

**CLARK COUNTY WASHINGTON** 

#### COMMUNITY PLANNING

Staff I	Report
---------	--------

TO:	Clark County Planning Commission
FROM: PREPARED BY:	Oliver Orjiako, Director Gary Albrecht, AICP, Planner III
DATE:	August 2, 2018
SUBJECT:	CPZ2018-00001 YACOLT MOUNTAIN SURFACE MINING OVERLAY EXPANSION FOR COMPREHENSIVE GROWTH MANAGEMENT MAP AMENDMENT

#### **PROPOSED ACTION**

The applicant is requesting to amend the comprehensive plan designation and zoning map to expand the surface mining overlay on parcel number 230301000 and a portion of parcel number 230061000 adjacent to the Yacolt Mountain Quarry [Exhibit 1].

#### BACKGROUND

Parcel numbers 230061000 and 230301000 were acquired by the applicant in 2016. The parcels are zoned Forest-80 (FR-80) with a Forest Tier I comprehensive plan designation. Parcel number 230061000 was logged by the previous owner. These properties are contiguous to parcel number 230067000 zoned Forest-80 (FR-80) and Surface Mining Overlay with a Forest Tier I comprehensive plan designation and Mining Overlay. This proposed amendment would extend the mining overlays to parcel 230301000 and a portion of parcel 230061000. (Legal description of the portion will be provided).

The applicant's narrative states that the purpose of this request is to provide additional land to be used as a storage site for the overburden of the existing Yacolt mining operation from parcel 230067000. The Surface Mining Overlay District under CCC40.250.022(C)(1)(b) allows for the short-term stockpiling of extracted materials and would require additional review and approval. Should the applicant seek to extract mineral resources on parcels 230301000 and 230061000, the applicant would need to comply with CCC40.250.022 and submit to further review and approval.

Counties planning under the Growth Management Act (GMA) are required to identify, designate, and protect mineral resource lands that are not already characterized by urban growth and that have long-term significance for the extraction of minerals [RCW 36.70A.170]. Clark County adopted a Surface Mining Overlay (SMO) map, code standards and mineral lands policies in 1994.

In October 2005, the Washington Department of Natural Resources Division of Geology and Earth Resources produced an aggregate resource inventory map of Clark County [Exhibit 2]. The updated inventory identified parcel numbers 230061000 and 230301000 as a potential bedrock resource for which distribution, grade, and guality can be confidential estimated from specific geologic evidence, limited sampling, and laboratory analysis. Identified resources may include economic, marginally economic, and subeconomic components that reflect various degrees of geologic certainty.



In 2009, the Washington Legislature amended RCW 36.70A.170 and provided additional guidelines for classifying and designating mineral resource lands.

In 2011, the Board appointed a Mineral Lands Task Force to make recommendations to the Surface mining overlay (SMO) map, comprehensive plan policies and development standards based on the new inventory map and GMA regulations. The task force forwarded a recommendation to expand the surface mining overlay to these two subject parcels [Exhibit 3].

In 2013, the Planning Commission considered the Mineral Lands Task Force recommendations and forwarded a recommendation of denial for these two subject parcels.

In 2014, the then Board of County Commissioners voted unanimously to deny the expansion of the Surface Mining Overlay to these two subject parcels due to concerns about topography, road access, and impacts on endangered species.

According to the Applicant's written narrative, "Previous consideration for the expansion of the mineral overlay in the Yacolt area in 2014 found mineral extraction and forestry to be incompatible uses. However, this is contrary to the county stance in 2002, where during a rezone hearing for Yacolt Mountain Mine, the hearing examiner took the stance that mineral extraction and forestry are not incompatible uses because of post mining reclamation that would return the site to forestry use. Furthermore, under the county definitions of FR-80 and FR-1, mineral industries (including mineral extraction) are called out as being a compatible use for the designations and is protected under the zoning and comprehensive plan designations."

Since 2014, the applicant has purchased the two adjacent parcels to the existing mine and has improved the previous narrow gravel road.

In 2017, the applicant submitted a preliminary application for a temporary storage of topsoil and pad for staging aggregate products on parcel 230061000, PAC2017-00041. The pre-application indicated that a traffic study is not required. SEPA will be required, and the site plan for Yacolt Mountain quarry will need to be revised. Assuming a successful comp plan map and zoning map, the applicant will apply for the identified permits, Conditional Use, Site Plan, SEPA, and Geohazard.

#### **GENERAL INFORMATION:**

Parcel Numbers:	230610000 and 230301000
Location:	The site is located on 36400 NE 10 <sup>th</sup> Avenue, in Ridgefield, WA, 98642 to the east of NE Kelly Road, on the north side of NE Lucia Falls Road.
Area:	Approximately 107 acres
Owner(s):	Storedahl Properties, LLC

Existing land use:

Site:	Forest Tier I (FR-80)
North:	Forest Tier I and Mining Overlay, (FR-80, Surface Mining Overlay)
South:	Forest Tier I (FR-80)
East:	Forest Tier I (FR-80)
West:	Forest Tier I (FR-80)

#### SUMMARY OF PUBLIC INVOLVEMENT PROCESS

Sixty-day notice notification was sent to the Department of Commerce on May 31, 2018, under RCW 36.70A.106. A Notice of Determination of Non-Significance and SEPA Environmental Checklist was published in the Columbian newspaper on July 13, 2018. A legal notice was published for the Planning Commission hearing on August 2, 2018. A notice of application and hearing was posted on the property on July 24, 2018. Public Hearing Notice was published in the Columbian newspapers on Wednesday, July 18, 2018. A postcard was mailed, and hearing notices posted on July 13, 2018. The staff report and additional project information is posted on the following link.

https://www.clark.wa.gov/community-planning/annual-reviews-and-dockets

All public comments are included in the Planning Commission Hearing binder.

#### APPLICABLE CRITERIA, EVALUATION AND FINDINGS

#### CRITERIA FOR ALL MAP CHANGES

A. The proponent shall demonstrate that the proposed amendment is consistent with the Growth Management Act (GMA) and requirements, the countywide planning policies, the Community Framework Plan, Comprehensive Plan, City Comprehensive Plans, Applicable Capital Facilities Plans, and official population growth forecasts. [CCC 40.560.010(G)(1)].

#### Growth Management Act (GMA)

The GMA goals set the general direction for the county in adopting its framework plan and comprehensive plan policies. The GMA lists thirteen overall goals in RCW 36.70A.020 plus the shoreline goal added in RCW 36.70A.480(1). The goals are not listed in order of priority. The GMA goals that apply to the proposed action are Goals 5, 8 and 10.

Goal 5 Economic Development. "Encourage economic development throughout the state that is consistent with the adopted comprehensive plans, promote economic opportunity for all citizens of this state, especially for unemployed and for disadvantaged persons, promote the retention and expansion of existing businesses and recruitment of new businesses, recognize regional differences impacting economic development opportunities, and encourage growth in areas experiencing insufficient economic growth, all within the capacities of the state's natural resources, public services, and public facilities." [RCW 36.70A.020(5)].

Goal 8 Natural Resource Industries. "Maintain and enhance natural resource-based industries, including productive timber, agricultural, and fisheries industries. Encourage the conservation of productive forestlands and productive agricultural lands, and discourage incompatible uses." [RCW 36.70A.020(8)].

Goal 10 Environment. "Protect the environment and enhance the state's high quality of life, including air and water quality, and the availability of water." [RCW 36.70A.020(10)].

<u>Finding:</u> In Goal 5, the proposed expansion of the surface mining overlay would help meet future aggregate demands for building homes and roads in the county, which in turn would support

economic development by creating employment opportunities in the mining and construction sectors.

In Goal 8, it indicates maintaining and enhancing natural resource-based industries. Goal 8 does not specifically including mining as a natural resource-based industry. However, it meets the Mineral resource lands classification criteria established in WAC 365-190-070 (3). Goal 8 also encourages the conservation of productive forestlands and discourages incompatible uses. One of the proposed parcels, parcel number 230061000 has recently been logged and is no longer a productive forestland. Parcel number 230301000 includes likely productive forestlands containing an existing private road to the current mine.

In Goal, operating equipment will be equipped with requisite mufflers and emission control exhaust systems to protect air quality indicated. The SEPA has indicated that an unnamed seasonal stream is located offsite and north of the proposed mineral overlay. Drainage flows to a wetland located at the eastern edge of parcel 230061000 outside and east of the expanded mineral overlay. The existing permitted mine plan references a 150 foot buffer from the headwaters of the unnamed stream. The applicant will have to comply with the stream requirements in Clark County Code Chapter 40.440. The SEPA has also indicated the ground water will not be drawn from a well for drinking water or other purposes, and waste material will not be discharged into the ground from septic tanks or other sources. The applicant would need to comply with the Surface Mine Reclamation Program to restore vegetation, soil stability, and proper water conditions after mining takes place. The proposed amendment protects the environment as discussed in Goal 10.

#### **Community Framework Plan**

The Community Framework Plan (Framework Plan) provides guidance to local jurisdictions on regional land use and service issues. The Framework Plan encourages growth in centers, urban and rural, with each center separate and distinct from the others. The centers are oriented and developed around neighborhoods to allow residents to easily move through and to feel comfortable within areas that create a distinct sense of place and community. Community Framework Plan policies applicable to this proposal include the following:

Goal 3.0 states that the Rural and Natural Resource element "ensures the conservation of agricultural, forest, and mineral resource lands, and protect these lands from interference by adjacent uses..." [Framework Plan, Page 14].

The following Rural and Natural Resource policies apply to the proposed action:

- "3.1.2 The county and its jurisdictions at a minimum are to consider mineral resource lands based on WAC 365-190-070.
- 3.1.6 Establish standards for compatible land use on land designated for agriculture, forest and mineral resource uses.
- 3.1.8 Mineral, forestry and agricultural operations are to implement best management practices to minimize impacts on adjacent property." [Framework Plan, page 15].

Goal 9.0 states that the Economic Development Element is to "...contribute to maintaining and improving the overall quality of life in the county." [Framework Plan, page 21].

"9.1.3 Encourage businesses which pay a family wage to locate in Clark County." [Framework Plan, page 21].

<u>Finding:</u> Although Goal 3.0 states that the Rural and Natural Resource element "ensures the conservation of agricultural, forest, and mineral resource lands, and protects these lands from interference by adjacent uses," WAC 365-190-070(2) states that the county "must identify and

classify mineral resource lands from which the extraction of minerals occurs or can be anticipated...to assure availability of minerals for future uses, and to not inadvertently preclude access to available mineral resources due to incompatible development. Other proposed land uses within these areas may require special attention to ensure future supply of aggregate and mineral resource material, while maintaining a balance of land uses."

The subject parcels are located adjacent to an area with the surface mining overlay designation. The proposed expansion of the surface mining overlay would increase the supply of existing aggregate resources by 107 acres to meet the needs of development of homes and roads in Clark County. The mineral operation would provide employment opportunities in the mining and construction sectors. Best management practices would be established and implemented through the conditional use permit process that would follow the proposed designation as a Surface Mining Overlay. In addition, the applicant would need to comply with the Surface Mine Reclamation Program to restore vegetation, soil stability, and proper water conditions after mining takes place. The proposal is consistent with the policies in the Community Framework Plan.

#### **Countywide Planning Policies (CWPP)**

The GMA, under RCW 36.70A.210, requires counties and cities to collaboratively develop Countywide Planning Policies (CWPP) to govern the development of comprehensive plans. The WAC 365-196-305(1) defines "the primary purpose of CWPP is to ensure consistency between comprehensive plans of counties and cities sharing a common border or related regional issues. Another purpose of the CWPP is to facilitate the transformation of local governance in the urban growth areas, typically through annexation to or incorporation of a city, so that urban governmental services are primarily provided by cities and rural and regional services are provided by counties."

Policy 3.0 in the Rural and Natural Resource element states the following:

"3.0.1 The county shall recognize existing development and provide lands, which allow rural development in areas, which are developed or committed to development of a rural character." [CWPP, page 89]."

#### "Mineral Lands

Goal: To protect and ensure appropriate use of gravel and mineral resources of the county and minimize conflict between surface mining and surrounding land uses."

- 3.6.1 Support the conservation of mineral lands for productive economic use by identifying and designating lands that have long-term commercial significance for mineral extraction and that are not already characterized by urban growth.
- 3.6.2 Designate mineral resource lands based on the following:
  - Geological, environmental and economic factors;
  - surrounding land uses, zoning and parcel size; and
  - the suitability of public access roads to be used as haul roads.
- 3.6.3 Ensure that mineral extraction and processing operations minimize and mitigate any significant adverse impacts on water, fish, wildlife and nearby land uses.
- 3.6.4 Ensure that the use of adjacent lands will not interfere with the continued use of designated Mineral Resources lands for the extraction of minerals in the accustomed manner and in accordance with best management practices.
- 3.6.5 Establish notification standards whereby developments on lands in the vicinity of designated mineral resource lands are given notice that they are locating in or adjacent to a potential mining area.

- 3.6.6 The Surface Mining Overlay shall not be designated within Rural (R) zones except to allow the expansion of an existing mining site.
- 3.6.7 Surface mining other than Columbia River dredging shall not occur within any 100-year floodplain except for projects with an approved Habitat Conversation Plan." [2016 Plan, pages 95- 96].

<u>Finding:</u> The proposed plan map amendment and expansion of the surface mining overlay recognizes existing development in the rural area. The parcels are zoned FR-80 and are surrounded by parcels zoned FR-80 minimizing impacts to Rural zones. The subject parcels have been identified on the Washington Department of Natural Resources Division of Geology and Earth Resources inventory map of Clark County. The expansion of the Surface Mining Overlay for the subject parcels would support the conservation of mineral lands for productive economic use.

This proposal would provide an additional supply of aggregate resources that is adjacent to an existing supply of aggregate. Expansion of the surface mining overlay would extend the life of the current mining operation and maximize its use and effectiveness. Environmental resources will be projected through the a future conditional use permit, DNR's Reclamation Permit, and DOE's Sand and Gravel Permit. The proposed amendment is consistent with Countywide Planning Policies.

#### Comprehensive Growth Management Plan 2015-2035 (2016 Plan)

The 20-Year Comprehensive Growth Management Plan contains many policies that guide urban form and efficient land use patterns. The most relevant goals and policies applicable to this application are as follows:

"Goal: Compatible with maintaining rural character and rural (level of service) (services), ensure that lands outside of urban growth areas are viable places to live and work." [2016 Plan, page 90].

- "3.1.1 Clark County shall maintain and protect the character of rural lands defined as those lands outside of urban growth areas by promoting:
  - Economic development activities consistent with the preservation of rural character;
  - Agriculture, forestry and mining activities...
- 3.1.2 Land use designations shown on the Clark County Comprehensive Land Use Map includes areas that are in rural character and meet one or more of the following criteria:
  - Generally characterized by a larger lot size;
  - Do not require urban levels of public services;
  - Opportunities exist for farming and mineral activities;
  - The area is contiguous with other rural lands or can serve as a buffer between large-lot residential development and resource activities or urban areas;
  - The area is not needed to provide capacity for population or employment growth in the 20-year forecast; and,
  - The area has outstanding scenic, historic, environmental, resource or aesthetic values." [2016 Plan, page 91].
- "Goal: To maintain and enhance the conservation of productive forestlands and discourage incompatible uses associated with forestry activities.

3.4.2 Primary land use activities on forest lands are commercial forest management, agriculture, mineral extraction, public recreation uses and other non-forest related economic activities relying on forest lands." [2016 Comp Plan, page 94].

"Goal: To protect and ensure appropriate use of gravel and mineral resources of the county and minimize conflict between surface mining and surrounding land uses.

3.6.1 Support the conversion of mineral lands for productive economic use by identifying and designating lands that have long-term commercial significance for mineral extraction and that are not already characterized by urban growth." [2016 Plan, page 96].

<u>Finding</u>: The proposed amendment to expand the surface mining overlay would expand the lifespan of the existing mining operation by providing storage for the overburden of the existing mining operation on adjacent parcels. The proposed amendment would also add lands adjacent to the existing surface mining overlay that are currently being mined in accordance with Clark County code and help maximize the mines use and effectiveness. The subject parcels have minerals in commercially viable quantities and could be mined using the same public and private facilities that support the existing mining operation. The proposal would support the existing economic use, essentially extending the life of the current mine and help maximize its use and effectiveness. The proposal is consistent with surrounding land uses.

<u>Conclusion</u>: The proposed amendment demonstrates consistency with the Growth Management Act (GMA) and requirements, the countywide planning policies, the Community Framework Plan, Comprehensive Plan, City Comprehensive Plans, Applicable Capital Facilities Plans, and official population growth forecasts. Criterion A has been met.

## B. The proponent shall demonstrate that the designation is in conformance with the appropriate locational criteria identified in the plan and the purpose statement of the zoning district. [CCC 40.560.010(G)(2) and CCC 560.020.(G)].

"Surface Mining Overlay. This designation is implemented with an overlay zone and recognizes existing mining areas and is to allow for the future mining of minerals in an economically feasible way. Other land use controls which flow from 20-Year Plan policies or state or federal law apply to development proposals that are identified on zoning or other adopted maps but are not specifically identified on the 20-Year Plan Map". [2016 Plan, page 38].

CCC40.250.022 Surface Mining Overlay District states that "the purpose of the surfacing mining overlay district is to ensure the continued availability of rock, stone, gravel, sand, earth and mineral products without disrupting or endangering adjacent land uses, while safeguarding life, property and the public welfare".

CCC 40.210.010 Forest, Agriculture and Agriculture-Wildlife Districts (FR-80, FR-40, AG-20, AG-WL) states that "the purpose of the Forest 80 district is to maintain and enhance resourcebased industries, encourage the conservation of productive forest lands and discourage incompatible uses consistent with the Forest 1 policies of the comprehensive plan. The Forest 80 district applies to lands which have been designated as Forest Tier 1 on the comprehensive plan. Nothing in this chapter shall be construed in a manner inconsistent with the Washington Forest Practices Act."

<u>Finding</u>: The proposed comprehensive plan map amendment and expansion of the surface mining overlay is consistent with the surrounding land uses and is in conformance with both the locational

criterion in the comprehensive plan and the purpose of the proposed zoning districts. The proposed site is suitable because it meets the locational criterial, adjoins an existing surface mine and can provide needed mineral resources without harm to environmental resources or surrounding properties. There are no other appropriately designated alternative sites in the vicinity and there is not sufficient area within the existing surface mining overlay to provide for the long-term mineral resources needs of the County, see map of existing mines [Exhibit 4]. The study of permitted Aggregate Reserves of Clark County, Washington indicates mines that are currently permitted have limited and declining quantities of quality material, and in some cases are subject to conditions of approval that significantly limit the utilization of available mineral resources [Exhibit 5]. It identifies a strong need for additional resource designation.

The zoning district purpose statement is to enhance and allow resource based industries. RCW 36.70A.170 demonstrates that mineral resource lands is a resourced-based industry. Clark County Comprehensive Growth Management Plan, Chapter 3 Rural and Natural Resource Element include Mineral Lands. "The Growth Management Act (RCW 36.70A.040 (3)(b)) requires Clark County and each city within it to designate mineral resource lands and to adopt development regulations conserving those resource lands from which the extraction of minerals occurs or can be anticipated. Surface Mining is allowed in the Surface Mining Overlay District, Clark County Code 40.250.022.

<u>Conclusion:</u> The proponent has demonstrated that the proposed SMO designation is in conformance with the appropriate locational criteria identified in the plan and the purpose statement of the zoning district. Criterion B has been met.

# C. The map amendment or site is suitable for the proposed designation and there is a lack of appropriately designated alternative sites within the vicinity. [CCC 40.560.010(G)(3)].

<u>Finding:</u> The applicant submitted a study entitled "Summary: Study of Permitted Aggregate Reserves of Clark County, Washington" [Exhibit 5] and a map of permitted mine locations [Exhibit 4]. The study indicates that the future supply of aggregate resources in Clark County must be expanded to meet demand because existing mines do not have sufficient mineral resources. The applicant also indicates that there are no other appropriately designated alternative sites in the vicinity and that there is not sufficient area within the existing surface mining overlay to provide long-term mineral resource needs of the county. Dave Norman, Washington State DNR Geologist, has reviewed the applicant's "Study of Permitted Aggregate Reserves of Clark County" and concluded that the study contains sound science and engineering satisfying their study request.

The two parcels are suitable for the proposed designation because it adjoins an existing surface mining overlay and would allow the existing mining operation to continue to provide mineral resources to meet the construction needs of the county. There is not sufficient area within the existing surface mining overlay to continue the existing mining operations without expanding the overlay. The applicant's narrative states that "mines that are currently permitted have limited and declining quantities of quality material and in some cases are subject to conditions of approval that significantly limit the utilization of available mineral resources".

Yacolt Mountain consists of quartz diorite that has a history of use as crushed aggregate in Clark County. The Rock Aggregate Resource Lands Inventory Map for Clark County, Washington (2005) mapped Tertiary diorite and quartz diorite in northeast Clark County at Buncombe Hollow Creek, Chelatchie Prairie, Dunegun Mountain and Yacolt Mountain. According to the Aggregate Rock Map, Buncombe Hollow is 613 acres and hypothetically contains rock, it is not included in the SMO. Chelatchie Prairie is about 225 acres Identified on a map; Partial inclusion in SMO is roughly 113 acres. Dunegun Mountain is about 510 acres that hypothetically contains rock, but is not mapped or included in the SMO. However, these lands are not adjacent to the existing mining operation.

<u>Conclusion:</u> The proposed map amendment is suitable for the proposed designation (Surface Mining Overlay with Forest 80 (FR-80) zoning) as it is adjacent to an existing surface mining overlay and the two subject parcels can provide needed mineral resources for future mining. There are no other appropriately designated alternative sites in the vicinity for mining operations and there is not sufficient area within the existing surface mining overlay to provide for the long-term mineral resource needs of the County. Criterion C has been met.

# D. The plan map amendment either; (a) responds to a substantial change in conditions applicable to the area within which the subject property lies; (b) better implements applicable comprehensive plan policies than the current map designation; or (c) corrects an obvious mapping error. [CCC 40.560.010(G)(4)].

<u>Finding</u>: The proposal (a) responds to a substantial change in conditions because it would provide additional land to be used as a storage site for the overburden of the existing mining operation on parcel 230067000. Once the material on parcel 230067000 is exhausted, the materials on 230061000 and 230061000 would be mined as well.

<u>Conclusion:</u> The proposed change demonstrates a substantial change in conditions applicable to the area within which the subject property lies. Criterion D has been met.

E. Where applicable, the proponent shall demonstrate that the full range of urban public facilities and services can be adequately provided in an efficient and timely manner to serve the proposed designation. Such services may include water, sewage, storm drainage, transportation, fire protection and schools. Adequacy of services applies only to the specific change site. [CCC 40.560.010(G)(5)].

<u>Finding:</u> The subject parcels are not in the urban area and do not require the full range of urban facilities and services; this criterion is not applicable. The transportation analysis demonstrates that expanding the Surface Mining Overlay (SMO) is consistent with county transportation policies. The proposed land use change would not significantly impact the transportation system. All of the study area intersections are projected to operate at acceptable levels of service in the 2035 "Existing Zoning Build-Out" and 2035 "Proposed Zoning Build-Out." Staff has worked with Washington Department of Transportation, and they do not see any impacts or mitigation to SR 503 at this time. See the attached traffic impact analysis by Laurie Lebowsky, Clark County Community Planning Transportation Planner to review the findings [Exhibit 6].

<u>Conclusion:</u> A full range of urban public facilities and services do not apply to the applicant's rural proposal of adding an SMP to two parcels adjacent to an existing mine. The existing transportation system is able to accommodate this proposed comprehensive plan and zone change. Criterion E has been met.

#### F. Additional Criteria for Surface Mining Overlay Changes.

1. Designation of additional areas with the surface mining overlay shall only occur if:

- a. The designation criteria in the comprehensive plan have been met;
- b. The quantity and characteristics of the resource including the size of the deposit, the depth of overburden, the distance to market, and the cost of transport and resource availability in the region suggest that mining is economically viable; and
- c. At least sixty percent (60%) of the area within one thousand (1,000) feet of the proposed mineral resource land is characterized by parcels of five (5) acres or larger. [CCC 40.560.010(S)].

Finding: Regarding F.1.a, the comprehensive plan designation criteria have been met as explained above in Criterion A through E. Criteria F.1.b is addressed in the study of permitted Aggregate Reserves of Clark County, Washington [Exhibit 5]. The buried bedrock is likely quartz diorite based on recent mapping by Washington State Department of Natural Resource Rock Aggregate Resource Lands Inventory Map for Clark County, October 2005. [Exhibit 2] showing the guartz diorite located along a stream channel southeast of the proposed mineral overlay expansion as well as at the top of Yacolt Mountain, which covers a range in elevations from about 700 to 1,774 feet above mean sea level [Exhibit 8]. The applicants narrative indicates that the depth of overburden is expected to be consistent with what is found on the adjacent active mine property at 15 feet. The applicant's narrative states that "The market and transportation costs would be commercially reasonable as established by the fact that the expansion would be incorporated within the existing and adjacent mine. Distance to market ranges from 0-15 miles with transportation costs of approximately \$7 per ton, both of which are established as economically viable for mining operations as previously noted." Finally, the area within 1,000 feet of the parcels to be included in the expansion is characterized by 5 acre or larger parcels. See attached map showing actual parcel size of the surrounding properties [Exhibit 7].

- 2. Removal of the surface mining overlay shall only occur if one (1) of the following conditions is met:
  - a. The mineral resources have been depleted;
  - b. There is evidence that the mining of the mineral resource is not economically feasible based on the factors listed in Section 40.560.010(S)(1)(b);
  - c. Environmental or access constraints make it impractical to mine the resource; or
  - d. The area has been brought into an urban growth boundary or adjacent land uses or developments are incompatible with mineral extraction.

<u>Finding:</u> This criterion is not applicable. This proposal is a request to expand the surface mining overlay to two adjacent parcels, not a request to remove the surface mining overlay.

<u>Conclusion:</u> The applicant has demonstrated that the proposal is consistent with the additional criteria for designating surface mining overlay changes. Criterion F is met.

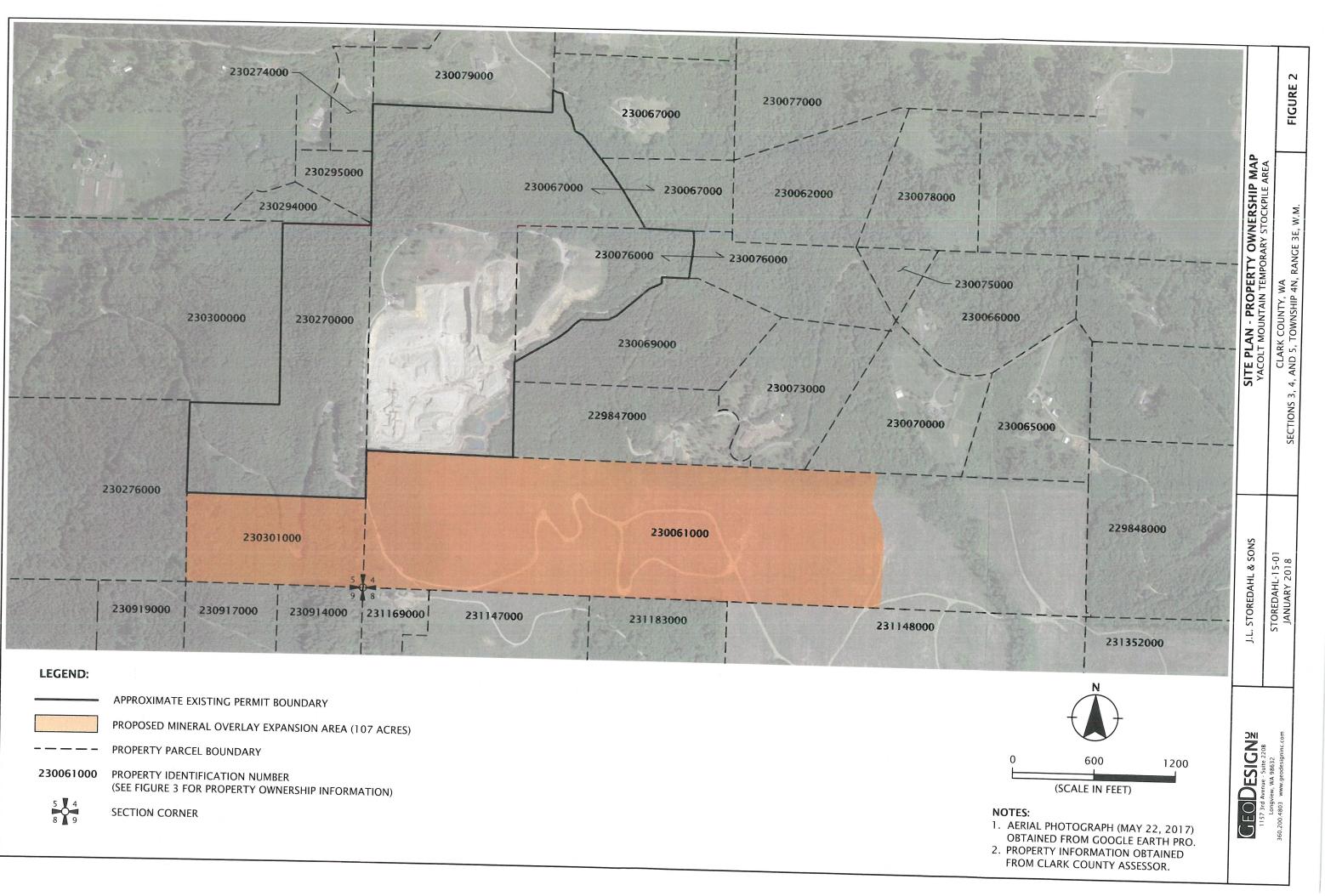
#### **RECOMMENDATION AND CONCLUSIONS**

Based on the information and the findings presented in this report, staff recommends that the Planning Commission forward a recommendation of **APPROVAL** to Clark County Council. The

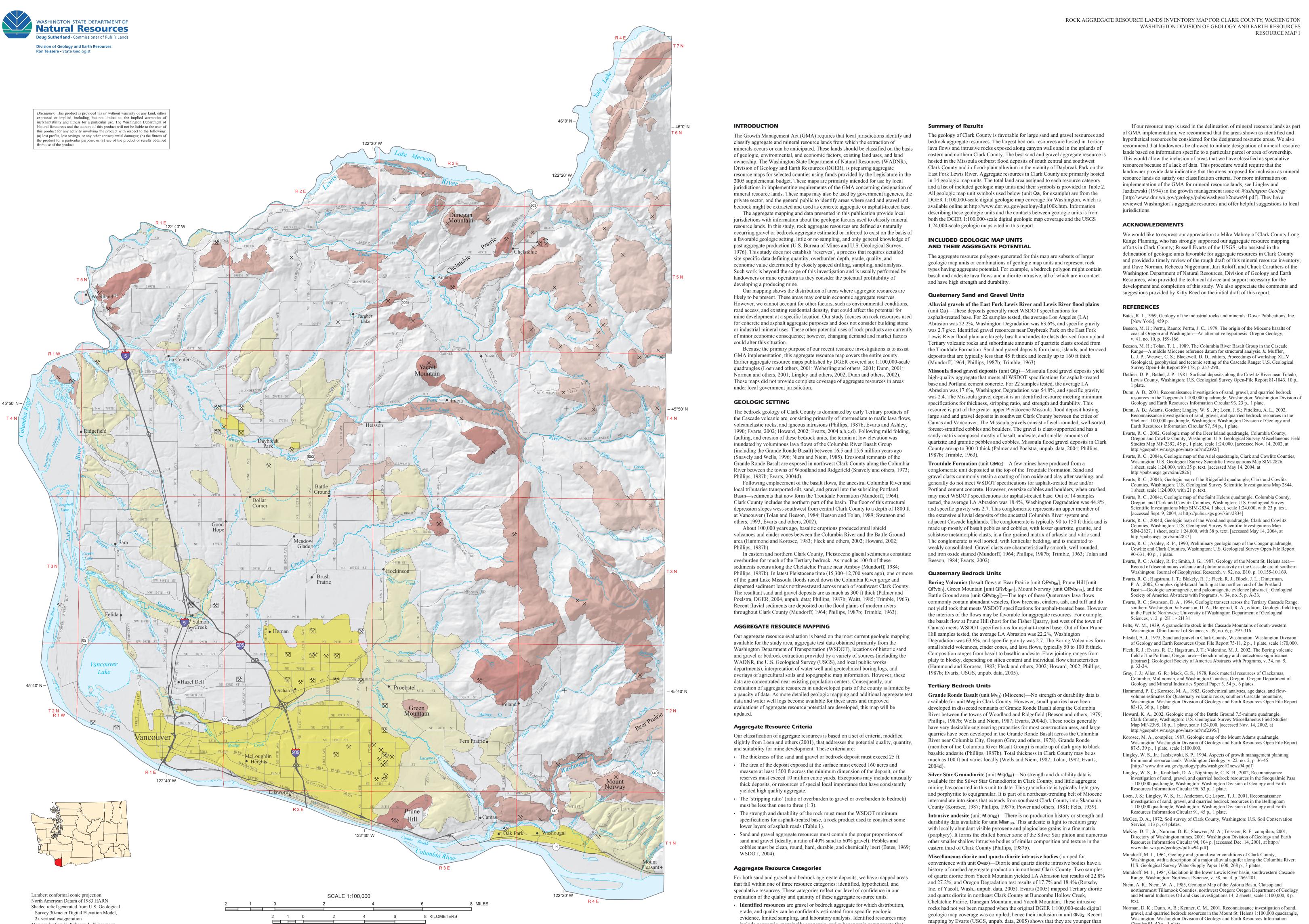
following table lists the applicable criterion and summarizes the findings of the staff report for CPZ2018-00004. The Planning Commission findings will be added to the table after public deliberation at the Planning Commission hearing scheduled for this application.

COMPLIANCE WITH APPLICABLE CRITERIA				
Criteria Met?				
Criteria for Policy/Text Amendments	Staff Report	Planning Commission Findings		
A. Consistency with GMA & Countywide Policies	YES			
B. Conformance with Locational Criteria	YES			
C. Site Suitability and Lack of Appropriately Designated Alternative Sites	YES			
D. Amendment Responds to Substantial Change in Conditions, Better Implements Policy, or Corrects Mapping Error	YES			
E. Adequacy/Timeliness of Public Facilities and Services	YES			
F. Additional Criteria for Surface Mining Overlay Changes	YES			
Recommendation:	Approve			

Г



Printed By: mmiller | Print Date: 1/4/2018 10:14:44 AM File Name: J:\S-Z\Storedahl\Storedahl-15\Storedahl-15-01\Figures\CAD\Storedahl-15-01-SP07.dwg | Layout: FIGU



evidence, limited sampling, and laboratory analysis. Identified resources may include economic, marginally economic, and subeconomic components that

mapping by Evarts (USGS, unpub. data, 2005) shows that they are younger than

- Washington: Washington Division of Geology and Earth Resources Information Circular 95, 52 p., 1 plate.

Map production by Rebecca A. Niggemann

# **Rock Aggregate Resource Lands Inventory Map** for Clark County, Washington

### by Chris N. Johnson, Stephen P. Palmer, and James L. Poelstra

### October 2005

#### **EXPLANATION**

	Resource Definition		
IDENTIFIED	Gravel Bedrock	Identified resources are gravel or bedrock aggregate for which distribution, grade, and quality can be confidently estimated from specific geologic evidence, limited sampling, and laboratory analysis. Identified resources may include economic, marginally economic, and subeconomic components that reflect various degrees of geologic certainty. We map an identified resource where available data appear to satisfy all of the elements of our threshold criteria.	
HYPOTHETICAL	Bedrock	Hypothetical resources are aggregate resources postulated to exist on the basis of general geologic information and aggregate test data and production history. We map hypothetical resources where available data appear to satisfy most of the elements of our threshold criteria.	
SPECULATIVE	Gravel Bedrock	Speculative resources are aggregate resources for which geologic and production information is sparse and where rock types have not been evaluated for their aggregate potential. Nevertheless, inferences can be made from existing geologic mapping and data to suggest that these rock units may have the potential for meeting the threshold criteria established for this study and possibly contain future aggregate resources.	

 $\stackrel{()}{\times}$  Bedrock or sand and gravel mine with an active surface mine reclamation permit

(information current as of 2000)

Bedrock or sand and gravel mine with a terminated surface mine reclamation permit (information current as of 2000)

× Small bedrock quarry explored or used by the USDA Forest Service

Table 1. Important construction aggregate specifications estat	plished by WSDOT (2004)
This investigation establishes threshold aggregate quality criteri	
results for asphalt-treated base.	, ,

Laboratory test	Asphalt-treated base	Portland cement concrete
Los Angeles Abrasion (%) [a measure of rock strength]	<30%	<35%
Washington Degradation (%) [a measure of rock durability]	>15%	not used
Sand Equivalent (%) [a measure of the cleanness of a sample in terms of the proportion of silt and clay to sand and gravel]	>30%	not used
Percent Passing U.S. No. 200 Sieve (%) [<0.0029 in.]	2–9%	0-0.5%
Specific Gravity (g/cc)	>1.95	>1.95

Table 2. Land area covered by each rock aggregate resource category and the geologic map units included in the category. Geologic map units and symbols are from the DGER 1:100,000-scale digital geologic map coverage for Washington, which is online at http://www.dnr.wa.gov/geology/dig100k.htm.

Aggregate resource categories	Total land area (acres)	Geologic map unit	Geologic unit symbol
Identified gravel resource	27,729	Missoula flood gravel deposits	Qfg
		flood-plain alluvium	Qa
Identified bedrock resource	7,297	Skamania Volcanics; including younger diorite and quartz diorite intrusives	$\Phi$ va <sub>1</sub> and $\Phi$ va <sub>2</sub>
		basalt at Prune Hill (Boring Volcanics)	QRvbb
Hypothetical bedrock resource	29,838	Goble Volcanics	ФEvbag
		Skamania Volcanics, including younger diorite and quartz diorite intrusives	$\Phi va_1$ and $\Phi va_2$
		Silver Star Granodiorite	<mark>₩</mark> igd <sub>ss</sub>
		intrusive andesite	<del>M</del> ian <sub>ss</sub>
		Grande Ronde Basalt	₩vg
		basalt at Green Mountain (Boring Volcanics)	QRvbgm
		basalt at Bear Prairie (Boring Volcanics)	QRvbbe
Speculative gravel resource	54,072	Troutdale Formation	Q₩ct
		flood-plain alluvium	Qa
Speculative bedrock resource	25,889	Goble Volcanics	ΦEvbag
		Skamania Volcanics	$\Phi va_1$ and $\Phi va_2$
		basalt at Mt. Norway (Boring Volcanics)	QRvb <sub>mn</sub>
		basalt at Bear Prairie (Boring Volcanics)	QRvbbe
		basalt at Battle Ground (Boring Volcanics)	QRvbbg

reflect varying degrees of geologic certainty. We map an identified resource where available data appear to satisfy all of the elements of our threshold criteria

- Hypothetical resources are aggregate resources postulated to exist on the basis of general geologic information and aggregate test data and production history. We map hypothetical resources where available data appear to satisfy most, but not all, of the elements of our threshold criteria.
- Speculative resources are aggregate resources for which geologic and production information is sparse and where rock types have not been evaluated for their aggregate potential. Nevertheless, inferences can be made from existing geologic mapping and data to suggest that these rock units may have the potential for meeting the threshold criteria established for this study and possibly containing future aggregate resources.

#### Aggregate Resource Mapping Methods

The delineation of aggregate resource areas was achieved by an objective, systematic procedure in which portions of geologic units likely to contain aggregate resources were selected, evaluated, and either accepted or rejected based the standard criteria established for this inventory. Sand and gravel resources and bedrock resources were mapped separately

Sand and gravel resources were identified using geologic and National Soil Conservation Service soils maps (McGee, 1972; Fiksdal, 1975), water well logs (available online from the Washington State Department of Ecology at http://apps.ecy.wa.gov/welllog/), and thickness models from Palmer and Poelstra (unpub. data, 2004). In total, about 1400 water wells and 140 geotechnical borings were reviewed in the process of creating the source gravel and overburden thickness models and developing the resource map.

Bedrock units with potential for high strength and durability were identified from geologic maps and unit descriptions produced by DGER and the USGS; the geomorphic position of resistant bedrock as determined from lidar, DEMs, and aerial photographs; the location of aggregate mines (McKay and others, 2001), and the location of good quality test samples. (Rock strength and durability data are published online by WSDOT at http://www.wsdot.wa.gov/biz/mats/ASA/.) We field checked larger prospective bedrock areas to verify that resource targets would meet the resource criteria. Bedrock resource areas were then mapped on the basis of lithology, number of resistant rock units in contact, and their attitude, geometry, geomorphic expression, and structural discontinuities.

Polygons were digitized and attributed using ESRI ArcGIS. This allowed us to evaluate aggregate potential on a polygon-by-polygon basis and to perform spatial data queries. GIS analysis was used to select polygons larger than 160 acres having minimum widths of 1500 ft or more. Final polygons were individually evaluated and classified as identified, hypothetical, or speculative resources.

#### Overburden

Intense chemical weathering of geologic units in the western Pacific Northwest has developed saprolitic soil horizons locally as much 30 ft thick over both bedrock and basin-fill sediments. Weathered units are best exposed in steep cliff faces, landslide scarps, and streambeds (Evarts, 2002). Alpine glacial sediments constitute overburden for much of the Tertiary volcanic bedrock in east and north Clark County. The thickest (>100 ft thick) and most extensive of these glacial sediments are present along Chelatchie Valley near Amboy (Mundorff, 1984; Phillips, 1987b). Although a few small aggregate mines have been developed in Pleistocene glacial outwash deposits in north and east Clark County, the product does not meet WSDOT specifications for asphalt-treated base because clasts are weathered and coated with iron oxide (Dethier and Bethel, 1981).

he Skamania volcanics. These rocks are typically porphyritic to equigranular and form erosion resistant knobs and ridges.

Volcanic rocks locally known as the Skamania Volcanics (unit Ova<sub>2</sub>) (upper Oligocene)—Lavas and sills within unit  $Ova_2$  have a history of aggregate production (currently mined at the Finn and Chelatchie Prairie quarries and numerous small forestland quarries). Lava flows and sills meet all WSDOT specifications for asphalt-treated base, where they are not intensely weathered. Out of 22 samples tested, the average LA Abrasion was 22.2%, Washington Degradation was 63.6%, and specific gravity was 2.7. The unit includes dark gray basaltic andesite that commonly has visible plagioclase grains in a very fine matrix and forms massive, dense, blocky to platy jointed lava flows or sills. Lava flows are locally interlayered with mechanically weak volcaniclastic rocks (Phillips, 1987b; Howard, 2002; Evarts, 2004a,b,c,d; Evarts, USGS, unpub. data, 2005). These weak rocks may locally constitute overburden to aggregate resources.

Volcanic rocks locally known as the Skamania Volcanics (unit Ova<sub>1</sub>) (lower Oligocene)—Out of 22 samples tested, the average LA Abrasion was 22.2%, Washington Degradation was 63.6%, and specific gravity was 2.7. Unit Ova<sub>1</sub> is made up of dark gray andesite and basaltic andesite lava flows and sills that have a very fine matrix with occasional visible pyroxene and plagioclase grains. Flows are typically massive and blocky to platy jointed. They are interlayered with mechanically weak rocks consisting of massive flow breccias and volcaniclastic rocks. These weak rocks may locally constitute overburden to aggregate resources (Phillips, 1987a,b; Evarts, 2004 a,b,c,d).

**Goble Volcanics** (unit OEvbag)—Although no test data is available for Clark County, flow centers in the Goble Volcanics have been mined in adjacent Cowlitz County, and may locally meet WSDOT specifications for asphalt-treated base. Local zeolite and chlorite alteration may render portions of flows unsuitable for use as asphalt-treated base aggregate (Wise, 1970; Tschernich, 1986; Evarts and others, 1987; Evarts and Swanson, 1994). The Goble Volcanics (upper Eocene to lower Oligocene) are comprised of a thick sequence of basalt, andesite, and dacite flows and flow breccias and thin interbeds of red-brown siltstone, sandstone, conglomerate, and tuff throughout northern Clark County. Lava flows have abundant gas bubble voids at their tops, and flow breccias commonly envelop dense lenticular flow centers. Prospective bedrock aggregate resources occur locally within dense flow centers, which are typically blocky to platy jointed and have well-developed columnar jointing or colonnade-entablature structure. Individual flow units are typically 15 to 30 ft thick; however, some flows may be as much as 80 ft thick (Phillips, 1987b; Evarts and Swanson, 1994; Evarts and Ashley, 1990; Evarts, 2004a,b,c,d).

#### USING THIS MAP FOR LAND-USE PLANNING

Areas that we classify as identified resources have sufficient data to indicate that all of the aggregate resource criteria are satisfied. Generally these areas contain a large proportion of the commercial aggregate mines within the area of our investigation. Areas delineated as hypothetical resources cannot be confirmed to meet all of our established criteria based on the available data, although commercial aggregate mines may be operating within these resource areas. There is sufficient data to indicate that most, but not all, of our threshold criteria are satisfied, and that there is a strong likelihood that these areas contain a significant aggregate resource.

Areas identified as speculative resources have evidence of historic use as an aggregate source (that is, locations of small pits or quarries) and a favorable geologic setting. These factors indicate that there may be some potential for aggregate resource that cannot be disregarded. However, there is not sufficient data in these areas to evaluate the criteria used in our resource classification scheme. We must emphasize that areas delineated as speculative may contain a significant aggregate resource.

Phillips, W. M., compiler, 1987a, Geologic map of the Mount St. Helens quadrangle, Washington and Oregon: Washington Division of Geology and Earth Resources Open File Report 87-4, 59 p., 1 plate, scale 1:100,000.

Phillips, W. M., compiler, 1987b, Geologic map of the Vancouver quadrangle, Washington: Washington Division of Geology and Earth Resources Open File Report 87-10, 27 p., 1 plate, scale 1:100,000.

Power, S. G.; Field, C. W.; Armstrong, R. L.; Harakal, J. E., 1981, K-Ar ages of plutonism and mineralization, western Cascades, Oregon and southern Washington: Isochron/ West, no. 31, p. 27-29

Snavely, P. D., Jr.; MacLeod, N. S.; Wagner, H. C., 1973, Miocene tholeiitic basalts of coastal Oregon and Washington and their relations to coeval basalts of the Columbia Plateau: Geological Society of America Bulletin, v. 84, no. 2, p. 387-424.

Snavely, P. D., Jr.; Wells, R. E., 1996, Cenozoic evolution of the continental margin of Oregon and Washington. In Rogers, A. M.; Walsh, T. J.; Kockelman, W. J.; Priest, G. R., editors, Assessing earthquake hazards and reducing risk in the Pacific Northwest: U.S. Geological Survey Professional Paper 1560, v. 1, p. 161-182.

Swanson, R. D.; McFarland, W. D.; Gonthier, J. B.; Wilkinson, J. M., 1993, A description of hydrogeologic units in the Portland Basin, Oregon and Washington: U.S. Geological Survey Water-Resources Investigations Report 90-4196, 56 p., 10 plates.

Tolan, T. L., 1982, The stratigraphic relationships of the Columbia River Basalt Group in the lower Columbia River gorge of Oregon and Washington: Portland State University Master of Science thesis, 151 p., 1 plate.

Tolan, T. L.; Beeson, M. H., 1984, Intracanyon flows of the Columbia River Basalt Group in the lower Columbia River Gorge and their relationship to the Troutdale Formation: Geologic Society of America Bulletin, v. 95, no. 4, p. 463-477.

Trimble, D. E., 1963, Geology of Portland, Oregon, and adjacent areas: U.S. Geological Survey Bulletin 1119, 119 p., 1 plate.

Tschernich, R. W., 1986, Fibrous zeolites of the northwest: Micro Probe, v. 6, no. 3, p. 10-12.

U.S. Bureau of Mines; U.S. Geological Survey, 1976, Principles of the mineral resource classification system of the U.S. Bureau of Mines and U.S. Geological Survey: U.S. Geological Survey Bulletin 1450-A, 5 p.

Waitt, R. B., Jr., 1985, Case for periodic, colossal jokulhlaups from Pleistocene glacial Lake Missoula: Geological Society of America Bulletin, v. 96, no. 10, p. 1271-1286.

Washington State Department of Transportation, 2004, Standard specifications for road. bridge, and municipal construction, 2004—English: Washington Department of Transportation, 1 v

Weberling, K. D.; Dunn, A. B.; Powell, J. E., 2001, Reconnaissance investigation of sand, gravel, and quarried bedrock resources in the Yakima 1:100,000 quadrangle, Washington: Washington Division of Geology and Earth Resources Information Circular 92, 34 p., 1 plate.

Wells, R. E.; Niem, A. R., 1987, Geology of the Columbia River Basalt Group in the Astoria Basin, Oregon and Washington-Evidence for invasive flows [abstract]: Geological Society of America Abstracts with Programs, v. 19, no. 6, p. 462-463.

Wise, W. S., 1970, Cenozoic volcanism in the Cascade mountains of southern Washington: Washington Division of Mines and Geology Bulletin 60, 45 p., 1 plate.

Legend
--------

#### Coho

#### Distribution

Documented

Taxlots

Mining

**Comprehensive Plan Overlay Designation** 

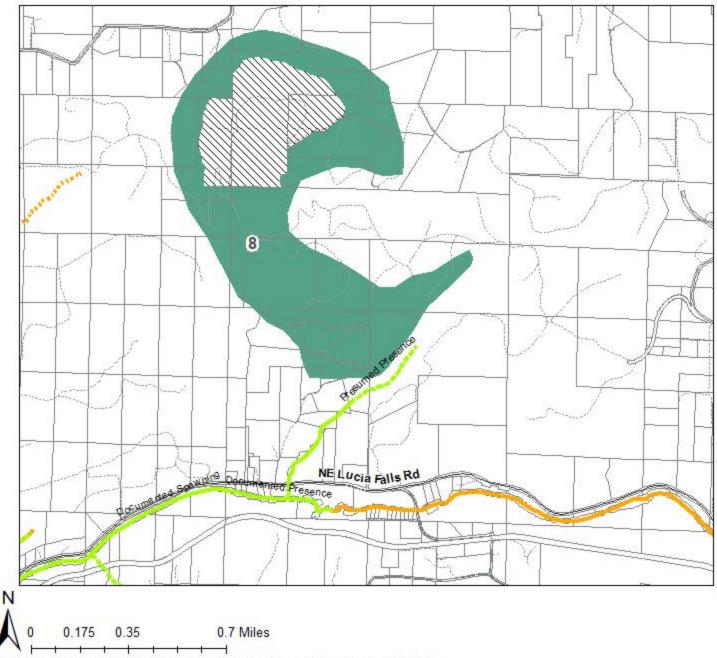
2013 Mineral Lands Task Force New Surface Mining Overlay Area

- ----- Historic
- Presumed
- Potential

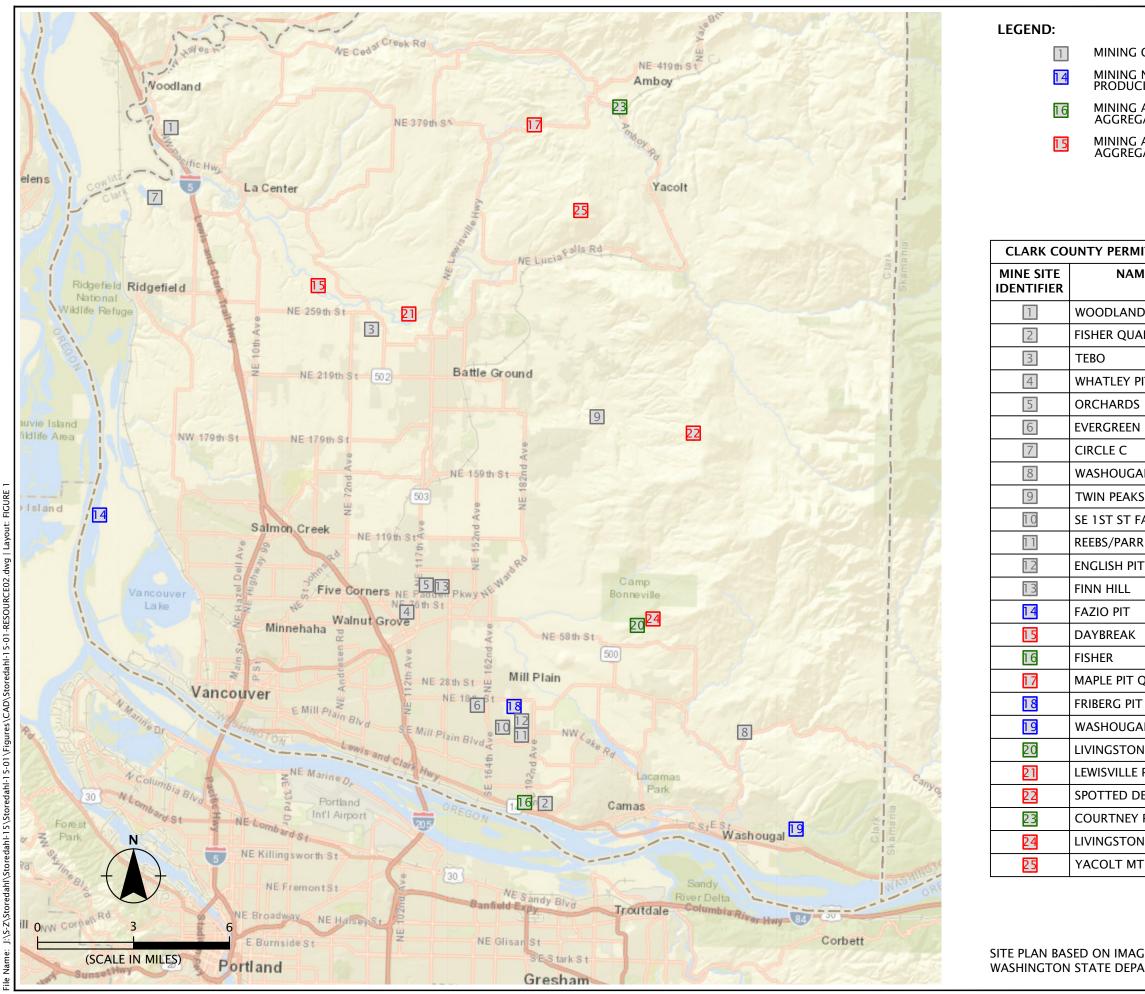
#### Steelhead, Winter

#### Distribution

- Documented
- Presumed
- Potential



Source: Clark County GIS Mineral Lands Task Force Recommend Add.lyr

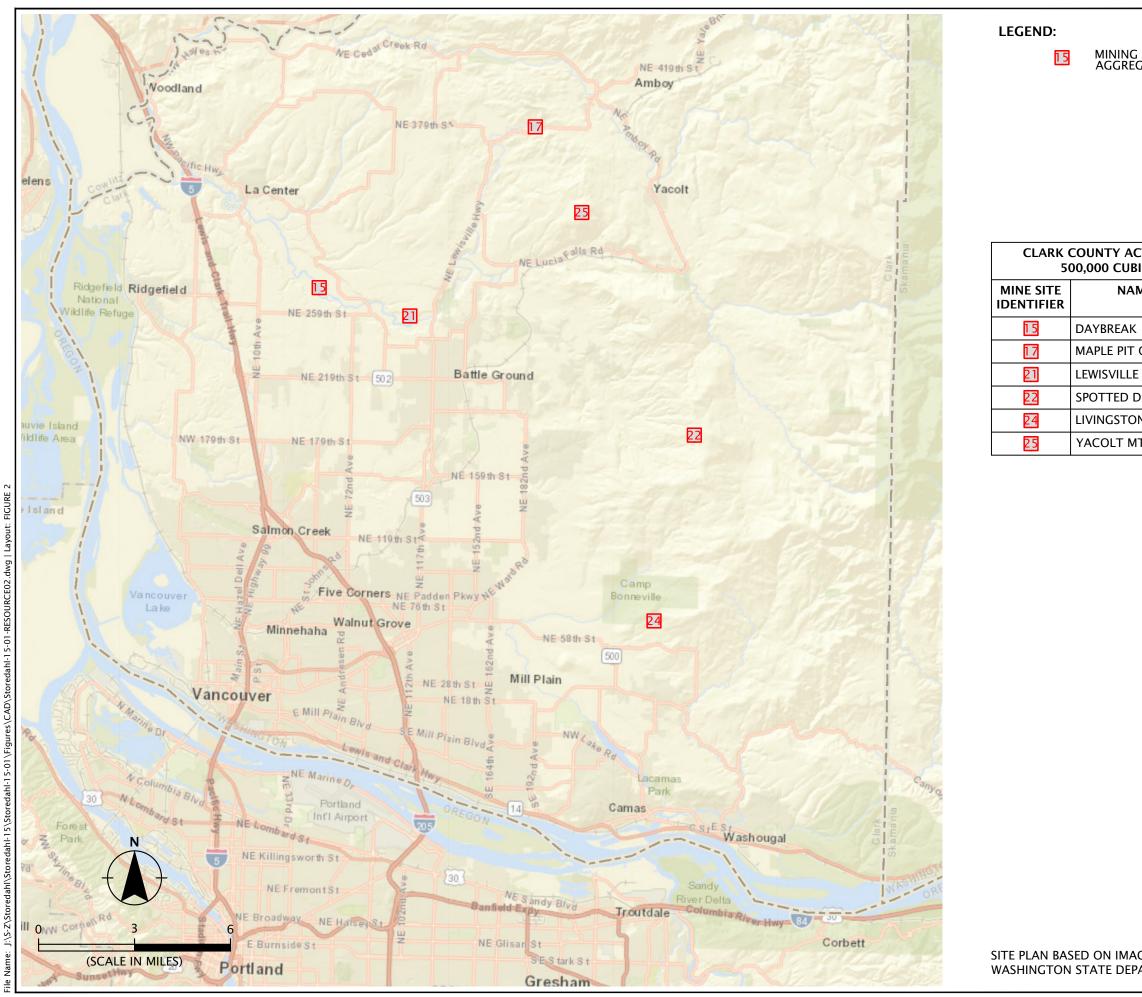


Print Date: 7/3/2018 12:41:05 PM redahl\Storedahl-15\Storedahl-15-01 mmiller J:\S-Z\St ted By: Name: Print File

COMPLETE NEARLY COMPLETE	AND/OR NOT	2	-	URE 1	
CING CONSTRUCTION	N AGGREGATE			ЫQ	
ACTIVELY PRODUCI GATE, <100,000 CUE	BIC YARDS OF RESERVES				
ACTIVELY PRODUCI GATE, >500,000 CUE	NG CONSTRUCTION BIC YARDS OF RESERVES				
· · ·					
	(AS OF JANUARY 2018)				
ME OF MINE	LIFE OF MINE VOLUME (CUBIC YARDS)			TION WA	
d Pit	-		2	ALUA NTY,	
ARRY/QS-G-78	-			E EV.	
	-			ESOURCI CLARK (	
PIT G-43	-	DE		RESC	
5	-		r Z		
1	-		S		
	-		DESIGN2     STOREDAHL-15-01     SITE PLAN - PERMITTED MINE SITES WITHIN CLARK COUNTY       AReader-Size     JULY 2018     RESOURCE EVALUATION     FIGURE 1	₩ ₩	
AL RIVER PIT	-	5			
S	-				
ACILITY	-				
R	-				
T	-				
	-				
	-		- n	×	
	1,333,000			201	
	30,000			IULY	
QUARRY G-9	900,000				
Г	-		-		
4L	-				
N	15,000				
PIT (CADMAN)	560,000				
DEER/RANDAL KIRK	800,000				
ROCK QUARRY	100,000			B 1c.com	
N MT QUARRY	833,000		σ	ite 220 224 lesignir	
T QUARRY	34,500,000		S	nue - Su / WA 97 /w.geod	
		<u>C</u>	2	Aver jview ww	

#### SITE PLAN BASED ON IMAGE AND INFORMATION OBTAINED FROM WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES

CLARK COUNTY, JULY 2018 GEO



mmiller | Print Date: 7/3/2018 12:41:07 PM J:\5-Z\Storedahl\Storedahl-15\Storedahl-15-01\Figures\CAD\St Printed By: File Name:

):	MINING ACTIVELY PRODUCII AGGREGATE, >500,000 CUB	NG CONSTRUCTION BIC YARDS OF RESERVES	RK COUNTY	FIGURE 2
	COUNTY ACTIVE MINES, RESER 20,000 CUBIC YARDS (AS OF JA		SITE PLAN - SIGNIFICANT ACTIVE MINES WITHIN CLARK COUNTY	7
re Er	NAME OF MINE	LIFE OF MINE VOLUME (CUBIC YARDS)		RESOURCE EVALUATION CLARK COUNTY, WA
	DAYBREAK	1,333,000	Ε	UNT
	MAPLE PIT QUARRY G-9	900,000	CAN	K CO
	LEWISVILLE PIT (CADMAN)	560,000		SOUR
	SPOTTED DEER/RANDAL KIRK	800,000		E C
	LIVINGSTON MT QUARRY	833,000	z	
	YACOLT MT QUARRY	34,500,000	LA	
			SITE	
			STOREDAHL-15-01	JULY 2018
			ואכ	щ

#### SITE PLAN BASED ON IMAGE AND INFORMATION OBTAINED FROM WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES

1157 3<sup>rd</sup> Av Longvi 360.200.4803

#### SUMMARY: STUDY OF PERMITTED AGGREGATE RESERVES

#### OF CLARK COUNTY, WASHINGTON

Prepared by: GeoDesign Inc, 1157 3<sup>rd</sup> Ave Longview, WA 98632 (360)-232-4803

On behalf of: J.L. Storedahl and Sons, Inc. 2233 Talley Way Kelso, WA, 98626 (360)-636-2420

January 4, 2018

GeoDesign Project: Storedahl-15-01

**Executive Summary** 

In December of 2017 and January of 2018 GeoDesign, Inc. conducted a survey and study of aggregate mines in Clark County, Washington to determine the state of permitted construction aggregate resources within the county. The Department of Natural Resources Information Circular 95 defines construction aggregate, the focus of the study, as "A mixture of sand and gravel or sand and crushed rock used in portland cement concrete, asphaltic concrete, mortar, plaster, or graded fill. Gravel and crushed stone that are in grain-to-grain contact in the aggregate are strong enough to support the weight of roads, buildings, or other infrastructure. The sand keeps the coarse aggregate in grain-to-grain contact by limiting the ability of the larger particles to shift laterally."

The research was conducted with direct consultation from aggregate mine operators in Clark County and the Washington Department of Natural Resources. Additional information was sourced from the US Census Bureau, the Washington Division of Geology and Earth Resources Information Circular 87, and Google Earth Pro aerial photography. The first goal was to determine the current operational status, annual production, quantity of reserves, and the quality of those reserves as construction aggregate throughout the county. The second goal was to create a forecast to understand how permitted reserves fulfill aggregate demand of the county.

Numerous important conclusions were drawn from the data:

• Of the 25 quarries and pits presently permitted in Clark County with the DNR, only 9 mines are producing aggregate. Two active mines, Fazio and Friberg, are producing non-construction grade aggregate. The Washougal pit and Spotted Deer quarry are currently not commercially producing sites. Four other currently producing mines (Fisher, Lewisville Pit,



Livingston, and Courtney Rock) are facing projected depletion of their economic reserves in the next few years.

• Using county reserve estimates compared to demand calculations from the DNR and Clark County industry research, it was concluded that at DNR demand rates the county has only 8 years of permitted aggregate reserves and at Industry demand rates, assessed from industry experience and discussions with county producers, the county reserves would only last 21 years. Given the length of time that it takes to permit and start up a mine, these reserves would be reduced by the time that an additional mine could be producing aggregate. Moreover, because of operational limits such as truck trip restrictions, the amount of aggregate reserves accessible at any point in time may be overstated by these estimates.

The findings of the study are summarized in Table 1 attached. Additional details and supporting information for the study are available upon request to GeoDesign, Inc.

**\* \* \*** 

Should you have questions, we can be reached at (360) 200-4803.

Sincerely,

GeoDesign, Inc.

Harrison J. Ingham, G.I.T. Mining Consultant

Roy L. Garrison Principal Mining Consultant

HJI:RLG Attachment 1 copies submitted Document ID: Storedahl-15-01:092917 © 2017 GeoDesign, Inc. All rights reserved



### Table 1: Clark County Estimated Construction Aggregate Reserves

	Name of Mine	Permit #	Status	Acres Permitted	Life of Mine Volume (cy)
1	WOODLAND PIT	10007	Complete	79.29	-
2	FISHER QUARRY/QS-G-78	10378	Complete	76	-
3	TEBO	10407	Complete	79.93	-
4	WHATLEY PIT G-43	10412	Complete	15	-
5	ORCHARDS	10709	Complete	54	-
6	EVERGREEN	10937	Complete	21.29	-
7	CIRCLE C	11938	Complete	42.9	-
8	WASHOUGAL RIVER PIT <sup>H</sup>	12199	Complete	6.25	-
9	TWIN PEAKS	12661	Complete	30	-
10	SE 1ST ST FACILITY	12822	Complete	10.54	-
11	REEBS/PARR	13027	Complete	52	-
12	ENGLISH PIT <sup>H</sup>	10009	Complete	60	-
13	FINN HILL <sup>H</sup>	10931	Complete	5	-
14	FAZIO PIT <sup>^</sup>	10377	Active	13.85	-
15	DAYBREAK <sup>E</sup>	10139	Active	292	1,333,000
16	FISHER	10379	Active	103.4	30,000
17	MAPLE PIT QUARRY G-9 <sup>B</sup>	10391	Active	31.5	900,000
18	FRIBERG PIT <sup>A</sup>	10403	Active	216	-
19	WASHOUGAL <sup>^</sup>	10745	Active	120	-
20	LIVINGSTON <sup>E</sup>	10930	Active	20	15,000
21	LEWISVILLE PIT (CEMEX) <sup>c</sup>	12044	Active	122.4	560,000
22	SPOTTED DEER/RANDALL KIRK <sup>B</sup>	12461	Active	27.5	800,000
23	COURTNEY ROCK QUARRY <sup>c</sup>	13017	Active	16.75	100,000
24	LIVINGSTON MT QUARRY <sup>E</sup>	13041	Active	40	833,000
25	YACOLT MT QUARRY	13057	Active	135	34,500,000

(GeoDesign, Inc., 01/04/2018)

# of Mines Producing Construction Grade Aggregate	9
County Wide Total Permitted Reserves (cy)	39,071,000
Annual Aggregate Demand using DNR Consumption Estimate (cy) D,F	5,513,940
Estimated Years of Reserve Based on DNR Consumption	7
Annual Aggregate Demand using Industry Consumption Estimate (cy) <sup>D,G</sup>	1,837,980
Estimated Years of Reserve Based on Projected Industry Consumption	21

<sup>A</sup> Remaining reserves and production are non-construction grade aggregate, based on DNR definition (Information Circular 95)

<sup>B</sup> Estimated reserve based on SM-8a annual production

 $^{\rm c}\,$  Reserve estimated with air photo analysis (Google Earth Pro 5/22/2017 Air Photo) and mine depth permitted

<sup>D</sup> 2015 US Census Bureau Population of Clark County - 459,495

<sup>E</sup> Converted from tons using DNR Information Circular 95 conversion numbers (1.6 T/cy for Sand & Gravel, 2.4 T/cy for Basalt/Andesite)

<sup>F</sup> Annual per capita demand of 12 cubic yards per person from Washington Division of Geology and Earth Resources Information Circular 87 (1992)

<sup>G</sup> Annual per capita demand of 4 cubic yards per person derived Clark County aggregate industry research and producer information

<sup>H</sup> In Reclamation

Notes: Complete is defined as DNR permits no longer producing aggregate with depleted reserves and/or being reclaimed.



#### ADDITIONAL DETAILS AND SUPPORTING INFORMATION

#### STUDY OF PERMITTED AGGREGATE RESERVES

#### **OF CLARK COUNTY, WASHINGTON**

Prepared by: GeoDesign Inc, 1157 3<sup>rd</sup> Ave Longview, WA 98632 (360)-232-4803

On behalf of: J.L. Storedahl and Sons, Inc. 2233 Talley Way Kelso, WA, 98626 (360)-636-2420

January 25, 2018

GeoDesign Project: Storedahl-15-01

#### INTRODUCTION

In December 2017 and January 2018 GeoDesign, Inc. conducted a study of aggregate mines and estimated aggregate reserves in Clark County, Washington. The first goal of the study was to determine the current operational status, annual production, quantity of reserves, and the quality of those reserves as construction aggregate throughout the County. The second goal was to create a forecast to understand how permitted reserves may fulfill aggregate demand of the County. The Washington Department of Natural Resources Information Circular 95 defines <u>construction</u> <u>aggregate</u> as "*A mixture of sand and gravel or sand and crushed rock used in portland cement concrete, asphaltic concrete, mortar, plaster, or graded fill.*"

The research was conducted with direct consultation with the Washington Department of Natural Resources (DNR), aggregate mine operators in Clark County, and utilizing GeoDesign, Inc.'s 40 years of mining industry expertise. Additional information was sourced from the United States Census Bureau, the Washington Division of Geology and Earth Resources Information Circular 87, and Google Earth Pro aerial photography.

The study concludes that Clark County is facing several challenges with its permitted construction aggregate reserves. There is a rapidly decreasing amount of permitted reserves combined with high demand for aggregate in the rapidly growing County. Using DNR data for per capita demand of aggregate, this study estimates Clark County has only 7 years of reserves. Alternatively, using a projected industry consumption per capita demand, there are only 21 years of reserves remaining. Of the 25 mines listed by DNR as being active in Clark County, 9 are producing construction aggregate. Over 99% of the permitted reserves are sourced from only 6 mines. The conclusion

drawn from this study is the need for expanded permitted resources in Clark County to avoid supply issues and pricing inflation.

#### ACTIVE PERMITS IN CLARK COUNTY

Presented on Table 1 is a list from the DNR containing all 25 mines currently in operation in Clark County with active permits. This list was generated by the DNR directly for GeoDesign in December 2017 and does not include mines that have been reclaimed or are otherwise listed as inactive. Active sites are mines that have sufficient activity occurring that requires DNR oversight and inspection. Besides production of mined materials, regulated activities include backfilling, active reclamation, landfill use and other non-resource extraction activities.

	Name of Mine	Permit #	Operator/Applicant
1	WOODLAND PIT	10007	J L STOREDAHL & SONS INC
2	FISHER QUARRY/QS-G-78	10378	PACIFIC ROCK PRODUCTS LLC
3	ТЕВО	10407	J L STOREDAHL & SONS INC
4	WHATLEY PIT G-43	10412	CLARK COUNTY PUBLIC WORKS
5	ORCHARDS	10709	CADMAN MATERIALS INC
6	EVERGREEN	10937	TAPANI INC
7	CIRCLE C	11938	CORAMAE CARLSON
8	WASHOUGAL RIVER PIT	12199	CANYON CREEK ROCK LLC
9	TWIN PEAKS	12661	PEBBLE CREEK FARMS LTD
10	SE 1ST ST FACILITY	12822	CADMAN MATERIALS INC
11	REEBS/PARR	13027	CADMAN MATERIALS INC
12	ENGLISH PIT	10009	GILBERT WESTERN CORP
13	FINN HILL	10931	CLARK COUNTY PUBLIC WORKS
14	FAZIO PIT	10377	FAZIO BROS SAND CO INC
15	DAYBREAK	10139	J L STOREDAHL & SONS INC
16	FISHER	10379	CADMAN MATERIALS INC
17	MAPLE PIT QUARRY G-9	10391	CLARK COUNTY PUBLIC WORKS
18	FRIBERG PIT	10403	ROTSCHY
19	WASHOUGAL	10745	PAUL ZIMMERLY ROCK PRODUCTS
20	LIVINGSTON	10930	TOWER ROCK PRODUCTS INC
21	LEWISVILLE PIT (CEMEX)	12044	PACIFIC ROCK PRODUCTS INC
22	SPOTTED DEER/RANDALL KIRK	12461	DNR SW PRO 532
23	COURTNEY ROCK QUARRY	13017	WALDOW FAMILY ENT INC
24	LIVINGSTON MT QUARRY	13041	TOWER ROCK PRODUCTS INC
25	YACOLT MT QUARRY	13057	J L STOREDAHL & SONS INC

### Table 1. Clark County Active Mine Permits

(Washington Department of Natural Resources, December 14, 2017)

Through discussions with the DNR and their inspectors it was determined that 13 of the sites were not producing any form of mined material for the general market. These sites are:

Woodland Pit, Fisher Quarry, Tebo, Whatley Pit, Orchards, Evergreen, Circle C, Washougal River Pit, Twin Peaks, SE 1<sup>st</sup> St, Reebs/Parr, Finn Hill, and English Pit. These locations are in various stages of backfilling, reclamation, landfill use, or other non-extractive activities that fall under DNR oversight. These sites are referred to hereafter as "complete", meaning there is no viable or extracted mineral reserve remaining at the facility, and there is no commercial aggregate being sold off the site.

#### ACTIVE MINES IN CLARK COUNTY

We investigated the remaining 12 active mine sites with permitted reserves in Clark County. Table 2 presents the results of the investigations including the permitted area of the site and the mine reserves (presented as Life of Mine Volume in cubic yards).

#### FAZIO, FRIBERG, AND WASHOUGAL

These 3 mine sites were excluded from the calculations for permitted construction aggregate reserves based on discussion with DNR staff, review of documents from DNR's files, discussion with mine operators, and the nature of each operation. Fazio receives Colombia River dredge sands as determined by discussion with the DNR inspector for the site and written comments from the DNR's August 29, 2016 inspection report. The Washougal site is currently not producing any aggregate for sale based on DNR inspections and review of aerial photographs. Friberg is currently only producing screening and fill material and based on DNR form SM-2 data has nearly depleted its reserves.

#### DAYBREAK, LIVINGSTON, LIVINGSTON MOUNTAIN, AND YACOLT MOUNTAIN

These operations are mined by Storedahl and Sons, Inc. Information regarding their status was determined from interviews with Storedahl and Sons in December 2017 and corroborated with the DNR via discussion with inspectors and review of inspection reports. Storedahl reported reserves for this study in tons of aggregate which was then converted to cubic yards using standard DNR conversion numbers outlined in the Washington Department of Natural Resources Information Circular 95.

#### **FISHER**

Fishers reserves were determined from DNR inspection report data and a letter from Brian Massey with the DNR dated May 1, 2017, where he discussed a small section of the mine floor that will be mined, as well as additional discussion of the reserves with the DNR occurring on December 14, 2017.

#### MAPLE PIT

The Maple Pit is operated by Clark County Public Works, and its reserves were estimated from the DNR SM-8A form on file combined with an annual production estimate and remote reconnaissance of the site.

#### LEWISVILLE PIT

Reserves for this facility were determined through analysis of the existing mine footprint via air photo reconnaissance and elevation data compared against permitted mining area and depth in the SM-8A form on file with the DNR for the site, which is dated October 12, 2004.

#### SPOTTED DEER

Reserves for this facility were determined through analysis of the existing mine footprint via air photo reconnaissance, elevation data, and estimated annual production compared against permitted mining area and depth reported in the SM-8A form on file with the DNR for the site, which is dated January 6, 2012.

#### COURTNEY ROCK QUARRY

Reserves for this facility were determined through analysis of the existing mine footprint via air photo reconnaissance and elevation data compared against permitted mining area and depth in the SM-8A form on file with the DNR for the site which is dated November 13, 2003.

	Name of Mine	Permit #	Status	Acres Permitted	Life of Mine Volume (cy)
1	WOODLAND PIT	10007	Complete	79.29	-
2	FISHER QUARRY/QS-G-78	10378	Complete	76	-
3	TEBO	10407	Complete	79.93	-
4	WHATLEY PIT G-43	10412	Complete	15	-
5	ORCHARDS	10709	Complete	54	-
6	EVERGREEN	10937	Complete	21.29	-
7	CIRCLE C	11938	Complete	42.9	-
8	WASHOUGAL RIVER PIT	12199	Complete	6.25	-
9	TWIN PEAKS	12661	Complete	30	-
10	SE 1ST ST FACILITY	12822	Complete	10.54	-
11	REEBS/PARR	13027	Complete	52	-
12	ENGLISH PIT	10009	Complete	60	-
13	FINN HILL	10931	Complete	5	-
14	FAZIO PIT	10377	Active	13.85	-
15	DAYBREAK	10139	Active	292	1,333,000
16	FISHER	10379	Active	103.4	30,000
17	MAPLE PIT QUARRY G-9	10391	Active	31.5	900,000
18	FRIBERG PIT	10403	Active	216	-
19	WASHOUGAL	10745	Active	120	-
20	LIVINGSTON	10930	Active	20	15,000
21	LEWISVILLE PIT (CEMEX)	12044	Active	122.4	560,000
22	SPOTTED DEER/RANDALL KIRK	12461	Active	27.5	800,000
23	COURTNEY ROCK QUARRY	13017	Active	16.75	100,000
24	LIVINGSTON MT QUARRY	13041	Active	40	833,000
25	YACOLT MT QUARRY	13057	Active	135	34,500,000

Table 2. Clark County Estimated Construction Aggregate Reserves(GeoDesign, Inc., January 4, 2018)

cy = cubic yards

#### CONCLUSIONS

Table 3 provides a summary of the major conclusions drawn from the study. The study used the 2015 Census Bureau population data for the County and per capita consumption data from the DNR Information Circular 87 and an assumed Industry consumption estimate based on conversations with producers within the County for determining the total volume of demand for construction aggregates per year. This was then compared against the County-wide permitted reserves to estimate the years of reserves remaining in Clark County.

Number of Mines Producing Construction- Grade Aggregate	9
County Wide Total Permitted Reserves (cy)	39,071,000
Annual Aggregate Demand using DNR Consumption Estimate (cy)	5,513,940
Estimated Years of Reserve Based on DNR Consumption	7
Annual Aggregate Demand using Industry Consumption Estimate (cy)	1,837,980
Estimated Years of Reserve Based on Projected Industry Consumption	21

### Table 3. Clark County Estimated Construction Aggregate Forecast(GeoDesign, Inc., January 4, 2018)

cy = cubic yards

It was concluded that at DNR demand rates the County has only 7 years of permitted aggregate reserves, and at Industry demand rates, assessed from industry experience and discussions with aggregate producers within the County, the County reserves would last only 21 years. Given the length of time that it takes to permit and start up a mine, these reserves would be significantly reduced by the time an additional mine could produce aggregate. Moreover, because of operational limits such as truck-trip restrictions, the amount of aggregate reserves accessible at any point in time may be overstated by these estimates. An additional limitation within the study is population. The number used for this study is from 2015 and does not account for the rapid growth experienced by the county from 2015 to 2017. These results establish a clear need for additional permitted aggregate reserves in Clark County to meet the rapidly increasing demand for aggregate within the County.

\* \* \*

Should you have questions, we can be reached at (360) 200-4803.

Sincerely,

GeoDesign, Inc.

H. Ingham

Harrison J. Ingham Staff Mining Consultant

L

Roy L. Garrison Principal Mining Consultant

HJI:RLG One copy submitted (via email) Document ID: Storedahl-15-01-012518-addl-info.docx © 2018 GeoDesign, Inc. All rights reserved.

#### **Transportation Impact Analysis**

#### Annual Review Case: CPZ 2018-00001 Yacolt Mt.

#### Introduction

This report provides a transportation analysis of the proposed comprehensive plan amendment and zone change. The report identifies the likely localized and general transportation impacts and shows how applicable adopted transportation policies have or have not been met by the applicant's proposal. Subsequent development will need to comply with applicable county development regulations, including standards governing the design of access and those that ensure transportation system concurrency.

#### **Requested Amendment**

The applicant is proposing to expand the Surface Mining Overlay designation on parcel number 230301000 and also on a portion of parcel number 230061000. The subject sites are cumulatively 107 acres. The subject site accesses NE Kelly Road via a private road. NE Kelly Road is classified as a Rural Minor Arterial (Rm-2).

#### **Summary of Transportation Impact Findings**

The transportation analysis demonstrates that expanding the Surface Mining Overlay (SMO) is consistent with county transportation policies. The proposed land use change would not significantly impact the transportation system. The following analysis shows that:

- The proposal is to add another 107 acres to the existing 135 acre SMO area.
- The accepted level-of-service (LOS), per Title 40 Transportation Concurrency Management System, for an unsignalized intersection is a LOS E. [CCC 40.350.020.G.1.c].
- The proposed expansion of the SMO area could impact Lewisville Highway or SR-503 so analysis of the potential impacts was included in the traffic impact study. SR-503 is under the jurisdiction of the Washington Department of Transportation (WSDOT).
- Staff received the following emailed comments from WSDOT on June 12, 2018: "We've reviewed the traffic study for the Surface Mining Overlay for Yacolt Mountain Quarry. Based on the information in the study we understand the applicant is not proposing an expansion of mining activities under this request. If mining activities were expanded to these parcels the traffic study shows no significant impact to the two intersections on SR 503 identified in the study. At this time and based on the information in the submitted traffic study WSDOT is not requesting mitigation at either intersection on SR 503."
- WSDOT enforces LOS standards for highways of statewide significance based on the Revised Code of Washington (RCW) 47.06.140(2). SR-503 is not a regionally significant highway; however, Clark County's performance standards apply at the intersections of SR-503/NE Garner Road and SR-503/NE Gabriel Road.
- The traffic study looked at both AM and PM peaks and used whichever number was the highest number to evaluate the worst-case scenario
- The current directional V/C ratio for SR-503, east of NE Kelly Road, both in the AM and PM peak hour, is less than 0.9.

Community Planning Staff Report



- The current directional V/C ratio for SR-503, south of NE Gabriel Road, both in the AM and PM peak hour, is less than 0.9.
- The existing zoning is expected to generate 19 average daily trips, 2 am peak hour, and 2 pm peak hour trips.
- The proposed expansion of the SMO would generate a net Average Daily Trip (ADT) generation would be 402.
- The 20-year projected PM peak V/C ratio for the intersection of NE Gabriel Road and SR-503 is 0.39.
- The 20-year projected peak hour level-of-service (LOS) for the intersection of NE Gabriel Road and SR-503 is a LOS D in both the AM and PM peak hour.
- The 20-year projected PM peak V/C ratio for the intersection of NE Kelly Road and SR-503 is 0.13.
- The 20-year projected peak hour LOS for the intersection of NE Kelly Road and SR-503 is a LOS A in the AM peak hour and a LOS B in the PM peak hour.
- The site access and potential frontage and operational improvements will be evaluated during the development review process.

All of the study area intersections are projected to operate at acceptable levels of service in the 2035 "Existing Zoning Build-Out" and 2035 "Proposed Zoning Build-Out."

#### **Public Comment**

Staff received an email from WSDOT regarding this annual review applications and it can be found in Exhibit A of this report.

#### **Compliance with Clark County Transportation Policy**

The transportation analysis demonstrates that application CPZ2018-00001 is consistent with all applicable Clark County transportation policies. The following Framework Plan transportation policies (from the 20-Year Comprehensive Growth Management Plan 2015-2035) are relevant to this application:

#### **Community Framework Plan**

Goal 5.0 Transportation states that "the Transportation Element is to implement and be consistent with the Land Use Element. The *Community Framework Plan* envisions a shift in emphasis of transportation systems from private vehicles to public transit (including high-capacity transit,) and non-polluting alternatives such as walking and bicycling. The following policies are to coordinate the land use planning, transportation system design and funding to achieve this vision." [Framework Plan, page 17]. The following transportation policy applies to the proposed action:

"5.1.8 Encourage a balanced transportation system and can be maintained at acceptable level-of-service." [Framework Plan, page 18].

<u>Findings:</u> The applicant's traffic study demonstrates that the proposed plan amendment will operate within the adopted threshold volume-to-capacity ratio of 0.90.

Community Planning Staff Report



Countywide Planning Policies (CWPP)

The GMA, under RCW 36.70A.210, requires counties and cities to collaboratively develop Countywide Planning Policies (CWPP) to govern the development of comprehensive plans. The WAC 365-196-305(1) defines "the primary purpose of CWPP is to ensure consistency between comprehensive plans of counties and cities sharing a common border or related regional issues. Another purpose of the CWPP is to facilitate the transformation of local governance in the urban growth areas, typically through annexation to or incorporation of a city, so that urban governmental services are primarily provided by cities and rural and regional services are provided by counties."

Policy 5.0.8 states "The state, local municipalities, MPO/RTPO and local municipalities shall work together to establish a regional transportation system which is planned, balanced and compatible with planned land use densities; these agencies and local municipalities will work together to ensure coordinated transportation and land use planning to achieve adequate mobility and movement of goods and people." [CWPP, page 151].

<u>Findings</u>: Per the applicant's traffic study, the proposed plan amendment and zone change will increase trips by 402 per day, but the transportation system will operate within the accepted V/C ratio. Therefore, the proposed amendment is consistent with the applicable Countywide Planning Policies. The proposed land use will significantly decrease trips onto the surrounding transportation system.

#### Comprehensive Growth Management Plan 2015-2035 (2016 Plan)

The 20-year Comprehensive Growth Management Plan contains many policies that guide urban form and efficient land use patterns. In addition to the policies adopted by all local jurisdictions, the County has adopted transportation goals policies specific to areas within County jurisdiction.

"Goal: Develop a regionally-coordinated transportation system that supports and is consistent with the adopted land use plan.

#### **System Development Policies**

5.1.2 County Road Projects and transportation improvements are proposed through development shall be consistent with the current adopted Clark County Road Standards, Arterial Atlas, 2010 Clark County Bicycle and Pedestrian Master Plan, Concurrency Management System, RTC's Regional Transportation Plan and the Washington Transportation Plan. [2016 Plan, page 152].

<u>Findings</u>: The most impacted road is SR-503 and is under the jurisdiction of WSDOT; however, it is not a regionally significant highway. According to the applicant's traffic study, the subject site will operate at an acceptable level-of-service. As previously mentioned, the proposed amendment is consistent with the applicable Comprehensive Plan Policies.

"Goal: Optimize and preserve the investment in the transportation system.

5.3 System Preservation Policies

Community Planning Staff Report



- 5.3.1 Development projects shall adhere to minimum driveway access spacing standards along arterial and collector streets to preserve the capacity of the transportation system. The county shall work with Washington State Department of Transportation to ensure that minimum access spacing standards for state highways are maintained [2016 Plan, page 154].
- 5.3.5 The local street system shall be interconnected to eliminate the need to use collector or arterial street for internal local traffic." [2016 Plan, page 154].

<u>Findings</u>: During the development review process the applicant will have to meet access spacing standards and address any safety improvements that may be required.

#### **Capital Facility Plan**

Finding: The proposed Comprehensive Plan Amendment and Rezone will operate at an acceptable level-of-service and is consistent with the 20-year Capital Facilities Plan.

#### **RECOMMENDATION AND CONCLUSIONS**

Based on the information presented in this report, staff recommends that the Planning Commission forward a recommendation of **APPROVAL** to Clark County Councilors.

COMPLIANCE WITH APPLICABLE CRITERIA			
	Criteria Met?		
Criterion for Policy/Text Amendments	Staff Report	Planning Commission Findings	
Consistency with GMA	Yes		
Community Framework Plan	Yes		
Countywide Planning Policies	Yes		
20-Year Comprehensive Plan	Yes		
Capital Facilities Plan	Yes		
Recommendation:	Yes		

Exhibit A: June 12, 2018 Email from Jeff Barsness of the Washington Department of Transportation

Community Planning Staff Report



#### Exhibit A: Comments from the Washington Department of Transportation

From: Barsness, Jeff [mailto:BarsneJ@wsdot.wa.gov]
Sent: Tuesday, June 12, 2018 9:55 AM
To: Albrecht, Gary; Lebowsky, Laurie
Subject: RE: Yacolt Mine

We've reviewed the traffic study for the Surface Mining Overlay for Yacolt Mountain Quarry. Based on the information in the study we understand the applicant is not proposing an expansion of mining activities under this request. If mining activities were expanded to these parcels the traffic study shows no significant impact to the two intersections on SR 503 identified in the study. At this time and based on the information in the submitted traffic study WSDOT is not requesting mitigation at either intersection on SR 503.

Please let me know if you have any questions.

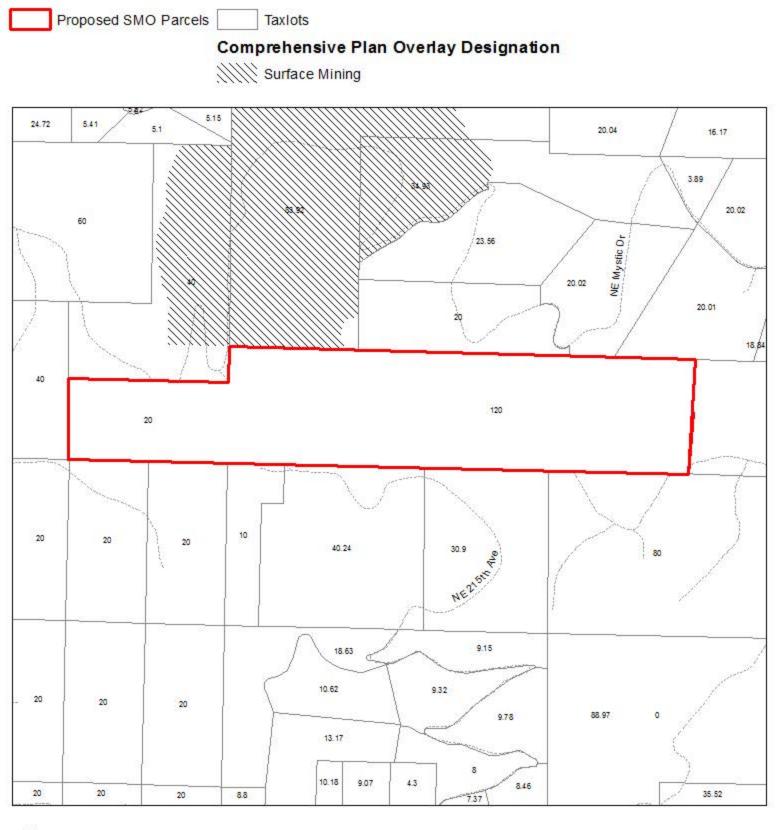
Jeff Barsness Development Services Engineer WSDOT SW Region 11018 NE 51<sup>st</sup> Circle Vancouver, WA 98682 360-905-2059 barsnej@wsdot.wa.gov

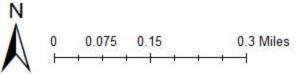


5

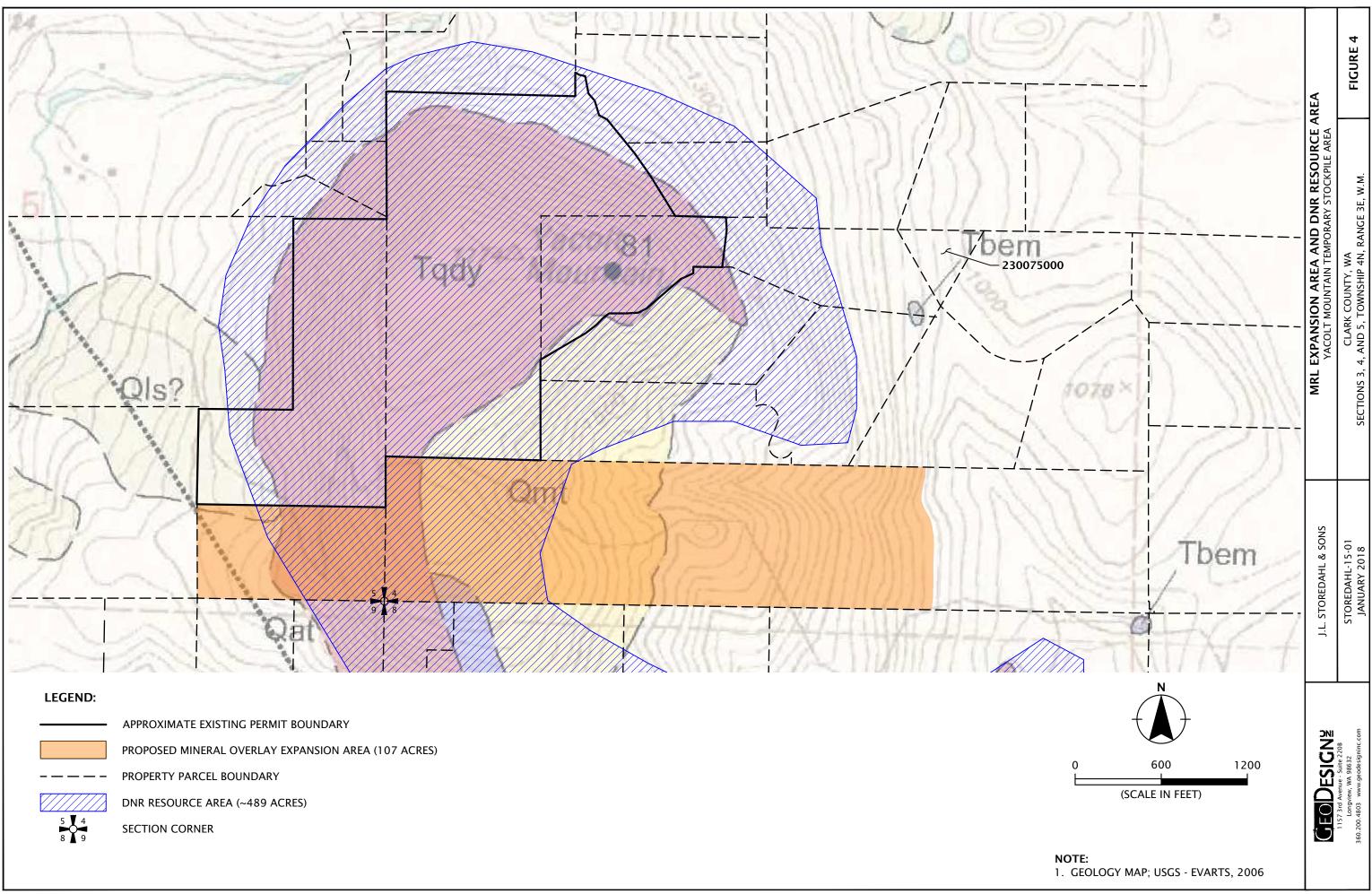
Community Planning Staff Report







### Note: Parcel acreage displayed in each parcel.



Printed By: mmiller | Print Date: 1/4/2018 10:14:47 AM File Name: J:\S-Z\Storedahl\Storedahl-15\Storedahl-15O1\Fig