

October 30, 2015

Connie Randall, Associate Planner
City of Sherwood
22560 SW Pine Street
Sherwood, OR 97140

**RE: Supplemental Findings
Mandel Plan Amendment/Zone Change (PA 15-04)**

Dear Connie,

This letter provides additional information requested by Staff in regard to the proposed Plan Amendment/Zone Change (Casefile PA 15-04) for the Mandel property, located at the southeast corner of SW Edy Road and SW Elwert Road as requested by Venture Properties, Inc.

Economic Viability of Neighborhood Commercial

As described in the supplemental memo from PNW Economics, this site is not viable for Neighborhood Commercial (NC). The trade area is generally defined by a five minute drive from the site, but is shortened to the southeast by the numerous retail opportunities along Pacific Highway that individuals would need to pass before reaching the Mandel property. Within the trade area there are only 1,522 households. The Mandel NC property would need 2,800 households to viably support retail uses.

Chapter 8 of the Sherwood Comprehensive Plan

Additional findings for Chapter 8 of the Sherwood Comprehensive Plan have also been attached to this memo. This Chapter outlined the concept planning efforts for Urban Growth Boundary expansion areas, including Area 59 that includes the Mandel property. Unfortunately, this Chapter only contains a brief history of the Concept Planning process and the decision making that occurred to reach the final plan. The chapter does say that the primary objective for this district was for the development of an elementary school and a middle school. The remaining land had two land use goals. First, there was a desire for only single family homes with no apartments. The second goal was to accommodate "mixed use: Small retail/commercial with housing above." There is no explicit rationale listed for this goal, but it was likely chosen to achieve a 'complete community' with services near housing. This is a laudable goal, but retail is a challenging land use that needs specific parameters to be successful, such as a healthy trade area, proper site access, good site geometry, and gentle topography.

As discussed above, this site does not have a proper trade area; there are not enough households to support this site. Access appears to be good with direct frontage onto SW Elwert Road, but Neighborhood Commercial is not meant to attract regional drive-by customers, but rather customers that are within a small geographic area that travel by car, bicycle, or by foot. The households served by this site should be the homes to the southeast, not the cars on the western frontage. Access for the homes to the southeast is separated by the drainageway of the perennial tributary to Chicken Creek that surrounds the site to the north, east, and south. A local street connection is shown on the concept plan for Area 59, however, as

shown below, this street connection is expensive, has significant environmental impacts, is subject to environmental permitting, and is generally redundant to existing SW Edy Road to the north. Without this street connection, the site is very isolated from the customer base expected in the Area 59 Concept Plan.

Challenges for the Planned Roadway Connection over Drainageway

The Mandel property is bisected south to north by a perennial tributary to Chicken Creek. It is both difficult and expensive to cross this drainageway with a local road as shown in the Area 59 Plan. The Applicant would like to make this connection a pedestrian rather than a full roadway. The environmental impacts and expense are not warranted for the limited value a full roadway connection would offer, particularly with SW Edy Road providing existing east west connectivity to the north. AKS has provided a memo (attached) outlining the details of what a street crossing would require from an engineering standpoint and the approximate cost to make this connection. It should be noted that a sanitary sewer connection is needed in conjunction with the street or pedestrian crossing, so the location of the crossing needs to happen in the middle of the site, near the existing water quality facility. This analysis shows an approximate cost of \$720,000.

AKS has also provided a memo (attached) that outlines the environmental permitting required to make this crossing. Permits and mitigation would be required from the US Army Corps of Engineers, the Oregon Department of States Lands, and Clean Water Services. These reviews are discretionary and part of the criteria includes review of an alternatives analysis to assure that the impacts are absolutely necessary. There is time, expense, and uncertainty in these reviews. Further, mitigation would be required for the impacts to the wetlands and vegetated corridor, reducing the usable land on the rest of the site. The wetland area is two wide to fully span with a roadway, so impacts to the wetland would trigger substantial stormwater detention facilities, reducing the residential density by approximately four lots.

A pedestrian crossing can be provided with a wider span that does not impact the wetlands, allows for the sewer connection, and is much more cost effective. The cost of a pedestrian bridge is approximately \$180,000, a cost differential of \$540,000. On balance, the impacts of a creek crossing are substantial relative to the value this road provides when an alternative east-west street connection is existing and available with SW Edy Road, just 600 feet to the north.

DLCD Comments

The Department of Land Conservation and Development (DLCD) requested evidence of compliance with OAR 660-009-0010(4), which requires compliance with the City's acknowledged Economic Opportunities Analysis (EOA).

(4) For a post-acknowledgement plan amendment under OAR chapter 660, division 18, that changes the plan designation of land in excess of two acres within an existing urban growth boundary from an industrial use designation to a non-industrial use designation, or an other employment use designation to any other use designation, a city or county must address all applicable planning requirements, and:

(a) Demonstrate that the proposed amendment is consistent with its most recent economic opportunities analysis and the parts of its acknowledged comprehensive plan which address the requirements of this division; or

(b) Amend its comprehensive plan to incorporate the proposed amendment, consistent with the requirements of this division; or

(c) Adopt a combination of the above, consistent with the requirements of this division.

We have attached an additional memo from PNW Economics addressing the applicable policies from the EOA and how the proposed change is consistent with the adopted policies.

This letter provides additional testimony and findings in support of the proposed Plan Amendment/Zone Change for the Mandel property to change the Neighborhood Commercial designation to Medium Density Residential Low. We are happy to provide any additional information that would help Staff, the Planning Commission, and the City Council in their deliberation.

Sincerely,

AKS ENGINEERING & FORESTRY, LLC



Mimi Doukas, AICP, RLA

Attachments: Memo from PNW Economics
AKS Findings on Chapter 8 of the Comprehensive Plan
Memo from AKS on Costs for creek crossing
Memo from AKS on wetland permitting for creek crossing

MEMORANDUM

To: Mimi Doukas, AICP, RLA
AKS Engineering & Forestry

From: Bill Reid, Principal
PNW Economics, LLC

Subject: Mandel Property Zone Change Application: Additional Issues

Date: October 27, 2015

During the City of Sherwood staff review of the Mandel Property application for a zone change from Neighborhood Commercial (NC) to Medium Density Residential-Low (MDRL), additional questions were raised by DLCD and Staff regarding economic need arguments that had been put forth in support of the rezone. This memorandum is intended as a response to the following issues and concerns:

- Sherwood Goal 9 Employment Land concerns due to the size of the property at roughly 3 acres; and
- The trade area for a Neighborhood Commercial center at the property and whether it is appropriate or supported by sufficient households.

Sherwood Goal 9 Land Need Concern

PNW Economics reviewed the November 2006 "City of Sherwood Economic Development Strategy,"¹ which is the most recent Goal 9 Employment Land/Economic Opportunities Analysis for the City of Sherwood. This document was intended as an update and policy elaboration on the Growth Management Chapter (Chapter 3) of the City's Comprehensive Plan. The following policies relate to Neighborhood Commercial-zoned lands and development. Policy strategies that are particularly pertinent to the subject property are in bold-face, followed by responses related to the subject property's current zoning:

Land Use Policies

Policy 1. Commercial activities will be located so as to most conveniently service customers.

Strategies

-Community wide and neighborhood scale commercial centers will be established.

-Commercial centers will be located so that they are easily accessible on major roadways by pedestrians, auto and mass transit.

¹https://www.sherwoodoregon.gov/sites/default/files/fileattachments/Economic%20Development/page/85/economic_development_strategy.pdf

-Neighborhood commercial centers will be designated in or near residential areas upon application when need and compatibility to the neighborhood can be shown.

PNW Economics Response: The site is isolated at the western edge of incorporated City of Sherwood on SW Elwert Road and cannot be considered "easily accessible on major roadways by pedestrians, auto and mass transit." The site is located at the far northwest corner of the City and the Urban Growth Boundary, making Neighborhood Commercial zoning of the site inappropriate. Neighborhood Commercial zoning of more centrally-located land near residential areas west of Pacific Highway would be more appropriate and likely to succeed.

Furthermore, Neighborhood Commercial development cannot be considered compatible with the surrounding neighborhood as the land located across SW Elwert Road from the site is unincorporated land outside of the incorporated City and Urban Growth Boundary. As will be demonstrated later in this document, the area's population is insufficient to adequately serve such a development, rendering it inconsistent with the existing neighborhood.

Policy 2. Commercial uses will be developed so as to complement rather than detract from adjoining uses.

Strategies

- *-Commercial developments will be subject to special site and architectural design requirements.*
- *-The number and locations of commercial use access will be limited along major streets in accordance with the City's Transportation Plan.*
- *-Non-Retail and primarily wholesale commercial uses will be separated from retail uses where possible.*
- *-The older downtown commercial area will be preserved as a business district and unique shopping area.*
- ***-A buffer between commercial uses and adjoining greenways, wetlands, and natural areas shall be established.***

PNW Economics Response: The subject site is bordered by a natural area to the north and south, with existing rural residential development located nearby. Therefore, the developable area of the site as a commercial development, including requisite parking, is limited in terms of what commercial improvement can be feasibly achieved on site.

Policy 3. Highway 99W is an appropriate location for commercial development at the highway's intersections with City arterial and major collector roadways.

c. Commercial Planning Designation Objectives

4) Neighborhood Commercial (NC)

This designation is intended to provide for neighborhoods serving small scale retail and service uses consistent with sound site planning in the following general areas:

- ***-Areas which are within reasonable walking distance from living areas and/or convenient access by way of collector or arterial streets.***
- ***-Areas where retail or service uses can be adequately screened from adjoining living areas so as to enhance rather than detract from the residential***

character of the neighborhood. Site review standards relating to setbacks, landscaping, buffering, signs, access and architectural features shall assure compatibility with surrounding uses.

- *-Where a full range of urban facilities and services are available or can be provided in conjunction with development.*

PNW Economics Response: The subject site is located at the edge of the incorporated City and the Urban Growth Boundary, which cannot be considered convenient or reasonable walking distance for the neighborhood it would serve with Neighborhood Commercial zoning. This issue will be further illustrated later in this document with a map of the Neighborhood Commercial trade area for the property under current zoning.

The subject site is also located across SW Elwert Road from rural residential areas that will likely see urbanized development stretched over a long time period, due to the location of the Urban Growth Boundary. Neighborhood Commercial development, auto traffic, and parking detract from the rural residential character of the immediate area. Requisite setbacks, landscaping, and other improvements would only serve to diminish what little commercially developable land there is on the site, even if it was compatible with the surrounding character of residential uses.

Economic Development Policies

Policy 5. The City will seek to diversify and expand commercial and industrial development in order to provide nearby job opportunities, and expand the tax base.

Strategies

- *-The City will encourage the revitalization of the Old Town Commercial area by implementation of 1983's "Old Town Revitalization Plan" and the Old Town Overlay Zone.*
- *-The City will encourage the development of light industrial and office parks.*
- *-The City will seek to attract industries that are labor and capital intensive.*
- *-The City will seek to attract "target" industries which will expand industrial sectors inadequately represented in the urban area in order to diversify and stabilize the local economy.*

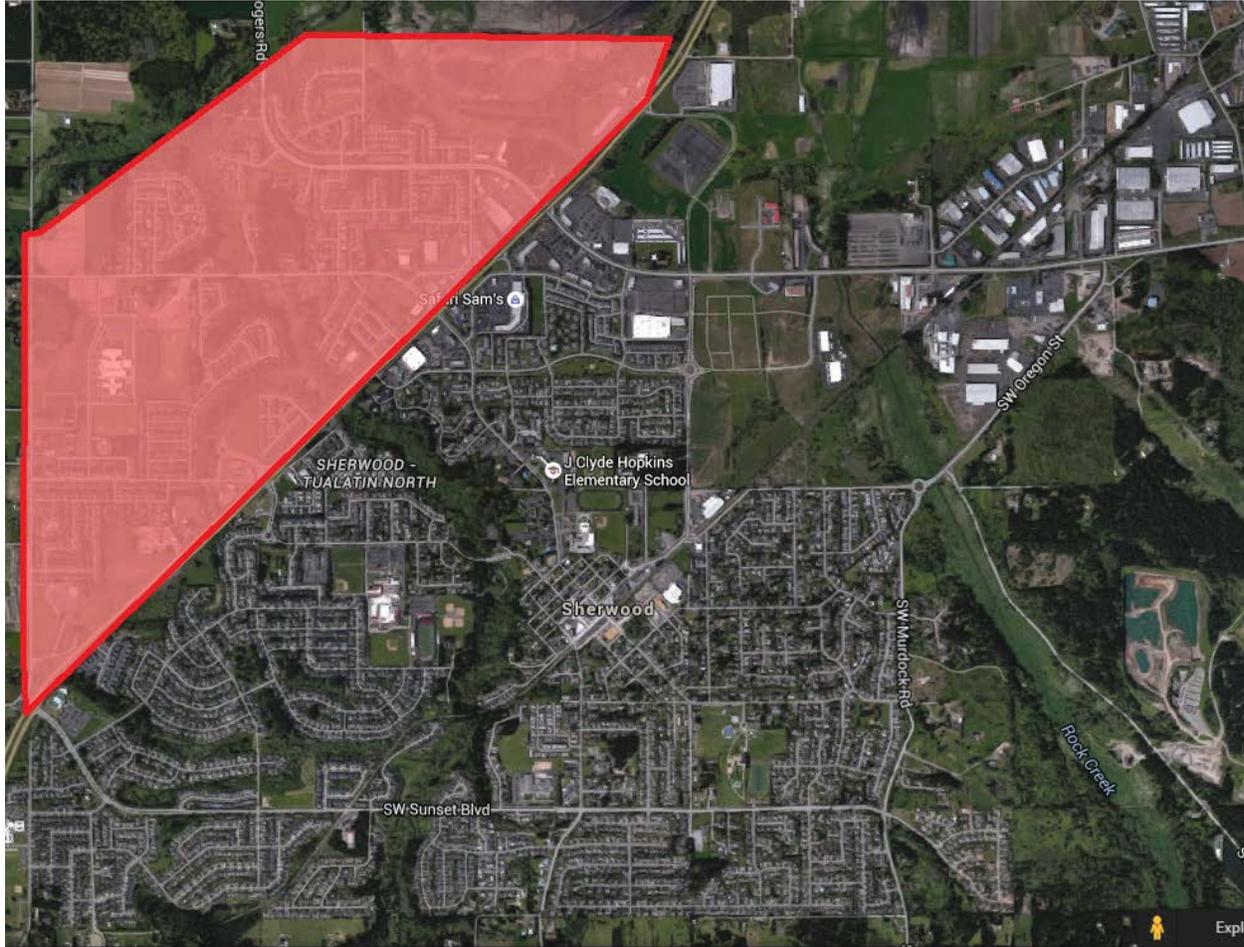
PNW Economics Response: It is important to note that throughout the rest of the Goal 9 document, there is no mention of specific requirements to preserve NC zoning nor encourage its development. The focus of the report is to increase the inventory of employment lands, emphasize industrial lands (Tonkin Industrial Area), and encourage other, larger economic development initiatives, particularly tourism.

Accordingly, PNW Economics does not find that the Goal 9/EOA document or policies that address commercial land specifically provide any protections or strategies for the maintenance and growth of lands zoned Neighborhood Commercial as key employment lands.

Subject Neighborhood Commercial Trade Area

Figure 1 displays a map of the likely market area for the subject site developed as Neighborhood Commercial. The trade area is shaded in red.

FIGURE 1: MANDEL PROPERTY NEIGHBORHOOD COMMERCIAL TRADE AREA



The subject site's Neighborhood Commercial trade area, generally defined as a 5-minute drive time, is roughly bounded by the Sherwood City limits to the north and west, and Pacific Highway to the south and east.

Technically, Herman Road is the 5-minute drive-time limit for the subject site. However, from a commercial retail development perspective, households east of Pacific Highway have numerous retail offerings at or east of Pacific Highway that they would have to pass by in order to reach the isolated location of the subject site. Therefore, Pacific Highway realistically defines the eastern-most edge of the trade area for households that might shop at the subject site under current zoning.

As was demonstrated in the initial Economic Analysis memo by PNW Economics in support of the zone change application, a minimum household count of 2,800 would be required to properly support commercial development at the subject site and make development feasible. According to 2013 American Community Survey population estimates for the trade area, largely defined as Block 1 of Washington County Census Tract 322, there were 1,522 households within the Neighborhood Commercial trade area, leaving a deficit of roughly 1,300 households. We therefore find that, largely due to the isolated location of the site adjacent to land not likely to be urbanized for a number of years, the site is not a feasible Neighborhood Commercial development location.

If current zoning is maintained, development of the subject site as Neighborhood Commercial retail is highly unlikely. If development were to occur, it would be extremely low intensity and likely significantly underutilized, due to the site's isolated location and lack of basic trade area households to the west.

The isolation and bifurcation of what would normally be a more round trade area in all directions, encompassing significantly more households, has prevented the site from being developed as Neighborhood Commercial in the past. The lack of development interest is as strong of an indicator of the feasibility of the site under current zoning as any.

Underutilization of the site would be contrary to various economic development policies and strategies adopted by the City that seek effective growth management via attraction of investment within the existing City limits at acceptable densities and within architectural/design review criteria. The site should, therefore, be considered for rezoning to a use of greater benefit to the City that would yield higher investment value while being more consistent with surrounding uses and adjacent natural resource areas.

MANDEL FARM PLAN/ZONE MAP AMENDMENT

III. SUPPLEMENTAL APPLICABLE REVIEW CRITERIA

COMPREHENSIVE PLAN

The supplemental Sherwood Comprehensive Plan Policies and Goals are set forth below along with findings in support of the Comprehensive Plan Map Amendment and Zone Change.

CHAPTER 8 – URBAN GROWTH BOUNDARY ADDITIONS

1. Area 59 -A New Neighborhood in Sherwood

Background

As mentioned previously Area 59 is an 85 acre area brought into the UGB in 2002. "Area 59" is a nameless designation placed by Metro and does not reflect the local history of the area. "Blue Town", as it was called by the pioneer families at the turn of the 20th century, is predominantly a rural residential and farming community. Blue Town received its name because German immigrants painted farm buildings the same color blue. The area is characterized by historic farmhouses, newer large lot country estates, rolling hillsides, a neatly groomed landscape, stunning views of Mount Hood, and forested riparian areas that feed Chicken Creek and the Tualatin River Basin. The CAC developed a list of new names for the neighborhood, but none were recommended to the policymakers. Without a clear designation, future development will be assigned subdivision names for final platting purposes. The City has a policy choice, and a clear opportunity, to designate a coherent new neighborhood either as part of implementation or through some other yet to be determined process.

Area 59 is the first UGB expansion area that required a concept plan under Metro's Functional Plan Title 11 requirements. The relatively small size of the subject area offered an opportunity to the stakeholders to create a neighborhood scale plan with roads, land uses, and public spaces all integrated into the existing urban fabric of Sherwood. The City took the lead in concept planning the area because the County did not express an interest and the Sherwood School District lacked expertise in land use planning and real estate development. The City provided the planning through general funds and in kind services.

Public Involvement

The City officially initiated the concept planning process in late 2004. The City Council established a Citizens Advisory Committee (CAC) via Resolution 2004-090 on October 12, 2004 to guide the development process and provide recommendations to the Planning Commission. The City held numerous types of meetings to develop a concept plan for Area 59. These included: work sessions open to the public, a public workshop (the first charrette in

She1wood), a field trip, regular public meetings with two advisory groups, and finally public hearings. Throughout the concept planning process individual electronic notice was sent to those that expressed interest. A project website was developed on the City's homepage to provide a clearinghouse for all meeting materials and project binders were created for public use at City Hall and the Library. Although not required for the concept planning phase, the City sent mailed notice twice: after the second Citizens Advisory Committee (CAC) meeting in March 2005 and prior to the charrette in July 2005. Monthly project updates were provided in the Archer portion of the Sherwood Gazette in addition to numerous newspaper articles that appeared in the Oregonian.

In addition to general public outreach efforts, the CAC met from December 2004 to December 2005 to rigorously review City staff and consultant findings. The CAC consisted of three representatives from the City Council, Planning Commission, and Parks Board, two property owners from Area 59, two property owners who reside in the County but outside the study area, and the Sherwood School District. A technical advisory committee, referred to as the "Project Team," was established by the Planning Department to advise City staff on regulatory and technical issues that pertain to concept planning. Affected agencies include:

- | | | |
|----------------------|---|--------------------------------|
| Clean Water Services | • | Washington County |
| ODOT | • | Raindrops to Refuge |
| DLCD | • | Tualatin Valley Water District |
| Metro | • | Tualatin Valley Fire & Rescue |

The Project Team met periodically (five times) from January 2005 to October 2005 to review consultant and staff findings, draft alternatives, and various staff reports on the framework of a concept plan. The CAC met six times in addition to the charrette that was held in July 2005 at the She1wood Police Facility. The combined efforts of the advisory committees resulted in one set of goals for the project referred to as the "Goals Matrix."

Issue	Citizen's Advisory Committee	Project Team
<i>Land Use</i>	Single family units only, no apartment complexes.	Goal conflicts resolved: Metro density requirements (Metro Housing Rule).
	Mixed use: Small retail/commercial with housing above.	
	Schools (30 acres): Middle & Elementary Meet timeline for increased enrollment.	
<i>Quality of Life</i>	Recreational fields: Co-share fields & facilities with schools?	Natural area protection & Goal 5 resources.
	Green Space: Parks (tennis courts), trails, greenways, open space.	Open spaces: Integrate active & passive parks; Co-locate these to other lands.
	Livability: "Proud to live there".	Create unique neighborhood structure: "Sense of place".
	Farmland: Allow existing agriculture; co- exist with new neighborhood.	
<i>Transportation</i>	Traffic management plan	Connectivity: Road system, bicycle & pedestrian pathways; off-site mitigation.
<i>Public Facilities</i>		Adequate water supply & pressure for fire suppression.

		Address stormwater impacts; provide sanitary sewer.
		Infrastructure Costs? Avoid expensive and determine how to pay.

The above goals, a balancing act or competing priorities, were the basis for the development of evaluation criteria. The design alternatives produced through the charrette were analyzed and "graded" based on the criteria approved by the CAC and Project Team. Staff made findings throughout the process that demonstrated how the evaluation criteria were met or not met for each alternative.

Response: In terms of 'Land Use', the Citizen Advisory Committee for the Area 59 Concept Plan identified two goals. First, that the area be planned for only single family detached homes, not apartments. The proposed Plan amendment to MDRL honors this vision. The second land use goal stated a desire for 'Mixed use: Small retail/commercial with housing above'. This goal is reflected in the current zoning designation of Neighborhood Commercial. The Mandel property has carried this designation since 2006 with no interest in commercial development. As shown in the Economic Opportunities Analysis in Exhibit G, there is not a market to support retail in this location, and mixed use retail with residential on the upper floors of a building is a more complex type of retail that can be difficult to finance. Retail would require 2,800 households within the trade area, roughly defined by the area within a five minute drive of the site, but there are only 1,522 households which is 54% of what is needed. This small NC district abuts rural county land to the west and north. To the east a large amount of land is dedicated to a combined elementary school and middle school. This site is less than a mile from the existing Retail Commercial property located at Edy Road and Highway 99, and 3,200 feet (3/4 of a mile) from the General Commercial lands at Meineke Road and Highway 99. This neighborhood has access to retail districts, and will not have enough households in the future to support neighborhood commercial in this location.

Land Use

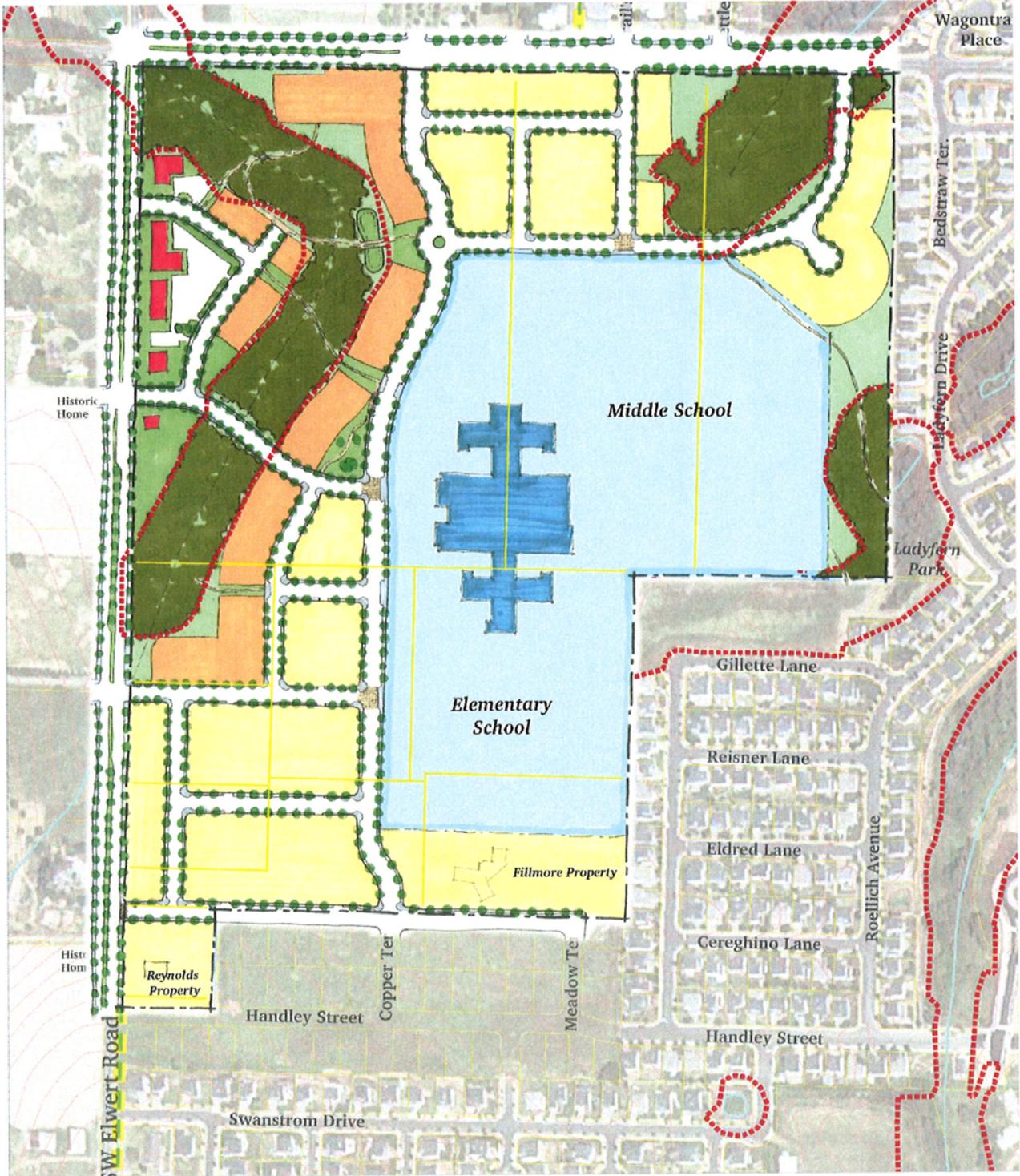
Notwithstanding the competing stakeholder objectives, the primary focus of the concept plan was to determine a location and an adequate size site for new school facilities. The original impetus for the UGB expansion, via Metro Ordinance 2002-969B, was to provide a new elementary and middle school for the rising enrollment in the Sherwood School District 88J. In short, once a new school site was identified the remaining land use pieces of the puzzle fell into place around the school. After a thorough examination of the charrette alternatives through a traffic analysis and CAC review, the process eventually determined that a 29 acre site was adequate to co-locate the facilities along with recreation fields and attendant uses related to school business. Some stakeholders wanted more land while others wanted a new school on less land. The remaining "pieces" or in this case buildable land was planned for a mix of residential and neighborhood commercial served by a street grid network of local street and a north-south and east-west neighborhood route to reduce vehicle miles traveled, encourage alternative modes of transportation, provide emergency access, and a site for a neighborhood park to serve the new neighborhood and the existing west side neighborhoods.

Response: As described above, the primary purpose for expanding the UGB in this area was to provide for a new elementary school and middle school. Other land uses were flexible and determined based on community feedback rather than a demonstrated need. It appears that neighborhood commercial was chosen to create a walkable complete community. While this is a generally desirable outcome, retail simply cannot succeed unless the site meets specific characteristics. The site needs to have enough households or drive-by traffic to provide a customer base. The site needs good access and dimensions to allow proper circulation and parking. The site must be generally flat. This site has a fair amount of drive-by traffic, but that is more appropriate for general commercial uses. Neighborhood commercial is localized and needs households within a small market area, generally within a five minute drive. As described above, the market area contains only about 54% of the households needed to support neighborhood retail. The property is generally flat, but the configuration does not work for loading and internal circulation, with a depth of only 130 feet.

Policy Outcomes

In December 2005, the Citizens Advisory Committee recommended a third party alternative that was based on a hybrid of two designs - Alternative A/G. The Planning Commission recommended a revised Alternative A/G to the City Council in February 2006, which was approved, albeit in lesser detail, via Resolution 2006-017 in April 2006. This policy direction authorized the City to initiate the plan amendment process to implement the concept plan map through the comprehensive plan and zoning code.

The following map illustrates the adopted concept plan for Area 59 through the plan amendment process.

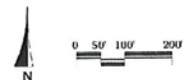


LEGEND

- School
- Park
- Single Family
- Townhome / Small Lot
- Neighborhood Commercial / Mixed Use
- Natural Area
- Lot Lines
- Goal 5 Boundaries

Area 59 Neighborhood

Sherwood, Oregon
 Exhibit 2-K Approved Concept Plan
Alternative E
 with Lots and Goal 5 Boundaries



Cost Estimate Memo

Date: October 29, 2015

To: Mimi Doukas, AICP, RLA

From: Alex Hurley, PE, PLA
Jeff Nelson

Re: Mandel Farms Vegetated Corridor Street Crossing Cost Estimate

PERENIAL STREAM STREET CROSSING HARD COST ESTIMATE

This cost estimate to provide a street crossing of the vegetated corridor (VC) assumes a Local Street standard with a 28-foot wide travel lane, a 50-foot wide right-of-way, and a length of approximately 320 linear feet. Additionally, 8-foot wide public utility easements are assumed on each side of the street, providing an overall width of 66 feet.

To minimize impacts to the vegetated corridor and wetlands, it was assumed Ultra Block retaining walls would be constructed on each side of the street to an approximate maximum exposed height of 20 feet within the area of the VC. The area between the walls would be filled with imported granular fill.

A 10-foot wide x 6-foot high x 66-foot long bottomless concrete box culvert would be utilized to span the existing channel and a portion of the wetland.

The street section would be built to City of Sherwood standards for a Local Street with 4-inch AC over 12-inches of compacted crushed rock, including curb, gutter, and 6-foot wide sidewalk.

It was assumed a small area, comprising approximately 0.06 acres, would be levied with a wetland mitigation fee for filling the wetland at a cost of \$175,000 per acre. In addition, approximately 6,800 square feet of VC area would be mitigated elsewhere on the site with additional VC mitigation plantings and irrigation.

The total estimated cost of providing a street crossing, as opposed to a pedestrian bridge crossing, is approximately \$720,000, including a 25% contingency factor.

With allowances for deducting the estimated total cost of the pedestrian bridge, estimated at \$180,000 including a 25% contingency, the total additional cost to construct the street is estimated to be approximately \$540,000, excluding engineering, jurisdictional, and permitting costs.

Our costs assume a portion of the wetland can be permitted to be filled; however, if this is not allowed, a bridge will be required at significantly more cost.

CONSTRUCTION COST ESTIMATE

AKS ENGINEERING & FORESTRY, LLC.

12965 SW HERMAN ROAD, SUITE 100
TUALATIN, OR
503-563-5161



VEGETATED CORRIDOR STREET CROSSING COST ESTIMATE - 10/29/2015

MANDEL PROPERTY

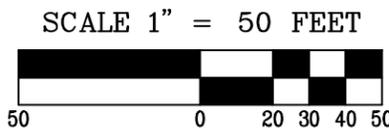
Job No.: 4570

Estimate By: JN

ITEM	SCHEDULE 2 - STREETS	QUANTITY	UNIT	UNIT PRICE	COST
	VC STREET CROSSING - 66' Wide x 320' Length				
2-1	Mobilization	1	L.S.	\$ 2,400.00	\$ 2,400
2-2	Erosion Control	1	L.S.	\$ 2,500.00	\$ 2,500
2-3	Clearing and Grubbing	1	AC.	\$ 2,500.00	\$ 1,250
2-4	Stripping and Haul Off (Assume 6" Strip) (0.50 AC)	400	B.C.Y.	\$ 18.00	\$ 7,200
2-5	Ultra-Block Wall	4,400	S.F.	\$ 40.00	\$ 176,000
2-6	Import Granular Backfill Between Walls	4,800	B.C.Y.	\$ 31.00	\$ 148,800
2-7	Imported Structural Soil Fills (Outside the VC)	1,300	B.C.Y.	\$ 20.00	\$ 26,000
2-8	10' x 6' Concrete Box Culvert (Bottomless)	66	L.F.	\$ 1,500.00	\$ 99,000
2-9	Storm Drainage	1	L.S.	\$ 7,500.00	\$ 7,500
2-10	9" Crushed Rock - 1 1/2"-0 Base Course	1,100	S.Y.	\$ 12.00	\$ 13,200
2-11	3" Crushed Rock - 3/4"-0 Leveling Course	890	S.Y.	\$ 4.00	\$ 3,560
2-12	4" Lift AC Pavement	890	S.Y.	\$ 20.00	\$ 17,800
2-13	Curb and Gutter	640	L.F.	\$ 12.00	\$ 7,680
2-14	6' Wide Sidewalk (4" Concrete)	3,840	S.F.	\$ 5.00	\$ 19,200
2-15	4' Chainlink Fencing (Along VC Corridor Walls)	300	L.F.	\$ 25.00	\$ 7,500
2-16	Signage and Stripping	1	L.S.	\$ 800.00	\$ 800
2-17	Street Light - LED With Base	2	EA.	\$ 5,500.00	\$ 11,000
2-18	Wetland Mitigation Fee	0.06	AC.	\$ 175,000.00	\$ 10,500
2-19	Vegetated Corridor Mitigation	6,800	S.F.	\$ 2.00	\$ 13,600
				SUBTOTAL	\$ 575,490

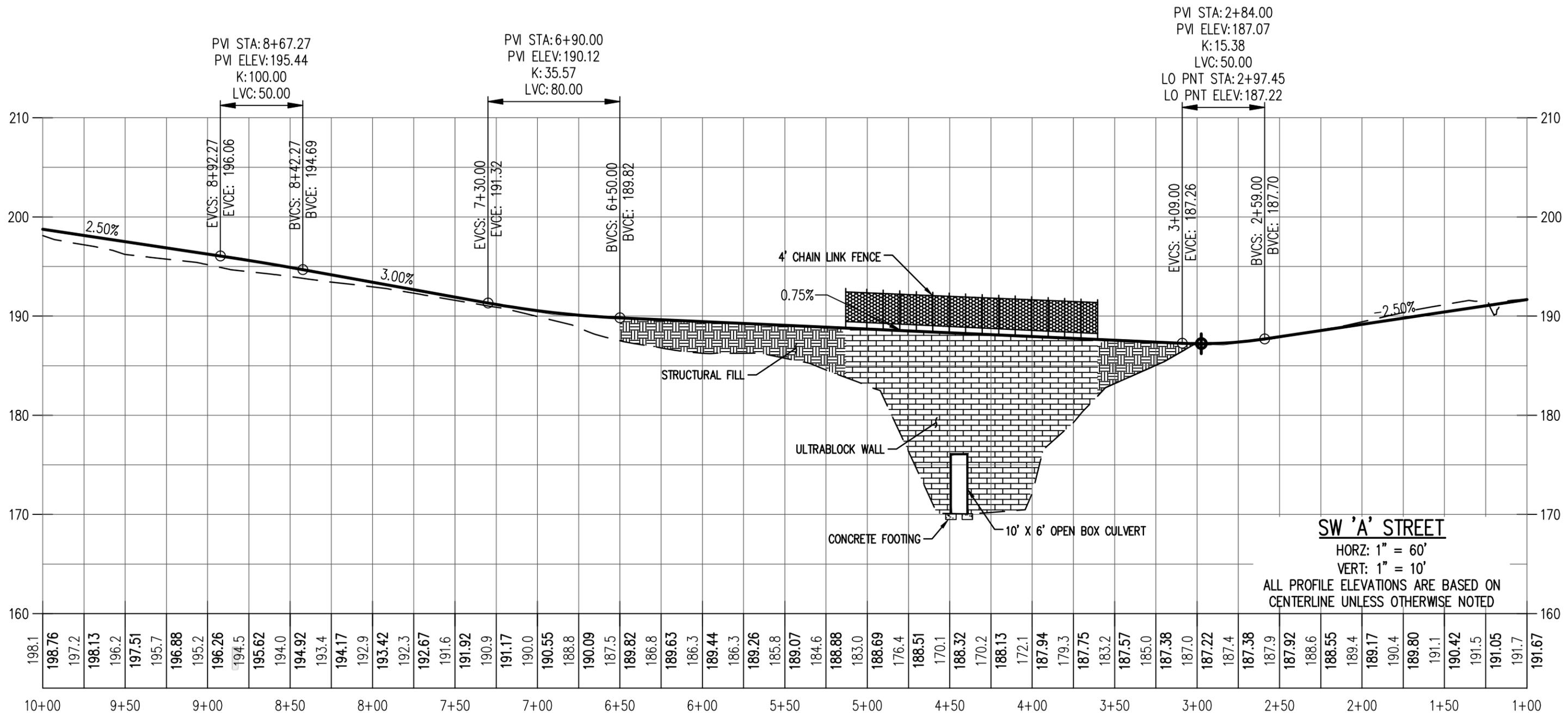
25% CONTINGENCY \$ 143,873

TOTAL \$ 719,363



DATE: 10-27-2015

ALTERNATIVE STREET CONNECTION		EXHIBIT
MANDEL FARMS SUBDIVISION		A
AKS ENGINEERING & FORESTRY, LLC 12965 SW HERMAN RD, STE 100 TUALATIN, OR 97062 P: 503.563.6151 F: 503.563.6152 aks-eng.com		DRWN: DS CHKD: JN
		AKS JOB: 4570



SW 'A' STREET
 HORZ: 1" = 60'
 VERT: 1" = 10'
 ALL PROFILE ELEVATIONS ARE BASED ON CENTERLINE UNLESS OTHERWISE NOTED

DATE: 10-27-2015

ALTERNATIVE STREET CONNECTION SW 'A' STREET CROSS SECTION		EXHIBIT
MANDEL FARMS SUBDIVISION		A
AKS ENGINEERING & FORESTRY, LLC 12965 SW HERMAN RD, STE 100 TUALATIN, OR 97062 P: 503.563.6151 F: 503.563.6152 aks-eng.com		DRWN: DS CHKD: JN
		AKS JOB: 4570

Memo

To: Mimi Doukas, AICP, RLA
From: Stacey Reed, PWS
Date: 10/30/2015
Re: 4570 Mandel Farms Road Crossing Permitting

If a road is required to cross the tributary that bisects the Mandel property, there will be significant environmental permitting and mitigation required.

A perennial tributary to Chicken Creek and associated floodplain wetlands extend through the central portion of the site. Therefore, a road crossing will likely result in permanent wetland and/or water impacts. A wetland and waters delineation report will need to be prepared and submitted to the Oregon Department of State Lands (DSL) to receive concurrence on the wetland and water boundaries. DSL has 120 days to concur with the delineation report. A joint removal-fill permit application will be necessary for submittal to DSL and the US Army Corps of Engineers (Corps). The permit application will need to demonstrate the need for a road crossing, that there are no alternatives to avoiding wetland and/or water impacts (i.e. whether a bridge crossing can be utilized), and techniques employed to minimize any unavoidable wetland or water impacts. The on-site drainage is perennial tributary to Chicken Creek, which is listed as an Essential Salmonid Habitat (ESH) stream. Therefore, an Oregon Department of Fish and Wildlife (ODFW) fish passage plan will be required for submittal and approval by ODFW. The road crossing may also require compliance with National Marine Fisheries (NMFS) SLOPES V Transportation design requirements. DSL has 120 days to review and issue permit authorization (which can run concurrent with wetland boundary concurrence). The Corps permit process generally takes approximately 4-6 months. DSL will require compensatory mitigation for unavoidable wetland impacts, which can be mitigated for at a wetland mitigation bank. The wetland mitigation banks serving the Mandel Farms site currently charge approximately \$175,000 per acre of wetland impact. On-site riparian enhancement can be proposed to mitigate for any unavoidable water impacts.

In addition to the wetland and/or water impacts, a road crossing will result in permanent impact to vegetated corridor. The vegetated corridor encroachment for the road crossing may require a Tier 2 Alternatives Analysis by Clean Water Services. Replacement vegetated corridor mitigation will be required to mitigate for the permanent vegetated corridor impacts.