

**WOODLAND SCHOOL DISTRICT**

**COMPARATIVE ANALYSIS**  
**OF**  
**TWO POTENTIAL SITES FOR A NEW HIGH SCHOOL**

**Draft**  
**4-Nov-2008**



*Specialists in School Buildings*

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## **SECTION 1: EXECUTIVE SUMMARY AND DIFFERENTIATING FACTORS**

The purpose of this report is to provide the District with information to allow a comparison of two potential sites for the location of a new high school: the Dike Access Road site and the Existing School District Campus. No attempt has been made to establish a preference between the two sites and the District may well want to take additional factors into consideration over and above the technical information in this document. A summary of each section and observations with regard to differentiating factors follows:

### **1. Zoning and Regulatory Constraints**

Each site will be exposed to the normal array of regulatory agency oversight. The Dike Access Road site will have the additional scrutiny of the Corps of Engineers and Department of Ecology because of wetland mitigation activities.

### **2. Geotechnical Conditions**

Each site has less than optimal soils conditions. Based on the reported chosen methods of construction for the neighboring church and commercial buildings it appears that the Dike Access Road site will require surcharging and mass grading for positive drainage that the existing campus may not. Further investigation will need to be done during the design process to confirm this preliminary opinion.

### **3. Wetlands**

The Dike Access Road site will lose approximately 15 acres of land to wetlands, mitigation, and sensitive land designations. The existing campus appears to have no such constraints.

### **4. Utility Infrastructure**

Each site will require the extension of existing utilities to support development. Initial conversations with the City indicate that the Dike Access Road site may be more costly with regard to off-site utility construction. Although, the existing campus site may require the replacement of one or two existing pump stations. Dike Access Road site may be more conducive to sharing such costs with neighboring development depending on timing of construction.

### **5. Roads, Parking and Traffic**

Initial discussions with the City indicate that the Dike Access Road site will require more extensive off-site road and frontage improvements than the existing campus site. Dike Access Road site may be more conducive to sharing such costs with neighboring development depending on timing of construction.

## **6. Reuse of Existing Facilities**

The existing campus could allow the reuse of certain existing facilities such as vocational classrooms, performing arts center, track, fields and parking.

## **7. Site Planning Constraints**

The primary planning constraints at the Dike Access Road site is related to wetlands mitigation and poor soils conditions. The primary planning constraints at the existing campus are related to limited space on which to build and the potential relocation of the existing transportation center.

## **8. Projected Development Costs**

Initial estimates indicate a difference of approximately ~~\$5~~ \$2 to \$4 million between the two sites, with the Dike Access Road site being the more expensive.

## **9. Projected Development Schedule**

It is projected that the development of a new high school on the Dike Access Road site would take 48 months. Development on the existing campus is projected to take 42 months. The longer development period for the Dike Access Road site is in anticipation of a rigorous and perhaps protracted wetlands entitlement process and site surcharging requirements.

## **10. Operating Considerations**

The existing campus site would require no modifications to the current transportation system or school bell schedules. The construction of the high school on the Dike Access Site would require consideration of two primary options, either of which would generate additional operating costs:

- Modification of bell schedules to allow busses to route from the current campus, where middle school and primary students are transported. This may occur via the freeway or via surface roads that will necessitate the crossing of rail tracks.
- Move to a two-tier bus schedule, where busses run one route for primary and middle School Students and one route for intermediate school and high school students.

## SECTION 2: ZONING AND REGULATORY CONSTRAINTS

### DIKE ACCESS ROAD SITE

**Zoning:** Industrial 1 (schools allowed outright)

#### **Anticipated Regulatory Authorities**

- City of Woodland
- ~~Clark County~~
- Army Corps of Engineers
- Department of Ecology
- Local Fire District
- Labor & Industries
- State and Local Health Department

#### **Anticipated Approval Processes**

- Pre-Application hearing
- Conditional use hearing(s)
- Wetlands filling and mitigation approval
- Building permits (fire, utilities, plumbing, etc)
- Labor and Industries approvals
- Health department approvals

### EXISTING WOODLAND SCHOOL DISTRICT CAMPUS

**Zoning:** Public Use – schools allowed outright

#### **Anticipated Regulatory Authorities**

- City of Woodland
- Local Fire District
- Labor & Industries
- State and Local Health Department

#### **Anticipated Approval Processes**

- Pre-Application hearing
- Building permits (fire, utilities, plumbing, etc)
- Labor and Industries approvals
- Health department approvals

## SECTION 3: GEOTECHNICAL CONDITIONS

### DIKE ACCESS ROAD SITE

A preliminary geotechnical investigation was undertaken by Columbia West Engineering, Inc. in the vicinity of the anticipated high school building to determine the general characteristics of surface and subsurface conditions that might impact development of this site. A summary of the findings of this report follow. The complete report is in the Appendices of this report.

#### **Preliminary Findings and Design Recommendations**

- “Ground water was encountered at depths of 2 to 3 feet in all soils borings. The site is located within an area where ground water is commonly observed at the ground surface, and the presence of manmade dikes approximately two miles west suggests the Columbia River sometimes rises higher than the elevation of the site...Ground water levels are also subject to seasonal variance and may rise during extended periods of increased ~~participation~~ precipitation, and is projected to vary seasonally.”
- “Seismic events may induce liquefaction of loose sand and silt layers at the site resulting in large immediate settlements.”
- “Placement of structural fills will likely cause consolidation of compressible clay layers, resulting in large long-term settlements”
- “The presence of surface water, near surface ground water, and soft wetland soils presents challenges for foundation and drainage design.”
- “Because the subject property is classified as Site Class F according to the IBC, specialized design or mitigation may be required for development.”
  
- **Foundations**
  - “Foundation recommendations will ultimately depend upon the size and locations of structures proposed in the final development plan. In some portions of the site, typical subgrade and shallow foundation recommendations may be appropriate. However, because of potentially large settlements due to the presence of thick layers of loose sands and soft silts and clays, mitigation or specialized foundation design will likely be necessary prior to construction. Subgrade preparation may require over-excavation, dewatering, densification, surcharging, or some combination of these methods. Shallow footings or mat foundations may be appropriate for structures in some areas, but deep foundations such as piles or drilled piers may also be necessary. “

### **EXISTING WOODLAND SCHOOL DISTRICT CAMPUS**

A preliminary geotechnical investigation was undertaken by Columbia West Engineering, Inc. in the vicinity of the anticipated high school building to determine the general characteristics of surface and subsurface conditions that might impact development of this site. A summary of the findings of this report follow. Additional portions of the report are found in the Appendices of this report.

#### **Preliminary Findings and Design Recommendations**

- Ground water is anticipated to be within a few feet of the surface and projected to vary seasonally.
- “Seismic events may induce liquefaction of loose sand and silt layers at the site resulting in large immediate settlements.”
- “Placement of structural fills and building construction may cause consolidation of compressible silt layers resulting in long-term settlements.”
- “Potential shallow ground water may present challenges for foundation and drainage design.”
- “Because the property is classified as Site Class F according to the IBC, specialized design or mitigation may be required for development.”
- **Foundations**
  - “Foundation recommendations will ultimately depend upon the size and locations of structures proposed in the final development. In some portions of the site, typical subgrade and shallow foundation recommendations may be appropriate. However, because of potentially large settlements due to the presence of thick layers of loose sands and soft silts and clays, mitigation or specialized foundation design will likely be necessary prior to construction. Subgrade preparation may require over-excavation, dewatering, densification, surcharging, or some combination of these methods. Shallow footings or mat foundations may be appropriate for structures in some areas, but deep foundations such as piles or drilled piers may also be necessary. “

The geotechnical engineer indicates “...This likely means that, if designed in accordance with our standard assumptions listed in the report, surcharging probably will not be necessary...”

## SECTION 4: WETLANDS

### **DIKE ACCESS ROAD SITE**

A Wetland Delineation Report was undertaken by Ecological Land Services, Inc. to determine the extent and type of existing wetlands on site. A summary of the findings of that report follows. Additional portions of the report are found in the Appendices to this report.

<b>Wetland/Ditch</b>	<b>Size On Site (Acres)</b>	<b>Rating*</b>	<b>Habitat Score</b>	<b>Minimum Buffer Width</b>
A	3.82	Category III	4 (low)	80 feet
B	0.16	Category III	15 (low)	80 feet
C	0.01	Category IV	4 (low)	50 feet
X	0.07	Category IV	5 (low)	Exempt
Y	0.08	Category IV	5 (low)	Exempt
Z	0.83	Category III	5 (low)	80 feet

\* The lower the rating the higher the quality of the wetland and the larger the buffer requirement.

Of the total 40 acre site, approximately 15 acres is anticipated to be dedicated to wetlands and buffers. Subsequent to the wetland delineation report, an off-site Alternatives Analysis of seven sites was generated as required by the United States Corps of Engineers (USACE) to obtain necessary permits for the develop of the high school campus on this site. The full analysis is found in the Appendices of this report.

### **Wetland Mitigation Options**

Mitigation for the loss of existing wetlands can be achieved with on-site or off-site techniques. On-site mitigation is the most common method. The following site plan gives a suggestion of the planning constraints associated with on-site mitigation. Off-site mitigation would require locating nearby parcels containing wetlands that could be enhanced in accordance with USACE requirements. Another off-site mitigation potential option, although not yet proven in the local area, is the purchase of credits in a wetland mitigation bank. This option would eliminate the need for on -site mitigation and the need for the purchase of additional property for mitigation purposes.





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DATE: 4/7/08  
DWN: CB  
REQ. BY: LW  
PRJ. MGR: FN  
CHK: MMM  
APPR:  
PROJ.#: 1424.02

**Figure 2**  
**SITE MAP**  
Woodland High School Wetlands Project  
Woodland School District #404  
City of Woodland, Cowlitz County, Washington  
Section 11, Township 5N, Range 1W, W.M.

**EXISTING WOODLAND SCHOOL DISTRICT CAMPUS**

A preliminary site investigation was conducted by Ecological Land Services, Inc. to determine the likelihood of wetlands on this site. ECL staff did not locate any wetlands on the site. The athletic fields appear to be uplands (as opposed to low lying lands subject to wetland classification). There is a ditch with some wetland plants along the railroad, but it is presumed that this property belongs to the railroad.

## SECTION 5: UTILITY INFRASTRUCTURE

### DIKE ACCESS ROAD SITE

**Sanitary Sewer:** Extension of existing sewer lines will be required. If timing is coordinated, the possibility exists to share such expenses with neighboring developments to the east and west of the proposed site. A late-comers fee may also be encountered if the high school is developed after neighboring developments have made improvements to local utility lines.

**Storm Sewer:** No municipal storm sewer system exists in this area. All storm water will be required to be treated and disbursed on site.

**Water:** Extension of existing water lines will be required. If timing is coordinated, the possibility exists to share such expenses with the neighboring developments to the east and west of the proposed site. A late-comers fee may also be encountered if the high school is developed after neighboring developments have made improvements to local utility lines.

**Power/Phone/Cable:** Extension of existing service lines will be required. If timing is coordinated, the possibility exists to share such expenses with the neighboring developments to the east and west of the proposed site.

**Gas:** Extension of existing service lines will be required. If timing is coordinated, the possibility exists to share such expenses with the neighboring developments to the east and west of the proposed site. A late-comers fee may also be encountered if the high school is developed after neighboring developments have made improvements to local utility lines.

### EXISTING WOODLAND SCHOOL DISTRICT CAMPUS

**Sanitary Sewer:** Extension of existing sewer lines will be required from nearby trunk lines. Upsizing existing lines may be required as well. Additionally, one or two existing pump stations may need to be replaced as a result of the impact of this project.

**Storm Sewer:** All storm water will be required to be treated and disbursed on site. Initial calculations indicate that finding locations for such on site storage could be a challenge.

**Water:** Extension of existing water lines from nearby lines will be required. Upsizing existing lines may be required as well.

**Power/Phone/Cable:** Extension of existing nearby service lines will be required. Localized enhancements such as transformers will be required.

**Gas:** Extension of existing nearby service lines will be required. Upsizing existing lines may be required as well.

## SECTION 6: ROADS, PARKING AND TRAFFIC

### **DIKE ACCESS ROAD SITE**

**Traffic:** A full traffic study and analysis will be required as part of the development of this site. Detailed requirements for road improvements will be determined from this study.

**Roads:** It is assumed for purposes of this report that the District will be required to make frontage improvements (pavement, curb, sidewalk etc.) on Dike Access Road and Robinson Road. The possibility of cost sharing with neighboring developments to the east and west exists if timing is coordinated.

The District has entered into an agreement for right of way dedication and temporary construction easement with WAL-MART Stores Inc. associated with Robinson Road. In this agreement, the District dedicates a small amount (428 square feet) of land for the purpose of public street improvements. This agreement also grants a temporary construction and staging easement over District property for purposes of commencing construction of public improvements associated with the proposed retail facility.

**Parking:** Parking requirements for this site are:

- 1 stall per employee
- 1 stall per 20 students
- 1 stall per 3 fixed seats in stadium (inclusive of parking for employees and students)

### **EXISTING WOODLAND SCHOOL DISTRICT CAMPUS**

**Traffic:** A full traffic study and analysis will be required as part of the development of this site. Detailed requirements for road improvements will be determined from this study.

**Roads:** The City has indicated that minimal street improvements will be required along Buckeye Street in support of a high school development on this site. Curbs, gutters and sidewalks already exist in this area on the District side of Buckeye.

**Parking:** Parking requirements for this site are:

- 1 stall per employee
- 1 stall per 20 students
- 1 stall per 3 fixed seats in stadium (inclusive of parking for employees and students)

## SECTION 7: REUSE OF EXISTING FACILITIES

### DIKE ACCESS ROAD SITE

No existing facilities exist on this site.

### EXISTING WOODLAND SCHOOL DISTRICT CAMPUS

Existing facilities on this site that have potential reuse as part of a new high school:

- Performing arts center
  - Since the existing PAC will continue to be used by other grade levels, an integrated PAC will still be part of the new high school building
- Vocational classrooms
- Grandstands
  - Existing grandstand will be moved to the west side of the field and become the visitor's seating.
- Football field and track
  - Synthetic turf ~~will~~ may need to be installed to compensate for the high level of usage.
- Baseball, soccer and soccer fields
- Parking
- Certain utility infrastructure

**Transportation Center:** The existing transportation center is located on site. If it was relocated off site, it would allow athletic field development in support of the new high school. As a transportation cooperative, its relocation would receive a high level of state funding assistance (90%) excluding land purchase costs.

## SECTION 8: PLANNING CONSTRAINTS

Following is a summary of the primary site planning constraints known at this time. Preparation of a formal Pre-Application submittal and the ensuing meetings with City and County officials may reveal additional constraints.

### **DIKE ACCESS ROAD SITE**

**Grading and Soils:** This site will likely require substantial importing of fill material for surcharging and for elevating certain portions of the site to achieve positive drainage of developed areas.

**Wetlands:** Mitigation of existing wetlands (on site) will significantly influence the layout of buildings and site improvements. The District should expect certain inefficiencies and additional costs associated with these issues.

**Off-Site Improvements:** This site will require significant extension of wet and dry existing utilities. Additionally, the District should expect to be required to fund substantial off-site road development in support of the new high school.

Storm Water: Because of low permeability of existing soils and the existing high water table, disbursement of storm water will be difficult and consumptive of site area. Detailed engineering studies have not been done at this time.

Future Expansion: Future expansion on this site will be influenced by the methodology selected for wetland mitigation. If mitigation happens on site, the net available land for initial and future development will be significantly reduced. In the alternative, if mitigation is achieved through off-site means, then there would be sufficient land area for any foreseeable facility expansion.

### **EXISTING WOODLAND SCHOOL DISTRICT CAMPUS**

**Soils:** This site has soils that are susceptible to settlement and seismic movement. Initial investigation indicates soils on this site are slightly better than those on the Dike Road site.

**Integrating with Existing Development:** Integrating a new high school building on the existing campus will require careful planning in order to effectively zone the site with regard to grade level separation and security. Additionally, a critical decision regarding the location of the transportation center will significantly influence the size and location of athletic fields.

**Parking:** A detailed study of available parking on this site will be necessary. The City is supportive of joint parking agreements with neighboring developments in order to minimize the development of parking on the school site.

**Storm Water:** Because of low permeability of existing soils and the existing high water table, disbursement of storm water will be difficult and consumptive of site area. Detailed engineering studies have not been done at this time.

**Future Expansion:** Because of pre-existing school uses on site, and the limited net area for building development, this site can accommodate only modest (several classrooms) expansion in the future. Expansion beyond this threshold would require the purchase of additional property.



**Insert Site Plans**

## SECTION 9: PROJECTED DEVELOPMENT COSTS

(This is a replacement page)

### DIKE ACCESS ROAD SITE

#### **High School Projected Cost (1,000 students, core for 1,200)**

• Basic construction cost: (Includes track, grass fields, integrated PAC)	\$45,000,000 to \$46,000,000
• Grading, soils, wetland premium:	\$1,500,000 to \$2,500,000
• Stadium options	
▪ Existing stadium upgrades: (Add 500 seats, 160 parking stalls)	\$900,000 to \$1,000,000
▪ Build new stadium @ this site: (Synthetic turf, track)	\$4,000,000 to \$5,000,000
• Offsite improvements to roads, utilities:	\$2,000,000 to 2,500,000
• Improvements to existing middle/high school facilities:	\$1,000,000 to \$2,000,000
• Development costs: (Sales tax, permits, design, contingencies etc.)	\$17,500,000 to \$20,000,000
• Less estimated state funding assistance:	(\$13,000,000)
<b>Estimated Local Cost w/o New Stadium:</b>	<b>\$54,900,000 to \$61,000,000</b>
<b>Estimated Local Cost w/New Stadium:</b>	<b>\$58,000,000 to \$65,000,000</b>

**EXISTING WOODLAND SCHOOL DISTRICT CAMPUS**

(This is a replacement page)

**High School Projected Cost (1,000 students, core for 1,200)**

• Basic construction cost: (Reuse existing votech)	\$42,500,000 to \$43,500,000
• Grading, soils, wetland premium:	\$ 0
• Stadium options	
▪ Existing stadium upgrades: (Add 500 seats, 160 parking stalls, synth turf)	\$2,500,000 to \$3,500,000
▪ Build new stadium @ this site: (Synth turf,track)	\$4,500,000 to \$5,500,000
• Offsite improvements to roads, utilities:	\$1,200,000 to \$1,600,000
• Rebuild transportation center: (Cost may be share among 4 districts)	\$1,800,000 to \$2,000,000
• Improvements to existing middle/high school facilities:	\$1,000,000 to \$2,000,000
• Development costs: (Sales tax, permits, design, contingencies etc.)	\$17,000,000 to \$19,000,000
• Less estimated state funding assistance:	(\$13,000,000)
<b>Estimated Local Cost w/o New Stadium:</b>	<b>\$53,000,000 to \$58,600,000</b>
<b>Estimated Local Cost w/new Stadium:</b>	<b>\$55,000,000 to \$60,600,000</b>

Notes:

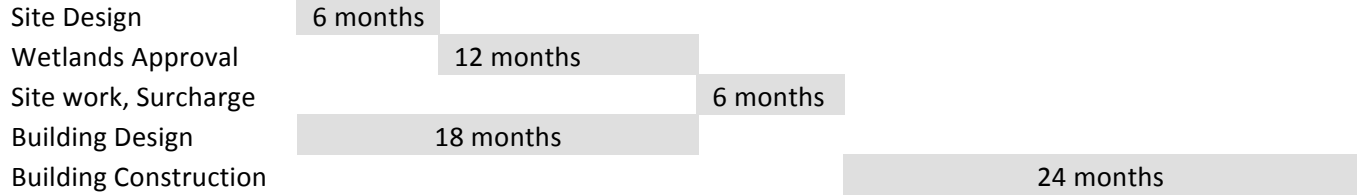
1. Estimated cost to utilize modular, prefabricated classrooms is 5% less than conventional construction due to the reduction in design construction costs and the reduction in time needed for design and installation.
2. All costs are estimates. The District should carefully review cost assumptions prior to completing it bond resolution.

3. Construction costs assume a bid date of 2009/2010. Later bid dates will require escalation of cost estimates.

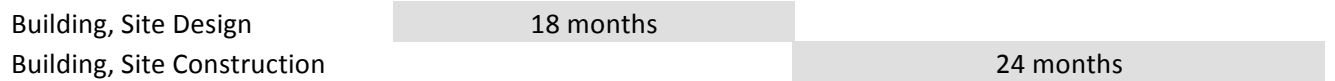
4.

## SECTION 10: PROJECTED DEVELOPMENT SCHEDULE

### DIKE ACCESS ROAD SITE



### EXISTING WOODLAND SCHOOL DISTRICT CAMPUS



#### Notes:

1. If an interlocal agreement between the District and the Port of Woodland could be facilitated, it may allow the project to be within the jurisdiction of the Portland Corps of Engineers rather than the Seattle Corps office. The Portland Corps office is normally more timely in its processing of approvals.
2. If modular construction was utilized on either site, approximately 3 months could be saved during the construction period.

|

## Appendix

**Preliminary Geotechnical Site Investigation (Partial)**  
**Dike Access Road Site**

**Preliminary Geotechnical Site Investigation (Partial)**  
**Existing School District Campus**



**Wetland Delineation Report (Partial)**  
**Dike Access Road Site**

**Off-Site Alternative Analysis (Partial)**  
**Dike Access Road Site**