon Department of Environmental Quality, Water Quality Section
- Oregon Department of Fish & Wildlife
- Oregon Department of Land Conservation & Development
- Oregon Department of Parks & Recreation
- Oregon Department of State Lands
- Oregon Department of Transportation
- Oregon Natural Heritage Information Center

- Pacific Northwest Seismic Network, University of Washington
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- Vernonia School District

7.0 PERMITTING, PROJECT CONDITIONS, & MITIGATION MEASURES

7.1 Permitting

The Proposed Action would be constructed in accordance with applicable local, state, and federal regulations. The District will be responsible for acquiring any necessary permits prior to the commencement of construction activities. Table 7.1-1 outlines anticipated permitting.

Table 7.1-1: Required Permits and Approvals

AGENCY	PERMIT/APPROVAL
City of Vernonia	Annexation
	Zone Changes
	Conditional Use
	Site Development – Grading
	Building/Electrical/Plumbing
	Ordinance 851 Floodplain Development Permit
Oregon Department of Land Conservation & Development	Coastal Zone Consistency Determination
Oregon Department of State Lands	Oregon Removal/Fill Law Removal/Fill Permit
Oregon Department of Environmental Quality	NPDES 1200C Construction Stormwater General Permit
	Clean Water Act Section 401 Water Quality Certification
U.S. Army Corps of Engineers	Clean Water Act Section 404 Permit

7.2 Project Conditions & Mitigation Measures

The following include conditions that will be applied to the project during implementation that will reduce adverse impacts to various resources.

- The proposed project will abide by all applicable local, state, and federal regulation and land use approvals.
- Conservation measures to minimize effects to water quality and biological resources provided by the National Marine Fisheries Service, by the Water Quality Certification prepared by Oregon Department of Environmental Quality, and all USACE permitting requirements will be adhered to during site development.

- Construction best management practices, as identified in the Sediment and Erosion Control Plan prepared for the proposed action will be utilized and maintained throughout construction to control soil erosion and sediment, reduce spills and pollution, and provide habitat protection.
- Erosion controls will be in place prior to any ground disturbing activity.
- Avoided wetlands and waters will be fenced during construction as no-work zones.
- Clearing activities (grubbing and tree removal) will be done between October 15 and February 15 to avoid impacts to migratory birds.
- The tree removal line will be marked in the field. Tree stumps and grasses will be maintained until immediately prior to active site work. Identified trees will be stockpiled for re-use in the wetland mitigation site.
- Work within the unnamed tributary will be conducted within the approved ODFW in-water-work window between July 1 and August 31 and the approved extension between November 15 and December 15.
- As follow-up to Phase II recommendations at the Boot Site, Texas Avenue property; additional assessment along with preparation and implementation of a contaminated media management plan is required to address petroleum-contaminated soils present.
- As follow-up to Phase II recommendations at the Boot Site, Spencer Park; soils in the vicinity of the three samples with elevated lead concentrations will be removed and disposed of in accordance with the contaminated media management plan prepared for the site.
- Conservation and minimization measures outlined in the Biological Assessment shall be implemented. These measures recommend strict adherence to project construction specifications for site clearing, earth moving, asphalt paving, concrete paving, storm utility drainage piping, and subdrainage. Please refer to Appendix D of the Biological Assessment for complete text of each specification (Appendix H).
- In the event that previously unidentified archaeological or historic materials are discovered during project activities, work in the immediate vicinity shall be discontinued, the area secured, and the SHPO, affected tribe, OEM, FEMA, and USACE notified.
- Any hazardous materials discovered, generated, or used during construction would be disposed of and handled in accordance with applicable local, State, and Federal regulations, with the DEQ being the lead agency regarding compliance. During all activities, appropriate measures to remove, prevent, contain, minimize, and control spills of any potentially hazardous materials (e.g., petroleum products, pesticides, fertilizers, cement, solvents, paint) will be employed.
- The new school will be designed and constructed in accordance with appropriate seismic design and construction standards and practices.

- The Compensatory Mitigation Project will be constructed concurrent with the new school and in accordance with the USACE approved Compensatory Wetland Mitigation Plan.
- District is responsible for determining the presence of hazardous materials during demolition work. These materials shall be handled, managed, abated, and disposed of in accordance to the requirements of the applicable local, state, and federal agencies, including the DEQ.
- Prior to demolition of Washington Grade School a Pre-Demolition Asbestos Survey will be completed and all asbestos identified will be abated prior to any demolition activities which could disturb those materials. Asbestos abatement will be in compliance with the DEQ guidance and regulations.
- Oil tanks decommissioning must be certified by an Oregon DEQ-licensed heating oil tank decommissioning service provider.
- All construction debris shall be disposed at an approved and permitted location. The site stormwater management system shall be operated and maintained consistent with its intended design.
- New Spencer Park will be constructed within 36 months of conversion.
- Work in the floodplain shall be conducted during the non-flood season as determined by the local floodplain administrator.
- Final design of new park facilities must be consistent with the standards and criteria of the National Flood Insurance Program and the Vernonia floodplain ordinance. The new park facilities must minimize potential flood harm to the federal investment and to floodplain values through minimizing impervious surfaces and wet or dry floodproofing or elevation of facilities. Elevation with fill is to be avoided.
- No construction shall be performed within 300 meters of an occupied dwelling unit on Sundays, legal holidays and between the hours of 10:00 p.m. and 7:00 a.m. on other days.
- Implementation and compliance with the adverse affect treatment measures outlined in the Memorandum of Agreement executed in November 2010 for the Grade School.
- Project implementation will comply with FONSI's issued by FEMA, USACE, and NPS.
- Any change to the approved scope of work stated in the FEMA grant application and beyond the scope of this EA for the proposed action will require re-evaluation for compliance with NEPA and other laws and Executive Orders.

Best Management Practices

- All equipment shall comply with pertinent equipment noise standards of the U.S. Environmental Protection Agency.

- When possible any loud activities, such as concrete crushing, will be performed the largest feasible distance from any occupied dwelling. Impacts from these noises shall be mitigated by strategic placement of material stockpiles between the operation and the affected dwelling or by other means.
- Heavy machinery and equipment to be used for the proposed action will meet federal clean air standards. In addition, all equipment used shall have sound control devices no less effective than those provided on the original equipment. No equipment shall have un-muffled exhaust.
- Site soils will be covered and/or wetted during construction as needed to minimize fugitive dust.
- Construction activities will be conducted during the daytime hours to reduce adverse noise impacts.

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