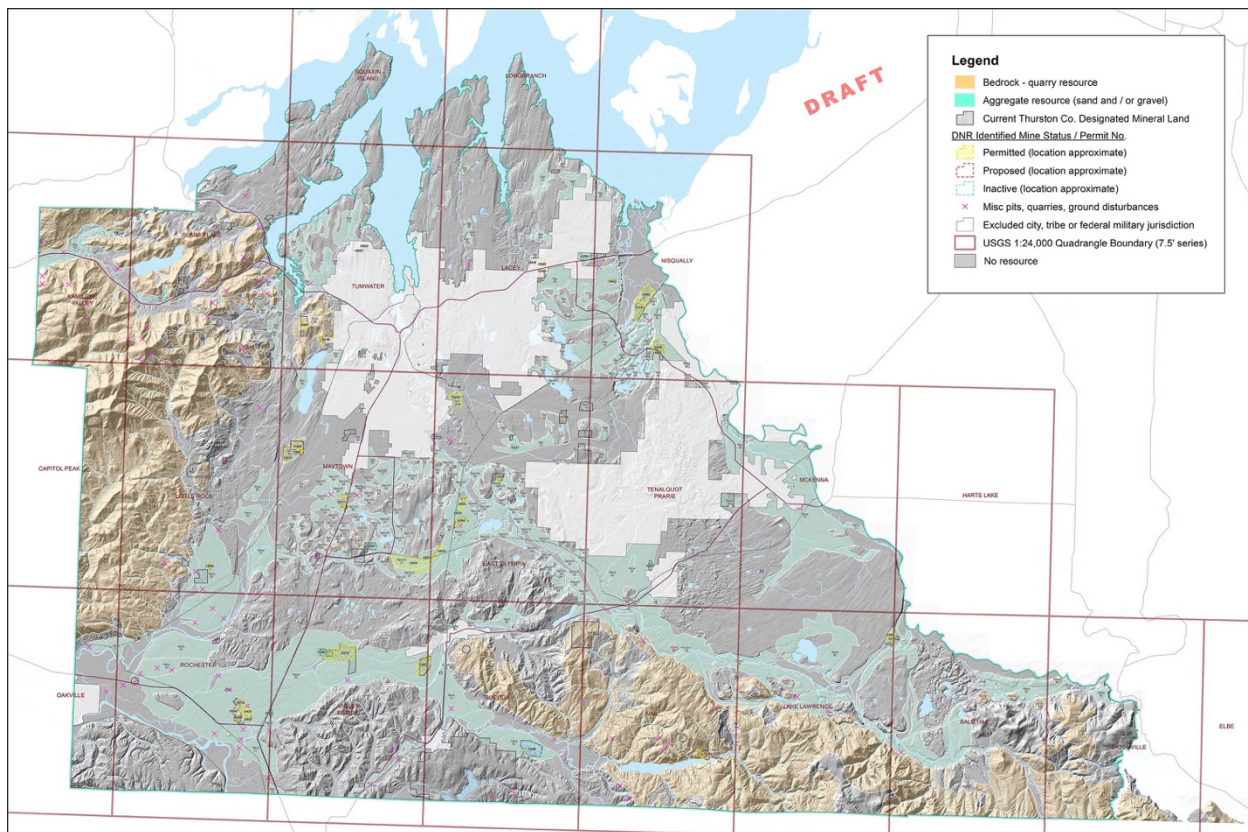


Thurston County Mineral Lands Project

Issue Paper: Designating Mineral Resource Lands Under the Growth Management Act



September 1, 2017

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3 Square Blocks

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1. Introduction

1.1 Project Purpose & Overview

Thurston County is updating its Comprehensive Plan and is using this opportunity to review its adopted policies, procedures and development regulations relating to mineral resource lands. The *Mineral Resource Lands Project* is part of this review. The purpose of the project is to ensure that the County's updated program is comprehensive, effective and consistent with the requirements of the Growth Management Act (GMA). The GMA statute and rules require that counties "identify", "classify", "designate" and "conserve" mineral resource lands of long-term commercial significance (RCW 36.70A.060, 36.70A.170, and WAC 365-190-070). This issue paper will help to define each of those terms in the context of GMA, will evaluate Thurston County's existing program, and will provide some information, options and questions for consideration by County decision makers.

The *Mineral Resource Lands Project* is reviewing the completeness and consistency of the existing program through a fresh set of eyes, viewing it in the context of statutory requirements, the holdings of applicable legal decisions, and of precedents in other local planning programs. While the existing program has a solid foundation, some options for refinement of existing policies and regulations will be identified. One key change being discussed, which is based on direction in state-wide rules, is a shift from the current site-by-site approach to resource identification and designation, to a process that identifies and designates mineral resources all at once, county-wide and comprehensively.

This revised approach will also distinguish more clearly between planning for conservation of resources and permitting of mining projects. Designation is an important step in conserving Thurston County's valuable mineral resources, but it will not authorize mining on any individual property. Proposed mining projects will continue to be subject to development regulations and established review processes, including State Environmental Policy Act (SEPA) review, to determine the appropriateness of a proposed mining operation in a specific location.

The general approach followed in the *Mineral Resource Lands Project* is based on a planning process pioneered in Snohomish County in the early 2000's. That project, conducted by the same consultant team now assisting Thurston County, was based on extensive research of mineral resource planning programs used in jurisdictions across the U.S. Building on this example, Thurston County has established a structured process that includes public outreach and that documents the steps and rationales for decision making. This issue paper will become part of the County's record of decision making.

The focus of the Issue Paper is on identifying a range of options that are available to the Thurston County for complying with GMA requirements. The Issue Paper is not directive and does not contain many recommendations. Rather, it provides information the County and its citizens can discuss and use to help make decisions about resource lands, and to communicate

pros, cons and risks. Options are identified based on the experience of other GMA counties, the language of the GMA statute and rules, and on decisions of the Growth Management Hearings Boards (GMHB). In some situations, a clear path to compliance can be identified, while in many others that path is somewhat murky.

1.2 Steps in the Project

The *Mineral Resource Lands Project* involves three primary steps, which are derived from state-wide rules for implementing GMA:

1. *Identify* all mineral resources (primarily sand, gravel and bedrock) and *classify* these resources based on estimates of quantity and quality;
2. *Designate* mineral resource lands which have long-term commercial significance considering criteria in the statute and rules, and others deemed appropriate by the County; and
3. *Conserve* designated mineral resource lands to ensure that extraction is feasible and is not precluded inadvertently by development because the presence of the resource is not known, or because mining will conflict with surrounding land uses.

These three steps are part of a planning process and they do not involve the regulation of mining per se. This point bears repeating: designation does not involve and will not result in the approval of any individual site(s) for mining operations, nor will it address the procedures or technical standards used by Thurston County to review individual mining proposals. As is the situation today, individual applicants will still be required to obtain permits and meet adopted regulatory standards for mining operations. The identification and designation of specific areas that contain mineral resources does not promise or guarantee that mining can or will be permitted; that will continue to be a separate project-level decision that considers specific proposals and site conditions.

The first steps in the planning process are resource *identification and classification*; these steps, which have been completed, are described in detail in a separate *Inventory & Classification Technical Report* prepared by Associated Earth Sciences Inc. (AESI, 2017). A summary of this report is provided in the following section. This Issue Paper is focused on *designation*, which is the next step in planning for the conservation mineral resource lands.

The objective of designation is to screen the county-wide inventory and classification of land containing significant and commercially valuable mineral resource deposits to determine which are appropriate to conserve. The screening step can use a variety of data about the general suitability of segments of the inventory for extraction, considering jurisdictional, land use and environmental factors. In the GMA approach to resource lands planning, *conservation* of designated resource lands involves taking actions to ensure that extraction is feasible, and that the uses of adjacent lands can and will be managed to avoid substantially interfering with or precluding extraction. Long range planning and land use regulation will work in tandem, therefore, to ensure that the type, pattern and density of existing and planned surrounding

Mineral Resource Lands Designation: Issue Paper

land uses are and will remain compatible with extraction. Some Comprehensive Plan policies, development regulations and review procedures currently used by Thurston County to designate mineral resource lands could change as a result of this project; any changes would depend on future decisions by the Board of County Commissioners.

The relationship between the County's existing designation policies, procedures and regulations will be discussed in this Issue Paper; potential policy and regulatory changes will be evaluated in the next step of the project and addressed in a subsequent issue paper. The subsequent issue paper will also contain a programmatic assessment and discussion of potential environmental impacts associated with designation. This information will contribute to the State Environmental Policy Act (SEPA) review of the ongoing Comprehensive Plan Update.

The information generated by the *Mineral Resource Lands Project* will provide greater certainty to all County residents as to where valuable mineral resources are located and where extraction is possible over the long term. Identification of the county-wide supply of mineral resources may also provide useful information for strategic regional economic development planning. As new geotechnical information becomes available over time, any needed refinements to the county-wide inventory or designated mineral lands will occur through the annual Comprehensive Plan amendment process.

1.3 Inventory and Classification

Associated Earth Sciences Inc. (AESI), a geologic consulting firm, has identified mineral resources, including sand and gravel, bedrock, coal, iron ore and copper ore occurring in Thurston County. AESI has prepared an *Inventory and Classification Technical Report* which describes their approach and methodology in detail. The inventory included a review of existing geologic literature, and available public data to identify where resources were likely to occur in Thurston County. Data was derived from USGS and DNR maps, water well logs, boring test pits, and non-proprietary data on existing mining projects and currently designated mineral resource lands. This data was used to evaluate the characteristics of sand and gravel resources. Some limited field reconnaissance was also conducted.

Classification, which is one of the primary steps in planning for mineral resource lands, is a ranking of prospects within the inventory based on considerations of geology, resource quantity and quality and commercial value. These factors are specified in the GMA rules, and are discussed further below. Multiple classification categories were developed to recognize geologic and economic distinctions at a more refined scale, and to provide the flexibility to apply varying approaches to designation or permitting of different categories of resources, if desired.

Quantity and quality estimates were developed for mineral *prospects*, which are extensive areas defined by geologic characteristics, not defined by property ownership or parcelization. Classification categories are also based on considerations of commercial significance, using factors commonly applied by practicing geologists and mining operators to assess the economic value and feasibility of mining a resource deposit. Three categories (I, II and III) were identified to distinguish deposits based on quality, quantity and commercial value. The classification scheme is included in Table 1. Deposits of insufficient quality, quantity and economic value were placed in a separate category (IV). Detailed information about classification, including maps, is contained in AESI's *Inventory and Classification Technical Report*.

Prospects that meet the standards of classification categories I-III are considered to be commercially significant and, therefore, are eligible to be reviewed further for designation. However, those prospects must also qualify for designation by meeting other applicable land use and environmental criteria that are consistent with GMA guidance. Those potential criteria are discussed in the following sections of the Issue Paper.

Table 1. Draft Classification Categories

Sand and Gravel (Aggregate)		Resource Strata decreasing resource quality			Non-Resource
		Quality Type A ¹	Quality Type B ²	Quality Type C ³	
Decreasing resource thickness and volume	Quantity Type 1	<ul style="list-style-type: none"> <5 percent fines⁵ 70:30 to 30:70 sand and gravel ratio >25 years' life expectancy Minimum 240,000 yd³/acre >100 feet thick Minimum overburden 	<ul style="list-style-type: none"> Up to 15 percent fines⁵ 70:30 to 30:70 sand and gravel ratio >25 years' life expectancy Minimum 240,000 yd³/acre >100 feet thick Minimum overburden 	<ul style="list-style-type: none"> Up to 25 percent fines⁵ 70:30 to 30:70 sand and gravel ratio >25 years' life expectancy Minimum 240,000 yd³/acre >100 feet thick Minimum overburden 	<ul style="list-style-type: none"> Generally unsuitable for extraction >25 percent fines⁵, may have high organic content Out of 70:30 to 30:70 sand and gravel range No life expectancy <15,000 yd³/acre Limited depth
	Quantity Type 2	<ul style="list-style-type: none"> <5 percent fines 70:30 to 30:70 sand and gravel ratio 10 to 25 years' life expectancy Average 80,000 to 240,000 yd³/acre 50 to 100 feet thick Overburden <15 feet thick 	<ul style="list-style-type: none"> Up to 15 percent fines 70:30 to 30:70 sand and gravel ratio 10 to 25 years' life expectancy Average 80,000 to 240,000 yd³/acre 50 to 100 feet thick Overburden <15 feet thick 	<ul style="list-style-type: none"> Up to 25 percent fines 70:30 to 30:70 sand and gravel ratio 10 to 25 years' life expectancy Average 80,000 to 240,000 yd³/acre 50 to 100 feet thick Overburden <15 feet thick 	
	Quantity Type 3	<ul style="list-style-type: none"> <5 percent fines 70:30 to 30:70 sand and gravel ratio Life expectancy variable, generally <10 years Average 15,000 to 80,000 yd³/acre Thickness varies, typically <50 feet 	<ul style="list-style-type: none"> Up to 15 percent fines 70:30 to 30:70 sand and gravel ratio Life expectancy variable, generally <10 years Average 15,000 to 80,000 yd³/acre Thickness varies, typically <50 feet 	<ul style="list-style-type: none"> Up to 25 percent fines 70:30 to 30:70 sand and gravel ratio Life expectancy variable, generally <10 years Average 15,000 to 80,000 yd³/acre Thickness varies, typically <50 feet 	
Quarry Rock ⁶ (Bedrock)		Quality Type A	Quality Type B ¹³	Quality Type C ⁷	Quality Type D ⁸
Decreasing interbedded resource strata	Type 1 ¹⁰	<ul style="list-style-type: none"> Formation generally well mapped and (or) high percentage of formation contains resource strata of type A Meets or exceeds WSDOT specs for all rock products Minimal amount of fractures⁹ Minimal percent waste rock 20 percent or more rockery-size material produced 	<ul style="list-style-type: none"> Formation mostly divided locally and contains a high percentage of resource strata of type B Meets WSDOT specs for some rock products Fractures vary from minor to very prevalent⁹ Up to 10 percent waste rock 20 percent or less rockery-size material produced¹⁰ 	<ul style="list-style-type: none"> Formation mostly divided locally and contains a high percentage of resource strata of type C Rock will not meet WSDOT specs Highly fractured⁹ 10 to 30 percent waste rock Minimal rockery-size material produced¹⁰ 	<ul style="list-style-type: none"> Generally unsuitable for extraction⁸ >30 percent waste rock Highly to very highly fractured⁹ and (or) weathered and (or) poorly lithified No rockery-size material produced
	Type 2 ¹¹	None	<ul style="list-style-type: none"> Formation undivided¹² and >50% of formation contains mostly resource strata of type B as defined for Type 1 bedrock 	<ul style="list-style-type: none"> Formation undivided¹² and >50% of formation contains mostly resource strata of type C as defined for Type 1 bedrock 	
	Type 3 ¹¹		<ul style="list-style-type: none"> Formation undivided¹² and <50% formation contains mostly resource strata of type B as defined for Type 1 	<ul style="list-style-type: none"> Formation undivided¹² and <50% of formation contains mostly resource strata of type C as defined for Type 1 	

Table 1. Draft Classification System (continued)

Notes to Table:

- 1 Type A sand and gravel is generally suitable for use in concrete. Aggregate meets or exceeds WSDOT specs for all products.
- 2 Because of variability of grain size and fines content, Type B sand and gravel is less likely to be utilized in concrete and is generally considered to be a borrow source. Aggregate meets WSDOT specs for most or all products.
- 3 Type C sand and gravel is highly variable in grain size, generally sound, and is suitable for roadway fill and small borrow pits; not suitable for concrete. Aggregate is near or below WSDOT specs for most or all products.
- 4 Type D deposits may include fine sand, silt, clay, or lodgement till.
- 5 Fines are defined as percent material passing through a No. 200 sieve size.
- 6 The depth of the bedrock is immense, and essentially incalculable in the scope of this study. Mining depth would be limited by quality and other land use and environmental constraints. Hence, bedrock has been classified by quality considerations only at this time.
- 7 Type C bedrock may break down easily due to the previous effects of hypothermic activity, metamorphism, or weathering.
- 8 Type D bedrock may mostly include poorly quality sedimentary and volcanic rock.
- 9 Fracture pattern in bedrock deposits may vary depending on other quality factors.
- 10 Type 1 bedrock resources are typically compound lava flows or igneous intrusions that contain abundant Type A and/or B igneous rock types.
- 11 Type 2 and 3 resource units are undivided bedrock formations and thus constituent interstratified resource strata (e.g., Type A or B lava flows) are not currently subdivided (mapped) within the formation.
- 12 Type 1 strata locally mapped within Type 2 and 3 resource units within undivided bedrock formations determined using mine, LiDAR, previous small study geologic mapping, and other sources.
- 13 The Skookumchuck Formation and Puget Group (Type B3) generally lack quarry rock resource strata but contain local silica sand and clay in sedimentary interbeds of arkosic sandstone and claystone, respectively.

2. Designating Mineral Resource Lands

2.1 Objectives of Designation

Designation is a legislative action that formally identifies lands meeting the GMA definition of mineral lands of long-term commercial significance; it is typically indicated on a map in the Comprehensive Plan. As stated earlier, the objective of designation is to determine which portions of known mineral resource prospects are appropriate to conserve, in view of the value of the mineral deposits and reasoned judgements about general suitability for extraction.

It is not necessarily appropriate to designate, conserve and permit extraction of all identified lands containing commercially significant resource deposits. Some characteristics of a prospect's ownership, location or surrounding area, for example, may make mining impractical, illegal or extremely impactful. Planning for designation identifies a range of factors or criteria that can be used to screen out lands where anticipated impacts are likely to be severe and unacceptable, or where counties lack the legal authority to regulate (on federal lands, for example).

Because designation criteria will be applied to very large at a county-wide level, the criteria selected must lend themselves to this broad level of analysis using available information, GIS and other mapped data sources. It is not feasible, for example, to perform detailed, site-level analysis of the extensive geographic area in the County that contains sand and gravel resources. Nor is it necessary. Designation indicates only that commercially significant resources are present, and that sites have passed an initial screening based on a selected set of criteria. It does not confer any type of project approval. Project specific environmental review will occur in conjunction with the permitting of designated sites that are proposed for mining, which will ensure that site-specific impacts are identified and mitigated. Designation is not a substitute for the County's established review process for individual projects.

2.2 Identifying Potential Designation Criteria

The Issue Paper has relied on several sources of information to help bring the variety of potential designation criteria into sharper focus. Primary sources include criteria used in other jurisdictions engaged in mineral resource planning, across the U.S. and in Washington; and criteria identified in the GMA statute and rules. While criteria contained in the GMA rules must be "considered" when classifying and designating mineral resource lands, they are not interpreted to be exclusive; counties have the discretion to include other criteria so long as such criteria are reasonable, are supported by analysis in the record, and do not conflict with GMA requirements.

The Issue Paper initially consulted prior research, developed for a similar mineral lands planning project in Snohomish County, to identify a wide range of suitability criteria that have been applied at a broad planning level by jurisdictions across the U.S. Criteria are also contained in, or suggested by, the GMA procedural rules. Table 2 includes a compilation of these criteria.

Section 2 of the Issue Paper compares Thurston County's existing criteria to this list, and discusses the criteria in the GMA rules.

The list in Table 2 is a good starting point for planning, but it is not definitive and may not match local conditions. Some listed criteria may seem relevant on first consideration but may not be practical to apply at a county-wide scale because of insufficient or incomplete data coverage; others may raise issues of consistency with GMA; and still others may be overly complicated to measure and apply in practice. In some cases, it may be more practical, accurate and meaningful to evaluate and mitigate a concern (e.g. erosion potential) in the context of a site-specific project, rather than at a general and county-wide level.

In general, however, most categories of criteria in Table 2 correspond to substantive, land use and environmental considerations commonly used in planning. *Land use criteria* generally include types, patterns or density of land uses, land use compatibility, presence of sensitive uses, unique aesthetic resources, and transportation systems. *Environmental criteria* focus primarily on the presence of critical areas, sensitive resources and potential biological impacts. *Jurisdiction/governmental ownership* is also a relevant consideration because Thurston County does not have the legal authority, for example, to regulate federal lands (e.g., national forests and military reservations), tribal lands or lands within cities. Some types of state lands may also fall into this category if they are dedicated by statute or management policy to land uses that would conflict with mineral extraction. Parks or nature preserves are examples.

Table 2. Potential Designation Criteria for Mineral Resource Lands

Potential Criteria	Considerations
JURISDICTIONAL FACTORS	
Non-County Governmental Jurisdiction	<ul style="list-style-type: none"> • Federal lands – national forests, military reservations, wildlife refuges • State lands – where mining would be inconsistent with management policy • City boundaries • Tribal Trust Lands
LAND USE FACTORS	
Compatibility with Adjacent Land Uses	<ul style="list-style-type: none"> • General compatibility of mining with surrounding/adjacent land use pattern • Proximity to developed or planned urban residential land uses (undesirable) • Proximity to forest or mineral resource uses, open space, industrial uses (preferred) • Proximity to rural residential or suburban “neighborhood” – based on density, number of units, etc.
Sensitive Land Uses	<ul style="list-style-type: none"> • Designated/mapped archaeological and historic areas • Parks and nature/wildlife preserves • Designated agricultural lands • Existing public facilities - schools, hospitals, colleges, libraries • Regional or local utility corridors
Aesthetics	<ul style="list-style-type: none"> • Unique aesthetic features, such as national scenic highways or protected views
Transportation	<ul style="list-style-type: none"> • Road conditions/traffic impacts for routes serving resource areas • High accident locations • Distance to urban area • Access to rail
ENVIRONMENTAL FACTORS	
Critical Areas	<ul style="list-style-type: none"> • Presence of streams, wetlands, well head protection areas • Watershed/water supply areas • Geologic hazard areas – erosion hazards • Floodplains/frequently flooded areas • Critical aquifer recharge areas
Shorelines	<ul style="list-style-type: none"> • Shorelines of statewide significance, or other specific environments • Floodplains within shoreline jurisdiction
Biologic Impact	<ul style="list-style-type: none"> • Presence/impacts to wildlife habitats • ESA listed/priority species habitat

Sources: Weinman Consulting, LLC, 2017; RCW 36.70A.060 and 36.70A.170; WAC 365-190-070; Snohomish County, Mineral Resource Lands Draft Supplemental EIS, 2001

How are Criteria Used in Designation?

In the planning processes for designation reviewed in the research, criteria are most commonly used to completely exclude some categories of land from consideration based on the presence of undesirable characteristics. Exclusion can be based on the intrinsic value or sensitivity of environmental features, or dedication of lands to a conflicting or higher priority use (e.g., public parks), or on lack of jurisdiction. Alternatively, criteria may be used to rank mineral prospects or different classification categories in terms of relative desirability for mining, sometimes using a point system. These types of ranking systems are typically more complex to describe, apply and maintain. Criteria can be applied on a yes/no or pass-fail basis, or as a relative ranking (high, medium, low).

The approach to applying criteria is flexible and can be tailored to a jurisdiction's needs and capabilities. In general, simpler approaches are easier to understand, more practical to administer, and are more likely to be consistently implemented. The most straightforward model is one that excludes certain areas based on the presence of a feature or likelihood of a significant impact established in criteria.

2.3 Supply and Demand Considerations

Overview

As in other Puget Sound counties, Thurston County residents have raised questions about the supply of mineral resources, and how designation could affect local supply and demand for sand and gravel in the near and long terms. These questions can be answered only partially, because there are many uncertainties about how future events -- such as long term population growth or technological change -- could influence supply and demand. In addition, no optimal balance between supply and demand has been identified. Moreover, the GMA directive to counties is to identify, designate and conserve substantially all mineral resources that meet applicable criteria, not a finite portion of supply.

In the near term, the inventory and classification tasks of the *Mineral Resource Lands Project* have provided estimates of the gross quantity of commercially significant sand and gravel identified in Thurston County. The overall inventory is huge – an estimated 6.1 billion tons of sand and gravel. This provides a starting point for evaluating the supply side of the supply-demand equation, but one should recognize that the designation step in the GMA planning process will exclude a portion of the county-wide inventory. Exclusion may result from land use and environmental constraints, such as surrounding land use patterns that are incompatible with mining. In addition, at the project level, some potential mining sites and their underlying designated mineral resources may not be available for extraction because of the presence of critical areas and development requirements, such as perimeter buffering and reclamation standards.

These reductions cannot be identified at this point, but they will be calculated and discussed in subsequent steps of Thurston County's planning process. The county-wide inventory of mineral resources is now contained in a geo-database, which can be combined with other geo-data to

map and calculate how various exclusionary criteria could affect the supply of resources. It is anticipated that Thurston County will go through several iterations of mapping and calculating to test and demonstrate how various criteria could affect the quantity of mineral resources that may be designated.

The primary determinants of how much sand and gravel is consumed in Thurston County over the long term will be population growth and per capita demand, which can be projected. Technological change, scientific advancement and social and economic conditions may also affect future demand, but those effects are speculative and cannot be estimated meaningfully. Nevertheless, some order of magnitude comparisons may be useful to help place supply and demand in perspective.

Estimating Supply-Demand

With those caveats and limitations in mind, existing information and reasonable but conservative projections suggest that the County's supply of aggregate resources is substantial and will likely remain much greater than demand far beyond the next 50 years. The following describes how the long-term supply-demand relationship can be estimated.

Supply. The *Inventory and Classification Technical Report* prepared by AESI (2017) has preliminarily identified approximately 6.1 billion tons (3.8 billion cubic yards) of sand and gravel resources that meet GMA criteria for commercial significance, considering quality, quantity and economic aspects of aggregate production.

Population Projections. The Office of Financial Management (OFM) estimates Thurston County's 2017 population to be 276,900. OFM also prepares the official population projections that must be used by cities and counties for GMA planning. OFM's high range population projection for 2040 is 440,012, which reflects growth of approximately 3.7 percent or 10,000 persons per year. This high range projection was used to produce a more conservative result. (It is noted that the County uses population projections prepared by the Thurston County Regional Council which differ from the OFM estimate used above.)

Because GMA comprehensive plans use a 20-year planning horizon, and are based on 20-year population projections, looking further ahead than year 2040 requires some interpolation of existing data and considerable speculation. If 50 years (year 2067) is used as a hypothetical planning horizon, and assuming the County's 2017 to 2040 growth rate of approximately 10,000 people per year continues unchanged for 27 years beyond 2040, Thurston County's population could increase to a total of approximately 710,000 in 2067. Numerous other methodologies for projecting population are possible, but this simplified approach (which excludes compounding) is sufficient to suggest the magnitude of possible change. It also likely errs on the conservative side.

Per Capita Demand. To estimate consumption, an average annual amount of demand for sand and gravel per person is multiplied by projected population. Per capita

consumption rates across the U.S. range from approximately 3 tons to 12 tons per year; the statewide average in Washington is approximately 12 tons per capita per year. Based on information in the *Inventory and Classification Report (2017)*, demand in Thurston County is currently approximately 13.75 tons per person per year, and the calculation assumes that this level of demand will continue.

Multiplying the 2067 population estimate (710,000) by annual per capita demand (13.75 tons) yields approximately 9.8 million tons of demand. Even at that rate of annual consumption, the estimated supply (6.1 billion tons) would last for about 600 years.

As noted previously, a currently unquantifiable portion of the inventory will likely be excluded from designation based on land use and environmental factors, or will not be available for extraction during mining because of the presence of critical areas and other considerations. Nevertheless, the supply of mineral resources in Thurston County appears to be more than ample to satisfy long-term needs.

2.4 Thurston County's Current Designation Program

Designation Process

Thurston County's process for designating mineral resource lands is contained in both the Comprehensive Plan (Chapter 3) and the Thurston County Code (TCC Chapter 20.30B). Table 3 summarizes current provisions. The Comprehensive Plan states that lands meeting six minimum criteria, described below, may be designated through a property owner-initiated, site-specific Comprehensive Plan amendment. Goal 7 and related policies provide general policy support for this designation process. The plan further states that mineral resource lands must be designated under TCC Chapter 20.30B before property owners may apply for a mining permit (at pg 3-16).

TCC Chapter 20.30B sets forth the County's requirements and procedures for designating mineral resource lands of long-term commercial significance. The code regulates individual "sites" rather than "areas" or "prospects"; this approach follows logically from the orientation of the current designation process to individual sites and projects. Sites must be designated under this chapter before new mineral extraction activities may occur; legal non-conforming mines are permitted to continue pursuant to applicable laws (TCC 20.30B.010). The chapter includes expanded designation criteria, which address critical areas (TCC 20.30B.030) and application requirements (TCC 20.30B.035). The County reviews applications for designation through the annual Comprehensive Plan amendment process; once approved, designated mineral resource lands are recorded on the Official Designated Mineral Resource Lands map (TCC 20.30B.025).

Designation Criteria

Table 3 summarizes and compares the designation criteria currently in the Thurston County Code and with the criteria and related policies in the Comprehensive Plan; using the same broad categories (e.g., land use) in Table 2. Key findings for each category are discussed below.

- **Jurisdictional Factors.** Neither the code nor the plan contain criteria that consider government ownership of land – federal, tribal and city – which would preclude County authority to regulate and conserve underlying mineral resources. The County's current site-specific and project-specific approach to designation likely explains why jurisdiction has not been considered as a concern previously.
- **Land Use Factors.** Both the code and plan discuss the need for compatibility between mineral resource lands and adjacent uses. Both documents include designation criteria that require location in areas with low intensity surrounding uses, separation from urban growth areas and public preserves, and prohibit designation of agricultural lands of long-term commercial significance and historic/cultural resources. Both the code and the plan allow for dual designation of mineral lands and forest lands. The plan provides some policy guidance that is not reflected in the code, however. For example, it calls for protecting rural residential areas above a certain density, and significant geological features such as Mima mounds, from mining impacts. Some current plan policies are

more applicable to the control of mining operations than to designation as a planning decision. These discrepancies are discussed further below.

- ***Environmental Factors.*** Both the code and plan provide general guidance for the protection of surface and groundwater quality. The code includes designation criteria to protect specific types of critical areas (see Table 3), and states that a more comprehensive review for critical areas will be performed at the time of permitting. The plan does not include criteria for critical areas, but it does discuss the fact that permits for mineral extraction are required by the County prior to mining operations on designated mineral resource lands, that critical areas on a site must be identified during the permitting process, and they may prohibit or restrict mining operations. Using critical areas as factors in designation involves questions of the availability of accurate environmental data at a county-wide scale, and raises issues of consistency with GMHB decisions.
- ***Mineral Resource Factors.*** Mineral resource criteria – such as quality, quantity and economic significance – were not included in Table 2, because these considerations are interpreted as most relevant to classification. It was assumed that an inventory and classification would be conducted prior to designation, and would identify lands containing mineral resources of long-term commercial significance. Including economic significance as a designation criteria in this situation would be redundant. The County’s current approach relies on site-by-site identification of resources because there is no county-wide inventory to rely on.

Table 3. Summary of Thurston County’s Current Designation Criteria & Policies

Criteria Type	Thurston County Code Criteria	Comprehensive Plan Criteria & Policies
JURISDICTIONAL FACTORS		
<i>None in code or plan, but not relevant given the County’s site-specific designation process</i>		
LAND USE FACTORS		
General Compatibility	<i>None in code, but TCC 20.30B.010 states that designation is designed to minimize land use conflicts by allowing designation only where a long-term mining operation would be compatible with surrounding land uses</i>	Policy 3.7.7 Mining shall not adversely impact nearby land uses or public health and safety
Intensity of Surrounding Uses/ Rural Residential Uses	Criteria 1b Site is in a low-density location (60% of area within 1,000 feet of site must have an average parcel size of 5 acres or more)	Criteria 2 Same as in code Policy 3.7.9 Areas with existing residential densities of more than 1 unit per 5 acres shall be protected from mining
Urban Growth Areas	Criteria 1d Site is separated from urban growth areas (located at least 1,000 feet away)	Criteria 2 Same as in code
Public Preserves	Criteria 1d Site is separated from public preserves (located at least 1,000 feet from public parks, conservation and wildlife areas, and other government owned preserves excluding hunting areas)	Criteria 2 Same as in code
Agricultural Lands	Criteria 1fiii Site does not contain designated agricultural lands	Criteria 5 Same as in code Policy 3.7.5 Farmland shall not be used for mining purposes

Table 3. Summary Comparison of Current Designation Criteria & Policies (Continued)

Criteria Type	Thurston County Code Criteria	Comprehensive Plan Criteria & Policies
Historic/ Cultural Sites	Criteria 1fiii Site does not contain historic or cultural preservation sites	Criteria 5 Same as in code
Significant Geologic Features/ Mima Mounds	<i>None in code</i>	Policy 3.7.8 Mining shall not alter significant geologic features such as Mima mounds
Forestry Lands/ Dual Designation	Criteria 1e Site may include designated forestry lands	Criteria 6 Same as in code
ENVIRONMENTAL FACTORS		
Critical Areas	<p>Criteria 1f Site does not contain the following critical areas: Zone 1 or Zone 2 areas for Group A public water systems, Class 1 or 2 wetlands or their buffers, FEMA 100-year floodplains, habitat areas for threatened or endangered species or their buffers</p> <p>Criteria 1fvi Site is located away from geologically hazardous areas (separation distance not defined)</p> <p><i>Criteria 1f also mentions that a comprehensive critical areas review be will done at time of permitting</i></p>	<i>None in plan, however page 3-16 discusses the fact that permits for mineral extraction are required by the County prior to mining operations on designated mineral resource lands, and the identification of critical areas on a site during the permitting process may prohibit or restrict mining operations</i>
Water Quality	Criteria 1fv Mineral extraction at site would not negatively impact surface or ground water	Policy 3.7.10 Same as in code

Table 3. Summary Comparison of Current Designation Criteria & Policies (Continued)

Criteria Type	Thurston County Code Criteria	Comprehensive Plan Criteria & Policies
MINERAL RESOURCE FACTORS		
Location, Quality & Quantity	Criteria 1a Site contains marketable mineral resources	Criteria 4 Same as in code Criteria 1 Covered by Criteria 1a in code Policy 3.7.11 County information on the location and quality of mineral resources should be updated as needed and inform designation
Site Size/ Commercial Significance	Criteria 1c Site is at least 5 acres in size	Criteria 3 Same as in code

Source: 3 Square Blocks, 2017

2.5 Designation Programs in Puget Sound Counties

An informal survey of mineral land programs in Puget Sound area counties was conducted to provide some additional information and context for evaluating Thurston County’s current program. The survey, which is contained in Exhibit of the Issue Paper, compiled information from the online versions of adopted comprehensive plans and zoning codes in the following counties: Clark, Island, King, Mason, Pierce, Skagit, San Juan, Snohomish and Whatcom. The program elements reviewed included the following: whether a county-wide inventory and classification was conducted, and the data sources used; the process followed to designate (countywide or site-by-site); and the primary designation criteria used.

There is an important caveat about using this. It should not be assumed that just because another jurisdiction has adopted an approach or criteria and has not been challenged, that the approach or criteria is valid and consistent with GMA. It may mean only that the plan or provision has not been challenged. Comprehensive plans are presumed valid upon adoption, and that presumption endures unless the plan or provision is appealed and invalidated or found to be inconsistent with GMA. As discussed later in the Issue Paper, there have been relatively few GMHB appeals of county mineral lands programs state-wide; the primary appeal occurred in Thurston County.

Nevertheless, there are a few interesting patterns that are observable in the county programs. A majority of counties surveyed (5 of 9) have conducted county-wide inventories using a variety of data sources. In a few instances (Snohomish and Whatcom) this was supplemented by some level of ground checking. All but one of the surveyed counties designate mineral lands county-wide on a map in the Comprehensive Plan. In contrast, King and Pierce Counties only designate sites with approved mining permits; King County requires both a comprehensive plan amendment and a rezone.

Underlining the caveat that one should not assume too much based on absence of a GMHB appeal, neither Island nor San Juan Counties include mineral lands designation policies in their comprehensive plans or zoning codes. For the same reason, it may be risky to rely too heavily on the occurrence of exclusionary designation criteria – such as wetlands or floodplains – that appear in several county programs. As discussed further below, several GMHB decisions have invalidated such criteria because of lack of sufficient information in the record.

2.6 Guidance in the GMA Statute, Rules and GMHB Decisions

Overview

The GMA statute provides limited direction for designating mineral resource lands. The statute requires only that these lands: (1) are not characterized by urban growth; (2) are not expected to be developed for urban uses; and (3) have long-term commercial significance for the extraction of minerals (RCW 36.70A.170.1.c, 36.70A.170.2).

In addition to the statute, GMA jurisdictions must also “consider” the guidelines established by rule for implementing the GMA, contained in WAC 365-190 (referred to as the procedural rules or minimum guidelines). The rules contain the primary guidance for classifying and designating mineral resource lands.

In the event of an appeal of a local GMA plan, the Growth Management Hearings Boards are the arbiters of whether appropriate consideration of the rules has occurred, based on information contained in the record. In the early years of GMA compliance litigation, the GMHBs regularly stated that the rules were primarily “procedural” and “advisory only,” and accorded them minimal weight. “Consideration” of the rules could be demonstrated through some minimal evidence in the record, often just a statement, indicating that the jurisdiction thought about the WAC requirements. That interpretation has changed significantly, however; the GMHBs now typically scrutinize the record closely to determine whether a jurisdiction really and seriously evaluated the substance of the rules. Recent decisions, discussed below, also require that jurisdictions provide a clear and supportable rationale that is consistent with GMA requirements. So, although GMHB decisions regularly state that the rules are not requirements, and that the statute provides for regional differences and local discretion, there is a high burden of proof on GMA planning jurisdictions to justify their actions. This approach to interpreting the rules is apparent in the Western Washington GMHB decision in *Weyerhaeuser v. Thurston County* (2011, Case No. 10-2-0020c), which is discussed further below.

Classification and Designation Criteria in the Rules

The rules for implementing the GMA's mineral resource lands requirements are set forth in WAC 365-190-070. They include guidance to counties, discussed in the Introduction to this issue paper, to use a comprehensive county-wide planning process, not a site-by-site process, and to identify, classify, designate and conserve mineral resources. Counties should follow criteria established in the rules for classification of resources, including the following:

- Classify based on geologic, environmental and economic factors.
- Classify lands with potential long-term commercial significance for extracting sand, gravel and valuable metallic substances at a minimum.
- Use maps and information on the location and extent of mineral deposits from the Washington State Department of Natural Resources, U.S. Geological Service and property owners.
- Classify lands based on geology and distance to market considering depth and quantity of the resource and depth of overburden, quality and type, projected life, and resource availability in the region.
- Other factors to consider include that resources may be lost if mineral lands are not classified and designated; the effects of proximity to population centers and the potential for more intense uses of land (based on land use patterns and parcel sizes, availability of utilities, roads and public services), and energy costs for transportation.

The rules relating to designation are more general and focus primarily on long-term land use considerations:

- Designate mineral deposits so that access to resources of long-term commercial significance is not knowingly [sic] precluded. Mineral extraction should be the priority land use for designated mineral resources.
- Determine if adequate mineral resources are available for projected needs from currently designated resource lands.
- Consider that mining may be a temporary use and that other land uses can occur after mining is completed.

In some instances, the WAC criteria seem to conflate the objectives and planning issues involved in classification and designation. Some criteria listed in the rules under classification – land use patterns, for example – seem to be more relevant, meaningful and practical to consider at the designation stage, rather than as part of classification. Classification, as interpreted and applied in the *Mineral Resource Lands Project*, is focused on identifying and categorizing mineral resources based on geology, quality, quantity and economic significance. Designation, on the other hand, involves a second tier of filtering or screening identified/classified mineral resources, using factors identified in the procedural rules, to determine whether and where extraction is practical and consistent with additional considerations. This distinction accounts for the different issues, purposes and consequences of

classification and designation. In any event, Thurston County is considering all criteria for classification and designation mentioned in the rules.

Although the rules generally identify environmental factors as a category of factors to be considered in classification and designation, they do not call out any specific environment resources, with one exception – the location and extent of wetlands is identified as a planning step in the designation process (WAC 365-190-040). The rules further require that any conflict between overlapping wetlands and mineral resources be reconciled in development regulations.

Nevertheless, the research that has contributed to this Issue Paper indicates that every jurisdiction that has planned comprehensively for mineral resources has also considered a broad range of environmental factors at the planning level, and has excluded some environmental resources from designation. There is also support for exclusion of some resources in numerous state laws. For example, protection of the environment is one of GMA's fundamental planning goals. The State Environmental Policy Act (SEPA) also makes consideration of the environment a factor in almost every governmental decision, including GMA actions. If it is both good planning and a legal requirement to consider environmental effects, and the GMA statutory scheme preserves local discretion, it seems reasonable that jurisdictions should have the discretion (within some boundaries) to include consideration of environmental factors when making planning decisions related to designation. This consideration is subject to the important proviso that use of environmental criteria cannot conflict with other GMA requirements, such as requirements for regulation of critical areas. As discussed further below, the issues for compliance relate to the type and form of information that may be necessary to support a local decision to exclude some lands from designation.

GMHB Decisions Addressing Mineral Resource Lands

The following summary is intended to be a practical reading of GMHB holdings, and should not be read as a legal opinion. The objective of the discussion is to identify useful direction for Thurston County to consider as it considers options for updating its mineral lands program.

The most recent digests of decisions of the Central Puget Sound and Western GMHBs, and the GMHB website were reviewed to identify cases relating to mineral resource lands; very few decisions were found. The *Weyerhaeuser v. Thurston County* decision is, in fact, the only opinion identified that addresses application of the WAC criteria for classification and designation of mineral resource lands. In addition, two Clark County decisions from the 1990's relating to agricultural lands -- *Storedahl v. Clark County (96-2-0016)* and *Achen v. Clark County (95-2-0067)* -- address exclusions of lands containing critical areas and floodplains, which are also relevant to designation of mineral lands. Key takeaways from these decisions are summarized below.

- 1. Information in the Record.** There needs to be information in the record to support a county's decisions and to demonstrate it has followed GMA mandates. The Western GMHB made this point repeatedly in the *Weyerhaeuser* decision. The type of

information depends to a degree on the nature of the question or conflict that is at issue; this is discussed further in the following 2 points regarding critical areas and agricultural lands. In any event, the information needs to be authoritative, substantial and well documented. Mere assertions are not sufficient.

- 2. Exclusion of Overlapping Critical Areas.** Where critical areas overlap a resource land designation, WAC 365-190-040(7)(a) states that both designations apply and local critical area regulations must reconcile the multiple designations. In the *Weyerhaeuser* case, the Western Washington GMHB found that outright exclusion of critical areas was improper because Thurston County had not analyzed and demonstrated, using best available science, that exclusion was necessary and that multiple designations could not be reconciled. The form and extent of analysis that is required to justify exclusion of lands affected by critical areas from designation is not clear from the decision, however, because in this case the Board did not find any discussion or analysis in the record. It is possible, but not certain, that analysis and disclosure of general impacts to critical areas contained in a SEPA environmental document could be sufficient to meet the Board's burden of proof. Alternatively, it may require a complex and detailed biological analysis that is specific to the resource being excluded.

It is important to remember that technical consistency/compliance with specific designation criteria – such as exclusion of resource lands or critical areas -- becomes an explicit legal issue only when a GMA action is appealed, and the legal issue is briefed and decided. Therefore, there may be instances where counties have excluded categories of lands without sufficient justification in the record, but where the action was not appealed. Nevertheless, the clear pattern observable in cases where an exclusion from designation was upheld is the presence of ample technical information and analysis in the record demonstrating that the best available science (BAS) was used to make the decision. Two cases decided by the Western Board provide instructive examples.

In *Storedahl v. Clark County (96-2-0016)*, the County had excluded mineral resource land within the 100-year floodplain from designation. The record showed sufficient mineral lands had been designated for even a 50-year supply. The Board noted: "With the wealth of information developed during the public participation process...we hold that the county reached its decision ...by appropriate evidence and analysis." The record included expert testimony from 2 college professors, staff recommendations, and supporting communications from WDFW and US Fish & Wildlife. The Board concluded: "The record demonstrated that the county was provided with vast, and occasionally conflicting, evidence. The evidence constituted the best available science."

The Board distinguished *Achen v. Clark County (95-2-0067)*, which addressed the same issue one year earlier but reached a different conclusion. In *Achen*, the County had included no technical information in the record about why the land was excluded and instead relied only on unsupported statements regarding the "general fragile character

of these [floodplain] areas and some concern about the ability to manage mining areas.” There was no review or analysis of the effects of mining within a 100-year floodplain.

Note that both Clark County cases were decided before the SMA was quasi-incorporated into GMA (RCW 36.70A.480), and the conclusion could be different today. It is possible that the SMA provides independent authority to regulate floodplains apart from GMA considerations. The Prosecuting Attorney should be consulted on this question.

Nevertheless, the reasoning in the *Storedahl* and *Achen* decisions and the requirement to demonstrate technical analysis in the record will likely apply to any exclusion of critical areas from designation. To successfully exclude wetlands in the event of an appeal, based on the reasoning in the cited cases, there needs to be sufficient BAS analysis in the record; a policy statement prioritizing one resource over another without more substance is likely to be insufficient. Although most Puget Sound counties currently exclude selected critical areas from designation as mineral lands, these exclusions have not been tested on appeal. Only Clark County excludes mineral lands affected by wetlands at the designation stage. The reasons that other counties have not excluded wetlands may be that sufficient data is not available to identify wetlands at a county-wide scale, that it is more practical and consistent with existing review procedures to address wetland impacts at the project-level, and/or because the burden of proof to exclude wetlands from designation (using BAS analysis) may be viewed as too high and/or too uncertain.

- 3. *Exclusion of Overlapping Resource Lands.*** It is possible to identify overlapping resource lands designations, such as forest lands and mineral resource lands. In this situation, WAC 365-190-040(7)(b) directs jurisdictions to determine whether overlapping resource lands designations can coexist or are incompatible and require prioritization between conflicting uses. According to the WAC, deciding between competing, incompatible uses should consider which resource use has the greatest long-term commercial significance. In the *Weyerhaeuser* case, the County had excluded designated forest resource lands, but the Western GMHB found that forest land and mineral lands designations can, in fact, coexist. Thurston County subsequently revised its designation criteria to comply with this holding.

A similar conflict situation may arise if mineral lands overlap with designated agricultural lands. Can designated agricultural lands be excluded in this situation? As indicated in the county survey (Exhibit A), King, Snohomish and Whatcom Counties currently exclude agricultural lands from designation. No GMHB decisions that deal directly with the exclusion of agricultural lands have been identified. As noted previously, however, the fact that the issue has not been addressed in a GMHB opinion means only that no one has challenged the exclusion in a properly filed and argued appeal, and does not indicate that this exclusion from designation is sanctioned.

Based on the GMA rule, if the County wanted to prioritize agricultural lands and exclude them from designation, some type of economic analysis would seem to be required to determine which use had the greatest long-term value. From a long-term planning perspective, some might view economic value alone could as an insufficient or inappropriate factor on which to base a decision competing resource uses; as noted previously, the criteria listed in the rules are not exclusive, and jurisdictions have the discretion to consider others that are consistent with GMA. But a GMHB would likely require that economic value was considered in any decision prioritizing one resource use over another.

Other practical and technical factors may be considered as well in reaching a decision regarding agricultural lands. For example, soil is a non-renewable resource, and mining removes the soil on which agriculture depends. From this perspective, the two resource uses could be viewed as incompatible. The importance of agriculture as a local economic sector, and policy factors related to health, self-sufficiency and other societal values, could be considered along with economic value. However, this rationale would also need to recognize that mining is an interim use of land and that it may be possible to reclaim a mined site and return it to agricultural use. DNR mining regulations, for example, currently require that topsoil be stockpiled and reused in reclamation, so the productive agricultural soils that are stripped to mine sand and gravel are not necessarily lost. Additional research would be necessary to determine whether stockpiled soils retain their growing capabilities in this situation, or whether some type of soil amendment or restoration might be necessary; this would add additional cost and complexity to the reclamation process, which could be prohibitive. In addition, reclamation is within the exclusive jurisdiction of DNR, and Thurston County may lack the authority to require restoration of prime soils and could not therefore implement such an approach on its own. While it may be theoretically possible to restore a mined site following the cessation of mining, therefore, it may not be practical from an economic or legal perspective. Information included in the record to support an exclusion of agricultural lands should demonstrate how the use conflict was analyzed and reconciled.

3. Designation Options for Discussion

This section summarizes the consultant team's observations and synthesizes the information contained in previous sections of the Issue Paper, and identifies a range of options for updating the County's process and criteria for designating mineral resource lands. The emphasis is on highlighting available options and identifying pros and cons, rather than recommending specific courses of action. For a few issues, however, such as the designation process discussed in the following sub-section, an appropriate path is clearly set forth in GMA-related guidance, and the Issue Paper tries to clearly point in that direction.

3.1 Designation Process

The GMA rules state that a county's approach to inventory, classification and designation should be comprehensive and county-wide. The County should replace the site-by-site Comprehensive Plan amendment process currently used to designate mineral lands, with a program that identifies, classifies and designates all qualifying mineral resource lands at a county-wide level. This approach will enable the County to conserve designated mineral lands through appropriate regulations, which is the objective of mineral lands planning. A site-by-site approach is not as effective in identifying and conserving mineral resources comprehensively, and perpetuates the risk that access to mineral resources for extraction may be inadvertently hindered or precluded by the establishment of incompatible land uses and development patterns. Revisions to the Comprehensive Plan and Thurston County Code will be required to implement the new designation approach.

The three components of GMA mineral resource planning -- inventory, classification and designation -- will all need to be reviewed and revised periodically, as required for all aspects of the Comprehensive Plan. The geologic information that forms the foundation of the inventory and classification scheme should also be updated periodically, including outreach to property owners. Similarly, the GIS data used to evaluate and apply designation criteria should be maintained and updated over time.

The Comprehensive Plan should continue to identify designated mineral resources on a map. The map could be separate or an overlay on the Future Land Use Map; a separate mineral lands map may be less cluttered and easier to update. Any maps should include appropriate limitations regarding the scale and sources of data used. A disclaimer should also clearly state that designation on the map does not authorize any development activity and is not a substitute for project-level review and approval of mining permits. Map overlays could also be used to indicate additional environmental information that is relevant to designated mineral lands, such as the presence of critical areas, which will be considered during review of specific mining projects. This notice could help interested residents to appreciate the relationship and distinction between county-wide mineral lands planning and site-specific project review.

There are also process questions relevant to several categories of sites with current mining permits, including both active and inactive mines. Thurston County will need to decide if and/or how to designate these sites and what process the sites should follow, if any, to achieve designation. The categories of sites include the following:

- (1) permitted mining sites that have previously been designated pursuant to the current Comprehensive Plan designation process;
- (2) permitted mining sites which have not been designated per an individual comprehensive plan amendment but were grandfathered when the current process was adopted; and
- (3) permitted mining sites where the county-wide inventory does not indicate the presence of mineral resources, or where the classification indicates that mineral resources do not

have long-term commercial significance (this category could include sites from either category 1 or 2).

The broad question for categories (1) and (2) is whether to automatically recognize (i.e., grandfather) these sites as designated mineral resource lands under the County's emerging designation program. It is likely that category (1) sites would have provided information similar enough to the emerging designation program when they applied for individual comprehensive plan amendments to warrant being included. The situation is complicated for either category (1) or (2), however, if new criteria are adopted as part of the revised designation program that would exclude these previously recognized sites from designation, or if either or both the inventory and classification indicate that a particular site does not contain resource lands of long-term commercial significance. As to category (3), these sites should be double-checked; it is possible that mapping errors or data limitations could explain why some permitted mining sites are omitted from the inventory. It is also possible that some mines are extracting minerals that are not considered commercially significant according to the draft classification criteria. These questions should be addressed as the project proceeds.

3.2 Policy & Regulatory Components of Designation

Designation in the Plan or Zoning Code?

As shown in Table 3, Thurston County's designation program is currently embedded in both the Comprehensive Plan and the zoning code, which is problematic for several reasons. First, there are some evident gaps, overlaps, redundancies, and use of varying terminology that are problematic. In addition, both documents currently conflate issues that are relevant to designation at a broad, area-wide level, with issues that are more pertinent to regulation of a specific mining project; this blurs the meaning and process of designation. Overall, the current bifurcation is unnecessarily confusing and some clean-up and reconciliation is needed. The broad question presented is how and where to describe designation procedures and criteria: whether to consolidate designation policies in the comprehensive plan, or to maintain the current division between comprehensive plan and code.

One option is to include all policy, criteria and procedures related to designation in the comprehensive plan. Designation is essentially a planning process that is based on policy considerations, and policy direction is typically contained in the Comprehensive Plan rather than in the zoning code. Comprehensive Plan policies could describe all steps and components of the County's mineral lands program, including the inventory, classification, designation criteria and processes; it could also provide policy direction for implementation actions to conserve designated mineral lands. The focus of the zoning code in this scenario would be on the zoning regulations needed to ensure conservation; any new procedures needed to implement the mineral lands program; and, primarily, standards to regulate mining operations. With the exceptions of Mason and Thurston Counties, all other Puget Sound area counties

currently include designation policies in their comprehensive plans rather than their zoning codes.

On the other hand, there is no rule or GMHB decision that prohibits a county from placing designation criteria in the zoning code. At this point in time, property owners and staff are accustomed to looking to the code to find policies and criteria relevant to designation. Alternatively, if criteria and procedures continue to be located remain in both the plan and the code, then the content and terminology should be updated, clarified and reconciled to address any overlaps and inconsistencies. The County Prosecuting Attorney should also be consulted for guidance so that legal distinctions between general planning policy and development regulations do not become blurred.

Relationship to Permitting

The County currently requires designation in the Comprehensive Plan as a pre-condition for review and approval of a mining permit. The GMHB validated this approach in the *Weyerhaeuser* decision and it could continue unchanged. This would limit future mining to sites that are known to contain mineral resources that have been identified, classified as commercially significant, and that have been screened and designated using criteria relating to land use and environmental factors.

Alternatively, if designation is not established as a pre-condition of mining, then the significance of designation would be diluted or undermined unless some distinctions between designated and un-designated sites are recognized. The County could, for example, consider procedural or regulatory distinctions between designated and non-designated sites. Options could include different application requirements or review processes; these could, for example, simplify review procedures for designated sites and apply more stringent review requirements for non-designated sites. However, dual systems generally tend to be complicated, and expedited procedures tend to generate objections. The survey of counties identified that Whatcom County experimented with a dual track review system for mining projects -- administrative or hearing examiner review -- based on higher or lower mineral resource classification categories. The County's current draft Comprehensive Plan update appears to be moving away from this approach.

3.3 Designation Criteria

Thurston County currently has adopted a reasonable set of designation criteria and they provide a solid foundation for moving forward. However, some revisions should be considered to ensure consistency with Western Washington GMHB decisions with respect to dual designation of critical areas and resource lands; to consider additional criteria (identified in Table 2) that could strengthen the designation program; and to resolve discrepancies between existing criteria in the Comprehensive Plan and zoning code.

Before making any decisions about designation criteria, however, geo-data should be used to generate overlay maps that can be used to gauge the potential effect of exclusion of individual environmental resources on mineral lands availability and on geographic sub-areas. The inventory map and classification categories are still being perfected as of this writing, and overlay maps of potential designation criteria will be available in the coming months.

Dual Designation of Critical Areas

Several criteria currently in the Comprehensive Plan or zoning code, shown in Table 3, use the presence of various critical areas to exclude mineral lands from designation. Critical areas regulated by the County, as required by GMA, include wetlands, streams, fish and wildlife habitat areas, critical aquifer recharge areas, flood hazard areas and frequently flooded areas, geological hazard areas, seismic hazard areas, volcanic hazard areas and mine hazard areas. As discussed previously, the GMA rules and GMHB decisions require dual, overlapping designations unless the county demonstrates, through competent analysis and the use of best available that is included in the record, that the dual designations cannot coexist. A county cannot unilaterally decide to balance or prioritize competing GMA goals and requirements and to exclude a critical area from designation without clearly demonstrating how it came to its conclusion to deviate from a requirement. This is a high standard of proof, which can be time consuming and costly to satisfy, with no guarantee that the exclusion will be upheld in an appeal.

GMHB decisions regarding designation do not limit the County's ability to regulate critical areas in the context of a proposed mining project, however. For example, if the presence of wetlands is not used as a factor to exclude wetlands or other environmentally sensitive lands from mineral lands designation, wetlands and other critical areas will be considered when an application for a mining permit is reviewed. It does not follow, therefore, that wetlands will be impacted by mining at a specific site by a specific project because general, county-wide information about the location of wetlands is not applied when mineral lands are designated in the comprehensive plan.

In view of the foregoing, several options may be considered:

- (1) conduct biological studies using best available science and include them in the record to support criteria that exclude selected critical areas from designation;
- (2) apply dual designations (using maps) that do not exclude critical areas from designation as mineral lands, and rely on critical area regulations and SEPA review at the project level to identify wetlands and mitigate the environmental impacts of mining operations;
or
- (3) exclude critical areas from designation without conducting biological studies based on general statements from environmental documents, accept the risk associated with a reduced level of analysis and support in the record, and hope that the County's action is not appealed.

There are several possible exceptions to the above analysis and options which should be evaluated with the assistance of the Prosecuting Attorney. Critical areas that occur in a previously designated wildlife or nature preserve, which is dedicated to a use that is incompatible with mining, and that was created pursuant to an independent, non-GMA statutory scheme, could possibly be excluded from designation with less risk of conflict with the GMA rules. Similarly, shorelines and floodplains that are regulated by the Shoreline Management Act, and where the local Shoreline Master Program (SMP) prohibits mining, could potentially also be sustained as an exclusionary criterion. Thurston County's adopted SMP does prohibit mining in several shoreline environments. Based on the GMA statute, rules and GMHB decisions, shorelines are not considered critical areas, and are subject to a separate regulatory regime. The Prosecuting Attorney should be consulted regarding the legal risks of exclusion in these situations.

Dual Designation of Resource Lands

In instances where mineral resource lands overlap with designated agricultural lands, GMA & GMHB direction indicates that either both resource designations apply, or if there is a conflict between resource uses the County should evaluate which use has the greatest economic value and conserve that one (WAC rule 365-190-040(7)(b)). However, the GMA rules themselves are not exclusive; GMA jurisdictions have the discretion to apply other policy considerations so long as they are otherwise consistent with GMA requirements.

Options for addressing the issue of overlapping resource lands are similar to those discussed previously for critical areas. Options include:

- (1) conduct economic value studies and include them in the record to support excluding agricultural lands from designation; also include other rationales to demonstrate that the uses conflict and why agriculture should be prioritized;
- (2) allow dual designation of mineral resource and agricultural lands, assuming that mining is an interim use of the land and that productive soils can be replaced or restored as part of reclamation; or
- (3) exclude agricultural lands from designation without conducting economic studies or providing detailed information or support in the record, and hope that the County's action is not appealed.

Land Use Factors

Several GMA criteria, and adopted County designation criteria, relate to the types, patterns and density of land use. While adopted criteria appear to be reasonable and consistent with GMA, they should be overlaid on the inventory and classification maps and reviewed to ensure that they will accomplish the objectives of designation and conservation. It is possible, for example, that portions of some mineral prospects are proximate to areas with existing suburban land use patterns and/or where mining may not be practical without causing significant and unavoidable conflicts. Maps to facilitate this review step are being prepared as of this writing, and could

result in new or modified land use criteria. Some adjustments to zoned densities may also be considered.

Other Potential Criteria

Review of the range of criteria shown in Table 2 indicates a few additional criteria that could be considered for designation. Some of these criteria raise policy considerations which should be discussed further, and others may not be practical to implement due to data and mapping limitations. It would be advisable to use GIS to overlay the locations of these potential criteria on the mineral resource inventory, to the extent they can be mapped, to help decide whether these are worthwhile pursuing.

1. **Lack of Jurisdiction.** As discussed previously, it seems logical to exclude lands that are within the jurisdiction of other governmental entities -- federal, tribal and city -- where Thurston County lacks the legal authority to regulate land use. Designation in these situations would not serve any practical purpose, because Thurston County cannot act to conserve mineral resources. Recognizing this limitation, and to help conserve *Mineral Resource Land Project* resources, these areas were excluded when the inventory was being prepared.
2. **Infrastructure.** Locations containing important and valuable public facilities and infrastructure -- such as schools, libraries, hospitals, emergency response facilities, roads, and utilities -- could be excluded from designation. Alternatively, these facilities could be considered and protected at the project review stage. While they are important, valuable and hard to replace, most of these facilities are not land extensive and would not have a significant effect on the amount of land designated. It would be prudent to document these locations in an overlay to the mineral inventory, however.
3. **Transportation.** Criteria related to transportation impacts could include measures of congestion, distance/travel time from the urban area, or high accident locations as indicators of transportation constraints. Based on review of Puget Sound county mineral land designation programs, transportation-related criteria are not used extensively. Clark County and Skagit County have adopted criteria related to the presence/suitability of public access; Skagit County also establishes a 2-hour driving time from the urban area as a criterion. Snohomish County considered but rejected use of transportation factors in designation -- based on congestion measures, or geographic sub-area concentrations of mineral resources -- deciding that it was more appropriate to consider transportation impacts during project level review.

Application of these types of transportation criteria would necessarily be based on analysis of current conditions, which might change over the long-term, and may not be appropriate in the context of long-term designation. In addition, it should be noted that distance and transportation driving time is a factor that was considered and included in the classification criteria, so it would be duplicative to consider them

again for designation. Transportation impacts can probably be addressed more logically and in greater detail at the time of project permitting

4. ***Aesthetic Considerations***. It is theoretically possible to consider unique aesthetic features, such as views along designated scenic highways or areas with protected views as factors in designation. Detailed study and analysis would be required to clearly define locally sensitive or unique views and viewsheds, and to ensure that such features were not overly vague or subjective. In addition, criteria based on views could potentially exclude large areas from designation. Criteria related to aesthetic considerations were not identified in any Puget Sound county designation programs.

**Exhibit 1. Mineral Lands Programs in Selected Puget Sound Counties
(As of August 2017)**

County	County-wide Inventory/Classification	Designation Approach	Designation Criteria	Comments
Clark	YES (DNR data)	County-wide/Comp Plan	Not “primarily” within high quality wetlands, and floodplains (unless subject to an HCP); min. 80 acres (no min. if adjacent to an existing mine); suitability of public access roads for hauling; not within Rural residential zones (resource, commercial or industrial)	
Island	NO	X	X	MRL not addressed in Comp Plan or code
King	NO – identified sites zoned for mining, existing mining permit, or identified by owner	Site specific CP map amendment and rezone required	Excludes sites within or adjacent to designated Ag districts	GMA criteria not incorporated or mentioned; SEPA review, rezone and CUP used to determine compatibility with land use and environmental regs (mining is prohibited in most critical areas)

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County	County-wide Inventory/Classification	Designation Approach	Designation Criteria	Comments
Kitsap	NO	Site by site	None specified in CP or code	
Mason	“Known & potential” sites - identified based on SCS soil survey & DOE Coastal Zone Atlas	Mineral Resource map in Comp Plan; designated in code	>25 acres, potential to meet community needs; GMA criteria not mentioned or incorporated	Note: Of the counties surveyed, only Mason included designation criteria in their code rather than Comp Plan
Pierce	NO	Only sites with valid mining/reclamation permits from County & DNR; applies mineral resource zoning overlay (MRO)	Lists but does not apply the following: min. 40 acres, contains min. 1 million cy of extractable material, outside UGA	Used DNR data to identify expected locations of gravel deposits but did not designate these lands
Skagit	YES (used DNR data on soil type; applied WAC criteria for commercial significance)	Mineral Resource Overlay on Comp Plan map & zoning map	Land use patterns (preferred adjacent uses) and density (10 ac) within ¼ mile; Excludes parks/open space lands, Natl Forest, Wild & Scenic corridors, designated ag lands; Road access & within 2 hour drive of point of use	Existing mines can continue; new mines must be designated MRO
San Juan	NO	X	X	MRL not addressed in Comp Plan or code.

Mineral Lands Designation: Issue Paper

County	County-wide Inventory/Classification	Designation Approach	Designation Criteria	Comments
Snohomish	YES	County-wide/Comp Plan	Excludes: land within UGAs, national forest, tribal trust lands, lands developed at urban densities, public facilities, designated ag land, shorelines, T&E fish corridors, 100-year floodplains, isolated islands < 10 acres,	
Whatcom	YES (DNR data, plus inventories in 2003 & 2014)	County-wide interim designation (1992), augmented by site-specific designations, following evaluation of potential impacts	For new designations: Min. 20 acres, 1 million cy extractable material; material meets DOT standards; not within or adjacent to developed plats or urban density residential zones; abutting parcel size not > 5 acres; outside 10-year zone for designated wellhead protection areas; not enclosed by more than 50% non-designated lands; for designated forest lands, must demonstrate greater value as mineral resource; prohibited on designated ag lands with prime soils	