2020-2021 Comprehensive Plan Amendment Docket (Item 11)
Recycled Asphalt Policy
Public Hearing Staff Report

Date:	September 30, 2020
Public Hearing Date:	October 7, 2020
Prepared by:	Maya Teeple, Senior Planner
Proponent/Applicant:	Thurston County Community Planning & Economic Development
Proposal Description:	Citizen-requested Comprehensive Plan Amendment to amend Policy E.5 of the Nisqually Subarea Plan to allow for recycling of asphalt pavement as an accessory use within the mined-out portions of gravel pits located in the Nisqually Subarea.
Action Requested:	Amend the Nisqually Subarea Plan, Policy E.5 to allow for asphalt recycling within the subarea. Amend Chapter 20.54 of the Thurston County Code to require best management practices for exposure minimization of recycled asphalt stockpiles in the Nisqually Subarea.
Location:	NE Thurston County, within the Nisqually Subarea Boundaries
APN:	N/A
Acres:	±9,000 acres

☐ Map Changes ☒ Text Changes ☐ Both ☒ Affects Comprehensive Plans/documents
☒ Affected Jurisdictions: Thurston County

ISSUE:

Lakeside Industries, Inc. submitted a Comprehensive Plan Amendment application (Attachment A) in November 2016 proposing amendments to Policy E.5 of the Nisqually Subarea Plan. The application requests that the County consider a Comprehensive Plan Amendment to policy language within the Nisqually Subarea Plan. Specifically, the request is to consider a text amendment to policy E.5 of the Nisqually Subarea Plan, which currently precludes the reprocessing of asphalt (reclaimed asphalt pavement, hereby RAP) in the subarea due to water quality concerns. The proposed amendment would allow the recycling of asphalt pavement to occur as an accessory use within the mined-out portion of gravel pits within the Nisqually Subarea.

This docket item is #CP-11 on the 2020-2021 Comprehensive Plan Amendment Docket. The docket was prioritized by the Board of County Commissioner's in May 2020, and this item tied

for 3rd (out of a total of 6 citizen-initiated amendments). This docket item was also previously docketed on the 2017-2018 and 2018-2019 Official Docket of Comprehensive Plan Amendments. Review of this comprehensive plan amendment has been broken down into two phases:

- Phase 1 – Consultant Review of Contaminant Leaching from Recycled Asphalt Pavement
    - Part A – Develop Inventory List of Literature and Data
    - Part B – Issue Paper that Analyzes Potential Environmental and Public Health Implications of Asphalt Recycling based on Existing Scientific Literature
- Phase 2 – County review of current regulations and permit process, related court rulings, conditions within the Nisqually Subarea, and Best Management Practices

County staff developed an RFP-RFQ and hired a consultant for the first portion of the policy review (Phase 1). Herrera Environmental Consultants conducted Phase 1 Part A and Part B involving literature selection and review of potential implications of leachate, which is water that has moved through a solid and in the course of passing through has become contaminated. County staff conducted Phase 2, which was primarily a review of existing county processes, review of prior court rulings, and development of policy options.

BACKGROUND:

<u>What is the Nisqually Subarea Plan (NSAP)?</u>

The Nisqually Subarea is approximately 9,000 acres of rural lands in northeastern Thurston County. The subarea includes the Nisqually Wildlife Refuge and portions of: The Nisqually Indian Reservation, JBLM, and the McAllister Geologically Sensitive Area.

The Nisqually Subarea Plan was adopted in 1992, after two years of intensive community and stakeholder involvement. The purpose of the plan was to establish zoning, goals and policies to shape development and land-use in the subarea. The 1992 plan included Policy E.5. The subarea plan was readopted in 1996, when the County amended the Comprehensive Plan to comply with Washington State's Growth Management Act.

<u>What is asphalt pavement recycling/reprocessing?</u>

Asphalt pavement recycling is the crushing, sorting, and/or reprocessing of asphalt pavement to breakdown, separate, and re-use the asphalt binding material and the gravel/sand substrate that forms the asphalt pavement. Asphalt binding material is re-used by adding it into new asphalt production processes. The gravel/sand substrate is re-used as a base material for new roads and driveways and for various other uses.

<u>What does the current Policy E.5 of the NSAP state?</u>

"Allow accessory activities to be considered inside the mined out portion of the gravel pit through the site plan review process. Examples of allowable accessory uses would include concrete pipe and/or septic tank construction and the recycling of used concrete. The reprocessing of imported mineral materials shall not be the primary accessory use **and the reprocessing of asphalt shall not be allowed due to water quality concerns.** These activities shall be discontinued once reclamation of the pit is completed in accordance with DNR standards."

<u>What is an accessory use?</u>

"Accessory use" means not the main activity happening on a site, rather a smaller yet still related activity, in the context of Policy E.5. According to Thurston County Code 20.03.040, "An 'accessory use' means a use or building which is clearly subordinate to and customarily found in association with a principal use."

PUBLIC OUTREACH/PARTICIPATION:

To date, Thurston County has held two public meetings and given a presentation on the proposed amendment. A kick-off meeting was held on July 27, 2017 to provide general information to the public. An additional public meeting was held on June 20, 2019 where the consultant provided a presentation on the consultant literature report and then a question and answer session was held. Community Planning staff also gave a presentation to the Nisqually River Council on July 19, 2019 to provide a high-level summary of the consultant literature report and next steps. In addition to these 3 public outreach events, a poster on the project was included in the March 3, 2018 open house for the Nisqually Subarea Plan. Staff also provided regular updates on the project at the Nisqually River Council meetings.

You can view all comments received related to this proposed amendment received online at: https://www.thurstoncountywa.gov/planning/Pages/comp-plan-cp11-home.aspx

PLANNING COMMISSION REVIEW:

The Planning Commission has held three work sessions to discuss Comprehensive Plan Amendment Item 11 – Recycled Asphalt Policy. The following work sessions have been held:

- **July 15, 2020** – Recycled Asphalt Policy Review Work Session
- **August 5, 2020 –** Recycled Asphalt Policy Review Work Session
- **September 2, 2020 –** Recycled Asphalt Policy – special guests

Attachments and other supporting materials for these meetings can be viewed at: https://www.thurstoncountywa.gov/planning/Pages/pc-meetings.aspx

DEPARTMENT ANALYSIS:

Water Quality Concerns

Historically, asphalt recycling has been prohibited within the Nisqually Subarea due to water quality concerns. Materials related to the adoption of the Nisqually Subarea Plan and Policy E.5 cite concerns that toxins or harmful chemical substances would leach from stockpiled asphalt and negatively impact the environment, and that asphalt substrate fines could escape into waterways and negatively impact groundwater. Documentation of scientific sources referenced during the NSAP drafting and adoption process is not present within the available archival materials.

Thurston County hired a third-party consultant to conduct a review and analysis of contaminant leaching from recycled asphalt pavement (Attachment B, Herrera Environmental Consultants, "Contaminant Leaching from Recycled Asphalt Pavement", May 14, 2019). Due to the wide range in testing materials and protocols, only broad summaries can be made from the research. Key takeaways from the consultant report are that:

- As a source of contaminants, RAP is highly variable. Factors contributing to variability in leachate from RAP appear to include how the asphalt was originally manufactured (e.g., the sources of crude oil and aggregate or whether coal tar or bitumen was used), how the RAP was used, the duration and degree to which it has weathered and been exposed to traffic or other pollution generating sources, and how long it is stored.
- Laboratory testing indicated that there were typically some contaminants leached from RAP at concentrations that exceeded state groundwater quality standards. There were some Polycyclic Aromatic Hydrocarbons (PAHs) that leached above Washington state groundwater quality standards with some frequency. Some metals were also leached, primarily in low pH environments.
- Testing indicated that there is a distinct initial flush of contaminants from RAP that can result in concentrations exceeding Washington State groundwater quality standards, but that these peak concentrations decrease quickly to below detection limits.
- Although this literature review specifically did not include an assessment of potential environmental impact from fate and transport of these contaminants, a number of the researchers suggested that the impact to the environment would be negligible if dilution and assimilation were considered.
- Batch and column laboratory tests, while informative, are not necessarily representative of what can be expected under field conditions.

This literature review did not evaluate how other factors may impact leachate from recycled asphalt pavement. Other factors that could impact leachate and pollution concerns include best management practices, fate and transport, natural attenuation in soils, geography, topography, hydrogeology, extent of impervious surfaces, type of ground cover, operation size, or duration and intensity of precipitation events.

<u>County & State Regulations</u>

Asphalt recycling is allowed as an accessory use in some of the County's zoning designations. There is no broad prohibition on asphalt recycling within the rest of unincorporated Thurston County (outside the Nisqually Subarea). The determination of whether asphalt recycling is allowed as an accessory use is made on a case-by-case basis through the evaluation of a land-use permit application for a specific parcel. The parcel's zoning, environmental features, current use, hydrogeology and other features are determining factors in whether asphalt recycling is allowed as an accessory use on an individual property and are determined through the site-specific permit review process.

Currently, Policy E.5 of the Nisqually Subarea Plan prohibits asphalt recycling as an accessory use in the subarea. If the policy were amended, asphalt recycling would then be allowed in the Nisqually subarea as an accessory use, within mined out portions of gravel pits. In addition to zoning code requirements and critical areas requirements, additional requirements exist under Thurston County's Mineral Extraction Code (17.20 TCC), which applies to special use permits for accessory uses to mineral extraction and asphalt plants. This chapter includes requirements for spill prevention, fuel and hazardous materials, drainage and stormwater control, wash and other process water, domestic water supplies, roads, noise, and more.

A new special use permit or an amendment to a special use permit to recycle asphalt is subject to current county regulations and may trigger any or all of the following: SEPA review, clean air agency permit, stormwater management plan, pollutant prevention and control plan, emergency

clean-up plan, a site plan depicting where and how recycled asphalt will be processed and stored on the property, and a noise attenuation plan to demonstrate there is no public nuisance related to regulated noise decibels.

The Thurston County Environmental Health Code, Article V on 'Solid Waste Handling' includes information on recycling of solid waste. A solid waste handling permit is required for recycling of asphalt and concrete. Recycling of asphalt cannot be maintained, established, substantially altered or expanded without a solid waste handling permit, according to section 13 of Article V of the Thurston County Environmental Health Code.

The Washington State Department of Ecology issues a stormwater general permit to limit the amount of pollution that drains into lakes, rivers, and marine waters. These permits are guided by both the federal water pollution permit program and state laws.

OPTIONS:

Staff have prepared three options for the Planning Commission's consideration. See Attachment C for the specific text changes to Policy E.5 for each option in bill format. See Attachment D for a proposed code amendment that pairs with Option 3.

Current Text (Policy E.5, p.21):

Allow accessory activities to be considered inside the mined out portion of the gravel pit through the site plan review process. Examples of allowable accessory uses would include concrete pipe and/or septic tank construction and the recycling of used concrete. The reprocessing of imported mineral materials shall not be the primary accessory use and the reprocessing of asphalt shall not be allowed due to water quality concerns. These activities shall be discontinued once reclamation of the pit is completed in accordance with the WDNR standards.

Option 1: **Make no changes to the current policy E.5 of the Nisqually Subarea Plan. Continue to prohibit reprocessing of asphalt.**

Considerations:

- This option does not fulfill the applicant's request.
- Continues to prohibit asphalt recycling in the Nisqually Subarea.

Option 2: Amend Policy E.5 of the Nisqually Subarea Plan as proposed by the applicant, thus removing the prohibition on asphalt recycling as an accessory use within the Nisqually Subarea.

Considerations:

- Amends policy E.5, as requested by the applicant.
- Removes the prohibition on asphalt recycling in the Nisqually Subarea.
- Allows for asphalt recycling in the Nisqually Subarea to occur as an accessory use within the mined-out portion of gravel pits, subject to other permitting requirements.
- Best management practices to cover RAP stockpiles to minimize exposure would not be required under this option but may still be implemented if an operator chooses to.
- Does not indicate any project approvals to recycle asphalt. Any operation that wishes to recycle asphalt would need to go through the site-specific permit review process, adhering to local, state, and federal regulations.

Option 3: Amend Policy E.5 of the Nisqually Subarea Plan as proposed by the applicant, but with additional amendments to require that Best Management Practices be employed (specifically for covering stockpiles). Amend 20.54 TCC to require Best Management Practices be employed for asphalt recycling operations in the Nisqually Subarea.

Considerations:

- Amends policy E.5 as requested by the applicant but includes additional amendments to require best management practices be employed for stockpile covering to minimize exposure.
- Removes the prohibition on asphalt recycling in the Nisqually Subarea.
- Allows for asphalt recycling in the Nisqually Subarea to occur as an accessory use within the mined-out portion of gravel pits, subject to other permitting requirements.
- Requires best management practices to cover RAP stockpiles to minimize exposure in the Nisqually Subarea. The type of best management practice used (tarp, shed, pavilion) would be determined by the operator during the permit process.
- Does not indicate any project approvals to recycle asphalt. Any operation that wishes to recycle asphalt would need to go through the site-specific permit review process, adhering to local, state, and federal regulations.

Planning Commission Options:

Option 1. The Planning Commission forward a recommendation that the Thurston Board of County Commissioners do not amend Policy E.5 of the Nisqually Subarea Plan, resulting in no change as presented in Option 1.

Option 2. The Planning Commission forward a recommendation of approval that the Thurston County Board of County Commissioners amend Policy E.5 of the Nisqually Subarea Plan to allow for asphalt recycling in the subarea as requested by the applicant, as presented in Option 2.

Option 3. The Planning Commission forward a recommendation of approval that the Thurston County Board of County Commissioners amend Policy E.5 of the Nisqually Subarea Plan to allow for asphalt recycling in the subarea as requested by the applicant with additional requirements for BMPs, and further amend 20.54 TCC to require best management practices for asphalt recycling, as presented in Option 3.

Option 4. The Planning Commission proposes additional amendments, providing a recommendation to the Board of County Commissioners at a later date.

NOTIFICATION:

On September 16, 2020, written notice of the public hearing was published in *The Olympian*. On A written notice of public hearing was also issued in the *Nisqually Valley News* on September 17, 2020. A press release was issued on September 28, 2020. A webmail announcement was sent to the Community Planning Division's email listserv and interested parties prior to the meeting.

Thurston County Community Planning updated the website with all available documents being considered at the hearing prior to the September 16, 2020 legal notice being issued.

SEPA:
An environmental determination for the proposed amendment in unincorporated Thurston County is required pursuant to WAC 197-11-704; and, will be completed following the Planning Commission recommendation on the proposed amendments. The applicant-submitted environmental checklist is included with Attachment A to this staff report.

ATTACHMENTS:

- ATTACHMENT A: Comprehensive Plan Amendment Application & Environmental Checklist
- ATTACHMENT B: Herrera Environmental Consultants, "Contaminant Leaching from Recycled Asphalt Pavement", May 14, 2019
- ATTACHMENT C: Proposed Options for Policy E.5
- ATTACHMENT D: Proposed Code Language to Pair with Option 3
- ATTACHMENT E: Public Comment Received; you can also view past and current public comment online at: https://www.thurstoncountywa.gov/planning/Pages/comp-plan-cp11-home.aspx

Attachment A:

Lakeside Industries, Inc. Application for Comprehensive Plan Amendment and Environmental Checklist

THURSTON COUNTY
WASHINGTON
SINCE 1852

Thurston County Permit Assistance Center
2000 Lakeridge Dr. SW, Olympia, WA 98502
(360) 786-5490 | (360) 754-2939 (Fax)
TDD Line (360) 754-2933
Email: permit@co.thurston.wa.us
www.co.thurston.wa.us/permitting

Creating Solutions for Our Future

MASTER APPLICATION

oject Specific Supplemental Application

	DATE STAMP
ST BE NLY	THURSTON COUNTY RECEIVED NOV 15 2016 RESOURCE STEWARDSHIP
	Intake By:

2016105567

16 114069 VC

Site Address: **11123 DURGIN RD SE OLYMPIA WA 98513**

Parcel #: **21817140200**

Property Tax Parcel Number(s): 21817140200

Subdivision Name (if applicable): NA

Property Address: 11125 Durgin Road Southeast **City:** Olympia **Zip Code:** 98513

Directions to the Property:

I-5 southbound, take Exit 116 toward Mounts Road/Old Nisqually. Turn left onto Nisqually Road. Nisqually road becomes Old Pacific Highway SE. Turn left onto Durgin Road SE. Site on right.

Property Access: ☑ Existing ☐ Proposed

Access Type: ☐ Private Driveway ☐ Shared Driveway ☐ Private Road ☑ Public Road

Property Access Issues (locked gate, code required, dogs or other animals): ☐ No ☑ Yes **If yes, Describe:**

This is an active mine site. Please contact site office (360) 491-5460 to notify of planned site visit.

(property owner is responsible for securing animals prior to site visit)

Water Supply: ☑ Existing ☐ Proposed

Water Supply Type: ☐ Single Family ☐ Two Single Family Residential ☑ Group A ☐ Group B ☐ Group B Exempt Name of Community Water System: City of Lacey

Waste Water Sewage Disposal: ☑ Existing ☐ Proposed ☑ Individual Septic System ☐ Sewer ☐ Community Septic System Name of Public System:

DESCRIPTION OF PROJECT PROPOSAL (attach additional sheet if needed)

Please see attached description.

BILLING OF INVOICES

The base application fee charged at the time of application covers base hours listed on the fee schedule. When the base hours by a Department are used, a monthly billing invoice will be generated for additional hours at the hourly rate listed on the fee schedule. Should review of the project exceed the base hours allotted, billing invoices shall be mailed to:

☐ **Owner** ☑ **Applicant** ☑ **Point of Contact**

Additional property owner sheets can be obtained online at www.co.thurston.wa.us/permitting

EMAIL: An email address is required if you would like communication to be provided by email.

Property Owner: Nielson Pacific LTD
Mailing Address: P.O. Box 39009
City: Lakewood State: WA Zip Code: 98496
Phone #: (253) 474-0725 Fax #:
Cell #: 253-691-1431 E-mail: HolRoyd@ce@Comcast.Net
Signature:* Charles L Estes **Date:** 11-14-16

Applicant (if different than owner): Lakeside Industries, Inc.
Mailing Address: P.O. Box 7016
City: Issaquah State: WA Zip Code: 98027
Phone #: (425) 313-2600 Fax #: (425) 313-2631
Cell #: E-mail:
Signature:* Karen Deal **Date:** 11-14-2016

Point of Contact: Karen Deal
Mailing Address: P.O. Box 7016
City: Issaquah State: Zip Code: 98027
Phone #: (425) 313-2660 Fax #: (425) 313-2631
Cell #: (425) 864-5081 E-mail: karen.deal@lakesideindustries.com
Signature:* Karen Deal **Date:** 11-14-2016

***Application is hereby made for a permit or permits to authorize the activities described herein. I certify that I am familiar with the information contained in the application and that to the best of my knowledge and belief, such information is true, complete, and accurate. I further certify that I possess the authority to undertake the proposed activities. I hereby grant to the agencies to which this application is made or forwarded, the right to enter the above-described location to inspect the proposed, in-progress or completed work. I agree to start work only after all necessary permits/approvals have been received.**

Thurston County Planning
2000 Lakeridge Dr. S.W. Olympia, WA 98502
(360)786-5490 / (360)754-2939 (Fax)
TDD Line (360) 754-2933
Email: GMA_Mail@co.thurston.wa.us
http://www.co.thurston.wa.us/planning/

THURSTON COUNTY
WASHINGTON
SINCE 1852

Supplemental Application
COMPREHENSIVE PLAN AMENDMENT

STAFF USE ONLY	DATE STAMP
16 114069 VC Permit Type: Comprehensive Plan Amendment Sub Type: Legislative County Work Type: Text Amendment Site: **11123 DURGIN RD SE OLYMPIA WA 98513** Assessor Property ID: 21817140200 Applicant: Karen Deal Owner: NIELSEN PACIFIC LTD	THURSTON COUNTY RECEIVED NOV 15 2016 RESOURCE STEWARDSHIP **Intake by:** SN

This application cannot be submitted alone. In addition to this form, a complete package includes:

Applicant Use	SUBMITTAL CHECKLIST	Staff Use Only
☒	Master application	☐
☒	Applicable processing fees. *Refer to current fee schedules. Depending on the adopted fee structure, additional fees may occur if base hours/fees at intake are exhausted.*	☐
☒	Supplemental requirment checklist *(attached)*	☐
☒	SEPA Checklist	☐
☐	Rezone Application with required materials *(if applicable)*	☐

1. What type of amendment are you requesting: _____ Map __X__ Policy
2. Are you the property owner or under contract to purchase the property? ☐ Yes ☒ No

Site Specific Amendments to Land Use Designations

Complete the following section for amendments to land use designations. Attach additional sheets as needed. The County reserves the right to request additional studies or information necessary to process the application. An amendment that affects an Urban Growth Boundary will require additional studies.

A. Identify the land uses surrounding the property affected, and describe how the proposed change would affect those surrounding land uses.

Proposal Proponent, Lakeside Industries, is seeking a text amendment to the Thurston County Comprehensive Plan - Nisqually Sub-Area Plan (NSAP). There are multiple land use designations within the Affected Geographic Area (AGA). Specifically, Lakeside is seeking an amendment to Policy E.5 of the NSAP. Policy E.5 currently precludes the reprocessing of asphalt (reclaimed asphalt pavement (RAP)) due to water quality concerns. Since approval of Policy E.5 over a decade ago, there has been significant effort put forth by governmental, educational, and private research entities to evaluate potential impacts associated with the processing and recycling of RAP. This research has resulted in a body of technical information and scientific evidence supporting the claim that RAP is inert and poses no threat to water quality. Lakeside wishes to begin recycling RAP by incorporating it into its permitted hot-mix asphalt production process located within the AGA. Amending Policy E.5 will have no discernible impact on adjacent properties and will not affect water quality within the AGA.

Description of Project Proposal

Lakeside Industries is seeking a text amendment to the Thurston County Comprehensive Plan - Nisqually Sub-Area Plan (NSAP). Specifically, Lakeside is seeking an amendment to Policy E.5 of the NSAP. Policy E.5 currently precludes processing of reclaimed asphalt pavement (RAP) due to water quality concerns. Policy E.5 is obsolete based on current proven scientific research and current progressive and sustainable public policy. Many agencies and jurisdictions are beginning to mandate recycle of RAP. Not allowing recycle of RAP is in direct contradiction to Thurston County Resolution No. 13755 which encourages the County to "demonstrate leadership by incorporating environmentally sustainable practices into its operations that preserve natural resources, conserve energy, eliminate waste and emissions, and lessen overall environmental impact"(Attachment 4). As such, Lakeside wishes to begin recycling RAP by incorporating it into its permitted hot-mix asphalt production process located within the Affected Geographic Area. To allow recycling, Policy E.5 must first be revised and updated to meet current policy standards.

B. Explain why the existing land use designation is not appropriate.

The underlying land use designation of the Lakeside Durgin Road site is Designated Mineral Resource Land (see CP Map M-43). The designation is appropriate. Lakeside is seeking a minor text amendment that will allow recycling of RAP within the NSAP at the Durgin Road site, which lies within Designated Mineral Resource Lands. The asphalt production facility is currently in operation at the site and Lakeside simply wishes to use reclaimed asphalt pavement by recycling it into fresh asphalt mix - an activity that is encouraged by local, state, and federal agencies and is part of normal operation at asphalt plants including those located elsewhere in Thurston County.

C. How have conditions changed so that the proposed designation is more appropriate than the existing designation.

See attached sheet for complete response.

D. Explain why additional land of the designation proposed is needed in Thurston County, and why it is needed at the location proposed.

NA

E. If the property is in the rural area (outside of an urban growth area), demonstrate, with appropriate data, how the property meets the designation criteria and policies and Chapter 2 – Land Use of the Comprehensive Plan.

Lakeside is not seeking land use re-designation, only a minor text amendment to Policy E.5 of the NSAP.

Text Amendments

Most, but not necessarily all, text amendments are legislative changes; they can be processed only with the consent of the Thurston County Board of Commissioners. However, if a text amendment with limited applicability is proposed, identify the chapter and page number of the text to be changed, and provide the exact wording changes proposed (attach separate sheets, if needed).

Name of Plan: Thurston County - Nisqually Sub Area Plan - Policy E.5 (see Attachment 1)

Chapter: NA Page: 20-22 Section/Other Policy E.5

All Amendments

Note: Responses to the following section are required. Attach additional sheets as needed.

1. Explain why the change is needed. What issue or problem is resolved by the proposed change?

See attached sheet for complete response.

2. How would the proposed change serve the interests of not only the applicant, but the public as a whole?

See attached sheet for complete response.

3. Explain how the proposed amendment fulfills the goals of the Washington State Growth Management Act (RCW 36.70A.020). A list of the goals is attached.

See attached sheet for complete response.

4. Explain how the proposed amendment is consistent with the policies of the Thurston County Comprehensive Plan, including any policies of an applicable joint plan or Subarea plan. (Be sure to review the Transportation Chapters.)

See attached sheet for complete response.

Applicant Signature(s)

I (We), the undersigned, do hereby affirm and certify, under penalty of perjury, that the above statements are in all respects true and correct on my (our) information as to those matters.

Printed Name	Signed	Date
Karen Deal	Karen Deal	11-14-2016

Form No. SA036a

Planning Goals
Washington State Growth Management Act
RCW 36.70A.020

1. **Urban Growth**. Encourage development in urban areas where adequate public facilities and services exist or can be provided in an efficient manner.

2. **Reduce Sprawl.** Reduce the inappropriate conversion of undeveloped land into sprawling, low-density development.

3. **Transportation.** Encourage efficient multimodal transportation systems that are based on regional priorities and coordinated with county and city comprehensive plans.

4. **Housing.** Encourage the availability of affordable housing to all economic segments of the population of this state, promote a variety of residential densities and housing types, and encourage preservation of existing housing stock.

5. **Economic development.** Encourage economic development throughout the state that is consistent with adopted comprehensive plans, promote economic opportunity for all citizens of this state, especially for unemployed and for disadvantaged persons, and encourage growth in areas experiencing insufficient economic growth, all within the capacities of the state's natural resources, public services, and public facilities.

6. **Property rights.** Private property shall not be taken for public use without just compensation having been made. The property rights of landowners shall be protected from arbitrary and discriminatory actions.

7. **Permits**. Applications for both state and local government permits should be processed in a timely and fair manner to ensure predictability.

8. **Natural resource industries**. Maintain and enhance natural resource-based industries, including productive timber, agricultural, and fisheries industries. Encourage the conservation of productive forest lands and productive agricultural lands, and discourage incompatible uses.

9. **Open space and recreation.** Encourage the retention of open space and development of recreational opportunities, conserve fish and wildlife habitat, increase access to natural resource lands and water, and develop parks.

10. **Environment.** Protect the environment and enhance the state's high quality of life, including air and water quality, and the availability of water.

11. **Citizen participation and coordination.** Encourage the involvement of citizens in the planning process and ensure coordination between communities and jurisdictions to reconcile conflicts.

12. **Public facilities and services.** Ensure that those public facilities and services necessary to support development shall be adequate to serve the development at the time the development is available for occupancy and use without decreasing current service levels below locally-established minimum standards.

13. **Historic preservation.** Identify and encourage the preservation of lands, sites, and structures that have historical or archaeological significance.

SUPPLEMENTAL REQUIREMENT CHECKLIST

This application shall contain and/or address the following in a clear, accurate and intelligible form. Submit this checklist with your application. Check the box for each item addressed. Provide an explanation for any unchecked item.

Applicant Use	USE BLACK or BLUE INK ONLY	Staff Use Only
☐	1. One 8.5" x 11" or 11" x 17" map, drawn to scale, using a standard interval of engineer scale, which shall include the following:	☐
☐	a. All information drawn to scale (standard engineer scale).	☐
☐	b. A north arrow, map scale, date and directions to the site.	☐
☐	c. Property line boundaries and dimensions for <u>all</u> property lines.	☐
☐	d. The location of all existing structures, including, but not limited to, mobile homes, houses, sheds, garages, barns, fences, culverts, bridges, and storage tanks.	☐
☐	e. All means, existing and proposed vehicular and pedestrian ingress and egress to and from the site, such as driveways, streets and fire access roads, including existing road names and existing county and state right-of-way.	☐
☐	f. The location of all existing easements.	☐
☐	g. The location of all existing public and on-site utility structures and lines, such as on-site septic tanks, drainfield and reserve areas, water lines, wells and springs.	☐
☐	h. Vicinity map, at a scale of not less than three (3) inches to the mile, indicating the boundary lines and names of adjacent developments, streets and boundary lines of adjacent parcels, and the relationship of the proposed development to major roads and highways.	☐
☐	i. Location of critical areas or buffers affecting the site, both on-site and on adjacent properties, including but not limited to shorelines, wetlands, streams, flood zones, high groundwater, steep slopes and special habitats.	☐
☐	2. Special reports (may include wetland delineation, geotechnical report, mitigation plan, or other).	☐

Site Specific Amendments to Land Use Designations

C. How have conditions changed so that the proposed designation is more appropriate than the existing designation?

When Policy E.5 was established, there was a misconception that RAP processing or storage might pose a threat to water quality. Much research has been done since Policy E.5 was put into place and it is clear that the storage, processing, and recycling of RAP is a safe and environmentally responsible activity. There are no other jurisdictions that we operate in where recycling RAP is prohibited. In fact, local jurisdictions are moving toward, or in some cases have already passed, ordinances mandating recycle of RAP (see City of Seattle Ordinance #123553, Attachment 4). Thurston County Resolution No. 13755 encourages the County to "demonstrate leadership by incorporating environmentally sustainable practices into its operations that preserve natural resources, conserve energy, eliminate waste and emissions, and lessen overall environmental impact"(Attachment 4). Current recycling technology comprises introduction of sized RAP into new asphalt mix when it is produced. This technology reduces the use of petroleum, reduces demand on limited aggregate resources, and conserves landfill space. The Department of Ecology along with numerous other state and local agencies recognize the value of recycling RAP and have provided Lakeside with letters of support for this Text Amendment (Attachment 5).

All Amendments

Note: Responses to the following section are required. Attach additional sheets as needed.

1. Explain why the change is needed. What issue or problem is resolved by the proposed change?

The NSAP was adopted in November, 1992 and was updated in 1997. Policy E.5 (see Attachment 1 current and proposed text) was inserted at a time when it was wrongly believed that reprocessing of asphalt might affect water quality.

When Lakeside first applied for a Special Use Permit (SUP) for the Durgin Road site, a SEPA Environmental Threshold Determination was issued – in this case, a Mitigated Determination of Non-Significance (MDNS). Storage, processing, and recycling of RAP use was evaluated under that MDNS. No adverse effects were identified.

Both the Thurston County Health Department and the Department of Ecology recognize that RAP does not pose a threat to groundwater quality, as currently (and erroneously) stated in Policy E.5. RAP is hot-mix asphalt that has been previously placed as road surface, removed, and crushed. By using RAP instead of fresh aggregate and asphalt cement (a petroleum product comprising the heaviest fraction of a barrel of crude oil) Lakeside effectively conserves those two natural resources at a 1:1 ratio.

Lakeside generates approximately 20 tons of excess hot-mix asphalt per day during normal startup and shutdown operations. Since Policy E.5 restricts recycling, Lakeside must pay for the excess asphalt to be trucked off-site to a location within Thurston County outside the Affected Geographic Area and pay a

tipping fee for disposal of this recyclable product. All other asphalt plants located within Thurston County simply recycle the excess hot-mix asphalt on-site.

Asphalt pavement is 100% recyclable, results in 0% waste, and natural resource and environmental agencies across the nation encourage the use of recycled products wherever possible. Recycling is especially critical during times of high oil prices and recession economic conditions.

Acceptance of this proposal is necessary to rectify a problem in Policy E.5 of the NSAP. This policy runs counter to current environmental science, thinking regarding recycling, and sustainable policies.

2. How would the proposed change serve the interests of not only the applicant, but the public as a whole?

The proposed text amendment would allow Lakeside to use an existing material, RAP, in the production of new hot-mix asphalt thereby reducing the total amount of natural resources required. Petroleum and aggregates that would otherwise be needed to produce new asphalt, would be directly replaced with RAP on a 1:1 basis. For every 10 tons of RAP used, 9.5 tons of aggregate and 0.5 tons of asphalt cement are conserved. Recycling in this manner is the responsible thing to do. We at Lakeside believe that we have an obligation to pursue the use of recycled materials, RAP, wherever possible.

Recycling RAP serves both the interest of Lakeside and the public. Lakeside brings demolished pavement to a Lakeside facility, grinds it up and reuses it in the asphalt production process. By recycling, Lakeside sees a reduction in expenditure of company resources for every ton of RAP that is recycled and passes the savings on to the public through reduced bid cost for public transportation paving projects. Secondly, RAP is used by all other operating asphalt plants in the vicinity of Thurston County. Allowing the use of RAP at our Durgin Road plant will allow Lakeside to be more competitive in a marketplace where recycling asphalt is already the norm. Using RAP will serve to reduce overall cost and will allow Lakeside to create more jobs.

Asphalt pavement is 100% recyclable and produces 0% waste. The interests of the public are further served in the following ways:

1. Recycling RAP reduces the amount of new asphalt cement (AC) used (a petroleum product) because as noted above, the AC that is already in the RAP is incorporated directly into the new mix. There is a commensurate reduction in the total amount of AC consumed. That reduction translates into an overall reduction in the need to drill, refine, and transport new petroleum.
2. Previously mined aggregates are reused. This reduces the total amount of aggregate consumption and preserves resources for future generations.
3. Any RAP that is reused is effectively removed from the waste stream. It should be understood that these are very large amounts of reclaimed asphalt typically measured in the hundreds of thousands of tons. This is RAP that would otherwise go into a landfill. Unlike most other recyclables, very little additional energy is required to recycle RAP. It is simply ground up and introduced into the already heated mix. No chemicals or additives are used.

4. Using RAP does not create any adverse (new or different) environmental impacts. In fact, the only impacts that are created are beneficial as outlined herein. As noted elsewhere in this document, Lakeside's new Durgin Road plant underwent extensive environmental review during the SUP and SEPA processes. Use of RAP was fully evaluated in that review because it was always assumed that it would be stored and processed.
5. Use of RAP will result in a boon to the taxpayer because it will allow Lakeside to be more competitive with other local hot-mix asphalt manufacturers. Lower material costs can then be passed along in the form of lower bids and lower final costs on projects, thus saving taxpayer dollars. Furthermore, saving tax dollars allows more projects to be constructed which generates more jobs in Thurston County.
6. Recycled asphalt pavement is stored in stockpiles prior to use. Although there are no specific treatment requirements for storm water contacting RAP alone due to the inert nature or RAP, Lakeside provides additional storm water collection and treatment controls to ensure protection of the environment.
7. In accordance with the MDNS, there will be no impact on traffic.
8. Recycled asphalt pavement is used successfully all over the world and Lakeside uses it at all other Lakeside Divisions without any negative impacts – only positive ones.
9. The Department of Ecology supports the use of recycled asphalt pavement (see Attachment 5) and revising Policy E.5 of the NSAP is entirely defensible. In fact, failure to recognize the efficiencies and net positive effects of RAP use is indefensible.

3.Explain how the proposed amendment fulfills the goals of the Washington State Growth Management Act (RCW 36.70A.020). A list of the goals is attached.

This proposal is for a minor text amendment, but it is responsive to the goals of the GMA in very pronounced ways. In particular, this amendment is responsive to *Goal 10 – Environment*, because using recycled asphalt pavement is an environmentally responsible and defensible alternative to placing the RAP in a landfill. It is also responsive to Goal 10 for all of the reasons detailed in our response to No. 2 above. This proposal is also responsive to *Goal 8 – Natural Resource Industries* because it will help to maintain a healthy (and necessary) mineral extraction industry by conserving resources as detailed above. This leads to *Goal 3 – Transportation*, and *Goal 5 - Economic Development*, respectively. Roads cannot be constructed or maintained without a significant source of aggregate and hot-mix asphalt. Economic growth, including growth in housing, retail, and commercial sectors cannot occur without adequate roads and infrastructure. Roads and infrastructure cannot be built without aggregate and asphalt production. These two products are naturally associated and are typically produced together at the same location. The Thurston County Zoning Code (TCZC) specifically permits both aggregate mining and asphalt production at the same site. Interestingly, the TCZC also specifically allows reprocessing (recycling) of asphalt pavement at these same sites. Only the NSAP currently restricts the use of recycled asphalt pavement. Finally, the use of recycled asphalt pavement saves the taxpayers of Thurston County increasingly scarce funds that would otherwise be spent on new aggregate and petroleum. This is directly responsive to *Goal 5 – Economic Development* of the GMA because it

preserves scarce funds for all other economic activity e.g. consumer spending, property development, and consumer credit.

4. Explain how the proposed amendment is consistent with the policies of the Thurston County Comprehensive Plan, including any policies of an applicable joint plan or Subarea plan. (Be sure to review the Transportation Chapters.)

The proposed text amendment is consistent with the policies of the Thurston County Comprehensive Plan (TCCP) for many of the same reasons that it is consistent with the GMA. The proposal seeks to change a policy that was put in place as part of the TCCP – Nisqually Sub-Area Plan at a time when less emphasis was placed on recycling and when it was falsely assumed that using recycled asphalt pavement might have an impact on water quality. With this text amendment, the TCCP will be updated to allow for recycling RAP which is an activity that is actively encouraged by the DOE and that has already been vetted under SEPA.

Specifically, this proposal is consistent with and responsive to *Chapter 3 – Natural Resource Lands*, because it will help to maintain mineral extraction as a vital part of Thurston County's nature resource-based economy. This proposal is responsive to Chapters 4, 5 and 8, Housing, Transportation and Economic Development, respectively, because aggregate and asphalt pavement are essential construction materials and by recycling asphalt we can reduce construction costs. In that sense, this proposal is directly and critically responsive to *Chapter 8 – Economic Development.* This proposal is particularly germane to Chapter *9 – Natural Environment* because it seeks to revise a policy that is absolutely contrary to the GMA's goals with respect to conservation of natural resources and use of recycled materials wherever possible. It would be irresponsible to continue a practice that leads to overconsumption of natural resources such as petroleum and aggregates when there is a recycling alternative. Policy E.5 is contrary to all current thinking regarding environmental protection and natural resource conservation; therefore, the text amendment should be approved.

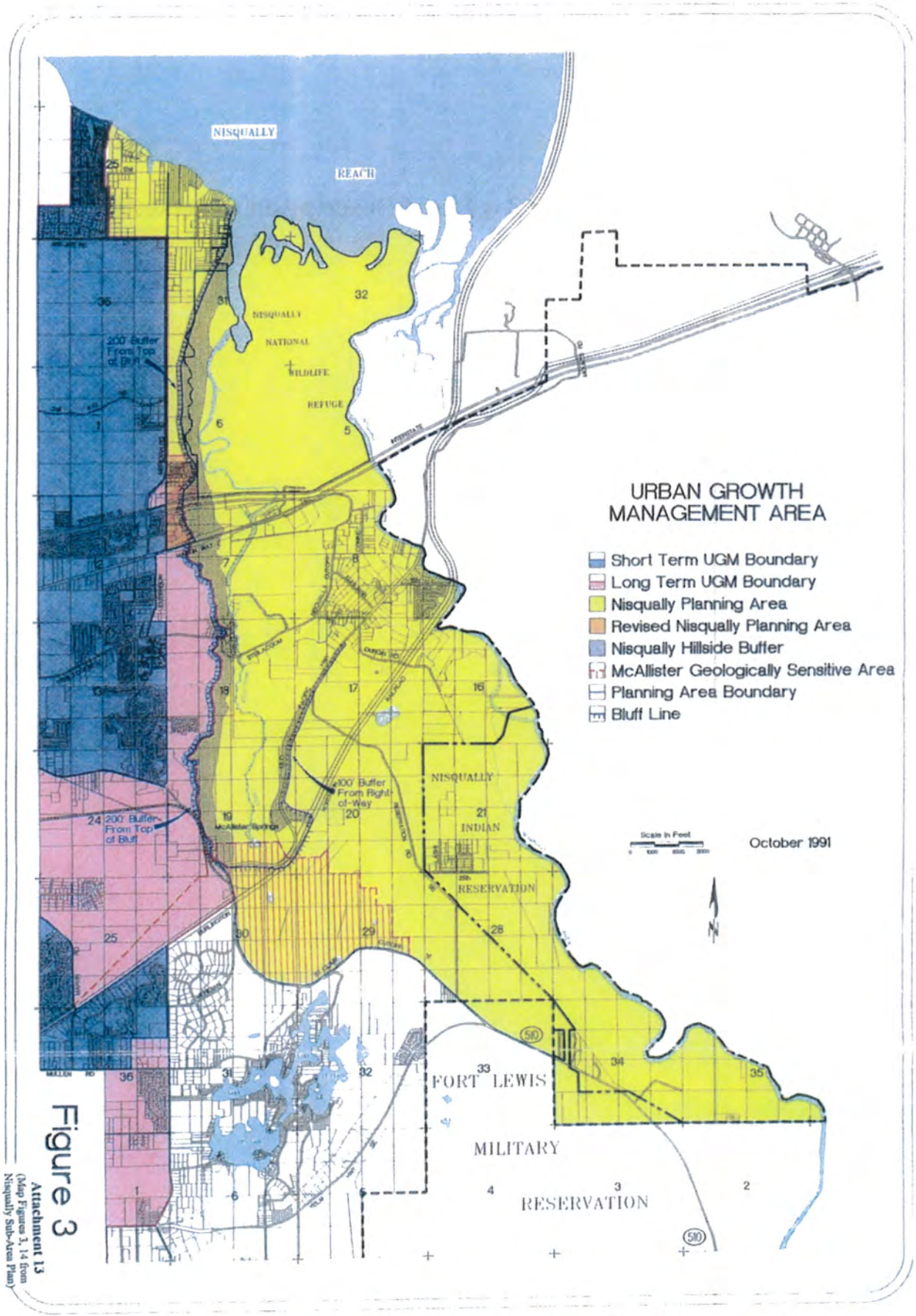

Figure 3

Attachment 13
(Map Figures 3, 14 from Nisqually Sub-Area Plan)

NISQUALLY PLANNING AREA

Attachment 3 – Legal Description of Lakeside Site

Thurston County Assessor

Parcel Number: 21817140200

Date: 11/14/2016

Situs Address:	11125 DURGIN RD SE	**Sect/Town/Range:**	17 18 1E
Owner:	NIELSEN PACIFIC LTD	**Size:**	24.98 Acres
Address:	7216 LAKEWOOD DR W TACOMA, WA 98467	**TCA Number:**	239
		Neighborhood:	7101
Taxpayer:	NIELSEN PACIFIC LTD	**Property Type:**	IND
Address:	7216 LAKEWOOD DR W TACOMA, WA 98467	**Taxable:**	YES
		Active Exemptions:	None
		Fire District:	FIRE DISTRICT #03
Abbreviated Legal:	Section 17 Township 18 Range 1E Quarter SW NE NW SE BLA980097 TRB Document 3151588	**School District:**	NORTH THURSTON S.D. #3
Associations:	99002086069 LAKESIDE INDUSTRIES	**Water Source:**	PUBLIC
		Sewer Type:	SEPTIC

Market Values

Tax Year	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Assessment Year	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
Market Value Land	$396,700	$299,650	$424,550	$424,550	$491,300	$491,300	$544,150	$419,200	$397,900	$351,250
Market Value Buildings	$1,083,700	$705,100	$868,300	$867,200	$772,900	$750,200	$840,200	$1,032,500	$441,700	
Market Value Total	**$1,480,400**	**$1,004,750**	**$1,292,850**	**$1,291,750**	**$1,264,200**	**$1,241,500**	**$1,384,350**	**$1,451,700**	**$839,600**	**$351,250**

Commercial Structures

Building	Year Built	Floor	Square Feet	No. Floors	Total Sq. Ft.	Quality	Condition
2496	2007				0	FAIR	AVERAGE

					0		
COM-GRGE-SVC	2008				0	AVERAGE	AVERAGE

					0		
STORAGE-WHSE	2008				0	FAIR	AVERAGE

					0		
STORAGE-WHSE	2008	1	1220	1	1220	FAIR	AVERAGE
		1	2496	1	2496		
		1	6561	1	6561		

					10277		

Detached Structures

Structure	Year Built	Square Feet	Quality	Condition
PVNG-CONCRTE	2007	1090	FAIR	AVERAGE
PVNG-ASPHALT	2007	89000	FAIR	AVERAGE

Land Characteristics

Land Flag	8040	**Land Influence(s)**	ST-STEEP-TOPO NS-NO SITE IMPRV PE-PR EXPOSURE FA-FAIR ACCESS LT-LIGHT TRAFFIC
Lot Square Footage	Not Listed		
Lot Acreage	24.98		
Effective Frontage	Not Listed		
Effective Depth	Not Listed		
Water Source	Public		
Sewer Source	Septic		

Office of the Assessor
Steven J. Drew, Assessor
2000 Lakeridge Drive SW - Olympia, WA 98502
Customer Service (360)867-2200 -- Fax (360)867-2201 -- TDD (360)754-2933

Attachment 4 – City of Seattle Ordinance # 123553
Thurston County Resolution #13755

RESOLUTION NO. 13755

A RESOLUTION approving the Environmental Sustainability Policy to replace the Recycle Product Procurement Policy.

WHEREAS, the growth of Thurston County's economy and the quality of life, health, and safety of its citizens are dependent on the careful stewardship of natural resources and protection of the environment; and

WHEREAS, the daily activities and routine operations of the County have a significant impact on the quality of Thurston County's environment and use of its natural resources; and

WHEREAS, the County is a highly visible model for Thurston County's citizens, businesses, industries, and local governments; and

WHEREAS, the County can demonstrate leadership by incorporating environmentally sustainable practices into its operations that preserve natural resources, conserve energy, eliminate waste and emissions, and lessen overall environmental impact; and

WHEREAS, waste source reduction, reuse, and recycling constitute key components of environmental sustainability; and

WHEREAS, the County is a large consumer of goods and services, which, in the course of their manufacture, use, and disposition impact the quality of the environment; and

WHEREAS the procurement of environmentally sound goods and services by the County can serve to protect health and safety, reduce energy consumption, conserve natural resources, prevent pollution, and promote markets for recyclable materials.

NOW, THEREFORE, THE BOARD OF COUNTY COMMISSIONERS OF THURSTON COUNTY, STATE OF WASHINGTON DOES RESOLVE AS FOLLOWS:

Section 1. PURPOSE. This Resolution strongly recommends that all County Departments and Offices maximize their efforts to develop and implement environmentally sustainable policies and practices. Specifically, agencies will strive to:

a. consider and minimize the environmental impacts associated with construction, facility management, and employee transportation;

b. reduce and recycle material recoverable from solid waste originating at their facilities and from new construction and renovation of existing facilities;

c. procure goods and services that reduce the impact on human health and the environment, including products made wholly, or in part, from the least toxic ingredients and highest (post-consumer content) recycled materials; and,

d. encourage and promote conservation of energy through reducing wasteful, inefficient or uneconomical uses of energy resources and to procure the most energy efficient products available for county buildings.

Section 2. RESPONSIBILITIES OF COUNTY AGENCIES.

a. County Departments and Offices, all part of or under the Board of Thurston County Commissioners, (herein known as agencies), will be responsible for implementing programs to make their operations environmentally sustainable, including, but not limited to, programs to reduce and recycle solid wastes and procure environmentally preferable goods and services. Such programs will be consistent with and as comprehensive as described in this Resolution.

b. Each agency will designate an Environmental Sustainability Coordinator to direct sustainability activities including coordinating and overseeing its waste reduction, recycling, and environmental procurement programs, and serving as a liaison with the Department of Water and Waste Management, Solid Waste Team (Solid Waste) and Public Health and Social Services, Environmental Health Division (Environmental Health) who oversee the program.

c. Solid Waste and Environmental Health will provide technical assistance, education, and training to agencies on these matters. The Solid Waste Division will serve as a central point of information and coordination for all agency environmental sustainability efforts.

d. As provided in this Resolution, the agencies will aggressively explore opportunities for procuring goods and services that have a lesser or reduced effect on human health and the environment.

Section 3. ENVIRONMENTALLY SUSTAINABLE OPERATIONS AND PRACTICES.
Agency environmental sustainability efforts will focus primarily on the operations of County-owned facilities and leased spaces. Agencies will assess the impacts of facility daily operations, management, and capital improvement projects as they pertain to health and safety, environmental quality, land use, and resource conservation.

a. Capital improvements: Agencies will seek opportunities to reduce environmental impacts associated with capital improvements throughout project planning, site and building design, and construction. Agencies will implement project initiatives or modifications that result in energy efficiency, water conservation, pollution prevention, solid waste reduction, and preservation of land and native plants during the construction and operation of agency facilities. This will be accomplished by requiring that all new public buildings of more than 5,000 square feet, as well as major renovation projects, meet the US Green Building Council's Leadership in Environmental Design (LEED) Silver standards, as is now required for all Washington State buildings, pursuant to Senate Bill 5509 signed into law on April 8, 2005.

b. Facilities management: Agencies will seek to integrate into the daily operations and management of County-owned and leased facilities, practices that enhance health and safety, reduce consumption of energy and fuels, conserve water, minimize emissions, and reduce solid and hazardous wastes. Agencies will give consideration to these practices, to the extent feasible and practicable, as criteria for entering into lease agreements or contracts for maintenance and landscaping services. Agencies will utilize the US Green Building Council's Leadership in Environmental Design (LEED) Existing Building Operations Rating System as a guideline for measuring operations, improvements, and maintenance on a consistent scale.

c. County Vehicle Maintenance: County fleet maintenance will include available product alternatives that meet required automotive specifications, which may include, but are not limited to: aqueous parts cleaning and brake washing, recycled antifreeze, re-refined motor oil, alternative fuels, lead-free wheel weights, and retread tires.

Section 4. SOURCE REDUCTION AND RECYCLING OF SOLID WASTES.

a. Source reduction: To encourage reduction of waste at its source, Agencies will review their operations to determine where solid waste can be reduced at its source. Specific measures agencies will employ to reduce waste at the source include, but are not limited to, those identified in this Section.

(1) Reduction of office paper waste

(a) Printing and photocopying: agencies will avoid unnecessary printing or photocopying of printed materials, and will require two-sided copying on all documents, when feasible, and practicable. To the extent feasible, all new and re-manufactured photocopy machines and laser printers purchased will have duplexing capabilities.

(b) Use of electronic communication: agencies will, to the extent feasible, use electronic media such as voice mail, e-mail, servers, and the Internet to circulate or distribute routine announcements, memoranda, documents, reports, forms, manuals, and publications.

(2) Product necessity, durability, packaging, and recyclability: agencies will discourage the use of disposable products where reusable products are available and economically viable for use. Furthermore, agencies will assess their waste generation with regard to purchasing decisions and make every attempt to purchase items only when needed and in amounts that are not excessive. When purchases are necessary, agencies will, to the extent feasible and practicable, acquire items that are more durable, have minimal packaging, or are readily recyclable or re-useable when discarded.

b. Collection programs for recyclable materials.

(1) Agencies, with assistance from Solid Waste, will ensure that employees have access to containers for recycling (at a minimum) aluminum cans, high-grade office paper, and corrugated cardboard.

(2) agencies' facilities that routinely host the general public, will implement programs for the collection of recyclable materials discarded by the public at all such locations (e.g., aluminum, glass, and plastic beverage containers). Agencies will work closely with the appropriate local government agencies and Solid Waste when developing and implementing these recycling programs.

(3) Agencies that operate or contract for the operation of food service establishments for the public, employees, and/or inmates (snack bars, cafeterias, dining halls, etc) are encouraged to implement programs to recover and recycle leftover food and to eliminate the use of disposable dishes and utensils when practicable and feasible. When disposable food service items must be used, alternatives to expandable polystyrene (commonly known by the trade name Styrofoam) will be used.

c. Education of agency employees: It will be the duty of each agency to educate and encourage employee participation in agency waste reduction and recycling programs. Solid Waste and Environmental Health will assist agencies in developing and implementing educational programs.

Section 5. PURCHASE AND USE OF ENVIRONMENTALLY PREFERABLE PRODUCTS. As a component of their environmental sustainability efforts and to help develop markets for recyclable materials, agencies will procure and use environmentally preferable goods and services, including products made wholly or in part from least toxic ingredients or recycled materials, whenever feasible and practicable. Environmentally preferable products have a lesser or reduced effect on human health and the environment in their manufacture, use, and disposal when compared with other products that serve the same purpose. Agencies will give consideration to environmentally preferable products that are more energy efficient, least toxic, less polluting, and which generate less waste overall. For all purchases, the Thurston County purchasing and contracting policies, located in the Thurston County Administrative Manual, must be followed.

a. Purchases of environmentally preferable and recycled-content products

(1) With assistance provided by Solid Waste and Environmental Health, agencies will identify environmentally preferable goods and services and products made from recycled materials highest in post-consumer content that meet appropriate standards for use by County agencies. When environmentally preferable and recycled-content products are offered that are comparable in quality, availability, and price to products not having environmental attributes, the environmentally preferable products will be purchased.

(2) All agencies will require all businesses to provide, in writing, the minimum percentage, if not the exact percentage, of postconsumer and secondary materials in the applicable products, goods, or supplies offered or sold. With this information and their own research, Solid Waste and Environmental Health will prepare an electronic listing of environmentally preferable and recycled-content products sources and make it available to all County staff via the Intranet.

(3) With assistance provided by Solid Waste and Environmental Health, agencies will utilize product specifications that encourage vendors to offer environmentally preferable and recycled-content products. Specifications will be written to ensure that they do not contain restrictive language or other barriers to purchasing environmentally preferable or recycled-content products, unless such specifications are necessary to protect public health, safety, or welfare.

(4) All electronic office equipment, including but not limited to computers, monitors, printers, scanners, photocopy machines, facsimile machines, and other such equipment purchased by County agencies will be Energy Star® compliant.

(5) Agencies will give priority consideration to the purchase of fleet vehicles that use less-polluting fuels and that have the highest available miles-per-gallon rating.

b. Purchases of recycled paper

(1) Agencies are directed to purchase and use a minimum of 30% recycled content, bleach-free paper for all letterhead stationery, reports, memoranda, and other documents, used by County staff or printed by County or outside vendors when feasible and practicable. All new and re-manufactured photocopy machines and laser printers purchased will have the ability to use xerographic paper having at least 50% recycled content, 30% of which should be post-consumer content.

(2) Agencies will attempt to meet the goal that 100% of the total dollar value of expenditures for paper and paper products be toward purchases of paper and paper products with recycled content when recycled content is available. In addition, County agencies will attempt, to the extent feasible and practicable, to purchase recycled paper and paper products with the highest percentage of post consumer content.

c. Guidelines and criteria: Solid Waste and Environmental Health will develop criteria for determining the environmental preferability of goods and services and

establish minimum content standards for recycled-content products purchased by agencies utilizing state and federal guidelines.

Section 6. REPORTING.

a. Agency annual reports on solid waste reduction and procurement of recycled products: By the first of March annually, each agency will report to Solid Waste for the previous fiscal year the following information, at a minimum: activities or programs implemented to reduce the amount of solid waste generated by the agency; recycling programs and types of materials collected by the agency; and the dollar amounts and types of recycled/less toxic products purchased. Solid Waste will provide a blank reporting form to the agencies in order to assist them.

b. Annual progress report to the Board of County Commissioners: Solid Waste will compile the agency data and provide to the Board of County Commissioners an annual progress report on County agency efforts to reduce waste at the source, collect recyclable materials, and procure recycled products, which will be delivered to the Board in April of the following fiscal year.

c. Tracking recycled products procurement: Central Services Support Services will review the County's sales report procedures and determine any changes needed to facilitate tracking of environmentally preferable and recycled products purchased by County agencies.

Section 7. EFFECT OF OTHER RESOLUTIONS.

The Recycle Product Procurement Policy #38.i of June 5, 1995 is hereby rescinded.

ADOPTED: February 12, 2007

ATTEST:

Clerk of the Board

APPROVED AS TO FORM
EDWARD G. HOLM
PROSECUTING ATTORNEY

By: Jeff Fancher
Deputy Prosecuting Attorney

BOARD OF COUNTY COMMISSIONERS
Thurston County, Washington

DIANE OBERQUELL, Chairman

ROBERT N. MACLEOD, Commissioner

CATHY WOLFE, Commissioner

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Ordinance No. 123553

Council Bill No. 117111

AN ORDINANCE relating to the solid waste system of Seattle Public Utilities; prohibiting certain recyclable concrete, bricks, and asphalt paving from disposal in construction and demolition garbage containers and railhead intermodal containers, as well as at the City's transfer stations; establishing enforcement provisions; adding Section 21.36.089 to the Seattle Municipal Code; and amending Section 21.36.922.

Related Legislation File:

Date Introduced and Referred: 2.22.11	To: (committee): Seattle Public Utilities + Neighborhoods
Date Re-referred:	To: (committee):
Date Re-referred:	To: (committee):
Date of Final Action: 3/7/11	Date Presented to Mayor: 3/8/11
Date Signed by Mayor: 3.10.11	Date Returned to City Clerk: 3.10.11
Published by Title Only X Published in Full Text	Date Vetoed by Mayor:
Date Veto Published:	Date Passed Over Veto:
Date Veto Sustained:	Date Returned Without Signature:

The City of Seattle – Legislative Department

Council Bill/Ordinance sponsored by: [signature]

Committee Action:

Date	Recommendation	Vote
2/25/11	Yes: MOB, RC, BH	[illegible]

This file is complete and ready for presentation to Full Council.

Full Council Action:

Date	Decision	Vote
3/7/11	PASSED	8-0 (excused: Burgess)

LAW DEPARTMENT

Gabriella Uhlar-Heffner
SPU Disposal Ban on Concrete, Bricks, and Asphalt Paving ORD
February 6 , 2011
Version #4a

ORDINANCE 123553

AN ORDINANCE relating to the solid waste system of Seattle Public Utilities; prohibiting certain recyclable concrete, bricks, and asphalt paving from disposal in construction and demolition garbage containers and railhead intermodal containers, as well as at the City's transfer stations; establishing enforcement provisions; adding Section 21.36.089 to the Seattle Municipal Code; and amending Section 21.36.922.

WHEREAS, City Council Resolution 30990 established new recycling goals for the City and provided direction on waste reduction and recycling programs, including those for construction and demolition wastes; and

WHEREAS, City recycling surveys have found aggregate materials, such as concrete, bricks, and asphalt paving, constitute a significant amount of construction and demolition waste material; and

WHEREAS, City recycling surveys have also found well-established, local end-markets are capable of providing for the reuse and recycling of such concrete, bricks, and asphalt paving; and

WHEREAS, since 1993 the City has required concrete, cement concrete and asphalt recycling in City public works projects; NOW, THEREFORE,

BE IT ORDAINED BY THE CITY OF SEATTLE AS FOLLOWS:

Section 1. A new Section 21.36.089 of the Seattle Municipal Code is added as follows:

21.36.089 Concrete, bricks, and asphalt paving -- recycling required

A. Recycling Required. As of January 1, 2012, all construction and demolition sites shall separate out readily recyclable concrete, bricks, and asphalt paving for reuse on or off site and/or recycling, and such quantities of concrete, bricks, and asphalt paving shall not be deposited in construction and demolition site garbage containers for disposal at a public or private transfer station, railhead intermodal containers, or in the garbage disposal areas at the City's Recycling and Disposal Stations after that date.

B. Enforcement.

1. As of January 1, 2012, the Director of Seattle Public Utilities shall begin a program of educational outreach regarding these new recycling requirements.

2. As of January 1, 2013, civil infractions shall apply to any violation of this section pursuant to Section 21.36.922.

C. Exceptions. The recycling requirement will not apply where concrete, bricks, and asphalt paving are painted, have hazardous constituents, are difficult to separate from other materials (such as wood), are present only in very small quantities, or are generated during disaster emergency situations where disaster debris needs to be removed quickly and recycling options are not available.

Section 2. Section 21.36.922 of the Seattle Municipal Code is amended as follows:

21.36.922 Civil Infractions ((:))

A. The violation of or failure to comply with any section of this chapter identified in this section is designated as a civil infraction and shall be processed as contemplated by RCW Chapter 7.80.

B. The violation of or failure to comply with <u>any of</u> the following section<u>s</u> is a Class 1 civil infraction under RCW 7.80.120:

((~~SMC~~)) Section 21.36.415 (Discarding potentially dangerous litter), except that the maximum monetary penalty and default amount is ((~~Five Hundred Dollars ($500.00)~~))<u>$500</u>, not including statutory assessments

((~~SMC~~)) Section 21.36.420 (Unlawful dumping of solid waste)

((~~SMC~~)) Section 21.36.084 (Prohibition on use of expanded polystyrene food service products)

((~~SMC~~)) Section 21.36.086 (Compostable or recyclable food service ware required)

Section 21.36.089 (Concrete, bricks, and asphalt paving -- recycling required)

C. The violation of or failure to comply with any of the following sections shall be a civil infraction and subject as a Class 3 civil infraction under RCW 7.80.120 to a maximum monetary penalty and default amount of ((~~Fifty Dollars ($50.00)~~))$50, not including statutory assessments:

((~~SMC~~)) Section 21.36.044 (Containers required -- Nonresidential)

((~~SMC~~)) Section 21.36.082 (Commercial recycling required)

((~~SMC~~)) Section 21.36.410 (Littering)

((~~SMC~~)) Section 21.36.425 (Accumulation of solid waste)

((~~SMC~~)) Section 21.36.430 (Unlawful use of City litter receptacles)

((~~SMC~~)) Section 21.36.440 (Unlawful use of solid waste container on private property)

* * *

Section 3. This ordinance shall take effect and be in force 30 days after its approval by the Mayor, but if not approved and returned by the Mayor within ten days after presentation, it shall take effect as provided by Seattle Municipal Code Section 1.04.020.

Passed by the City Council the 7th day of March, 2011, and signed by me in open session in authentication of its passage this 7th day of March, 2011.

President _____ of the City Council

Approved by me this 10th day of March, 2011.

Michael McGinn, Mayor

Filed by me this 10th day of March, 2011.

City Clerk

(Seal)

Gabriella Uhlar-Heffner
SPU Disposal Ban on Concrete, Bricks and Asphalt Paving FISC
February 6, 2011
Version #4

Form revised: August 9, 2010

FISCAL NOTE FOR NON-CAPITAL PROJECTS

Department:	Contact Person/Phone:	CBO Analyst/Phone:
Seattle Public Utilities	Gabriella Uhlar-Heffner/6-9772	Karen Grove/4-5805

Legislation Title: AN ORDINANCE relating to the solid waste system of Seattle Public Utilities; prohibiting certain recyclable concrete, bricks, and asphalt paving from disposal in construction and demolition garbage containers and railhead intermodal containers, as well as at the City's transfer stations; establishing enforcement provisions; adding Section 21.36.089 to the Seattle Municipal Code; and amending Section 21.36.922.

Summary of the Legislation: The proposed ordinance would ban the disposal of readily recyclable asphalt paving, bricks and concrete in construction and demolition (C&D) job site disposal containers, in railhead intermodal containers, and in the garbage disposal areas of the City's transfer stations beginning January 1, 2012.

Background: Council Resolution 30990 established new recycling goals for the City and provided direction on waste reduction and recycling programs, including programs for construction and demolition waste. Concrete and asphalt paving can comprise a significant percentage of the construction and demolition material generated in the city. City recycling surveys conducted from 2007 through 2009 found asphalt paving, bricks and concrete are recycled at a rate of about 90%. This legislation supplements a similar recycling requirement for concrete, cement concrete and asphalt generated in the process of City street, bridge, drainage or other public works projects performed by or under contract with the City.

SPU will inform construction and demolition contractors, building permit applicants and transfer station customers of these new requirements starting in the third quarter of 2011 and throughout 2012. Beginning on January 1, 2013, it will be a civil infraction to dispose of such materials.

Under the proposed legislation, exceptions to this recycling requirement would include concrete, bricks and asphalt paving materials which are painted, have hazardous constituents, or are combined with other materials where separation is difficult. The legislation also excludes concrete, bricks and asphalt paving present in only small quantities and when these materials are a component of disaster debris which needs to be removed quickly and where recycling options are not available.

Please check one of the following:

____ **This legislation does not have any financial implications.**
(Stop here and delete the remainder of this document prior to saving and printing.)

__X__ **This legislation has financial implications.** (Please complete all relevant sections that follow.)

Approval of this legislation would require SPU to perform outreach to customers and assign

commercial solid waste field inspectors to undertake periodic monitoring of construction site job containers and at the City transfer stations to ensure that significant quantities of recyclable concrete, bricks and asphalt paving are not being disposed. These new efforts can be incorporated into SPU's existing workload. SPU is not requesting new position authority or appropriation authority to perform this work.

What is the financial cost of not implementing the legislation:
No direct financial cost to the City.

Does this legislation affect any departments besides the originating department?
No, SMC 21.36.088 regarding "Concrete and Asphalt Recycling" already directs the recycling of concrete, cement concrete or asphalt generated in the process of City street, bridge, drainage or other public works whether those projects are performed by or under contract with the City.

What are the possible alternatives to the legislation that could achieve the same or similar objectives? Information is currently provided to interested construction and demolition contractors regarding recycling options for different materials through the King County/Seattle Construction Recycling Directory, the Resource Venture website and technical assistance hotline and the King County Green Tools website. These efforts could be strengthened.

Is the legislation subject to public hearing requirements: No.

Other Issues (*including long-term implications of the legislation*): None.

List attachments to the fiscal note below: None.

City of Seattle
Office of the Mayor

February 15, 2011

Honorable Richard Conlin
President
Seattle City Council
City Hall, 2nd Floor

Dear Council President Conlin:

I am transmitting the attached proposed Council Bill which would prohibit disposal of recyclable construction and demolition waste in construction and demolition site disposal containers, railhead intermodal containers, and the garbage disposal areas at Seattle's transfer stations.

Council Resolution 30990 established new recycling goals for the City and provided direction on waste reduction and recycling programs including those for construction and demolition waste. Concrete and asphalt paving can represent a significant amount of construction and demolition material generation. Seattle Public Utilities' recycling surveys have found asphalt paving, bricks and concrete have a high reuse and recycling rate of at least 90% with well established local end markets. This proposed disposal ban would supplement an existing requirement for the recycling of concrete and asphalt paving generated in the process of City street, bridge, drainage and other public works, whether those projects are performed by the City or under contract with the City. SPU will inform construction and demolition contractors, Department of Planning and Development permit applicants and City transfer station customers of these new requirements starting in the third quarter of this year. Beginning in 2013, it will be considered a civil infraction to dispose of such materials. The recycling requirement would not apply to asphalt, bricks and concrete materials that are painted, have hazardous components, or are combined with other materials. Also excluded from the recycling requirement are concrete, bricks and asphalt paving materials present in only small quantities.

This legislation is one more in a long series of steps Seattle is taking to reduce the volume of material generated in the city that ends up in a landfill. If you have any questions, please contact Hans VanDusen at 684-4657.

Sincerely,

Michael McGinn
Mayor of Seattle

cc: Honorable Members of the Seattle City Council

Michael McGinn, Mayor
Office of the Mayor
600 Fourth Avenue, 7th Floor
PO Box 94749
Seattle, WA 98124-4749

Tel (206) 684-4000
Fax (206) 684-5360
TDD (206) 615-0476
mike.mcginn@seattle.gov

STATE OF WASHINGTON – KING COUNTY

--ss.

268350 No. 123553-554

CITY OF SEATTLE,CLERKS OFFICE

Affidavit of Publication

The undersigned, on oath states that he is an authorized representative of The Daily Journal of Commerce, a daily newspaper, which newspaper is a legal newspaper of general circulation and it is now and has been for more than six months prior to the date of publication hereinafter referred to, published in the English language continuously as a daily newspaper in Seattle, King County, Washington, and it is now and during all of said time was printed in an office maintained at the aforesaid place of publication of this newspaper. The Daily Journal of Commerce was on the 12th day of June, 1941, approved as a legal newspaper by the Superior Court of King County.

The notice in the exact form annexed, was published in regular issues of The Daily Journal of Commerce, which was regularly distributed to its subscribers during the below stated period. The annexed notice, a

CT:TITLE ONLY ORDINANCE

was published on

03/15/11

The amount of the fee charged for the foregoing publication is the sum of $ 40.95, which amount has been paid in full.

Subscribed and sworn to before me on

03/15/11

Notary public for the State of Washington, residing in Seattle

Affidavit of Publication

Attachment 5 – Letters of Support

State of Washington, King County

City of Seattle

TITLE-ONLY PUBLICATION

The full text of the following resolutions, passed by the City Council on March 7, 2011, and published here by title only, will be mailed upon request, or can be accessed at http://clerk.seattle.gov. For further information, contact the Seattle City Clerk at 684-8344.

ORDINANCE NO. 123553

AN ORDINANCE relating to the solid waste system of Seattle Public Utilities; prohibiting certain recyclable concrete, bricks, and asphalt paving from disposal in construction and demolition garbage containers and railhead intermodal containers, as well as at the City's transfer stations; establishing enforcement provisions; adding Section 21.36.089 to the Seattle Municipal Code; and amending Section 21.36.922.

ORDINANCE NO. 123554

AN ORDINANCE appropriating money to pay certain audited claims and ordering the payment thereof.

Date of publication in the Seattle Daily Journal of Commerce, March 15, 2011.

3/15(268350)

Page 2 of affidavit

THURSTON COUNTY
WASHINGTON
SINCE 1852

RECEIVED
DEC 15 1992
THURSTON CO. PLANNING DEPT.

PUBLIC HEALTH AND
SOCIAL SERVICES DEPARTMENT

Patrick M. Libbey, Director
Diana T. Yu, MD, MSPH
Health Officer

December 15, 1992

Michael Kain
Thurston County Planning Department

Re: Policy statement - Asphalt/concrete recycling

Dear Mike,

This is a reply to your recent request for a position response from the health department with regard to site specific use for recycling of waste concrete and asphalt. After review and consultation with DOE and the initial examination of the Jone's Quarry S.U.P. for the on-site recycling of concrete and asphalt, our department has taken the approach that a waste asphalt recycling operation presents none to very minimal environmental health concerns.

Formerly, our department's greatest concern was the possibility of leaching PAH's from the asphalt materials to ground or surface waters. Present research and information suggests that this is not a serious problem as PAH's are basically insoluble in water and adsorb well to organic soils. If future information about asphalt indicates otherwise, then our department will reassess our current approach.

However, as a condition of issuance of a solid waste permit for such a facility, other parameters would need to be addressed:

1) the hydrogeological characteristics of the site would need to be assessed, ie., waste material would not be stored in a wetlands or flood plain area, nor should the material have direct contact with surface or groundwater or placed on excessive slopes.

2) all waste materials received at the site is to be quantified (by weight or volume) and the source of the material must be known. For instance, if the waste asphalt or concrete came from a known industrial site or petroleum spill, this material would not be suitable for recycling. The operator would be obligated to turn away the material or test the material prior to acceptance.

3) Surface water run-off at the site would need to be addressed.

Environmental Health Division: 2000 Lakeridge Dr. SW, Olympia, Washingt ATTACHMENT 3

The recycling of waste materials is also in concert with stated county and Washington State goals to divert waste items from landfilling to a more beneficial use. Asphalt and concrete recycling definitely support these goals and the county should be supportive if site specific proposals can meet the appropriate solid waste permitting criteria.

I hope this will help in future determinations about this issue. If you have further inquiries, please contact me at 786-5461.

Sincerely,

John Libby

John Libby
Solid Waste Program

cc: Gregg Grunenfelder
Jane Hedges

City of Olympia | Capital of Washington State
P.O. Box 1967, Olympia, WA 98507-1967

October 11, 2012

Mr. Dean Smith
Lakeside Industries
4825 88th Avenue SW
Olympia, WA 98512

Dear Mr. Smith:

SUBJECT: Letter of Support - Use of Recycled Materials in Hot Mix Asphalt

The City of Olympia supports the efforts of asphalt manufacturers to utilize and actively offer recycled asphalt materials, as long as the remanufacturing process meets all applicable Federal, State, and local regulations. By expanding the ability of asphalt manufacturers to utilize reclaimed asphalt and asphalt shingles, we increase the opportunity to divert waste from the landfill, moving us all toward a Zero Waste vision.

By way of background, in June 2006, the Olympia City Council adopted a Zero Waste Resolution. This resolution established a vision for the City, anticipating a future in which "waste" is viewed as an inefficient use of resources. Using reclaimed materials reduces the need for virgin resources and can greatly reduce construction costs.

Increasing the quantity of recyclable materials diverted from the landfill is one of three main goals found in Olympia's *Toward Zero Waste: Olympia's Waste ReSources Plan*. This vision supports the use of recycled materials such as recycled asphalt pavement (RAP) and Reclaimed Asphalt Shingles (RAS) wherever it meets State and Federal specifications, or as approved on locally funded projects.

The use of Recycled Asphalt Pavement (RAP) and Reclaimed Asphalt Shingles (RAS) is also in line with the State's waste reduction goals. The Washington State Department of Ecology (DOE) outlined five key initiatives in the *Beyond Waste Plan*. Recycling is a key foundation of all five initiatives and is vital to moving the State towards a goal of zero waste. One of these initiatives is Green Building. Specifically, element GB4 is to "expand capacity and markets for reusing and recycling construction and demolition materials." Among the list of areas to expand is to "Continue to build markets for salvaged and recycled building materials."

Washington State Department of Transportation (WSDOT) current hot mix asphalt (HMA) paving specifications allow contractors to use up to 20 percent RAP in new paving. In August of this year, a special provision was added that allows paving contractors to use reclaimed asphalt shingles (RAS) in select state hot mix asphalt (HMS) paving projects. Based on the above WSDOT actions, we believe the use of RAP and RAS will only increase in the coming years.

Olympia will continue to promote the use of reclaimed materials for construction projects and encourage other entities to remove barriers to the use of RAP and RAS in their paving projects.

If you have any questions, please contact me at 360.753.8422, or via email at feide@ci.olympia.wa.us.

Sincerely,

RICHARD T. HOEY, P.E.
Public Works Director
Public Works Department

ec: Fran Eide, P.E., City Engineer
Dan Daniels, Waste ReSources Director

FE/adst
\\Calvin\pw technical services\Administraton\Fran\ReclaimedAsphalt10-2012

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
P.O. Box 47600 • Olympia, Washington 98504-7600
(360) 407-6000 • TDD Only (Hearing Impaired) (360) 407-6006

January 30, 2006

Mr. James Hatch, P.G.
Director – Regulatory Affairs
Lakeside Industries
P.O. Box 7016
Issaquah, Washington 98027

Dear Mr. Hatch:

You have asked for our opinion on the use of recycled asphalt product (RAP) in making new asphalt. While Ecology would like to see less of the world paved, we still understand the need for paving work. Given that your company provides that material, we are very supportive of using RAP in your process.

Using RAP should decrease the need for newly mined aggregate, and reduce the amount of pitch needed. Both reductions are good for the environment.

Local government has primary authority for solid waste and planning. While we don't envision that local governments would not endorse the use of recycled materials, we leave local decisions in local hands.

Please call me at (360) 407-6103 if you have further questions.

Sincerely,

Cullen D. Stephenson, Program Manager
Solid Waste & Financial Assistance

NATIONAL ASPHALT
PAVEMENT ASSOCIATION

October 2, 2012

Mr. Scott Clark, Director
Thurston County Planning Department
2000 Lakeridge Drive SW
Olympia, WA 98502

Reference: *Notice of Availability for Public Comment*
Preliminary Docket of Comprehensive Plan Amendments for 2013
Proposed Tier One Amendments

Dear Mr. Davis:

This letter is in response to the above referenced public notice. The notice is of interest to me and the National Asphalt Pavement Association (NAPA) Membership as I was invited to testify as an expert witness before the Asphalt Advisory Task Force on October 23, 2007. Specifically, we would strongly encourage the Thurston County Planning Commission and the Thurston County Board of Commissioners to include in the *Official Docket* for consideration later this year, the *Tier One* proposed amendment to allow recycled asphalt pavement (RAP) by Lakeside Industries in the Nisqually planning area.

NAPA is the national association exclusively representing the Asphalt Pavement Producers and Paving Contractors in the U.S. with more than 1100 member companies. As a national association, we are known for providing credible technical and regulatory assistance to member companies, regulatory authorities, and others in matters relating to asphalt paving operations.

According to the U.S. EPA, the paving industry recycles or reuses about 70 million tons of asphalt pavement per year, making our industry among, if not the largest recycler in the nation. RAP is one of the most environmentally sustainable materials in the U.S. It is used in varying degrees in asphalt pavements in virtually every state in the nation. Because of its many sustainability attributes, the Federal Highway Administration has currently established an Expert Task Group (ETG) to assist with removing barriers to increasing the use of recycled asphalt in road construction nationally. In addition, RAP is up front and center as the U.S. House Science and Technology Subcommittee on Technology and Innovation deliberates the inclusion of sustainable technologies in future transportation reauthorization proposals.

ASPHALT.
AMERICA RIDES ON US.

5100 FORBES BLVD.
LANHAM, MD 20706

Toll Free 888.468.6499
Phone 301.731.4748
Fax 301.731.4621

AsphaltPavement.org
NAPA@AsphaltPavement.org

From an overall environmental sustainability perspective, recycled asphalt pavement is the right thing to do. The national track record and the science say that RAP does not present a leachate or an emissions problem. RAP conserves scarce natural resources in the form of virgin raw materials. RAP conserves scarce county and municipal landfill space. In addition, RAP reduces overall carbon footprint, a subject of much interest to the State of Washington and the Nation in the quest to address climate change. Simply stated, allowing recycled asphalt pavement is the right thing to do for the environment and for Thurston County.

We thank you for your consideration of this request and invite a continuation of a constructive dialogue with interested stakeholders.

Sincerely,

Gary Fore

R. Gary Fore
Retired Vice President–Environment, Health and Safety

Three Key Words

Reduce, Reuse, Recycle: three key words in the world of sustainability. You reduce by building to last and by not using as much material in the first place. You reuse by taking a material and returning it back to the same use. Recycling takes one material manufactured for a specific use and remanufactures that material for a different use.

Reduce

Reducing involves working to eliminate the need to replace what you have built. Building higher quality, longer lasting facilities reduces the need to regularly replace those facilities. Better roads and better bridges last longer, reduce the need for maintenance and repair, and reduce the consumption of resources.

WSDOT designs highways to be functional and durable. The basic infrastructure for any highway, the embankment and the roadbed, do not need replacement once built. The basic alignment and the roadbed beneath the pavement remain in place indefinitely.

Pavement Design

Asphalt pavement designs preserve the pavement structure by driving the distress to the surface. The surface course is easily replaced, leaving the pavement's base course and subbase course untouched. Today's asphalt pavement structures will not need to be rehabilitated for very long periods of time, exceeding 30 years or more. Asphalt pavement wearing surfaces last an average of 16 years on the west side of the mountains and over 12 years east of the Cascades.

WSDOT's concrete pavements have proven to be extremely durable. While making up only 9% of the state highway system, concrete pavements carry 32% of the truck miles and 35% of the total vehicle miles traveled. Today over 60% of our concrete pavements are 30 years old or older. Designed for a 20 year design life, these pavements now exceed their original design life by 50%. New concrete pavement designs use dowel bars to transfer loads between panels and are built thicker to handle greater traffic loads and to allow grinding of studded tire damage. These new designs should last 50 years or more.

Typical Pavement Structure. Only the top of surface course would be removed and replaced as it is worn by traffic; the rest of the pavement structure remains in place.

Making Old Pavement New Again

Dowel Bar Retrofit (DBR) extends the pavement life of old concrete pavements. Adding dowel bars and grinding old concrete pavement smooth adds years to the life of these pavements. Extending pavement life reduces consumption, improving sustainability, while also saving money. WSDOT is a nationwide leader in the design and implementation of dowel bar retrofits.

A contractor installs dowel bars into a slot on a Dowel Bar Retrofit project. The dowels strengthen the joint between concrete panels, transfering heavy truck loads from panel to panel.

Completed Dowel Bar Retrofit (DBR) Project. Finished DBR project shows typical markings where dowels were placed in the old concrete pavement, strengthening the pavement and extending its life.

Pavement Management

WSDOT's Pavement Management System (WSPMS) increases pavement life while providing pavements at the lowest life cycle cost. The lowest life cycle cost occurs when you replace the surface course just before it fails and causes damage to the pavement beneath. Replace the surface course too soon and pavement life is wasted. Replace the surface course too late and costly pavement repair becomes necessary. Each year we measure all WSDOT pavements for smoothness, structural condition and rutting to find that specific point of lowest life cycle cost. Knowing when to replace the surface course preserves the pavement, decreases resource use and increases sustainability.

Alternative Hydraulic Cements

Portland cement is a wonderful material: it creates the concrete that meets many needs in construction. Production of portland cement, though, produces significant quantities of greenhouse gases, both from the fuels used in the manufacturing and the CO2 driven off the minerals used to make portland cement. Alternative hydraulic cements allow WSDOT to reduce the amount of portland cement used while still producing a high quality, durable concrete. Many of the alternative cements were once categorized as hazardous wastes and were disposed of in landfills. Today, materials such as flyash, microsilica and ground, granulated blast furnace slag find uses in a wide variety of WSDOT concretes, reducing the need for greater quantities of portland cement.

LED Traffic Signal Heads

WSDOT aggressively updated signal heads from incandescent lamps to light emitting diode (LED) lamps, dramatically reducing energy consumption. LEDs are more durable and last much longer than incandescent lamps, saving even more money and reducing consumption, improving sustainability.

Warm Mix Asphalt: New Technology

Heating the aggregate and the asphalt binder to make asphalt pavement is expensive and consumes considerable fuel (diesel of lower grades of bunker fuel). Warm Mix Asphalt (WMA) uses special modifiers that lower the mixing temperature for asphalt. Decreases of 50° F or more are possible. We placed our first test section on I-90 in 2008 and more will follow.

Milling operation, removing worn asphalt wearing surface and hauling it back to the asphalt plant to be reused. Typically only the top two inches of the wearing surface are removed, leaving the rest of the pavement intact.

Reclaimed Asphalt Pavement (RAP) pile at an asphalt paving company yard.

A cold-in-place (CIP) recycling train.

Reuse

Reuse involves taking a material and returning it in place as the same material. Reuse differs from recycling by not altering the nature of the material. You reuse an aluminum pop can when it is turned into another pop can; you recycle aluminum foil when it is used to make new car parts.

Reclaimed Asphalt Pavement

Far and away, the greatest reused material in the USA is asphalt pavement. Nationwide, Reclaimed Asphalt Pavement (RAP) amounts to over 72 million tons, with another 18 million tons of asphalt pavement being recycled into other pavement materials.[1] As a comparison, in 1990, only about 20 million tons of paper and paperboard were recycled and only 2.6 million tons of glass.[2] In fact, in 1990 the total of all commonly reused materials (paper, glass, metals, plastics, rubber, textiles, wood and others) was only a little over 29 million tons, or less than half of the total RAP tonnage.[3]

WSDOT was an early leader in reusing asphalt pavements, beginning in the oil crisis years in the late 1970s. Our original trials used up to 90% RAP, but continued research showed that a more modest rate of 20% would yield good results without increasing the complexity of manufacturing the pavement. Today at this 20% rate, the Washington Asphalt Pavement Association reports that WSDOT is using all of the RAP it is producing through pavement rehabilitation.

RAP starts as old pavement, is milled from the road, crushed and sent through an asphalt plant and mixed with new aggregate and asphalt binder, to return to the road as new asphalt pavement. When that new pavement reaches the end of its useful life it will again be reclaimed.

Hot-In-Place (HIP) Recycling

Hot-In-Place (HIP) recycling (really reuse rather than recycling) is another technology being investigated by WSDOT. HIP performs the same function as RAP, but it is done in the field, while the pavement is still on the road. Large mobile heating plants heat the old roadway, milling machines grind the surface and mix it with additional asphalt and then it is compacted back onto the existing pavement. HIP has the potential to reduce trucking costs and environmental impacts by reusing the asphalt pavement right in the field.

Recycle

The final option for increasing sustainability is recycling: taking a material in one form and converting it to a material in another form.

Cold-In-Place Recycling

Cold-In-Place recycling reconditions low volume roadways, turning worn out pavement into sound new base. The pavement is milled in place, treated with a binding agent and compacted. This new, strong base is overlaid with either new asphalt pavement or a chip seal (sprayed liquid asphalt with rock chips embedded into it). The process is inexpensive and has been very successful.

Asphalt Shingle Recycling

Asphalt shingles present a possible opportunity for recycling, using the asphalt binder in the shingle to make new asphalt pavement. WSDOT's State Materials Lab is working closely with King County as they build a test project using recycled shingles. We will help with testing and analysis of the pavement and will help track its performance over time.

Plants and Compost

WSDOT salvages plants before the start of construction and uses them to restore other areas. Trees and logs are saved and converted to habitat features within streams, wetlands and other natural areas. We convert what was once waste plant material into mulch, placing it back on site to reduce runoff and encourage plant growth. WSDOT is a national leader in using compost created from yard waste and other sources to control erosion and sediment on our projects.

Other

Other recycled materials used on WSDOT projects include benches and picnic tables manufactured from recycled pop bottles, converting brush onsite into compost for use within the project and crushing old concrete into new aggregate for base or subbase courses.

[1] *A Study of the Use of Recycled Paving Material: Report to Congress*, June 1993, Federal Highway Administration and United States Environmental Protection Agency, Washington D.C. FHWA-RD-93-147 and EPA/600/R-93/095.

[2] *Municipal Solid Waste in the United States: 2007 Facts and Figures. US EPA EPA530-R-08-010 November 2008*

[3] *Ibid*

Reduce, Reuse and Recycle within the State Materials Lab building

The WSDOT State Materials Lab has taken action close to home to reduce, reuse and recycle. We now recycle nearly every type of material we encounter: testing waste (aggregates, concrete, asphalt and steel), paper, cardboard, plastics and plastic sheeting, wooden pallets and even kitchen waste (wet or soiled paper towels, food waste, coffee grounds – all are taken for compost). The local waste hauler has certified the State Materials Lab as a Certified Green Program.

Additionally, WSDOT's State Materials Lab reviewed chemicals stored in the Chemistry Lab, evaluating the real need for having them on hand. By reducing those chemicals on hand (eliminating over 600 chemicals) we reduced consumption, the risk of storing potentially hazardous chemicals and the associated costs. Now, if we need a specialty chemical for a specific test, small quantities are ordered and after completion of the expected testing the remainder is recycled, greatly reducing hazardous chemical storage onsite.

WSDOT's State Materials Lab, located in Tumwater.

Future Activities

Limestone In Portland Cement

Since 2008, WSDOT has allowed up to 5% limestone in portland cement, reducing greenhouse gas emissions while not affecting quality. Current studies underway are reviewing the opportunity of using even greater levels of limestone in hydraulic cements.

Solar Powered Traffic Systems

Solar power holds promise for a variety of traffic systems, especially in remote locations. We are examining solar powered systems for both new installations and for retrofitting old locations. In the right location solar power can reduce greenhouse gas emissions, reduce consumption and decrease costs.

More Warm Mix Asphalt

Asphalt pavement makes up 63% of our state highways. Making asphalt pavement requires heating up the rock and asphalt binder (the "glue") to drive off moisture and make it pliable when it is placed. New technologies can reduce the mixing temperatures by 50° F or more, in a process called "warm mix asphalt or WMA (as opposed to the current "hot mix asphalt). Less heat means less fuel and lower emissions, conserving fossil fuels while reducing greenhouse gasses. WSDOT performed trial installations in 2008 and 2009 and in 2010 WSDOT opened up the use of WMA on all projects calling for asphalt pavement.

For more information contact:

Tom Baker
State Materials Engineer
360-709-5401

Jeff Uhlmeyer, PE
State Pavement Engineer
360-709-5485

Kurt Williams, PE
Construction Materials Engineer
360-709-5410

Washington State Department of Transportation

From the
WSDOT State Materials Lab
March 2011

Sustainability: Highway Materials

Sustainability means many things to many people: businesses and our economy, spending time and money wisely, preserving our natural environment, investing in people and communities. Recently these principals have taken on new relevance and urgency. Highway materials, used to build embankments, pavements, bridges and other items, offer opportunities to innovate while improving the environment. Changes to hydraulic cements allow the substitution of limestone for cement, decreasing greenhouse gas production while preserving quality. In 2009, we eliminated coal tar emulsion treatments from the parking areas in our rest stops. The new emulsions used to protect the parking areas do not contribute to polycyclic aromatic hydrocarbon (PAH) pollution, unlike the coal tars. These innovations, and other opportunities, continue to address and improve our sustainability.

At WSDOT, a sustainable transportation system is a system that preserves the environment, is durable and takes into account how we build and the materials we use. We manage and operate this system using policies and strategies that meet society's present needs without compromising the ability of future generations to meet their own needs.

Secretary of Transportation
Paula Hammond, P.E.

Washington State
Department of Transportation
Paula J. Hammond, P.E.
Secretary of Transportation

Transportation Building
310 Maple Park Avenue S.E.
P.O. Box 47300
Olympia, WA 98504-7300

360-705-7000
TTY: 1-800-833-6388
www.wsdot.wa.gov

October 16, 2012

Mr. Scott Clark, Director
Thurston County Planning Department
2000 Lakeridge Drive SW
Olympia, WA 98502

Re: Proposed Tier 1 amendment request to Thurston County Comprehensive Plan for 2013

Dear Mr. Clark:

This letter supports Lakeside Industry's request for a Comprehensive Plan amendment to allow the use of Reclaimed Asphalt Pavement (RAP) at its facility in Thurston County.

The Washington State Department of Transportation (WSDOT) strongly supports the use of RAP throughout the state. Asphalt pavement is the most recycled material in the country today, far exceeding other materials. The asphalt industry remains the country's number one recycler – based on data from the Federal Highway Administration, more than 62 million tons of asphalt pavement were recycled nationally into new asphalt pavement in 2010. Use of RAP is safe, efficient, cost effective, and reduces the environmental impact of our State's highways and roadways. Under contract with Federal Highway Administration, the National Asphalt Pavement Association performed a survey on the use of RAP. This survey found that in 2010, 99.9% of RAP produced was recycled into new asphalt pavement or aggregate or cold mix asphalt or other engineered materials.

As mentioned above, the use of RAP is a key part of WSDOT's efforts to improve the sustainability of Washington's highways. The approach conserves limited resources and landfill space. I have enclosed a recent folio on sustainability of highway materials that highlights the use of RAP.

I encourage you to amend the county's Comprehensive Plan to allow use of RAP. My agency relies on RAP to increase the sustainability of highway materials. Please let me know if you have any questions.

Sincerely,

Paula J. Hammond, P.E.
Secretary of Transportation

PJH:jaa
Enclosure

2940-B Limited Lane NW
Olympia, WA 98502

1-800-422-5623 • (360) 539-7610
Fax: (360) 491-6308

July 26, 2013

Thurston County Board of Commissioners
2000 Lakeridge Dr. SW
Olympia WA. 98502

RE: Lakeside Industry's Durgin Road Facility

Dear Commissioners:

I was asked by Lakeside Industries to clarify Olympic Region Clean Air Agency's (ORCAA's) authority and position regarding air emissions from the use of recycled asphalt pavement (RAP) in the production of the asphalt paving product at Lakeside's asphalt plant located on Durgin Road in the Nisqually valley.

From a "life-cycle" perspective, use of RAP avoids aggregate mining and the associated emissions and other environmental impacts caused by mining. From a plant-wide emissions perspective, use of RAP in asphalt production can result in slightly more air pollution if the plant is not adequately controlled. Lakeside's Nisqually plant employs emissions control technology such as a baghouse to control emissions from the drum dryer, a "Blue Smoke Eliminator" to control emissions during truck loading and pollution prevention measures such as minimizing asphalt product temperatures, thus alleviating this concern. In addition, ORCAA's review and approval will be required prior to RAP being introduced into Lakeside Nisqually's production cycle.

Lakeside Industry's Durgin Road plant has the appropriate air pollution control technology to effectively and safely utilize RAP. ORCAA's approval will verify that the use of this material will comply with all applicable air regulations and standards and sets enforceable conditions that assure compliance now and in the future. I would be happy to meet with you to provide any additional information or address any questions about the use of RAP at this asphalt plant.

Sincerely

Francea L. McNair
Executive Director

Port Angeles Field Office: 116 W. 8th St., Suite 113, Port Angeles, WA 98362: (360) 417-1466
www.orcaa.org
Raymond Field Office: 301 Ocean Ave., Raymond, WA 98577: (360) 942-2317

THURSTON COUNTY
WASHINGTON
SINCE 1852

PUBLIC HEALTH AND SOCIAL SERVICES DEPARTMENT

Sherri McDonald, RN, MPA,
Director
Diana T. Yu, MD, MSPH
Health Officer

Scott Schimelfenig-

January 22, 2010

The Hazardous Waste staff was recently asked to help the Public Works Department determine if the recycled asphalt material (RAP) currently stored at the Waste and Recovery Center (WARC) is contributing to pollution. To determine this, I consulted a local laboratory to ensure that any sample collected was analyzed for the chemical contaminants that are most likely to be associated with RAP. The analytes that were selected were; metals (MTCA 5 – arsenic, cadmium, chromium, mercury and lead), total petroleum hydrocarbons (diesel extended range which includes longer petroleum hydrocarbon chains like oils), and polycyclic aromatic hydrocarbons (including the carcinogenic hydrocarbons).

On January 6th, I walked around the area where the RAP is stored (in the rain) and determined that the rain water that comes off the RAP material, and reaches the ground surface, combines with runoff from the upland landfill. To ensure that the sample collected constitutes only runoff from the RAP and no other source, I decided the most appropriate sample would be collected from rainwater dripping off the RAP pile (before it hits the ground).

On January 8 and 9, I collected two sets of samples in glass containers and poured them into appropriate sample bottles and hand delivered one set to an analytical lab and the other sample set was provided to Lakeside Industry personnel.

The attached laboratory data is the results of the analysis. The sample analysis shows that the RAP was not contributing arsenic, cadmium, chromium, mercury or lead into the stormwater runoff. Total petroleum hydrocarbons (oils and diesel0 were not detected in the runoff sample and neither were there any detectable polycyclic aromatic hydrocarbons (PAH's).

Although only one sample was collected from the RAP pile, there does not appear to be variability in the material stored, so collecting multiple samples from various points is unlikely to create a different result. At this time it does not appear that the RAP material is contributing pollution via stormwater runoff. If you have any questions or would like further clarification, please contact me.

Patrick Soderberg
Hazardous Waste Specialist
Thurston County Health Department

Attachment: Libby Labs analytical data

412 Lilly Rd. N.E., Olympia, Washington 98506-5132
(360) 867-2500 FAX (360) 867-2601 TDD (360) 867-2603 TDD(800)-658-6384
www.co.thurston.wa.us/health

LAKESIDE INDUSTRIES

October 4, 2012

Thurston County Commissioners
2000 Lakeridge Dr. S.W.
Olympia, WA 98502

Dear Commissioners:

Lakeside Industries is seeking a minor text amendment to the Thurston County Comprehensive Plan (TCCP) – Nisqually Sub-Area Plan. Specifically, Lakeside is seeking to amend Policy E.5 of the Nisqually Sub-Area Plan. Policy E.5 is contrary to all current thinking regarding environmental protection and natural resource conservation. The proposed minor text amendment is responsive to the goals of the Growth Management Act and should require minimal staff effort to review and approve given the body of technical information and legislative efforts already completed in support of comparable proposals regarding Recycled Asphalt Pavement (RAP). Therefore, the proposed minor text amendment should be approved as a Tier One amendment on the Official Docket for 2011-2012.

Policy E.5 currently precludes the reprocessing of asphalt due to water quality concerns. This policy was put in place at a time when less emphasis was placed on recycling and when it was falsely assumed that using recycled asphalt pavement might have an impact on water quality. Since approval of Policy E.5 over a decade ago, significant effort has been put forth by governmental, educational, and private research entities to evaluate potential impacts associated with the processing and recycling of asphalt. This research has resulted in a body of technical information and scientific evidence supporting the claim that asphalt is inert and poses no threat to water quality.

With this proposal, the TCCP will be updated to allow for processing RAP – an activity that is actively encouraged by the Department of Ecology and that has already been vetted under the State Environmental Policy Act. Amending Policy E.5 will have no discernible impact on adjacent properties and will not affect water quality within the Affected Geographic Area.

Prompt approval of the amendment would allow Lakeside to process RAP by incorporating it into its permitted hot-mix asphalt production process located within the Affected Geographic Area – an activity already authorized throughout Thurston County outside the Affected Geographic Area. Recycling of asphalt into fresh asphalt mix is an activity that is encouraged by local, sate, and federal agencies and is part of normal operation at asphalt plants. In fact, local jurisdictions are moving toward, or in some cases have already passed, ordinances mandating recycle of asphalt. The City of Seattle passed and Ordinance (#123553) on March 7, 2011 requiring the recycling of asphalt pavement.

P.O. Box 3004, Lacey, WA 98503 • (360) 491-5460 • (360) 459-3858/FAX

Approval of the amendment is necessary to ensure the sustainability of Lakeside Industries' operation and the support of other local companies who rely on the availability of our product. We respectfully request the proposed minor text amendment be approved as a Tier One amendment on the Official Docket for 2011-2012 to facilitate timely review and approval.

Very truly yours,

Dean Smith
Division Manager

cc: Scott Clark, Planning Director, Thurston County Planning Department

Signing in support and agreement of the comments presented in this letter:

Signature	Name	Address
	Catherine L Berlin	11484 Hobby St SE, Yelm
	Craig O. Larson	PO Box 40 Onalaska
	TAO NETZEL	3704 67th Court SW Olympia, WA
	Dan Wagner	9510 Horizon Ln SE Port Orchard, WA
	SARAH E. SCARDINO	PO BOX 811 TENINO, WA 98589
	DALE K. GILDERSLEEVE	PO Box 23 Curtis, WA 98538
	DAVID McCLEWA	67 Aldergrove DR Morse
	Leigh J Chase	2415 Aberdeen Ave, Hoquiam, WA
	Neil McLeod	12631 123rd Ave SE Rainier WA
	Sherry Gallington	658 Wilkie Ln. Montesano, WA
	KEOLAOKAANI DANIELS	10315 16th Ave E. Tacoma, Wa 98445
	Robert Valentine	623 E Monroe Ave Montesano WA 98563
	HERBERT K MILLESOP	3042 MERIDIAN Rd SE
	Michael A Gentile	6517 Olympic Hy

Thurston County Commissioners
Page 3

Signature	Name	Address
7573	Kenneth Koidahl	450 penzance Ln Shelton WA 98514
Doug Stephens	Douglas Stephens	2849 Clipper Ln. NE Oly, Wa. 98506
Mark A Bolam	Mark A. Bolam	5 Eaton Ln Montesano WA 98563
	MARK A GAYMAN	5111 JESSICA CT SE LACEY WA 98513
	Julio Garcia	12725 Morris RD SE Yelm Wa 98597
Dawn Rae Sprague	Dawn Sprague	14749 high valley Ln SE tenino wa 98589
		14109 Littlerock Rd Rochester
Johnny Escobedo	Johnny Escobedo	16483 Greenbrier St SE Yelm wa 98597
Debbie Clements	Debbie clements	5605 Raymond WEB 4
Tami		
Stephanie L. Butler	STEPHANIE BUTLER	71 Garden Ln 9838
David S Hagen	DAVID Hagen	6625 188TH AVE SW 98577
John E. Arreola	JOHN E. ARREOLA	1513 72ND ST. SE AUBURN, WA 98092
Ron R. Denman	Ron R. DENMAN	118 URQUHART Rd. Chehalis 98
	tim Craig	5616 Mount Saint Hele
Gordon L. Avery	GORDON AVERY	262 Hall Rd Silverlake 98645
K.R. Hatton	Kristen Hatton	18425 elaine ct. Rochester 985
Mike O'Neil	Mike O'Neil	340 NCT Olympic Dr. SW Issa

Mr Scott Clark, Director
Thurston County Planning Deptartment
2000 Lakeridge Drive SW
Olympia, Washington 98502

RE: Comprehensive Plan Text Amendment
To Nisqually sub area- Lakeside Industries
Use of Recycled Asphalt Pavement at Durgin Road Plant

Dear Mr. Clark,

I am writing this letter as an employee of Lakeside Industries and as a tax paying citizen of Thurston County. The purpose of this letter is to highlight the benefits of using Recycled Asphalt Pavement or RAP, at our Durgin Road Plant.

Using RAP with new asphalt can lower the cost of our product, allowing Lakeside to be more competitive with our bids, and provide on-going work for those of us who depend on Lakeside Industries for employment. It's a comforting thought in these tough economic times.

RAP is also the most recycled material in the world. In Thurston County, I believe that we have prided ourselves in recycling and reducing waste; in other words being "green" long before it was in fashion. This is what we have taught our children and this is how we live. Using RAP is a perfect example of recycling and reusing a product. Where will all of the RAP go if we don't reuse it? Into our precious landfills that are already overloaded. Does that make sense when we have a viable way to reuse it?

Using RAP can also make us less dependent on foreign oil as we save more energy by using a product so readily available.

If we can decrease our carbon footprint, produce an excellent product at a lower price, and recycle asphalt that will otherwise be dumped into our limited landfills, why wouldn't we?

Sincerely,
Kathy Miller

Kathy Miller
Traffic Control Supervisor
Lakeside Industries

October 1st, 2012

Mr Scott Clark, Director
Thurston County Planning Deptartment
2000 Lakeridge Drive SW
Olympia, Washington 98502

Dear Scott,

This letter is in regard to the request of site-specific use for recycling of waste asphalt by Lakeside Industries. Also, the letter is intended to discuss plans to address concerns about the storage and use of Recycled Asphalt Pavement (RAP.) Currently Lakeside Industries is unable to use RAP because of the Nisqually Valley Subarea Plan (NVSP.) As a young college student of twenty years of age, I am constantly exposed to classes, seminars, bulletins, emails, and news about everyone doing their own part in the community to help out with the environment. In recent years many strides have been made to make the world a safer, and "greener" place to inhabit. Lakeside Industries in several aspects is one of the more excellent asphalt paving industries in the Northwest. Whether it be smoothly paved jobs that make drivers happy, great employees with an outstanding safety record, or an environment/community first approach to all their concerns, Lakeside Industries seems to do it "right" when it comes to asphalt and a happy community around them. Now, Lakeside would like to improve their own selves as to make the world a better place by recycling asphalt and doing their own part to keep the world a great place to inhabit.

The little concerns of Lakeside Industries using RAP are very minimal if not non-existent when compared to the Pros of using RAP. The pros of allowing Lakeside to use RAP are reduction of petroleum products used, and the reduction in the necessity to mine new aggregate.

It is also useful for me to state that all other asphalt plants use some sort of RAP in their processes producing asphalt. Lakeside Industries would like to help the environment by using Recycled Asphalt Pavement. Lakeside also seems to be willing to do whatever it takes to make the community surrounding their plants happy by ensuring the community has no concerns on the processes that take place at their facilities. Using RAP is the right thing to do and a waste asphalt recycling operation presents none to extremely minimal environmental health concerns. As a student included in a generation that is expected to keep the world a safe place to inhabit in the decades to come, please give this request to allow Lakeside Industries to use Recycled Asphalt Pavement your fullest consideration because it will help us all in the long run. I appreciate very much your support and recommendation for approval and hope that you see to it as I do that this is the right thing to do.

Sincerely,

Nick Smith

Nick Smith
Georgia Tech University
1-360-915-2856
Mrnsmith2@gmail.com

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CH&

October 1, 2014

Commissioner Karen Valenzuela
Commissioner Cathy Wolfe
Commissioner Sandra Romero
Thurston County Board of Commissioners
2000 Lakeridge Drive SW, 1-209
Olympia, Washington 98502-1045

Re: Comprehensive Plan Amendment Docket

Dear Commissioners:

We are writing in support of the Lakeside Industries request for a Tier 1 position on the County Docket to review proposed amendments to the Comprehensive Plan. As the Lakeside request demonstrates, an amendment to the Nisqually Subarea Plan should eliminate the prohibition on the use of recycled asphalt or RAP at the Lakeside Plant in the Holroyd Mine.

This letter addresses one issue - the regional significance of the Lakeside Plant and its use of RAP. In its August 7, 2014 Briefing Memorandum to the Board on the Comprehensive Plan Docket, Staff (on page 2) listed three criteria to prioritize the then draft preliminary docket. The first criteria was "Regulatory compliance, moratorium, and interim regulations deadlines". The second criteria was "Regional Significance". The third criteria was "Human resources availability through full-time employees, interjurisdictional support, or grant funded project employees and consultants". The Staff Briefing Memorandum classified three items as having regional significance. The Staff Briefing Memorandum did not classify any of the four Citizen Initiated proposals.

We submit that the Lakeside proposal, one of the four citizen initiated proposals, has great regional significance. The Lakeside Plant is located in Thurston County but it serves a broad region and its product is used in many jurisdictions by a broad range of federal, state and local governments and a broad range of private businesses and individuals.

The Thurston County Code does not define the term regional significance. Thus, it is appropriate to look to dictionary definitions of the term and also to look at how Staff has interpreted the term in other cases. The Random House Kernerman Webster's College Dictionary (2010) defines regional as "pertaining to a region of considerable extent, not merely local." The Merriam Webster Dictionary

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direct: (206) 254-4400

{02656655.DOCX;1 }

defines regional as "of, relating to, characteristic of, or serving a region" and uses the example of "a regional high school". Staff applies these common sense definitions in its work. For example, one of the proposed Comprehensive Plan Docket items the Staff classified in the Briefing Memorandum as having regional significance is the Grand Mound Rezone. Staff also classified the Prairie Habitat Conservation Plan as having regional significance.

The Lakeside Plant serves a large region of Western Washington. The area the Plant serves includes Thurston County, Pierce County, Kitsap County, Grays Harbor County, Lewis County and, in a few instances, Clallam and Pacific Counties. Included with this letter is a list of projects served by the Lakeside Plant in the last two years. Also included is a list of customers from throughout the region who used material from the Plant for their projects in the region. It demonstrates the very large region and very broad type of projects served by the Plant. Obviously, this broad area is not "local" and the region is much larger than an area served by a regional high school. Clearly, the region is much larger than the area of the Grand Mound Rezone or the areas that will be addressed by the Prairie Habitat Conservation Plan, Docket items the Staff have classified as having regional significance. One of the many purposes and values of using RAP in the production of asphalt is that it reduces the cost of the end product. Thus, the cost of the use of asphalt in the many government and private projects served by the Lakeside Plant in this broad region would be reduced. Use of RAP will save precious public tax dollars in numerous counties and cities in Western Washington, as well as on federal projects. You will have received a letter in support of the Lakeside request from Ms. Karen Deal, the Environmental Manager for Lakeside Industries. She provides you with very important information about how the use of RAP at the Lakeside Plant will reduce greenhouse gas emissions or GHG emissions. Air quality is without question a regional issue and thus use of RAP by Lakeside to reduce GHG emissions is an issue of regional significance.

Given this analysis, we submit the Lakeside request should be classified as having regional significance. It is our opinion that failing to classify the Lakeside request as regional would be unreasonable.

Sincerely yours,

John W. Hempelmann

JWH:msd
Enclosure
cc: Cliff Moore
Cynthia Wilson

{02656655.DOCX;1 }

LAKESIDE INDUSTRIES, INC.

October 1, 2014

Cynthia Wilson
Long Range Planning Manager
Thurston County Resource Stewardship Department
2000 Lakeridge Dr, SW
Olympia, WA 98502

Re: Notice of Availability for Public Comment, Preliminary Docket of Comprehensive Plan Amendments for 2014-15, Proposed Tier One Amendments

Dear Cynthia:

Lakeside Industries respectfully requests the Thurston County Board of County Commissioners include the application for a Text Amendment to Policy E.5 of the Nisqually Sub-Area Plan as a Tier I proposal on the Official 2014-2015 Docket of Comprehensive Plan Amendments. The application proposal, which includes an environmental review to evaluate the impacts of recycling Reclaimed Asphalt Pavement (RAP) within the Nisqually Sub-Area, meets the criteria for Tier I, being of regional significance. The proposal is regionally significant due to the potential social, economic, and environmental benefits that would be incurred by the County if the proposal is approved for review.

The environmental benefits are well documented nationally and internationally. The benefits include reduced reliance on virgin raw materials including oil and aggregate, reduced landfill demand, reduced energy demand, and reduced emissions including Greenhouse Gas Emissions (GHG).

The Thurston Climate Action Team (TCAT), a local non-profit dedicated to creating a healthy and sustainable future for Thurston County, prepared a scientifically supported Greenhouse Gas (GHG) Inventory Report for Calendar Year 2010, dated December 26, 2013 (http://www.oly-wa.us/ThurstonClimateAction/PDF/ThurstonCountyGreenhouseGasInventoryReport2013August.pdf).

The report documents that Thurston County's greenhouse gas emissions amounted to 2,761,800 metric tons of carbon dioxide equivalent or 10.95 metric tons per person. The majority of these greenhouse gas emissions, a total of 1,443,200 metric tons or 10.68 metric tons per person, are emitted from Unincorporated Thurston County.

Members of the TCAT's Energy Advisory Committee provided guidance on the approach to this effort. Members of the committee included local City Council Members including Cathy Wolfe, Commissioner, Thurston County.

Sustainable Thurston, a three year sustainability planning program being completed by Thurston Regional Planning Council, recommends 25% reduction from 1990 levels by 2020, which is

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consistent with Washington State's legally established GHG reduction goals, codified in RCW 70.235.020.

Given an opportunity to recycle Reclaimed Asphalt Pavement (RAP), Lakeside would be able to document a 50% potential reduction in net overall GHG emissions due to its ability to recycle RAP on-site. The 50% reduction or "credit" is a result of avoided emission from the mining, processing and transportation of crushed stone and asphalt binder (http://www.asphaltpavement.org/ghgc/GHGC%20v4%20instructions.pdf). This GHG offset/credit does not account for the saved landfill space and the energy associated with landfilling, nor does it account for additional emissions (or their offset) that would be associated with transporting RAP from the local roads to locations or jurisdictions outside Thurston County that embrace RAP recycling. By processing RAP at the Nisqually plant, additional GHG savings (above the documented 50%) can also be realized.

Thurston County received $849,200 in federal grant money for projects that reduce energy use, curb greenhouse gas emissions, and improve energy efficiency. The grant was awarded in late 2009 by funds administered by the United States Department of Energy. With this grant, Thurston County committed to a number of goals including working with the building community to create greener building codes and creating and editing regional plans to make the community more sustainable (http://www.co.thurston.wa.us/planning/climate/climate_home.htm).

Beginning in 2005, Lakeside has annually applied for a Comprehensive Plan Amendment for the County to consider a minor text amendment to the Nisqually Sub-Area Plan. The applications request an environmental review of language in the plan that prohibits RAP recycling. Every application to date has been deemed low priority and "lack of staffing" has prevented consideration of our proposal.

If the County is truly interested in achieving GHG emissions reduction goals and encouraging the efforts of local businesses to reduce GHG emission impacts, they would place Lakeside's application as a Tier I proposal on the Official 2014-2015 Docket of Comprehensive Plan Amendments.

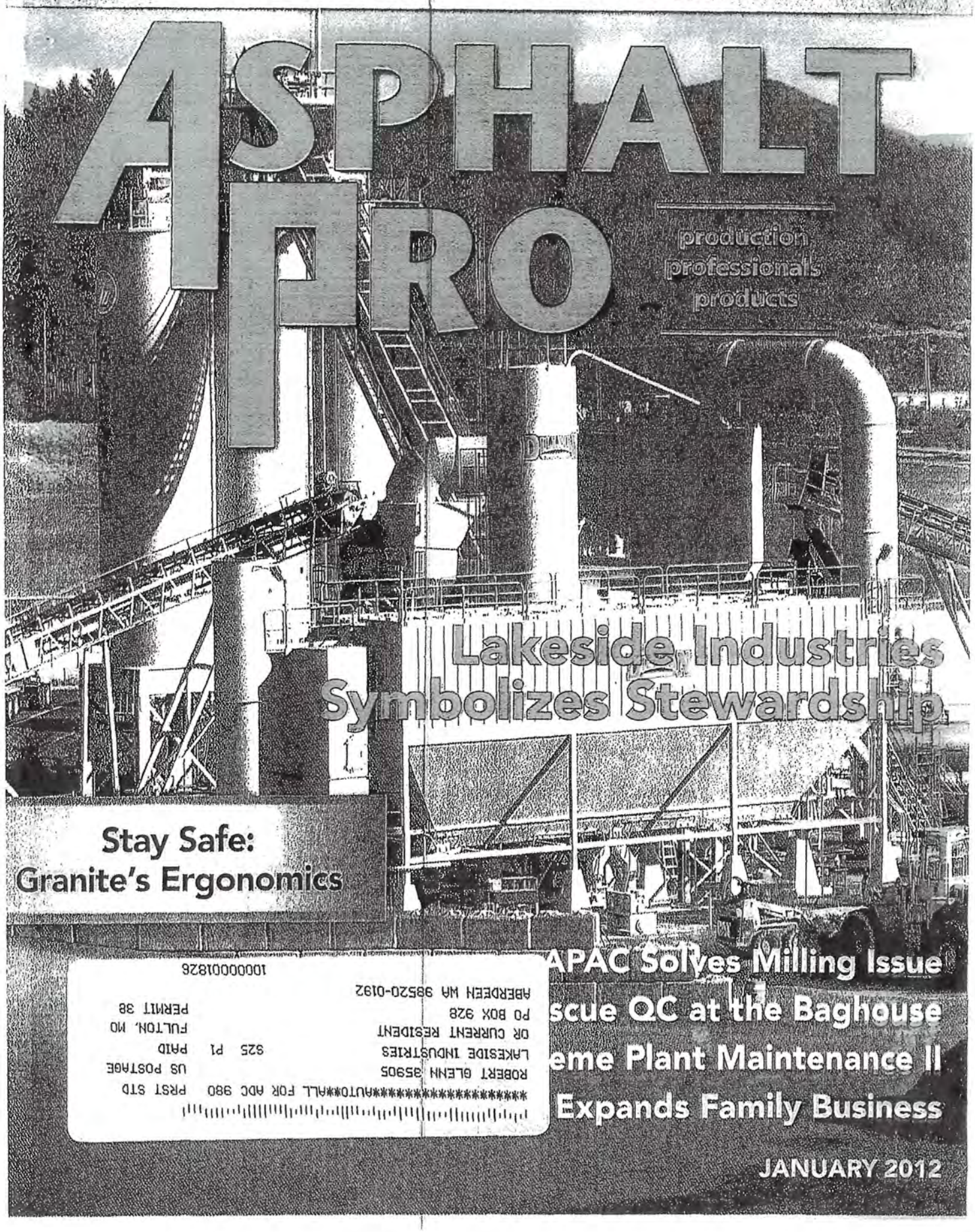
Sincerely,

Karen Deal
Lakeside Industries, Inc.

Better Production = Better Bottom Line

ASPHALT PRO

production professionals products



Lakeside Industries Symbolizes Stewardship

Stay Safe: Granite's Ergonomics

APAC Solves Milling Issue

scue QC at the Baghouse

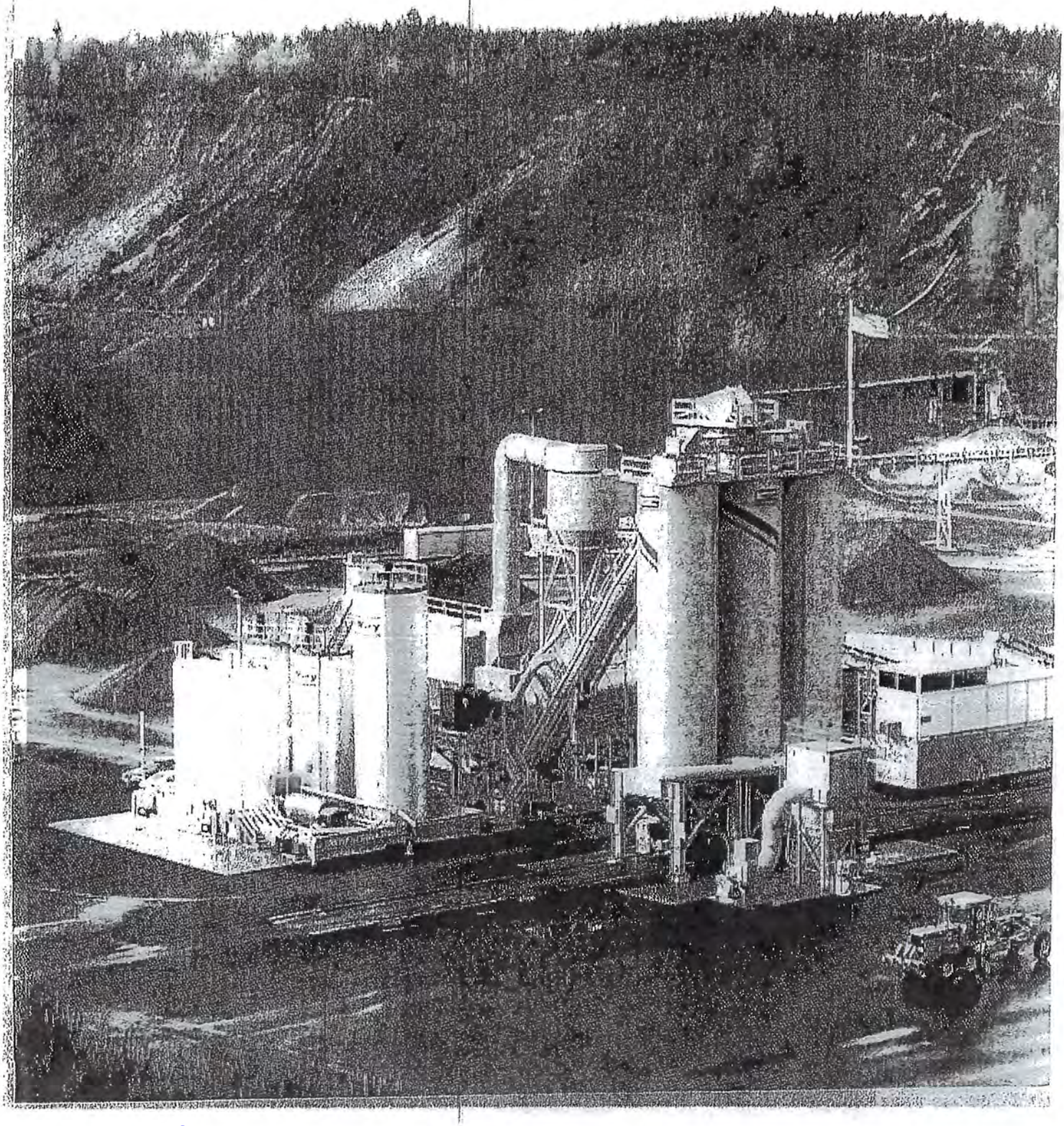
eme Plant Maintenance II

Expands Family Business

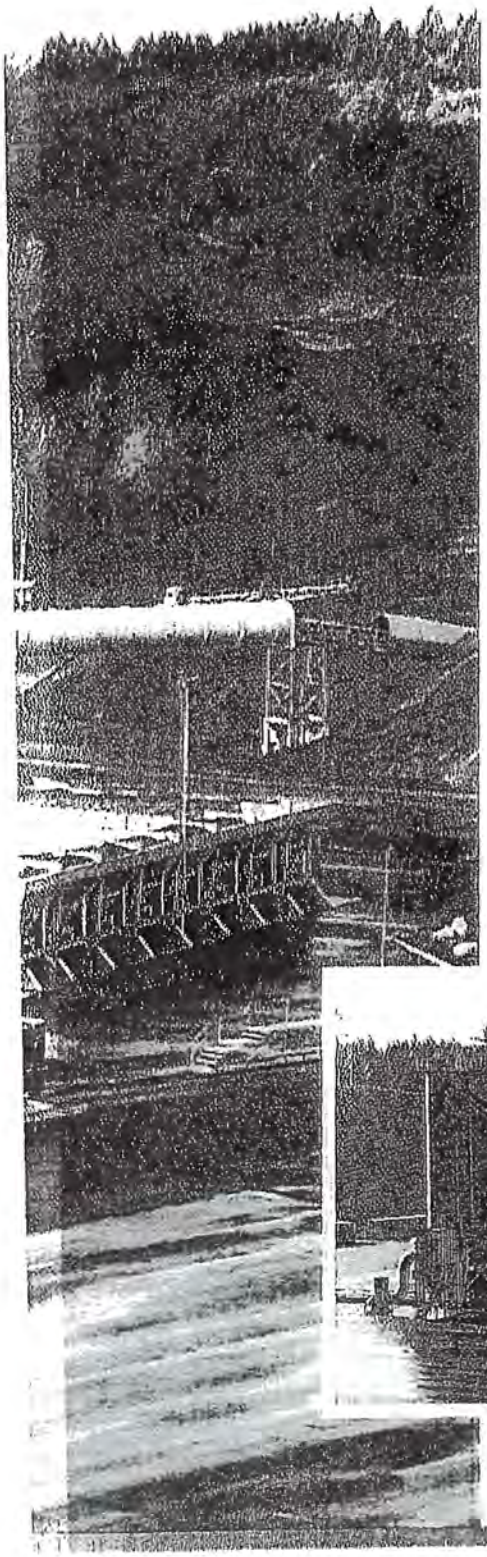
JANUARY 2012

Ecological Plant Prowess Garners Attention

Stewardship, company pride continue long after accepting awards for Lakeside divisions



One of the ways Dean Smith keeps dust down at the Lacey division plant is by forming stockpiles close to the cold feeds. He also uses a clever system of conveyors. Notice the conveyors at the far right, upper corner of the image bringing aggregate from larger piles farther away. This lessens truck traffic as well as loader traffic, compaction and segregation.



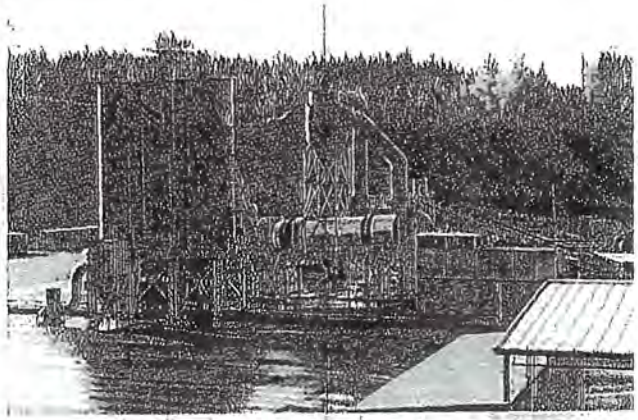
BY SANDY LENDER

As the company name implies, Lakeside Industries, Inc., headquartered in Issaquah, Wash., has an environmental edge to it that a national entity would make an example of. In fact, the National Asphalt Pavement Association (NAPA) has already done that. In 2009 and 2010 NAPA honored two Lakeside plants with its New Plant Ecological Awards. As a whole, the company strives to perform at this level of excellence while maintaining a family atmosphere and a commitment to the asphalt industry.

Start by looking at the company's track record. Lakeside Industries is one of the few remaining family owned construction companies of its size—and it's focused solely on asphalt paving. Its 12 regional divisions spanning Western Washington, Northwest Oregon and Central Idaho offer a range of local products and services from state DOT work to commercial projects for private citizens.

Within each division, the people bring local knowledge and focus to customers while using the expertise and resources of the larger company. That business plan reflects the company's mission: "To provide quality asphalt products while serving the community as industry leaders."

The company has consistently won awards from agencies and organizations such as the Asphalt Pavement Association of Oregon (APAO), the American Public Works Association—Washington State Chapter (APWA-WA), American Society of Civil Engineers (ASCE), NAPA, Washington Asphalt Paving Association (WAPA), Washington State Association of County Engineers (WSACE) and Washington State Department of Transportation (WSDOT).



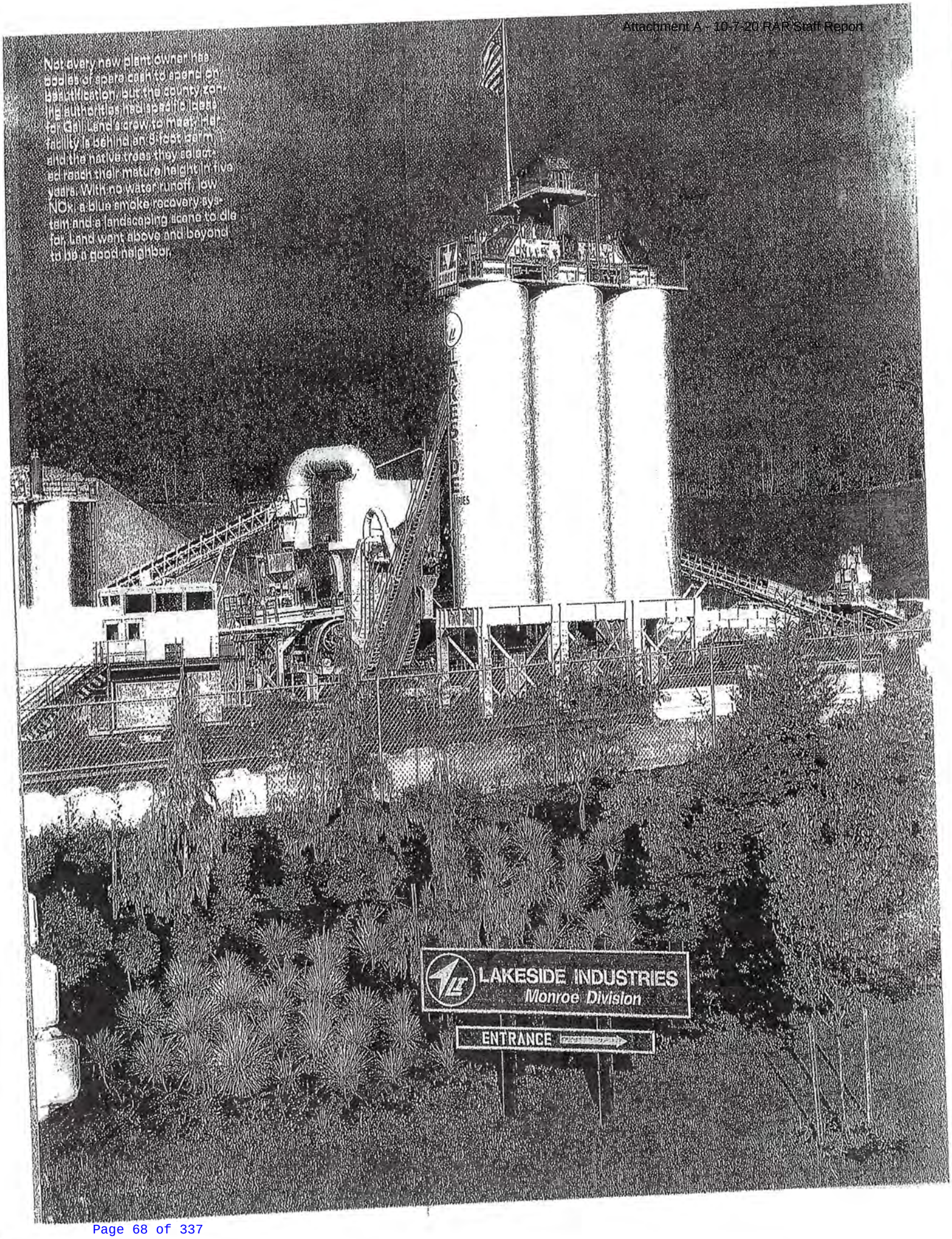
Notice that the Durgin Road plant site is completely paved, which also helps keep dust down.

Management's attention to quality doesn't end with workmanship. It extends to the health and welfare of employees and environment. For example, Lakeside Industries divisions have won multiple certificates of achievement in safety from the Mine Safety and Health Administration and multiple certificates of honor from the Joseph A. Holmes Safety Association. In 2007, the Lakeside Industries online safety training program was a finalist for the NAPA Asphalt Operations Safety Innovations Award.

In 2009, the Lacey Division Durgin Road Plant was a New Plant Finalist in the NAPA Ecological Awards. In 2010, the Monroe Plant took first place in the NAPA Ecological Awards. The company has more than 50 NAPA Diamond Achievement Commendations for Excellence in Hot Mix Asphalt Plant/Site Operations since 1999 when its Aberdeen plant achieved the first. The Aberdeen division has garnered its own NAPA ecological award for an existing asphalt plant in 1988 and again in 1998.

When *AsphaltPro* contacted Aberdeen Division Manager Bob Glenn about the successes Lakeside has enjoyed, his immediate reaction was to shine the spotlight on the environmental advances two specific division managers have put in place. Dean Smith is the Lacey division manager; Gail Land is the Monroe division manager. Both spoke proudly of the plants and people they work with, and an impressive picture of Lakeside Industries began to emerge. These folks haven't been building nice plants the past few decades merely to win awards. They put together environmentally friendly operations because it's the right thing to do.

Mike Peringer of Process Heating, Co., Seattle, summed that up. "It is very gratifying to see asphalt companies taking such a significant interest in community," Peringer said. "Lakeside has a reputation for just that and that attitude is to be commended. I teach 'Leaders Who Give Back' at the University of Washington Public Affairs School and often refer to companies like Lakeside. Others should take note and realize that such community is like an asset in determining company value."


Not every new plant owner has
bodies of spare cash to spend on
beautification, but the county zon-
ing authorities had specific ideas
for Gail Land's crew to meet. Her
facility is behind an 8-foot berm
and the native trees they selected
reach their mature height in five
years. With no water runoff, low
NOx, a blue smoke recovery sys-
tem and a landscaping scene to die
for, Land went above and beyond
to be a good neighbor.
LAKESIDE INDUSTRIES
Monroe Division
ENTRANCE

LACEY DIVISION

Working toward bettering a community was on Smith's mind when he spoke about the Durgin Road plant in Olympia, Wash. "It took us eight years to permit the Durgin Road plant, so we're doing everything in our power to be great stewards of our neighborhood," he said.

His facility is a picture-perfect illustration of how to set your new plant up for environmental excellence, even when the neighborhood has limits to recycling. Believe it or not, the Thurston County zoning regulations currently prohibit reclaimed asphalt pavement (RAP) or recycled asphalt shingle (RAS) use. Because Smith wants to be a part of the movement keeping waste out of landfills, he's working on changing that prohibition.

"We are working with Thurston County and the neighbors to change the zoning to allow us to recycle both asphalt and shingles," Smith said.

Even with those limitations, Smith's plant was a finalist in the NAPA ecological awards. Currently, asphalt plant owners don't get official "credit" for lobbying their local officials to allow recycling. "The nomination forms do not include a question about this, but some companies write this in," NAPA's Margaret Cervarich said. "In that case, it is considered by the judges."

The awards that Cervarich described take a significant effort. "To receive the ecological award, the company must first earn the Diamond Achievement Commendation for Excellence in Asphalt Plant/Site Operations. This sets a high standard. Those who earn the Diamond Achievement may then apply for the ecological award.

"A team of industry experts evaluates the nominations on a number of objective criteria. Plant operations, compliance, community relations and environmental excellence are considered. More subjectively, aesthetics are also taken into account. Thus, to be named as a winner or finalist in the ecological award competition means that the plant is the crème de la crème of the industry."

Thurston County officials already know of the Lacey division's commitment to the environment. The division has a Thurston Green Business certification for the recycling its employees perform in the office. They've elected to recycle items such as office paper, ink cartridges, soda cans and the like, and Thurston officials have recognized them for it. Of course, Thurston officials and neighbors recognized their positive plant aspects, as well.

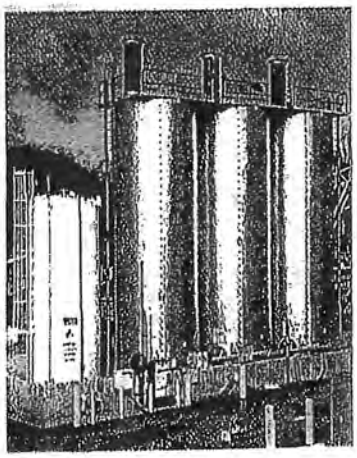
"It's a state-of-the-art 300 ton-per-hour Gencor Ultraplant," Smith said. "It's got all the bells and whistles—a great burner that's a burner of choice and efficient. The plant can make foamed asphalt warm mix."

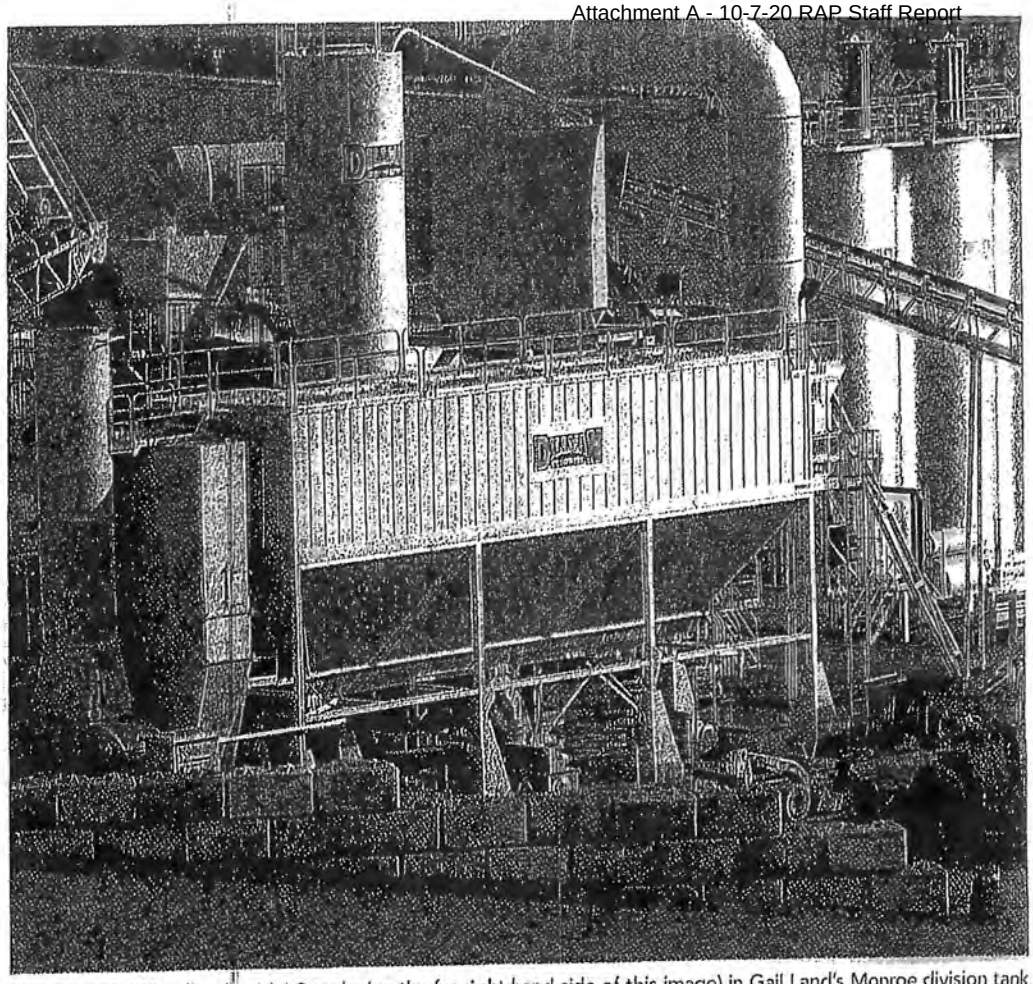
Smith uses a variety of good practices to mitigate dust. First, the crew paved the entire site. Something that works for fuel savings and noise mitigation, as well as keeping dust and material confusion to a minimum, is the use of conveyors.

"We have minimized loader and truck traffic by having the stockpile close to the plant and the rock delivered by belt to the stockpile area from the crusher," Smith said.

Finally, they use a Dustex blue smoke baghouse, and baghouse dust is returned and metered back into the finished product.

The Portland and Issaquah plants produce EZ Street cold mix that other divisions, such as the Lacey division managed by Dean Smith, sell.





The three 30,000-gallon liquid AC tanks (on the far right-hand side of this image) in Gail Land's Monroe division tank farm feature scrubbers on top to assist in meeting air quality standards. The baghouse also features a metered return system to take dust back to the drum.

A natural gas hot oil system keeps 75,000 gallons of liquid AC hot at the tank farm and the silos can store up to 900 tons.

Who keeps all this going? "Herb Milleson is my plant operator," Smith reported. "Herb has worked for us for 30 plus years and has run plant for us since 2001. Herb does a great job for us."

MONROE DIVISION

Likewise, the Monroe division's manager, Gail Land, praised her plant operator. "Gary Swanson is amazing. He was instrumental in picking out and setting up and calibrating our plant."

Land has worked for Lakeside for 16 years and knew the kind of work it would take to get an asphalt plant permitted. She knew it took working with the community to alleviate the neighbors' worries and to build something she's proud of.

"A lot of forward thinking went into this when we moved," Land said. "We purchased an existing gravel pit, cleaned it out and went from there to building the asphalt site. The county has rigorous water regulations, so we worked to accommodate that. None of the water that falls on my site can leave my site, so none of it does. The entire site is paved on a 3 percent slope. All water channels into a main water cleaning system."

As far as water is concerned, Land pointed out that the site stays mud-free. "We have a truck-washing station as well. Here in the Northwest we have mud everywhere, but not on my site. There's no mud at this plant."

One of the ways to keep away mud is to keep away dust, and Land uses a baghouse for dust mitigation as her colleague Smith does. As mentioned above, her entire site is paved, which keeps dust from tires and fallen, crushed rocks to a minimum. She shared that her paving crew had just paved the road into the quarry with RAS, a product the Monroe division has recently embraced.

"We have purchased a shingle grinder, so we're talking with the scrap producers around here to set up and grind at their sites," Land said. For now, the grinder, which consists of two pieces of grinder equipment and a trackhoe, travels to different divisions as needed. The RAS pile is kept inside, covered and contained.

As if mirroring the Lacey division, Land's Dillman DuoDrum plant has run both RAS and RAP, but Land is just looking into warm-mix asphalt now. The plant is capable of 400 TPH and Land said they've gotten production close to that limit. "In today's market we don't get to push it as much."

Her facility includes three 30,000-gallon liquid AC tanks and a 15,000-gallon diesel tank in the tank farm and three

"We have purchased a shingle grinder, so we're talking with the scrap producers around here to set up and grind at their sites."

300-ton silos for storage. A blue smoke recovery system and scrubbers atop the AC tanks help keep air quality up to standard.

"I couldn't be prouder of this place," Land said. "It's a neat, tidy-looking site."

GOOD BUSINESS

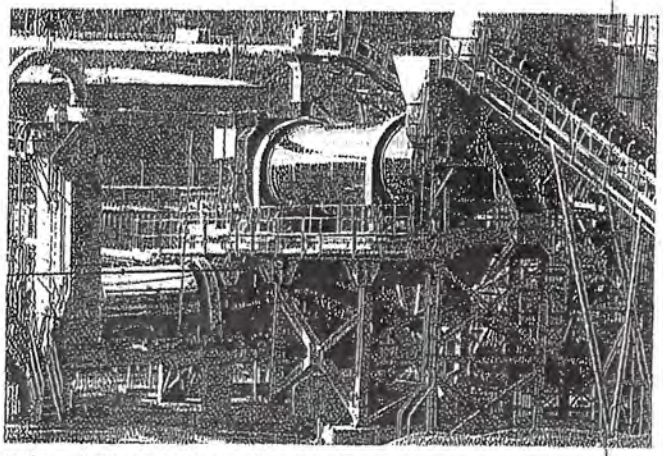
Land and Smith have much to be proud of with award-winning operations to their credit. They also have much to live up to. Lakeside Industries doesn't rest on its laurels.

The company began a business relationship with EZ Street Co., Miami, a few years back, allowing two of its facilities to produce environmentally friendly mix for pothole and repair work.

"Lakeside began producing EZ Street in 2000 in Issaquah under a licensing agreement with the EZ Street Company," Rick Rawlings said. "We began to produce it in Portland in 2002. We began packaging it in 35- and 50-pound bags in 2002 as well. Our sales demand is fairly uniform now year-round."

Lakeside remains committed to its local communities as well. For example, if you followed the company's facebook page during December, you'd have seen employees were making and collecting donations for Issaquah children who needed warm clothing. They were also hosting a food drive and receiving accolades for sports equipment they'd donated and installed for schools.

While it's commendable and "good business" to go the extra mile ecologically speaking to get an asphalt plant permitted, it's uplifting to see a large company keeping its environmental and community commitments. With priorities that include quality workmanship, quality asphalt products and serving the community, the regional divisions of Lakeside Industries have a multi-generational history to be proud of.



Gail Land's Monroe division plant is a Dillman DuoDrum.

LAKESIDE INDUSTRIES, INC.

October 1, 2014

Cynthia Wilson
Long Range Planning Manager
Thurston County Resource Stewardship Department
2000 Lakeridge Dr, SW
Olympia, WA 98502

Re: Notice of Availability for Public Comment, Preliminary Docket of Comprehensive Plan Amendments for 2014-15, Proposed Tier One Amendments

Dear Cynthia:

Lakeside Industries respectfully requests the Thurston County Board of County Commissioners include the application for a Text Amendment to Policy E.5 of the Nisqually Sub-Area Plan as a Tier I proposal on the Official 2014-2015 Docket of Comprehensive Plan Amendments. The application proposal, which includes an environmental review to evaluate the impacts of recycling Reclaimed Asphalt Pavement (RAP) within the Nisqually Sub-Area, meets the criteria for Tier I, being of regional significance. The proposal is regionally significant due to the potential social, economic, and environmental benefits that would be incurred by the County if the proposal is approved for review.

The environmental benefits are well documented nationally and internationally. The benefits include reduced reliance on virgin raw materials including oil and aggregate, reduced landfill demand, reduced energy demand, and reduced emissions including Greenhouse Gas Emissions (GHG).

The Thurston Climate Action Team (TCAT), a local non-profit dedicated to creating a healthy and sustainable future for Thurston County, prepared a scientifically supported Greenhouse Gas (GHG) Inventory Report for Calendar Year 2010, dated December 26, 2013 (http://www.oly-wa.us/ThurstonClimateAction/PDF/ThurstonCountyGreenhouseGasInventoryReport2013August.pdf).

The report documents that Thurston County's greenhouse gas emissions amounted to 2,761,800 metric tons of carbon dioxide equivalent or 10.95 metric tons per person. The majority of these greenhouse gas emissions, a total of 1,443,200 metric tons or 10.68 metric tons per person, are emitted from Unincorporated Thurston County.

Members of the TCAT's Energy Advisory Committee provided guidance on the approach to this effort. Members of the committee included local City Council Members including Cathy Wolfe, Commissioner, Thurston County.

Sustainable Thurston, a three year sustainability planning program being completed by Thurston Regional Planning Council, recommends 25% reduction from 1990 levels by 2020, which is

P.O. Box 7016, Issaquah, WA 98027 • (425) 313-2600 • (425) 313-2620/FAX

Supporting Documentation

For

Comprehensive Plan Amendment Application

Proposed Text Amendment to Nisqually Sub-Area Plan

Includes:

Attachment 1 – Current and Proposed Policy Language

Attachment 2 – Vicinity Map – Site Plan

Attachment 3 – Legal Description of Lakeside Site

Attachment 4 – City of Seattle Ordinance # 123553; Thurston County Resolution #13755

Attachment 5 – Letters of Support

Attachment 1 – Current and Proposed Policy Language

Thurston County Comprehensive Plan Amendment
Proposed Text Amendment to the Nisqually Sub-Area Plan

Proponent: Lakeside Industries

Goal E.5

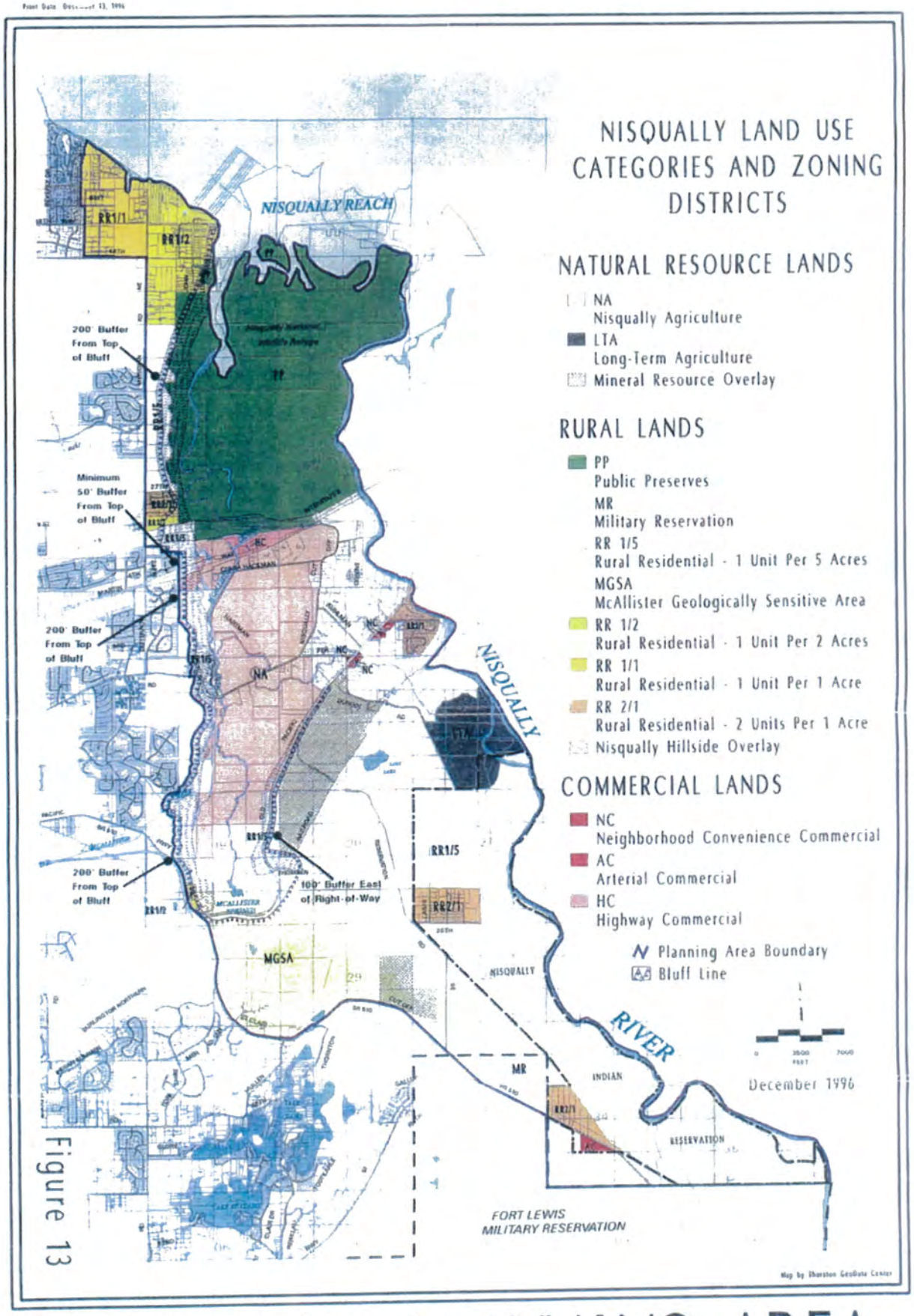
Current Text:

Allow accessory activities to be considered inside the mined out portion of the gravel pit through the site plan review process. Examples of allowable accessory uses would include concrete pipe and/or septic tank construction and the recycling of used concrete. The reprocessing of imported mineral materials shall not be the primary accessory use and the reprocessing of asphalt shall not be allowed due to water quality concerns. These activities shall be discontinued once reclamation of the pit is completed in accordance with DNR standards.

Proposed Text Amendment:

Allow accessory activities to be considered inside the mined out portion of the gravel pit through the site plan review process. Examples of allowable accessory uses would include concrete pipe and/or septic tank construction and the recycling of concrete and asphalt. The reprocessing of imported mineral materials shall not the primary accessory use. These activities shall be discontinued once reclamation of the pit is completed in accordance with DNR standards.

Attachment 2 – Vicinity Map – Site Plan



NISQUALLY PLANNING AREA

#2016105567

THURSTON COUNTY
WASHINGTON
SINCE 1852

Thurston County Resource Stewardship
2000 Lakeridge Dr. S.W. Olympia, WA 98502
(360)786-5490 / (360)754-2939 (Fax)
TDD Line (360) 754-2933
Email: permit@co.thurston.wa.us
www.co.thurston.wa.us/permitting

Supplemental Application

ENVIRONMENTAL CHECKLIST (SEPA)

STAFF USE ONLY	DATE STAMP
DRAFT 2016105567 17-107649 XA Area: Site: 11123 DURGIN RD SE OLYMPIA 21817140200 Sub Type: Hearing Examiner STAFF USE ONLY	THURSTON COUNTY RECEIVED JUN 19 2017 RESOURCE STEWARDSHIP Intake by: KKCA

This application form cannot be submitted alone. In addition to this form, a complete application package includes:

Applicant Use	SUBMITTAL CHECKLIST	Staff Use Only
☒	Master application.	☐
☒	Applicable processing fees. *Refer to current fee schedules. Depending on the adopted fee structure, additional fees may occur if base hours/fees at intake are exhausted.*	☐
☐	Site plan – One copy of a site plan, drawn to scale on 8 ½ x 11 or 11 X 17 paper, which depicts all items outlined in the attached site plan submittal requirements.	☐
☐	Environmental reports (wetland report, mitigation plan, geotechnical report, etc.) as required.	☐
☒	Signature and date.	☐

Instructions for Applicants

This Environmental Checklist asks you to describe some basic information about your proposal. Governmental agencies use this checklist to determine whether the environmental impacts of your proposal are significant, requiring preparation of an Environmental Impact Statement (EIS). Answer the questions briefly, with the most precise information known, or give the best description you can. **DO NOT WRITE IN THE AREA THAT IS SPECIFIED FOR AGENCY USE ONLY AND USE ONLY THE ENVIRONMETNAL CHECKLIST APPLICATION PROVIDED BY THURSTON COUNTY.**

You must answer each question accurately and carefully, to the best of your knowledge. In most cases, you should be able to answer the questions from your own observations or project plans without the need to hire experts. If you really do not know the answer, or if a question does not apply to your proposal, write "do not know" or "does not apply." Complete answers to the questions now may avoid unnecessary delays later.

Some questions ask about governmental regulations, such as zoning, shoreline, and landmark designations. Answer these questions if you can. If you have problems, the governmental agencies can assist you.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be a significant adverse impact.

Form No. SA027

Use of Checklist for Non-Project Proposals:

Non-project proposals are those which are not tied to a specific site, such as adoption of plans, policies or ordinances. Complete the Environmental Checklist for non-project proposals even though questions may be answered "does not apply." In addition, complete the Supplemental Sheet for Non-project Actions (Part D).

For non-project actions, the references in the application to the words "project," "applicant," and "property" should read as "proposal," "proposer," and "affected geographic area," respectively.

Supplemental and Site Plan Submittal Requirements

This application shall contain and/or address the following in a clear, accurate and intelligible form. Submit this checklist with your application. Check the box for each item addressed. Provide an explanation for any unchecked item.

Applicant Use	Supplemental and Site Plan Submittal Requirements	Staff Use Only
☐	**1.** The project site must be identified in the field by posting an identification sign visible from the access road and by flagging the property corners and the center of the driveway/road access location. The purpose of the sign is for project identification rather than public notification. The sign and flagging are provided by Thurston County and can be obtained at the Permit Assistance Center.	☐
☐	**2.** One copy of a site plan, drawn to scale (standard engineer scale) on 8 ½" x 11" or 11" X 17" paper, which depicts the following:	☐
☐	a. All information drawn to scale (standard engineer scale).	☐
☐	b. A north arrow, map scale, date and site address.	☐
☐	c. Property boundary lines and dimensions for <u>all</u> affected parcel(s).	☐
☐	d. The location of all existing structures, including, but not limited to, mobile homes, houses, sheds, garages, barns, fences, culverts, bridges, and storage tanks.	☐
☐	e. All means, existing and proposed vehicular and pedestrian ingress and egress to and from the site, such as driveways, streets and fire access roads, including existing road names and existing county and state right-of-way.	☐
☐	f. The location of all existing and proposed easements	☐
☐	g. The location of all existing proposed public and on-site utility structures and lines, such as on-site septic tanks, drainfields and reserve areas, water lines, wells and springs.	☐
☐	h. The location of all critical areas including, but not limited to, shorelines, wetlands, streams, flood zones, lakes, high groundwater, and steep slopes.	☐
☐	i. Vicinity sketch, at a scale of not less than three (3) inches to the mile, indicating the boundary lines and names of adjacent developments, streets and boundary lines of adjacent parcels, and the relationship of the proposed development to major roads and highways.	☐
☐	j. Include acreage and square footage within each parcel.	☐
☐	k. Description of proposed grading, including a written estimate of both cut and fill quantities in cubic yards and a map showing the location of cut and fill areas.	☐

Applicant Use	Supplemental and Site Plan Submittal Requirements	Staff Use Only
☐	l. Description of proposed grading, including a written estimate of both cut and fill quantities in cubic yards and a map showing the location of cut and fill areas.	☐
☐	m. Topographic information showing two-foot contours for the entire subject parcel or parcels and a minimum of fifty feet into adjacent parcels, based on available county information. The topographic information may be generalized to the smallest, even-numbered, contour interval that is legible in areas of steep slopes where two-foot contour lines would otherwise be illegible to read.	☐
☐	3. Environmental reports (wetland report, mitigation plan, geotechnical report, etc.) as required.	☐

#201610556 7

THURSTON COUNTY
WASHINGTON
SINCE 1852

THURSTON COUNTY RESOURCE STEWARDSHIP
ENVIRONMENTAL CHECKLIST

"USE BLACK INK ONLY"

*** * * * OFFICIAL USE ONLY * * * ***

Folder Sequence # _____

Project # : _____

Related Cases: _____

Date Received: _____ By: _____

*** * * * OFFICIAL USE ONLY * * * ***

1. Applicant: Lakeside Industries, Inc.
   Address: P.O. Box 7016
   Issaquah, WA 98027
   Phone: (425) 313-2600
   Cell: (425) 864-5081
   E-Mail Address: karen.deal@lakesideindustries.com

2. Point of Contact: Karen Deal
   Address: P.O. Box 7016
   Issaquah, WA 98027
   Phone: (425) 313-2660
   Cell: (425) 864-5081
   E-Mail Address: karen.deal@lakesideindustries.com

3. Owner: NA
   Address: NA
   NA
   Phone: NA
   Cell:
   E-Mail Address: NA

4. Property Address or location:

   NA - Nisqually Sub-Area; Reference Thurston County Comprehensive Plan Map M-15

5. Quarter/Quarter Section/Township/Range: NA - Ref Comp Plan Map M-15

6. Tax Parcel #: Nisqually Sub-Area - Ref Comp Plan Map M-15

7. Total Acres: 8,980 - Ref Comp Plan Map M-15

8. Permit Type: Comprehensive Plan Text Amendment

9. Zoning: Multiple Zones - Ref Comp Plan Map M-15

10. Shoreline Environment: McAllister Creek, Nisqually River, Nisqually Reach - Ref Comp Plan Map M-15

11. Water Body: See response to 10 above.

12. Brief Description of the Proposal and Project Name:

    Proposal Proponent, Lakeside Industries, is seeking a text amendment to the Thurston County Comprehensive Plan - Nisqually Sub-Area Plan (NSAP). Specifically, Lakeside is seeking an amendment to Policy E.5 of the NSAP. Proposal Name: NSAP Policy E.5 Amendment.

13. Did you attend a presubmission conference for this project? ☒ Yes ☐ No

    If yes, when? _____

14. Estimated Project Completion Date: NA

15. List of all Permits, Licenses or Government Approvals Required for the Proposal (federal, state and local--including rezones):

    NA

16. Do you have any plans for future additions, expansion or further activity related to or connected with this proposal? If yes, explain:

    No. There are no plans for additional text amendments related to this proposal.

17. Do you know of any plans by others which may affect the property covered by your proposal? If yes, explain:

    No

18. Proposed timing or schedule (including phasing, if applicable):

    NA

19. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

    There is a body of technical information and evidence available to support the deminimus environmental impacts associated with the recycling of RAP. Some of these sources of information are appended to the application for "Comprehensive Plan Amendment" and some will be incorproated directly into the application.

THURSTON COUNTY
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SINCE 1852

THURSTON COUNTY
RESOURCE STEWARDSHIP
ENVIRONMENTAL ELEMENTS

To be Completed by Applicant

Evaluation for Agency Use Only

1. **Earth**

a. General description of the site (check one):

- ☐ Flat
- ☐ Rolling
- ☐ Hilly
- ☐ Steep Slopes
- ☐ Mountainous
- ☒ Other: Variable terrain within Affected Geographic Area

b. What is the steepest slope on the site (approximate percent slope)?

NA

c. What general types of soils are found on the site (for example, clay, sand gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any prime farmland.

NA

d. Are there surface indicators or history of unstable soils in the immediate vicinity? If so, describe.

NA

e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.

NA

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

NA

Thurston County
Resource Stewardship
Environmental Elements

To be Completed by Applicant

Evaluation for Agency Use Only

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

NA

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

NA

2. **Air**

a. What types of emissions to the air would result from the proposal (i.e., dust, automobile, odors, industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.

Recycling of RAP does not increase emissions to the air. In fact, recycling RAP reduces net air emissions. See application for details.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

No

c. Proposed measures to reduce or control emissions or other impacts to air, if any:

NA

3. **Water**

a. Surface

(1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

The Affected Geographic Area is bound to the east by the Nisqually River and to the west by McAllister Creek.

Thurston County
Resource Stewardship
Environmental Elements

To be Completed by Applicant

Evaluation for Agency Use Only

(2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

No

(3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

NA

(4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

No

(5) Does the proposal lie within a 100-year flood plain? If so, note location on the site plan.

No

(6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

No

b. Ground

(1) Will ground water be withdrawn, or will water be discharged to ground water? Give general description, purpose, and approximately quantities if known.

No

To be Completed by Applicant

Evaluation for Agency Use Only

(2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: domestic sewage; industrial, containing the following chemicals; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

NA

c. Water Run-off (including stormwater)

(1) Describe the source of runoff (including stormwater) and method of collection and disposal, if any (include quantities, in known). Where will this water flow? Will this water flow into other waters? If so, describe.

Stormwater runoff is collected, contained, and treated on-site. There will be no change as the result of the use of RAP.

(2) Could waste materials enter ground or surface waters? If so, generally describe

No

(3) Proposed measures to reduce or control surface, ground, and runoff water impacts, if any:

NA

4. **Plants**

a. Check the types of vegetation found on the site:

- [x] **Deciduous tree:** [ ] alder [ ] maple [ ] aspen [ ] other _____
- [x] **Evergreen tree:** [ ] fir [ ] cedar [ ] pine [ ] other _____
- [x] **Shrubs**
- [x] **Grass**
- [ ] **Pasture**
- [ ] **Crop or grain**
- [x] **Wet soil plants:** [ ] cattail [ ] buttercup [ ] bulrush [ ] skunk cabbage other _____
- [x] **Water plants:** [ ] water lily [ ] eelgrass [ ] milfoil [ ] other

Other types of vegetation _____

Thurston County
Resource Stewardship
Environmental Elements

To be Completed by Applicant

Evaluation for Agency Use Only

b. What kind and amount of vegetation will be removed or altered?

NA

c. List threatened or endangered species known to be on or near the site.

NA

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

NA

5. **Animals**

a. Check any birds and animals which have been observed on or near the site or are known to be on or near the site:

☒ **Birds:** ☐ hawk, ☐ heron, ☐ eagle, ☐ songbirds, ☐ other: _____

☒ **Mammals** ☐ deer, ☐ bear, ☐ elk, ☐ beaver, ☐ other: _____

☒ **Fish:** ☐ **bass,** ☐ **salmon,** ☐ **trout,** ☐ **herring,** ☐ **shellfish,** ☐ other: _____

b. List any threatened or endangered species known to be on or near the site.

NA

c. Is the site part of a migration route? If so, explain.

NA

d. Proposed measures to preserve or enhance wildlife, if any:

NA

To be Completed by Applicant

Evaluation for Agency Use Only

6. **Energy and Natural Resources**

   a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

      No additional energy is required to recycle RAP. In fact, there is a net reduction in energy needs when recycling RAP.

   b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

      No

   c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any

      Recycling of RAP conserves energy by reducing the consumption of fossil fuels and asphalt cement.

7. **Environmental Health**

   a. Are there are any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe.

      No

      (1) Describe special emergency services that might be required.

      None

      (2) Proposed measures to reduce or control environmental health hazards, if any:

      NA

Thurston County
Resource Stewardship
Environmental Elements

To be Completed by Applicant

Evaluation for Agency Use Only

b. Noise

(1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

NA

(2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

No new or additional noise impacts will occur.

(3) Proposed measures to reduce or control noise impacts, if any:

NA

8. **Land and Shoreline Use**

a. What is the current use of the site and adjacent properties?

The Affected Geographic Area has multiple uses.

b. Has the site been used for agriculture? If so, describe.

No

c. Describe any structures on the site.

Hot-mix asphalt plant and appurtenances.

d. Will any structures be demolished? If so, what?

No

e. What is the current zoning classification of the site?

The Affected Geographic Area has multiple zoning classifications.

To be Completed by Applicant

Evaluation for Agency Use Only

f. What is the current comprehensive plan designation of the site?

The Affected Geographic Area has multiple comprehensive plan designations.

g. If applicable, what is the current Shoreline Master Program designation of the site?

NA

h. Has any part of the site been classified an "environmentally sensitive" area? If so, specify.

No

i. Approximately how many people would reside or work in the completed project?

NA

j. Approximately how many people would the completed project displace?

None

k. Proposed measures to avoid or reduce displacement impacts, if any?

NA

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

NA

9. **Housing**

a. Approximately how many units would be provided, if any? Indicate whether high-, middle-, or low-income housing.

NA

Thurston County
Resource Stewardship
Environmental Elements

To be Completed by Applicant

Evaluation for Agency Use Only

b. Approximately how many units, if any, would be eliminated? Indicate whether high-, middle, or low-income housing.

None

c. Proposed measures to reduce or control housing impacts, if any:

NA

10. **Aesthetics**

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

NA

b. What views in the immediate vicinity would be altered or obstructed?

None

c. Proposed measures to reduce or control aesthetic impacts, if any:

NA

11. **Light and Glare**

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

No type of light or glare is produced by the proposal.

b. Could light or glare from the finished project be a safety hazard or interfere with views?

NA

To be Completed by Applicant

Evaluation for Agency Use Only

c. What existing off-site sources of light or glare may affect your proposal?

No off-site source of light or glare affect the proposal.

d. Proposed measures to reduce or control light and glare impacts, if any:

NA

12. **Recreation**

a. What designated and informal recreational opportunities are in the immediate vicinity?

None

b. Would the proposed project displace any existing recreational uses? If so, describe.

No

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

NA

13. **Historic and Cultural Preservation**

a. Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe.

No

b. Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.

NA

Thurston County
Resource Stewardship
Environmental Elements

To be Completed by Applicant

Evaluation for Agency Use Only

c. Proposed measures to reduce or control impacts, if any

NA

14. **Transportation**

a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any.

NA

b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?

No

c. How many parking spaces would the completed project have? How many would the project eliminate?

None

d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).

No

e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

No

f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.

NA

Thurston County
Resource Stewardship
Environmental Elements

To be Completed by Applicant

Evaluation for Agency Use Only

g. Proposed measures to reduce or control transportation impacts, if any:

NA

15. **Public Services**

a. Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe.

No

b. Proposed measures to reduce or control direct impacts on public services, if any.

NA

16. **Utilities**

a. Circle utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other.

NA

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

None

17. **Signature**

a. The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Print Name Karen Deal

Date Submitted June 22, 2017

Signature: Karen Deal

THURSTON COUNTY
WASHINGTON
SINCE 1852

THURSTON COUNTY
SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS
(Do not use this sheet for project actions)

Non-project proposals are those which are not tied to a specific site, such as adoption of plans, policies, or ordinances.

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment. When answering these questions, be aware of the extent the proposal, or the types of activities likely to result from the proposal, would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general terms.

To be Completed by Applicant

Evaluation for Agency Use Only

1. How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?

   There will be no new or modified impacts to the air, water or local environment.

   Proposed measures to avoid or reduce such increases are:

   There is no increase in emissions or water discharges or production of noise.

2. How would the proposal be likely to affect plants, animals, fish, or marine life?

   Storage and recycling of RAP at approved and permitted hot-mix asphalt facilities will not affect plants, animals, fish, or marine life.

   Proposed measures to protect or conserve plants, animals, fish, or marine life are:

   No measure beyond those already required by Special Use Permits (specifically Lakeside's SUPT990457) are proposed.

3. How would the proposal be likely to deplete energy or natural resources?

   No energy or natural resources will be depleted. The proposal results in a conservation of energy and natural resources.

   Proposed measures to protect or conserve energy and natural resources are:

   Recycling RAP protects and conserves energy and natural resources and diverts a recyclable product from the landfill thus conserving landfill space. Recycling RAP decreases construction time and associated indirect energy and natural resource consumption.

Thurston County
Resource Stewardship
Supplemental Sheet for Nonproject Action

To be Completed by Applicant

Evaluation for Agency Use Only

4. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, flood plains, or prime farmlands?

   NA. This proposal will have no additional or changed impacts.

   Proposed measures to protect such resources or to avoid or reduce impacts are:

   NA

5. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?

   NA. This proposal will not affect land or shoreline use.

   Proposed measures to avoid or reduce shoreline and land use impacts are

   NA

6. How would the proposal be likely to increase demands on transportation or public services and utilities?

   NA. This proposal will not increase demands.

   Proposed measures to reduce or respond to such demand(s) are:

   NA

7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment

   No conflicts. Recycling of RAP is permitted by Thurston County subject to the requirements of TCC 17.20 and 20.54.

Attachment B:

Herrera Consultant Report on Leachate from RAP

LITERATURE REVIEW

CONTAMINANT LEACHING FROM RECYCLED ASPHALT PAVEMENT

Prepared for
Thurston County
Community Planning & Economic Development

Prepared by
Herrera Environmental Consultants, Inc.

HERRERA

Note:
Some pages in this document have been purposely skipped or blank pages inserted so this document will copy correctly when duplexed.

LITERATURE REVIEW

CONTAMINANT LEACHING FROM RECYCLED ASPHALT PAVEMENT

Prepared for
Community Planning and Economic Development
2000 Lakeridge Drive Southwest
Olympia, Washington 98502

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May 14, 2019

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EXECUTIVE SUMMARY

Recycled asphalt pavement (RAP) is typically asphalt that has been removed from roadways or parking lots during repair and replacement of the roadway surface. It is then reused extensively in the creation of new roadway surfaces. Concerns over possible leaching of pollutants from RAP stem from the original composition of the asphalt as well as from the pollutants added during its use, for example, when the RAP has been taken from roadways where it has been exposed to vehicle traffic and the metals and petroleum products that are associated with that use.

Between the time when RAP is removed and when it is reused, it must be stockpiled. When stockpiled, precipitation falling onto the stockpile can result in contaminants leaching from the RAP. These contaminants can then be transported to nearby surface waters or infiltrated to groundwater. The purpose of this study was to review available research on leaching of pollutants from RAP. The study was purposely constrained to a review of research on direct measurements of leachate from RAP; no research that evaluated application of Best Management Practices (BMPs) to reduce contaminant loading or that assessed fate and transport of contaminants once the leachate reaches the environment were considered in this literature review.

After an assessment of over 100 articles initially identified, eight highly rated studies were selected for this literature review. They were selected because they were directly applicable to the objectives of this study, and the research was of high quality in terms of the number of tests, quality assurance, and in the detail provided for this review.

Key conclusions of the literature review are:

- As a source of contaminants, RAP is highly variable. Factors contributing to variability in leachate from RAP appear to include how the asphalt was originally manufactured (e.g., the sources of crude oil and aggregate or whether coal tar or bitumen was used), how the RAP was used, the duration and degree to which it has weathered and been exposed to traffic or other pollution generating sources, and how long it is stored.

- Laboratory testing indicated that there were typically some contaminants leached from RAP at concentrations that exceeded state groundwater quality standards. There were five polycyclic aromatic hydrocarbons (PAHs) that were measured above state groundwater quality standards with some frequency (i.e., in 50 percent or more of the studies where detection limits were adequate). Some metals were also leached, primarily in tests run under low pH environments.

- Testing indicated that there is a distinct, initial flush of contaminants from RAP that can result in concentrations exceeding Washington State groundwater quality standards, but that these peak concentrations decrease quickly to below detection limits as more water is flushed through the RAP.

INTRODUCTION

Recycled asphalt pavement (RAP) is typically asphalt that has been removed from roadways or parking lots during repair and replacement of the roadway surface. It is then re-used extensively in the creation of new roadway surfaces. Concerns over possible leaching of pollutants from RAP stem from the original composition of the asphalt as well as the pollutants added by vehicle traffic. Asphalt can be composed of bitumen, coal tar, mineral aggregate, and fillers such as adhesives and polymers. Bitumen and coal tar are derived from crude oil and contain metals and polycyclic aromatic hydrocarbons (PAHs). The composition of the crude oil is also highly variable in terms of these pollutants, which is why some of the studies summarized in this report have compared different sources of RAP. Mineral aggregate can be a natural source of heavy metals in RAP, and vehicle traffic contributes metals and PAHs from wear and tear of vehicle parts and from gasoline and lubricants.

Between the time when RAP is removed and when it is reused, it must be stockpiled. When stockpiled, precipitation falling onto the stockpile can result in contaminants leaching from the RAP. These contaminants can then be transported to nearby surface waters or infiltrated to groundwater. The latter is especially a concern in areas where the groundwater is more vulnerable to contamination due to fast-draining soils and where it is used as a drinking water supply, such as in the Nisqually area of Thurston County. Because of concerns about RAP leaching contaminants while it is stockpiled, the Nisqually Sub-Area plan of the Thurston County Comprehensive Plan specifically prohibits the use of mined-out gravel pits for the reprocessing of asphalt due to water quality concerns.

The purpose of this study by Herrera Environmental Consultants, Inc. (Herrera) was to review available research on leaching of pollutants from RAP. The study scope was specifically constrained to summarizing research on direct leaching of pollutants. For example, it does not account for use of best management practices (BMPs) such as covering the material to reduce the amount of precipitation that comes into contact with the RAP, thereby limiting leachate formation. It also does not address fate and transport as leached materials move over or through ground and water. Such practices and processes could be evaluated in a subsequent phase of study, if warranted.

Most of the laboratory studies reviewed can be grouped into two different methods of simulating pollutant leaching: batch-leaching tests (referred to herein as batch tests) and water column leaching tests (referred to herein as column tests).

Batch tests are those in which prepared samples of RAP are placed in containers with water, which is sometimes acidified, and allowed to soak for a fairly short period, usually on the order of hours or days. The samples are typically agitated during the soaking period to maximize surface area contact. The samples are filtered, and the filtrate is tested for pollutants. The objective of a batch test is to evaluate the short-term leaching potential of water-soluble contaminants. Batch tests are small-scale tests used to provide quick estimates of maximum

potential leaching behavior; the low water volume, high contact time, and agitation do not simulate the conditions likely to exist in the field, where water continually flows through the material. There are many variations in how batch tests are performed, such as how the samples are prepared, size of the test containers, the ratio of liquids to solids (L:S ratio), the duration of the test, and the character and pH of the water used as the extractant. The extractant in the studies reviewed varied from neutralized deionized water, to slightly acidified water, to more strongly acidified solutions. The more acidic the solution, the more aggressive the leaching of most contaminants. In the United States (US), there are two standard protocols that are typically followed for performing these tests: the Toxicity Characteristic Leaching Procedure (TCLP) and the Synthetic Precipitation Leaching Procedure (SPLP). The TCLP test was designed to simulate conditions that might be experienced by materials exposed for many years to the acidic environment of a landfill. The SPLP is used to better simulate conditions in a more natural environment but under acid rainfall conditions. Even the studies done in Europe often use these protocols from the US Environmental Protection Agency (US EPA).

Column tests involve placing compacted samples into a column and delivering water to the column at a specified flow rate for a specific period of time, typically a number of weeks. For column tests, water samples are collected from the columns at multiple times during the test to allow assessment of changes in contaminant leaching over time. In addition to the type, quantity, and source of RAP used, the rate that the water is delivered to the column, the total amount of water sent through the column (which affects the L:S ratio), and the sampling intervals are important variables in column tests. As with the batch tests, the pH of the water used for the test is also critical. There are no standard protocols for conducting column tests.

As described below, the literature review began with identification of 101 information sources to consider. Through initial sorting and reviewing, eight studies were identified that were of high quality in terms of how the research was performed and for which the research was most applicable to the objective of this report. This report includes a brief synopsis of the findings of each of the eight studies.

METHODS

During the first phase of this project, a list of preliminarily identified studies was created. At project onset, Thurston County provided a list of 88 information sources that were identified by project stakeholders over the years and submitted to Thurston County. As a first step in development of this literature review, a reference library search was completed to identify additional information sources; this resulted in the addition of 13 references to the database, for a total of 101 information sources. Then, studies dated before 1995 were eliminated to remove sources with outdated analytical techniques. The remaining sources were sorted with the objective of including only those that serve as primary data sources; studies that did not contain data or that summarized data collected by others were excluded. As a result, 33 of the 101 information sources were retained for further evaluation.

During the second phase of the project, a closer examination of the study methods and objectives used in each of the 33 studies was completed; and each of the studies was rated as low, medium, or high in terms of its appropriateness for inclusion in this report. There were initially 5 studies rated as high, and they were the only studies included in an early (October 2018) draft of this literature review. The studies rated as low were not considered further. In most cases, those rated as low did not appear to specifically address RAP, although some were given low ratings because they did not provide data or because the author(s) had completed a more recent study that superseded the preceding one. In general, the studies rated as moderate were either: 1) older and had higher detection limits than those currently in use, 2) done by undergraduate students and did not have rigorous review, or 3) did not specifically address the objective of this study. However, the results and conclusions of the moderate-rated studies were reviewed to evaluate whether they used a testing approach or contained unusual findings that should be considered. None of the studies rated as moderate had findings notably different than the highly rated studies.

One concern identified during review of the early (October 2018) draft of the document was that too many of the highly rated studies were done outside the U.S. where coal tar has been used in the processing of asphalt for many years beyond when it stopped being used in the U.S. Because coal tar has many times more PAHs than the bitumen used in the U.S., it could be expected that the character of the RAP and leachate would be different. A second search of the literature and review of reference sections of the other reports was done in an effort to identify additional U.S.-based research. As a result, two additional highly rated studies were identified and included in this evaluation. A third study, which had been included in the list of 33 studies but removed from consideration due to its age, was also added to the list of literature to be reviewed because it was done in the U.S. and was considered one of the preeminent studies of RAP. This resulted in a total of 35 studies. Appendix A contains a list of the 35 studies that were considered in this second phase and provides the rating rationale for each.

In the end, eight studies were highly rated because they were directly applicable to the objectives of this study and the research was of high quality in terms of the number of tests, quality assurance, and detail provided for the analysis. Each of these studies is described individually below.

Tables 1 and 2 (following the *Summary and Conclusions* section of this report) provide a comparison of key data provided in the eight studies. The intent of these tables was not to list all of the data but to focus on those data of most interest and frequently reported. For the Total Metals category, all 13 US EPA priority pollutant metals have been included plus a few others that were commonly measured in the different studies. No elements were left out if they were commonly detected or if they were detected in any study at a problem concentration. The data for Polycyclic Aromatic Hydrocarbons (PAHs) is limited to the US EPA's list of 16 priority pollutant PAHs. With the exception of one study that assessed 29 PAHs, the remaining seven studies evaluated the list of 16 or a subset of these.

Tables 1 and 2 provide a comparison of study results to Washington State Groundwater Quality Standards (Washington Administrative Code [WAC] Chapter 173-200-040). These standards are

the most applicable because Thurston County refers to them for groundwater monitoring under its mineral extraction and asphalt production code (Thurston County Code 17.20.210) and because the literature reviewed relies on direct measurements in discharge. State drinking water standards would have been applied if the measurements had been made in the groundwater. Table 3 provides a comparison of the state groundwater quality standards to the Washington State Drinking Water Standards for Group A Public Water Supplies (WAC 246-290-310). These are standards that would apply under the Sanitary Code for Thurston County-Article III and are applicable to assessments of domestic water supply. The drinking water standards are provided for comparison purposes only.

Summary of Selected Literature

In the research reports summarized below, the authors used a variety of standards for comparison, including European Community (EU) drinking water standards, Danish groundwater standards, US EPA standards, and state-specific standards, because the studies were done in different countries and states. In the summary of each report, provided below, the authors' conclusions related to the standards they used are included. For the purposes of this review, the groundwater quality standards in Washington State are the standards that of are of most interest and that would be applied in Nisqually. Therefore, in the *Comparisons of Study Results to Standards* section of this report the data from all of the studies is compared to Washington State groundwater quality standards. In that section, the authors' conclusions related to the standards they applied are summarized again so that all of those conclusions related to standards exceedances are in one place.

Hydraulic and Environmental Behavior of Recycled Asphalt Pavement in Highway Shoulder Applications (Aydilek et al. 2017)

This was an extensive study done by researchers at the University of Maryland for the Maryland Department of Transportation. The objective of the testing was to evaluate RAP from seven different sources in Maryland to reflect differences in original source materials (e.g., crude oil and aggregate) and roadway use characteristics. The study included three different phases: hydraulic behavior, environmental behavior, and pH relationships with leaching. The information gained from the testing was used to develop models to predict fate and transport of contaminants in surface water and through the ground.

For the purposes of this review, the second phase of the testing that examined environmental behavior was most applicable. For those studies, the seven RAP samples, as well as three or four control samples consisting of either aggregate base, stone, or topsoils, were tested. The tests included batch and column tests.

Batch Tests

Batch tests, which used deionized water with a low amount of salt as the extractant (likely close to neutral pH), were done in triplicate. A total of 15 elements were analyzed, including most of the heavy metals. Aluminum (Al), arsenic (As), barium (Ba), copper (Cu), iron (Fe), sodium (Na), and zinc (Zn) were measured at detectable concentrations in one or more of the seven RAP samples; the rest of the elements tested were below the detection limits for all samples. Of those elements detected, Al, Ba, and Cu were detected at levels that exceeded either a US EPA or Maryland State standard. Copper was detected in four of the seven samples, with two results slightly exceeding the US EPA Water Quality Limits (US EPA WQLs), and all results exceeded Maryland's Aquatic Toxicity Limits (ATLs) for fresh water. Aluminum was detected in five of the seven RAP samples; all five results were well below the US EPA WQLs but well above Maryland's ATLs. Barium was detected in three of the seven samples, with all three results above Maryland's ATLs; there is no US EPA WQL for barium. The authors do not specifically discuss the arsenic results; however, all three of the RAP samples where arsenic was measured at detectable concentrations exceeded Maryland's ATL. The detection limit for the remaining four samples exceeded the Maryland's ATL standard; therefore, it is unknown how they compare to them. Similarly, lead (Pb), Chromium (Cr), Cobalt (Co), Nickel (Ni) and Vanadium (V) were below detection in all samples, but again the detection limit was higher than Maryland's ATL for these elements; however, they were all below US EPA WQLs.

Column Tests

The same seven RAP samples used in the batch tests, were tested in flow-through column tests. The column tests involved pumping a constant flow of water (pH 6.0 to 6.5) through the columns and collecting samples at regular intervals that represented different pore volume exchanges. Approximately 15 to 20 samples were collected from each column, representing pore volume exchanges from approximately 1 to 250. In the column tests, peak concentrations exceeded Maryland's ATL standards for:

- Aluminum (Al) (in three of the seven RAP samples)
- Boron (B) (in all seven samples)
- Barium (Ba) (in all seven samples)
- Cobalt (Co) (in one of seven samples)
- Copper (Cu) (in four of seven samples)
- Manganese (Mn) (in six of seven samples)
- Nickel (Ni) (in four of seven samples)
- Zinc (Zn) (in one of the seven)

The peak concentrations for Zn and Cu exceeded the US EPA WQLs (each in one of the seven RAP samples) but decreased to below the US EPA WQLs very quickly. All As, Pb, Cr, and V concentrations were below the detection limit, but the limit was higher than the ATL; thus, it is unknown how the concentrations compare to Maryland's ATL standard. However, the detection limits are well below the US EPA WQL; thus, those standards were met. Almost all of the analytes tested exhibited a strong first-flush characteristic; that is, peak concentrations occurred early in the testing and then concentrations dropped precipitously. With the exception of one RAP sample, which had very high (relative to the other RAP samples) aluminum (Al) concentration to begin with, Al did not exhibit a first-flush characteristic. Instead, Al concentrations began to increase late in the experiment and coincident with a pH increase. This result fits with what is understood about the solubility of Al within the neutral range of pH.

As stated by the study authors, if any kind of a weighted average were to be applied to the results, the concentrations for all constituents would be well below the most stringent standards. The authors concluded that RAP from sources in Maryland does not release excessive amounts of toxic elements, as determined through either the batch or column tests.

Leaching of Heavy Metals and Polycyclic Aromatic Hydrocarbons from Reclaimed Asphalt Pavement (Legret et al. 2005)

This study was completed by researchers in France and funded by the French Public Works Ministry. The objective was to evaluate potential environmental concerns associated with leaching of contaminants from RAP. In this study, RAP samples were collected during a repaving project on a heavily used highway. Batch and column tests were done on composite samples collected from a stockpile of the RAP. Testing was also performed on core samples taken from the roadway. All leachate samples were analyzed for heavy metals, total hydrocarbons, and PAHs. The study authors compared results to European Community (EC) drinking water standards, Dutch target (intervention) levels for groundwater, and US EPA standards. The research included batch tests and column tests, as well as column tests completed with core samples.

Batch Tests

Batch tests were performed on four composite samples collected from a stockpile of RAP. A series of three extractions, done in a succession of 16-hour periods, were run on three RAP samples. Deionized water was used as the extractant. Of the eight metals analyzed, only Zn and mercury (Hg) were measured at levels above detection limits. Zinc was detected during only the first of the three extractions in the 16-hour series test, but the concentration was below US EPA standards. Mercury was detected during all three extractions but always at or near the detection limit. Metals detected were all well below the maximum contaminant level (MCL). Total hydrocarbons were detected slightly above the Dutch intervention level for groundwater during the initial extraction but below the detection limit for the remaining extractions. Of the 16 PAHs

analyzed, all were near or below the detection limit except phenanthrene, which was measured at or just above the detection limit but well below the Dutch intervention level.

The last composite sample was tested over one, 24-hour extraction period in parallel with a sample of new asphalt (as opposed to RAP). Heavy metals were below detection in both the RAP and the new asphalt. Total hydrocarbons were higher in the RAP sample. Of the six PAHs tested, only benzo(a)pyrene and fluoranthene were measured above detection limits in the RAP leachate; neither were above Dutch groundwater intervention levels. None of the six PAHs were detected in the new asphalt sample.

The researchers also ran a two-stage batch test that included a first stage at neutral pH (7) and a second stage at low pH (4). No data tables were provided for this test, but the researchers noted that Zn, Ni, chromium (Cr), and cadmium (Cd) were released at the lower pH, while Cu and lead (Pb) were not. All the elements tested were below the EC limits for drinking water.

Column Tests

Column tests were performed on two of the composite RAP samples. One unique aspect of these column tests was that the bottom of each sample was submerged at all times to simulate saturated conditions that might occur in some roadway configurations. The column tests were conducted by adding 1.5 liters of water to the columns every day for 75 days. Samples were collected five times during that period (on Days 2, 10, 25, 50, and 75) to represent increasing volumes of water passing through the columns and corresponding to an L:S ratio ranging from 0.5 to 30.

Similar to other studies, there was a definite first-flush effect for some analytes. Only five heavy metals were tested: Cu, Pb, Zn, molybdenum (Mo), and Hg. Copper and Zn were detectable in the initial test samples (Day 2) but at low concentrations, and Zn was detected again at even lower concentrations on Day 10. Lead and Mo were below detection for all samples. Mercury was not detected until Days 50 and 75 and was detected at concentrations just above the detection limit. The total hydrocarbon concentration was above the EC drinking water standards but well below the Dutch groundwater intervention level until Day 10; it was not detected after that. Of the 16 PAHs tested, 10 were below detection in all samples. The remaining six PAHs showed classic, first-flush characteristics, with detectable concentrations during the Day 2 test and in a few cases during the Day 10 test, but concentrations were generally below detection after Day 10. Only benzo(a)pyrene slightly exceeded the EC drinking water standard during the first two tests (Day 2 and Day 10). All PAHs were below detection by Day 20.

Core Samples

This study also included collection of four core samples: two from a pavement with 10 percent RAP and two from a pavement with 20 percent RAP. The four core samples were placed in columns and, after saturating them under pressure, 4 liters of deionized water was passed through them and analyzed. Six heavy metals were tested. However, since the authors noted

that the metal analyses may have been confounded by some of the equipment that was used, no summary of those results is provided herein. As with the column tests, the concentration of total hydrocarbons was significantly high as compared to the Dutch target value for groundwater. Among the six PAHs analyzed, one (fluoranthene) was at a detectable level, and its concentration was just above the detection limit.

The authors concluded that pollutant leaching is rather weak for most of the studied parameters. Concentrations in the solutions derived from batch tests generally remained below EC limits for drinking water. Column experiments showed higher concentrations in the initial leaching stages that rapidly decreased to values below detection limits. The authors recommended that the laboratory experiments be followed by field experiments to evaluate real-world hydrologic conditions and scaling.

Environmental Impacts of Reclaimed Asphalt Pavement (RAP) (Mehta et al. 2017)

This study was funded by the New Jersey Department of Transportation and performed by researchers from the State University of New York and Columbia University. The objective of the study was to investigate levels of 32 elements and PAHs in leachate from RAP (using batch and column tests), as well as to evaluate how weathering might affect leachate characteristics. The study also included toxicity testing. Three RAP sources from different areas in New Jersey were used in the study, as well as a ”fresh” hot mix asphalt sample (which had not been used in roadways) as a control.

Batch Tests

Batch extraction experiments, using acidified water (pH 4.93) as the extraction fluid, were performed on all samples (from all three RAP sources and the fresh asphalt, each in four different weathered forms) and were analyzed for 32 major and trace elements, including most of the heavy metals. The purpose of using a low pH extractant was to simulate a very aggressive leaching environment, such as would occur in a landfill. The study authors summarized that, overall, no elements except Pb exceeded US EPA drinking water MCLs. Lead was close to or higher than the MCL for a number of the weathered samples, but all of them came from the same RAP source (i.e., “NORTHRAP”). The elevated Pb was attributed to historical use of lead in gas and white road paint. The control sample had significantly lower concentrations of most elements, indicating that the source of the contaminants was related to road exposure. Weathering of the control samples did not affect these findings, indicating that aging and oxidation of the RAP did not lead to contamination.

The PAH testing included evaluating the acidified water-soluble fraction as well as the total organic extractable fraction of 29 PAH compounds. The total organic extractable fraction used a strong solvent (dichloromethane) as the extractant. The acidified water-soluble fraction represents the portion that would be released into solution under more aggressive leaching

conditions (e.g., in landfills) than would be expected with natural rainwater (i.e., rainwater with a pH of approximately 5.6), while the total organic extractable PAH represents the maximal amount of organic compounds that could be leached from the RAP under extreme conditions.

Acidified water extracted little, if any, PAHs from the samples. The water leaching process, on average, mobilized less than 1 percent of the total PAHs. Again, the one RAP source (NORTHRAP) and its weathering products showed the highest concentrations for most PAHs, while samples from the fresh asphalt and the other RAP sources often had concentrations below detection. The authors noted that benzo(a)anthracene was the only PAH detected at levels of concern. (This was based on 1995 US EPA human health advisory levels.)

For the 8 PAHs for which specific data was provided, the total extractable PAH concentrations were magnitudes higher than what was extracted with acidified water, as would be expected. The fresh asphalt source and its weathering products had the lowest concentrations for most PAHs. The NORTHRAP source and its weathering products had the highest PAH concentrations.

Column Tests

Water column experiments were performed to investigate both leaching and the attenuation effect of soil on contaminants leached. The columns had two stages—the first column contained the RAP samples and the second contained a local sandy loam soil—to test leaching as well as attenuation in the soil. The column experiments were done as a time series with samples collected eight times over a 4-day period. Synthetic rain water (pH close to 5) was used as the extractant. The RAP samples selected for testing included the sample with the consistently highest concentrations of contaminants from previous testing (NORTHRAP) in weathered and unweathered form, and the fresh asphalt, which had consistently low concentrations of contaminants in weathered and unweathered form. As with the batch experiments, samples from the column experiments were analyzed for 32 major and trace elements. No major or trace elements were found to exceed US EPA's primary drinking water MCL. The authors summarized that, compared to the strong dissolution capacity of the more acidic water used in the batch testing, the synthetic rain water used in the column experiments was less capable of eluting elements. Most of the major and trace elements exhibited higher release from the soil than from the asphalt, but in both stages (RAP and soil stage) the contaminants were leached out quickly. The elements that were released from the asphalt column were attenuated in the soil column.

Overall, PAHs in the column experiments were detected at concentrations less than the 1995 US EPA guidelines cited by the authors. Some of the PAHs appeared to be generated by the soil stage of the columns. The weathered RAPs generally generated more PAHs, but the concentrations were still below the US EPA guidelines and decreased to below detection after attenuation through the soil.

Toxicity Testing

This study also included extensive testing of toxicity using multiple test types and assay organisms. Overall, the results did not identify significant toxicity associated with the solutions emanating from fresh or weathered RAP. However, there were problems associated with the testing, including that the extracting fluid itself exhibited toxicity and that fungal growth in the soil may have affected some of the tests. The authors caution that minor toxicity could have been obscured by these problems.

The authors included the following conclusions:

- Leaching of some PAHs and Pb may occur under acidic environments such as landfills, but typical New Jersey rainfall is expected to elute negligible contaminants.
- Column testing indicated that weathered RAP can leach PAHs; however, the contaminants were attenuated in the soil and reached baseline levels.
- New Jersey soils can be a source of contamination for both metals and PAHs; thus, soil testing may be important in some usages.

Based on these findings, the authors made recommendations on use of RAP. They recommended that it could be used as an unbound material in all environments except those which are highly acidic (pH < = 4), such as mines or landfills. (Note: the assumption is that the authors are referring to coal- and metal-type mines and not gravel-type mines since the former can result in acidic drainage waters.) The authors listed acceptable, beneficial uses of unbound RAP in addition to use in hot mix asphalt applications as including surface materials for parking lots, farm roads, or pathways; for quarry reclamation; as non-vegetative cover underneath guiderails; and mixed with other materials for subbase or base materials.

Leaching of PAHs from Hot Mix Asphalt Pavements (Birgisdottir et al. 2007)

This study was performed by researchers at the University of Denmark. The underlying question for the research was whether the source of elevated PAHs measured in soils near paved roads originated from the asphalt. The researchers used laboratory results to inform model parameters (e.g., diffusion coefficients for PAHs) and then to evaluate scenarios of PAHs moving to the adjacent roadway soils. The research included testing of two core samples collected from different paved surfaces: a gas station in operation since 1980 and a roadway constructed in 2001. Because the cores were collected in 2002, the samples represent more than 20 years of potential contaminant accumulation for the gas station but only about 1 year of the same for the roadway. The two core samples were subdivided to include a ”wear course” (the upper portion of the pavement core) and a ”base course,” resulting in a total of four samples. Two types of tests were run. The first used a column-based set up, but the methods and objectives

were more similar to the batch tests done by other researchers; the second was a tank leaching test, and those methods were more similar to column testing done by others.

Batch Type Test

The batch type tests (called availability tests in the paper) were done using columns, but the leachate was recirculated through the system for a 7-day period. Deionized water was used for the elutriate; the pH was not reported but presumably it would be near neutral. The total content of PAHs was found to be higher in the wear course than in the base course for both samples. This supports the findings of other studies indicating that the source of contaminants was from pavement use (e.g., contaminants from vehicles or vehicle emissions) rather than from the original asphalt material. The portion of the total PAHs that was calculated to be available through leaching was 3 percent to 11 percent. In terms of availability of individual PAHs in the wear course, they ranged from 0.5 to 75 percent available; naphthalene and phenanthrene had the highest availability at 33 to 75 percent and 4 to 36 percent, respectively.

Column Tests

The column tests in this study were done in large tanks over a 64-day leaching period. Samples were collected eight times over that period, and the water was replaced each time samples were collected. The extractant was deionized water stabilized with sodium-azide with a close to neutral pH. The sample from the wear course of the gas station exhibited the highest concentrations for all PAHs detected. Generally, in all four samples the highest concentrations were measured for naphthalene and phenanthrene. However, in the wear course sample from the gas station, 8 of the 16 PAHs were measured at detectable concentrations at some point over the 64-day leaching period.

The cumulative leaching measured during the 64-day test was used to develop diffusion coefficients for naphthalene and phenanthrene; those diffusion coefficients were applied to hypothetical scenarios for leaching from a roadway. The authors concluded that leaching of PAHs from asphalt would only slightly influence the concentration of PAHs in soil near roads.

The authors concluded that, for three of the four samples (all except the gas station wear course), the total content of PAHs in the samples were below the Danish soil quality criteria; the wear course from the gas station sample exceeded the criteria. Based on this study and the modeling, the authors also concluded that only a minor portion of the PAHs present in the asphalt is available to be leached during 25 years of leaching and it is very unlikely that leaching of PAHs from the asphalt causes roadside soils to exceed Danish soil criteria. However, the authors also noted that their conclusions were reliant upon the determination of PAH availability and that further studies should be conducted due to uncertainty in that parameter.

Leaching of Organic Contaminants from Storage of Reclaimed Asphalt Pavement (Norin and Strömvall 2004)

This study was done by researchers at Chalmers University of Technology in Sweden. The purpose of this study was to evaluate the leaching mechanism of organic contaminants including how the leaching may be impacted during temporary storage or stockpiling of the material. Of the sources reviewed, this may be the most directly applicable to this report because its purpose was to characterize runoff from outdoor stockpiles of RAP. However, it must also be noted that in Sweden coal tar was used as an additive in asphalt until 1975; and coal tar contains 10^3 to 10^5 times more PAH than the bitumen used today (Norin and Strömvall 2004). Coal tar has not been similarly used in the U.S. since World War II (Lakeside Industries. Letter to Thurston County Community Planning and Economic Development. November 6, 2018).

In addition to the testing of exposed stockpiles, column tests were carried out in laboratory settings. (Batch tests were completed during an earlier phase of the study [Larson 1998]; some of that data was provided in the report and therefore is included in Table 1; but generally, this data was not summarized in this 2004 report and therefore is not summarized in this review.)

Stockpile Testing

Two stockpiles of RAP were designed and set up specifically to allow collection of leachate samples from different places in each stockpile, such as from the center of the stockpile, where the L:S ratio was lowest, and from near the outer edges of the stockpile, where the L:S ratio was much higher. One stockpile comprised ”scarified” RAP, which was asphalt collected from the top 3 centimeters (cm) of a highly used highway (called the wear course in other studies) and milled into fine gravel (average diameter of approximately 2 millimeters). The second stockpile comprised ”dug” RAP, which consisted of coarse pieces (diameter of 20 to 50 cm) collected to a depth of 10 cm from the same highway; it includes material from both the wear and base courses. The stockpiles were uncovered and, therefore, exposed to precipitation. Precipitation in the west coast of Sweden, where the study occurred, has an approximate pH of 4.5 and a chloride content of 4 to 20 milligrams per liter. The authors describe it as representing ”a relatively aggressive leaching environment.”

Rainfall leachate samples from the two stockpiles were collected monthly for a year and were analyzed for total organic carbon (TOC), which was used as a surrogate measure for all organic contaminants; PAHs; and semi-volatile organics.

Thirty semi-volatile organic compounds (which includes PAHs) were identified in the stockpile samples. The number of semi-volatile compounds identified, and their concentrations were highest in leachate collected from the inner portions of both stockpiles. Leachate from the inner part of the piles had the longest vertical transport time and drained through the thickest part of the stockpiles, providing a lower L:S ratio and more contact between the percolating water and the RAP. Leachate from the stockpile of scarified RAP exhibited higher concentrations of semi-volatile organics than leachate from the stockpile of dug RAP. The authors attributed the

differences between scarified and dug RAP to the scarified RAP's greater exposure to pollutants contributed from the roadway (because the scarified RAP was sourced from wear course only; the dug RAP came from the wear and base courses) and the higher contact area of the more-finely-ground scarified material.

Six of the 30 compounds identified occurred with the most frequency; they were naphthalene, butylated hydroxytoluene (BHT), dibutylphthalate (DBP), N-butyl-benezenesulfonamide, dibenzylhydrozylamine, and di(2-ethylhexyl)phthalate (DEHP). The concentration of total PAHs in leachate from both stockpiles (scarified and dug RAPs) exceeded the threshold set by Sweden for groundwater in polluted soils at gas stations.

Column Test

A column test was done using the same scarified asphalt source to compare "unstored" (i.e., removed from the roadway and immediately tested) RAP to "stored" RAP, which had been stockpiled for 2 years. Acidified water (pH 4) was continuously pumped through the columns. Samples were collected early in the test, representing an L:S ratio of 0.05, and at the end of the test, representing an L:S ratio of 1.0.

The highest concentrations and amounts of TOC were measured in the unstored sample at the highest L:S ratio. The amount of TOC released by the stored samples decreased by more than 50 percent, although TOC concentrations remained high. The concentration of total PAHs followed the same leaching trend as TOC. However, as the authors noted, total PAHs accounted for only 0.005 percent of the TOC, indicating that nearly all the organic compounds leached were from unidentified organic compounds of unknown origin. Where PAHs were detected, the unstored RAP sample had higher concentrations, compared to the stored RAP sample. Comparison of the total PAHs leached in the column tests with the total available for leaching (based on a batch test previously performed by Larsson [1998] with an L:S ratio of 100), indicated that less than <0.4 percent of the total available PAH amount leached during the column tests. Naphthalene was by far the dominant PAH released, representing 85 percent of the total PAH released. Naphthalene and other lower-weight, more volatile PAHs decreased considerably over the 2 years of storage, while PAHs with higher molecular weights increased.

For semi-volatile organics, the trend was opposite that of TOC and PAHs; the stored sample had higher concentrations than the unstored sample, but the concentration difference was not great.

Comparison of Stockpile and Column Test Results

Norin and Strömvall (2004) compared results of the stockpile and column tests. The number and concentration of semi-volatile organic compounds was much lower in leachate samples collected in the column test than were measured in the stockpiles. The total cumulative loading of semi-volatile organics leached from the columns was approximately only 25 percent of what was calculated from the inner section of the scarified RAP stockpile. Further, the leaching in the columns continued for a few days while in the stockpiles it continued for a year. Due to these

differences, the authors cautioned that it is crucial to do further studies and measurements of field leachates because column test results for PAHs and other semi-volatile organics are typically under or near detection limits (as demonstrated by many of the other studies reviewed herein).

The authors attributed the differences in test results to the disparities between the L:S ratios, especially the low ratios for leachate collected from the center (i.e., the deepest part) of the stockpile, and to the cumulative effect of contaminants leaching over a longer period of time in the stockpile test versus the column test. Consequently, the study authors considered the leachate test results from the column tests to be less reliable than those from the stockpile tests.

The authors concluded that their findings ”clearly show that the release of organic pollutants from asphalt storage could cause environmental problems.” The cumulative amounts of organic contaminants (as total PAHs) were high in leachates from both fresh and stored RAP in the stockpile study and exceeded the Swedish recommended values for groundwater in polluted soils at gas stations. The dominant contaminants identified were naphthalene, BHT, and DBP. The authors note that these contaminants occur in urban groundwater, and their high emission rates and persistent structures make them potentially hazardous.

Recycled Materials as Substitutes for Virgin Aggregates in Road Construction: II. Inorganic Contaminant Leaching (Kang et al. 2011)

This study was done by researchers at the University of Minnesota in cooperation with the Minnesota Pollution Control Agency and Minnesota Department of Transportation. It is one part of a larger study to evaluate the suitability of fly ash, RAP, recycled cement material, and foundry sand mixed with virgin aggregates as base and subbase materials in roadways. Part I of the study was focused on hydraulic and mechanical characteristics of the materials and mixtures; Part II evaluated contaminant leaching. The study included both batch and column style testing; however, most of the testing was on mixtures of materials and therefore not strictly representative of RAP. A few of the batch tests included evaluation of 100 percent RAP and those results are summarized in Table 1. Some findings from the column studies are described as they related to evidence of leaching patterns, but no column testing data is included in Table 2 because there were no column studies with 100 percent RAP.

Batch Tests

Batch tests were completed with 100 percent RAP using Mili-q® (ultra-pure) water as the elutriate at an L:S ratio of 20. The pH of Mili-q water is reported as 6.998. The researchers were more focused on fly ash than the other components, and therefore they did not formulate many conclusions related to RAP. However, relevant results for metals for 100 percent RAP are summarized in Table 1. Arsenic was detected at a concentration at the MCL, but no other measured metals had high concentrations. Except for sodium, which was only moderately

elevated, the 100 percent RAP sample had lower concentrations of all inorganic elements detected than 100 percent fly ash and 100 percent aggregate materials.

Column Test

Column tests were performed on six mixtures of three different materials (i.e., fly ash, RAP, and aggregate). No column tests were performed on 100 percent RAP, but the mixtures contained 25 percent to 75 percent RAP. Initial leaching of some contaminants did occur; those mixtures with the highest portion of fly ash (i.e., 15 percent) exhibited the most significant initial leaching. This was attributed in part to the higher water residence time (contact time) of those columns that contained high fly ash. The authors' conclusions were primarily focused on use of fly ash and were not relevant to this review. No column test results are included in Table 2 because there were no column tests on 100 percent RAP.

Environmental Characteristics of Traditional Construction and Maintenance Materials: Final Report (Morse et al. 2001)

This Texas Tech University study was done for the Texas Department of Transportation. The purpose of the study was to determine the concentration of contaminants that would be released into the environment from traditional construction and maintenance materials. RAP was one of eight materials tested. The testing was limited to batch type tests that used the SPLP method to evaluate the mobility of contaminants.

Batch Tests

RAP samples from three different districts in Texas were tested. The experiments used deionized water (pH 5) as the extractant and were mixed by rotating for an 18-hour period at an L:S ratio of 20. Samples were analyzed for 19 major and trace elements, including most of the heavy metals. Organic compounds were also tested in this study, but not on RAP samples. In this study analyte concentrations were compared to the Texas Risk Reduction Standard 2 (RRS2) to evaluate whether the leachate concentrations exceed the values specified by TxDOT. RAP samples exceeded RRS2 regulatory concentrations for at least one of the three samples for antimony, barium, and lead. The average concentration exceeded RRS2 concentrations for barium and lead. Table 1 provides a comparison of their results with groundwater standards applicable in Washington, which were exceeded in one or more samples for antimony, lead, and manganese.

Leaching of Pollutants from Reclaimed Asphalt Pavement (Brantley and Townsend 1999)

This University of Florida study was done for the Florida Center for Solid and Hazardous Waste and the Florida Department of Transportation. The purpose of the study was to address some of

the environmental concerns related to possible leaching of pollutants from RAP. Testing was performed on six RAP samples collected from six different asphalt plants in Florida. Both batch tests and column tests were performed. The testing focused on volatile organic compounds (VOCs), PAHs, and heavy metals. Although this is a dated study, it is considered one of the preeminent RAP leaching studies and therefore was included in this review. The results are summarized here, but it should be noted that the detection limits achieved during this study were very high. In nearly all cases, the detection limits were higher than the state groundwater quality standards, which means the data are not useful for determining whether the contaminant is present at a level that exceeds the standards.

Batch Tests

Three batch type tests were performed on all six samples: TCLP, SPLP, and a test following the same procedures but using unacidified deionized water. None of the 53 VOCs or 16 PAHs tested were found above detection limits, and no heavy metals were detected above Florida's drinking water standards that were in place at that time.

Column Tests

Column tests were performed to simulate two different environmental scenarios: saturated and unsaturated. In the saturated condition, the samples were completely submerged in a SPLP solution for the entire 6-week experiment; the column was drained and refilled every 14 days, and the elutriate was tested. This resulted in a total of three sampled "events" over the course of the experiment. For the unsaturated condition, a liter was drained from the columns every 2 days and tested, and a new liter of SPLP solution was added to the columns. This resulted in a total of 21 sampled events over the 6-week period. Column tests based on general water quality parameters (total dissolved solids was the example used in the report) indicated the "typical leaching curve" of higher concentrations of chemicals during the first 10 to 20 days of the experiment. All of the PAHs were below detection limits. All heavy metals were below detection limits except for lead. Lead exceeded drinking water standards in one of the samples under unsaturated conditions and in three of the samples under saturated conditions. Based on other sample characteristics measured, the samples with the higher measured lead were indicated to be samples of older RAP material; thus, the authors suggest that the older samples likely contained more lead as a result of longer exposure to traffic and emissions.

The authors concluded that few if any priority pollutant chemicals leached from the RAP samples collected and that under most regulatory policies RAP would pose minimal risk from a leaching standpoint. In terms of the lead results, they concluded that under most reuse circumstances where some degree of dilution and attenuation would occur, even if lead was encountered at levels of the highest concentrations measured in the study, the concentrations in the environment would be below acceptable regulatory levels of drinking water. An exception they noted was under saturated conditions with minimal dilution.

Comparison of Studies to Expected Conditions in Nisqually

With the exception of the Norin and Strömvall (2004) study, all of the studies are based on controlled laboratory conditions. For at least three of the eight studies, batch test results followed protocols designed to test leaching under what were considered acidic environments (i.e., pH levels at about 5 and below). However, the pH of precipitation in the Puget Sound region can be very low; in one study mean rainwater pH in the Puget Sound region was reported as 4.5 (Harrison et al. 1977), and the United States Geological Survey (<https://pubs.usgs.gov/gip/acidrain/2.html>) indicates a pH for most of Washington State as 5.3. Therefore, the acidic test conditions used in the batch tests are not too low to represent expected conditions in Nisqually. For the other four studies, testing conditions were close to a neutral pH and therefore represent a less acidic (less leaching) environment than would occur in Nisqually. The one recent study (therefore with improved detection limits), performed at lower pH conditions (Metha 2017) did appear to exhibit higher leaching of metals. In the column tests there were only a few studies that used lower pH elutriates, and there was very little data for metals (the contaminants that would be most impacted by pH) so it is difficult to draw any relationships from those tests.

The Norin and Strömvall (2004) study was the only research conducted in an outdoor setting in the west coast of Sweden where the precipitation has a pH of 4.5 and was considered by the authors to be a “relatively aggressive leaching environment.” As noted above, this is similar to the mean pH of precipitation in the Puget Sound region, so from a pH perspective the study results are applicable to this region. The larger concern with the Swedish study is related to the quality and type of asphalt used in Europe versus the U.S. In Europe the asphalt manufacturing process (e.g., the presence of coal tar in European pavement), the make and model of vehicles, and other factors (e.g., use of studded tires and winter de-icing solutions) could influence the type of contaminants found in the RAP (Lakeside Industries. Letter to Thurston County Community Planning and Economic Development. November 6, 2018). As noted by the study authors, in Sweden tar was used as an additive in asphalt until 1975; and tar contains 10^3 to 10^5 times more PAH than bitumen, which is what has been used in the U.S. since World War II. The PAH results from the Norin and Strömvall (2004) study were the highest concentrations measured, especially for naphthalene and phenanthrene, likely an indication of the quality of the original asphalt. Thus, the basic findings of the Norin and Strömvall (2004) study, that is that RAP from roadway wear course exhibits more leaching than base course RAP and that leaching is highest at the beginning of storage, are likely applicable to the Nisqually area; but the concentrations of contaminants measured may not be representative.

The most consistent trend in all of the studies was that most of the contaminant leaching occurred during the early stages of flushing, whether in batch or column tests or at neutral and low pH. In the Puget Sound region, summer and early fall are typically dry; and storm events that do occur are small, likely too small to completely soak a large stockpile of RAP. Therefore, leaching from stockpiles stored in Nisqually would likely occur during the first large storm

events of the season when the stockpiles are first exposed to heavy rainfall. This is the period when the greatest potential for leaching of contaminants would likely exist.

Comparison of Study Results to Standards

Tables 1 and 2 provide a summary of the most relevant data from each of the selected studies and a comparison to current Washington State Groundwater Quality Standards. Batch test results are presented in Table 1, and column test results are presented in Table 2. All data in these tables reflect testing on 100 percent RAP. Ranges are shown where there was a range of RAP materials tested. For example, seven different RAP sources were tested in one study (Aydilek et al. 2017), and, therefore, Tables 1 and 2 include the range for all the test data from that study. **Bolded** results in the tables indicate where that standard was exceeded. Results are *Italicized* in cases where the detection limit was higher than the state groundwater quality standard. This means that the concentration of the contaminant could have exceeded the standard, or it could have been zero, and makes the results meaningless for evaluating against the standard.

As indicated by Table 1, in four of the eight studies there was at least one metal detected at a level that exceeded the standard. In the one study performed in a low pH (acidic) environment and where detection limits were low enough to compare to the standards (Mehta et al. 2017), four metals were detected at peak concentrations that exceeded a standard. In tests performed under more neutral pH conditions only two metals exceeded a standard. PAHs were only tested at appropriate detection limits (i.e., above groundwater standards) in four of the batch type studies. Thirteen, of the sixteen PAHs were measured at detectable concentrations in at least one of the four studies with appropriate detection limits. At least one PAH above groundwater standards was measured in each of the four studies. Acenaphthene, fluoranthene, naphthalene, benzo(a)pyrene, and pyrene exceeded groundwater standards in at least two (50 percent) of the studies where detection limits were adequate.

Table 2 summarizes the study results from column tests. Metals data are largely lacking for comparison between studies, due to high detection limits and the fact that only a few of the studies evaluated metals in column tests. There was only one metal (manganese) that was measured at a concentration that exceeded the Washington State groundwater standard. For PAHs, all 16 analytes exceeded the standard in at least one of the four studies where they were tested at appropriate detection limits. There were eight PAHs that were measured above the standard in at least two (50 percent) of the studies. These were acenaphthene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-c,d)pyrene, naphthalene, phenanthrene, and pyrene.

Table 3 provides a comparison of the state groundwater quality standards to the state drinking water quality standards. As shown, for all metals and PAH's reviewed in this study, the groundwater quality standards (those included in Tables 1 and 2) are the most stringent. However, there are three metals for which there are drinking water standards but no groundwater quality standards; beryllium, nickel, and thallium. With the exception of one case

where thallium slightly exceeded the state drinking water standard, all other measurements of these metals were below the standard.

The following standards comparisons have been excerpted from each of the report summaries above and relate to the standards used by the various authors rather than Washington State standards:

1. Aydilek et al. (2017) reported that Cu, Al, B, Ba, Co, Mn, Ni, and Zn exceeded Maryland's ATLs in either batch or column tests. Of those, Cu and Zn also exceeded US EPA WQLs. Most of the exceedances occurred during initial flushing, after which concentrations of all the elements quickly fell below detection.

2. In column tests by Legret et al. (2005), total hydrocarbon concentrations were measured above the EC target level for groundwater, and benzo(a)pyrene) slightly exceeded the EC drinking water standard. In both cases, the highest measured concentrations occurred during initial flushing and concentrations were below detection in later tests.

3. Lead was close to or higher than US EPA drinking water standards for a number of the weathered NORTHRAP samples in batch tests done by Mehta et al. 2017. In the same study, benzo(a)anthrazene was detected at levels of concern based on 1995 US EPA human health advisory levels. In the experiments conducted with a strong solvent, many of the PAHs exceeded US EPA 2016 Clean Water Act criteria.

4. In Birgsdotter et al. (2007) the total content of PAHs in the wear course sample from a gas station exceeded Danish soil quality criteria.

5. In Norin and Strömvall (2004), the concentration of total PAHs in leachate from stockpiles of scarified, wear-course RAP and dug, wear- and base-course RAP, both collected from a highly used highway, exceeded the threshold set by Sweden for groundwater in polluted soils at gas stations. The dominant contaminants identified were naphthalene, BHT, and DBP.

6. In Morse et al. (2003), RAP samples exceeded Texas regulatory standards for at least one of the three samples for antimony, barium, and lead. The average concentration exceeded Texas standards for barium and lead.

7. In Kang et al. (2011), there was little testing on 100 percent RAP, and only metals were assessed. Arsenic was measured at the MCL, but no other measured metals had high concentrations as per the standards they were using.

8. In Brently and Townsend (1999), lead exceeded Florida's drinking water standards in a number of the samples during column testing.

SUMMARY AND CONCLUSIONS

There was a wide range in testing materials and protocols used in these studies, and they represent a wide range in conditions. For example, in Europe the asphalt manufacturing process (e.g., the presence of coal tar in European pavement), the make and model of vehicles, and other factors (e.g., use of studded tires and winter de-icing solutions) could influence the type of contaminants found in the RAP (Lakeside Industries. Letter to Thurston County Community Planning and Economic Development. November 6, 2018).The issue of the manufacturing process is emphasized in one of the studies from Sweden where it was noted that in Sweden tar was used as an additive in asphalt until 1975 and that tar contains 10^3 to 10^5 times more PAH than bitumen (Norin and Strömvall 2004). In comparison, coal tar has not been used in the U.S. since World War II (Lakeside Industries. Letter to Thurston County Community Planning and Economic Development. November 6, 2018). As a result of this and other sources of variability, only broad summaries can be drawn from the research. The following points summarize basic findings from the literature reviewed.

- As a source of contaminants, RAP is highly variable. Factors contributing to variability in leachate from RAP appear to include the asphalt manufacturing process, the RAP source, the duration and degree to which it has weathered and been exposed to pollution generating sources, and how long it is stored.
- Both batch and column tests indicated that there were typically some contaminants leached from RAP at concentrations that exceeded Washington State groundwater quality standards. Typically, these exceedances occurred during initial flushing of the RAP.
    - Acenaphthene, fluoranthene, naphthalene, and pyrene were measured above groundwater standards with the most frequency (in 50 percent or more of the studies where detection limits were adequate) in both batch and column tests.
    - Metals data from batch testing indicated that increased release should be expected under acidic (low pH) conditions.
- Although this literature review specifically did not include an assessment of potential environmental impact from fate and transport of these contaminants, a number of the researchers suggested that the impact to the environment would be negligible if dilution and assimilation were considered.
- While some portion of the contaminants is likely generated from components of the asphalt itself, exposure to roadways (and traffic) was identified as a major contributor of contaminants that were available for leaching in three of the studies (Mehta et al. 2017; Birgisdottir et al. 2007; and Norin and Strömvall 2004).
- Batch and column laboratory tests, while informative, are not necessarily representative of what can be expected under field conditions. In the one study that evaluated leachate

collected from outdoor stockpiles (Norin and Strömvall 2004) the results indicated that the total cumulative loading of semi-volatile organics leached during laboratory-based column studies was approximately only 25 percent of what was calculated from leachate collected from the inner section (where the most leaching occurred) of the RAP stockpile. The authors attributed this to differences between the L:S ratios, and to the cumulative effect of contaminants leaching over a longer period of time in the stockpile versus the column test. The authors emphasized the need for field testing as a follow up to laboratory studies.

Table 1. Summary of Batch Test Results from the Eight Research Studies Reviewed.

Constituent	Washington Groundwater Quality Standards[a]	Aydilek et al. 2017[b]	Legret et al. 2005[c]	Mehta et al. 2017[d]	Birgisdottir et al. 2007[e]	Norin and Strömvall 2004[f]	Morse et al. 2001[g]	Brantley and Townsend 1999[h]	Kang et al. 2011[i]
pH	–	7	7.2 to 7.8	4.93	~7	Not reported	5	4.9 to 5.2	7
Liquid:Solids Ratio	–	20:1	10:1 to 30:1	–	100	100	20:1	20:1	20:1
Total Metals (ug/L)									
Aluminum	–	<5 – 272	–	~30 – 800	–	–	<2,000 – <2,000	–	37
Arsenic	0.05	*<50* – **39.5**	–	**~0.4 – 0.6**	–	–	*<25 – <25*	–	**10**
Antimony	–	–	–	–			5.2 – 6.3	–	–
Barium	1,000	<5 – 29.3	–	~0.08 – 300	–	–	*<2,000 – <2,000*	<500 – <500	70
Beryllium	–	–	–	~0.08 – 0.5	–	–	<1 – <1	–	BDL
Cadmium	10	<2 – <5	<0.01 – <0.01	~0.04 – 0.8	–	–	1.2 – 1.8	<5 – <5	BDL
Chromium	50	<5 – <25	<1 – <1	~0.4 – 1.5	–	–	<5 – 6.0	*<100 – <100*	BDL
Copper	1,000	<5 – 28.4	<5 – <5	~0.5 – 750	–	–	<100 – <100	<500 – <500	BDL
Iron	300	<5 – 10.2	–	~1.4 – **1,100**	–	–		–	**410**
Lead	50	<5 – <25	<5 – <5	~0.08 – 20	–	–	20.4	<10 – <10	BDL
Manganese	50	<5 – <5	–	~0.08 – **1,000**	–	–	*<100* – **113**	–	30
Mercury	2	–	0.1 – 0.2	–	–	–	*<2 – <2*	–	–
Molybdenum	–	–	<5 – <5	~0.05 – 0.8	–	–	<10 – <10	–	BDL
Nickel	–	<5– <5	<2 – <2	~0.08 – 20	–	–	<50 – <50	<100 – <100	BDL
Selenium	10	–	–	~4 – **12**	–	–	*<25 – <25*	–	–
Silver	50	<5 – <5	–	~0.01 – 0.03	–	–	*<100 – <100*	–	–
Thallium	–	–	–	~0.03 – 0.2					–
Zinc	5,000	<5 – 8.90	<10 – 115	~6 – 500	–	–	290 – 977	<500 – <500	BDL

Bold values represent detected results that exceed Washington groundwater quality standards.

Italics represent when the detection limit is as high or higher than one of the groundwater quality criteria.

– = Not reported or not available.

µg/L = Micrograms per liter.

BDL = Below detection limit (used when detection limit was not reported).

< = Indicates the analyte was below detection; the adjacent number is the reported detection limit.

~ = Indicates approximate value

[a] Washington Groundwater Quality Standards (WAC 173-200-040).

[b] The numbers shown provide the range from all seven RAP samples tested.

[c] Three extractions at increasing liquid to solid (L:S) ratios were done in these experiments. These data show the range measured in those extractions.

[d] Data reflect range of three unweathered RAP samples from supply sources in New Jersey. Raw data for metals were not provided but were grossly interpolated from graphics. These are shown as approximate (~) values.

[e] These results show the range in concentrations from the wear course of RAP removed from a gas station that had been in use for 20 years as well as the wear course from a highway that had only been in use a few years.

[f] Results reported are from batch tests performed during previous research (Larsson 1998) that were performed on finely ground material.

[g] The results shown represent the range of concentrations measured from three or four samples over two experiments as reported in Appendix B of the report.

[h] The results represent TCLP, SPLP, and deionized water batch tests for six RAP samples. Results were taken from Townsend and Brantley (1998) since only select data was reported in the referenced literature report (i.e., Brantley and Townsend 1999).

[i] Results are from testing of one RAP sample.

Table 1 (continued). Summary of Batch Test Results from the Eight Research Studies Reviewed.

Constituent	Washington Groundwater Quality Standards[a]	Aydilek et al. 2017[b]	Legret et al. 2005[c]	Mehta et al. 2017[d]	Birgisdottir et al. 2007[e]	Norin and Strömvall 2004[f]	Morse et al. 2001[g]	Brantley and Townsend 1999[h]	Kang et al. 2011[i]
Polycyclic Aromatic Hydrocarbons (PAHs) (in µg/L)									
Acenaphthene	0.01	–	*<0.05 – <0.05*	BDL – **0.20**	BDL – **0.05**	**0.057**	–	*<5 – <5*	–
Acenaphthylene	0.01	–	*<0.05 – <0.05*	–	BDL– BDL	**0.338**	–	*<5 – <5*	–
Anthracene	0.01	–	**0.030 – 0.030**	–	BDL – BDL	*<0.018*	–	*<5 – <5*	–
Benzo(a)anthracene	0.01	–	*<0.025 – <0.025*	BDL – BDL	**0.06 – 0.08**	–	–	*<5 – <5*	–
Benzo(a)pyrene	0.008	–	*<0.010* – **0.020**	–	BDL – **0.02**	*<0.071*	–	*<0.025 – <0.025*	–
Benzo(b)fluoranthene	0.01	–	*<0.025 – <0.025*	–	–	*<0.053*	–	*<1 – <1*	–
Benzo(k)fluoranthene	0.01	–	*<0.025 – <0.025*	–	BDL – **0.04**	*<0.036*	–	*<2.5* – <2.5	–
Benzo(g,h,i)perylene	0.01	–	*<0.025* – **0.030**	–	BDL – 0.01	*<0.036*	–	*<5 – <5*	–
Chrysene	0.01	–	*<0.025 – <0.025*	BDL – BDL	BDL– BDL	**0.249**[j]	–	*<5 – <5*	–
Dibenzo(a,h)anthracene	0.01	–	*<0.025 – <0.025*	–	BDL– BDL	*<0.036*	–	*<2.5* – <2.5	–
Fluoranthene	0.01	–	**0.050 – 0.060**	0.0039 – 0.0087	**0.07 – 0.20**	*<0.036*	–	*<5 – <5*	–
Fluorene	0.01	–	**0.030 – 0.040**	BDL – BDL	BDL – 0.01	**0.057**	–	*<1 – <1*	–
Indeno(1,2,3-cd)pyrene	0.01	–	*<0.025 – <0.025*	–	BDL – BDL	*<0.053*	–	*<1 – <1*	–
Naphthalene	0.01	–	*<0.100 – <0.100*	–	**0.08 – 0.50**	**3.92**	–	*<1 – <1*	–
Phenanthrene	0.01	–	0.250 – 0.300	–	**0.10 – 0.50**	0.012	–	*<2.5* – <2.5	–
Pyrene	0.01	–	*<0.025 – <0.025*	BDL – **0.019**	**0.07 – 0.09**	**0.062**	–	*<.5 – <.5*	–

Bold values represent detected results that exceed Washington groundwater quality standards.

Italics represent when the detection limit is as high or higher than the groundwater quality standard.

– = Not reported or not available.

µg/L = Micrograms per liter.

BDL = Below detection limit (used when detection limit was not reported).

< = Indicates the analyte was below detection; the adjacent number is the reported detection limit.

~ = Indicates approximate value interpreted from figures

[a] Washington Groundwater Quality Standards (WAC 173-200-040).

[b] The numbers shown provide the range from all seven RAP samples tested.

[c] Three extractions at increasing liquid to solid (L:S) ratios were done in these experiments. These data show the range measured in those extractions.

[d] Data reflect range of three unweathered RAP samples from supply sources in New Jersey. Raw data for metals were not provided but were grossly interpolated from graphics. These are shown as approximate (~) values.

[e] These results show the range in concentrations from the wear course of RAP removed from a gas station that had been in use for 20 years as well as the wear course from a highway that had only been in use a few years.

[f] Results reported are from batch tests performed during previous research (Larsson 1998) that were performed on finely ground material.

[g] The results shown represent the range of concentrations measured from three or four samples over two experiments as reported in Appendix B of the report.

[h] The results represent TCLP. SPLP, and deionized water batch tests for six RAP samples. Results were taken from Townsend and Brantley (1998) since only select data was reported in the referenced literature report (i.e., Brantley and Townsend 1999).

[i] Results are from testing of one RAP sample.

[j] Chrysene concentration represents both chrysene and benzo(a) anthracene as reported in the study.

Table 2. Summary of Column Test Results from the Eight Research Studies Reviewed.

Constituent	Washington Groundwater Quality Standards[a]	Aydilek et al. 2017[b]	Legret et al. 2005[c]	Mehta et al. 2017[d]	Birgisdottir et al. 2007[e]	Norin and Strömvall 2004[f] Scarified Recycled Asphalt Pavement		Morse et al. 2001	Brantley and Townsend 1999	Kang et al. 2011
						Not Stored	Stored			
pH	–	6.0 – 6.5	~7 (deionized water)	~5 (artificial rain water)	8	4.5	4	4	~7	
Liquid:Solids Ratio		25:1	30:1		100	0.05	0.07			
Total Metals (ug/L)										
Aluminum	–	<5 – 320	–	–	–	–	–	–	–	–
Arsenic	0.05	*<25* – <25	–	*<10*	–	–	–	–	–	–
Antimony	–	–	–	–	–	–	–	–	–	–
Barium	1,000	14.2 – 172	–	*<2,000*	–	–	–	–	<500	–
Beryllium	–	–	–	–	–	–	–	–	–	–
Cadmium	10	<2 – <5	–	<5	–	–	–	–	<5	–
Chromium	50	<5 – <25	–	*<100*	–	–	–	–	*<100*	–
Copper	1,000	<5 – 16.1	13	<1,300	–	–	–	–	<500	–
Iron	300	<25 – 224	–	–	–	–	–	–	–	–
Lead	50	*<25*– <25	<5	<15	–	–	–	–	<10 – 38	–
Manganese	50	<5 – **426**	–	–	–	–	–	–	–	–
Mercury	2	–	<0.1	–	–	–	–	–	–	–
Molybdenum	–	–	<5	–	–	–	–	–	–	–
Nickel	–	<5 – 108	–	–	–	–	–	–	<100	–
Selenium	10	–	–	–	–	–	–	–	–	–
Silver	50	–	–	–	–	–	–	–	–	–
Zinc	–	23 – 213	71	–	–	–	–	–	<500	–

Bold values represent detected results that exceed Washington groundwater quality standards.

Italics represent when the detection limit is as high or higher than the groundwater quality standard.

– = Not reported or not available.

µg/L = micrograms per liter.

BDL = Below detection limit (used when detection limit was not reported).

< = Indicates the analyte was below detection; the adjacent number is the reported detection limit.

[a] Washington Groundwater Quality Standards (WAC 173-200-040).

[b] This is the range in peak concentrations across seven recycled asphalt pavement (RAP) samples.

[c] This study was done over a 75-day period at increasing L:S ratios. These results are from Day 2 (the first testing day), and therefore reflect the highest concentrations measured for all parameters except mercury and total hydrocarbons which peaked later in the testing.

[d] Raw data for metals were not provided but were reported as less than maximum contaminant level (<MCL). The MCLs (or in the case of copper and lead, US EPA-designated Action Levels) are shown in the table.

[e] Range shown represents results of testing the wear course of RAP from a gas station that had been in use for 20 years and a highway that had been in service for approximately a year. They reflect the range in concentrations measured over the 64-day test period.

[f] Results for a laboratory column test where compounds were leached from two RAP samples: scarified asphalt that was not stored and scarified asphalt that was stored for 2 years. Both samples came from the same highway road surface at 3 cm of depth that had been in use for 11 years.

Table 2 (continued). Summary of Column Test Results from the Eight Research Studies Reviewed.

Constituent	Washington Groundwater Quality Standards[a]	Aydilek et al. 2017[b]	Legret et al. 2005[c]	Mehta et al. 2017[d]	Birgisdottir et al. 2007[e]	Norin and Strömvall 2004[f] Scarified Recycled Asphalt Pavement		Morse et al. 2001	Brantley and Townsend 1999	Kang et al. 2011
						Not Stored	Stored			
Polycyclic Aromatic Hydrocarbons (PAHs) (in µg/L)										
Acenaphthene	0.01	–	*<0.05*	BDL – **0.09**	*<0.015* – **0.070**	**3.0**	**0.7**	–	*<5*	–
Acenaphthylene	0.01	–	*<0.05*	–	*<0.015* – <0.003	**0.5**	**0.4**	–	*<5*	–
Anthracene	0.01	–	*<0.025*	–	–	**0.5**	**0.1**	–	*<5*	–
Benzo(a)anthracene	0.01	–	*<0.025*	BDL	**0.015 – 0.180**	<0.01	<0.01	–	*<5*	–
Benzo(a)pyrene	0.008	–	**0.020**	–	*<0.024 – <0.050*	*<0.01*	*<0.01*	–	*<0.25*	–
Benzo(b)fluoranthene	0.01	–	**0.025**	–	–	<0.01	<0.01	–	*<1*	–
Benzo(k)fluoranthene	0.01	–	*<0.025*	–	**0.150 – 0.830**	<0.01	<0.01	–	*<2.5*	–
Benzo(g,h,i)perylene	0.01	–	**0.080**	–	*<0.024 – <0.050*	<0.01	<0.01	–	*<5*	–
Chrysene	0.01	–	**0.045**	BDL	–	<0.01	<0.01	–	*<5*	–
Dibenzo(a,h)anthracene	0.01	–	**0.055**	–	<0.024 – *0.043*	**0.04**	**0.20**	–	*<2.5*	–
Fluoranthene	0.01	–	*<0.025*	BDL	**0.015 – 0.078**	**0.1**	**0.1**	–	*<5*	–
Fluorene	0.01	–	*<0.025*	BDL – **0.03**	*<0.015 – <0.030*	**2.1**	**0.5**	–	*<1*	–
Indeno(1,2,3-cd)pyrene	0.01	–	**0.050**	–	**0.024 – 0.200**	**0.02**	**0.04**	–	*<1*	–
Naphthalene	0.01	–	*<0.100*	–	**0.310 – 0.320**	**28**	**9.2**	–	*<1*	–
Phenanthrene	0.01	–	*<0.025*	–	**0.026 – 0.120**	**1.8**	**0.7**	–	*<2.5*	–
Pyrene	0.01	–	*<0.025*	BD L – **0.19**	*<0.015* – **0.054**	**0.1**	**0.1**	–	*<0.5*	–

Bold values represent detected results that exceed Washington groundwater quality standards.

Italics represent when the detection limit is as high or higher than the groundwater quality standard.

– = Not reported or not available.

µg/L = micrograms per liter.

BDL = Below detection limit (used when detection limit was not reported).

< = Indicates the analyte was below detection; the adjacent number is the reported detection limit.

[a] Washington State Groundwater Quality Standards (WAC 173-200-040).

[b] This is the range in peak concentrations across seven recycled asphalt pavement (RAP) samples.

[c] This study was done over a 75-day period at increasing L:S ratios. These results are from Day 2 (the first testing day), and therefore reflect the highest concentrations measured for all parameters except mercury and total hydrocarbons which peaked later in the testing.

[d] Raw data for metals were not provided but were reported as less than US EPA's maximum contaminant level (<MCL). The MCLs (or in the case of copper and lead, US EPA-designated Action Levels) are shown in the table.

[e] Range shown represents results of testing the wear course of RAP from a gas station that had been in use for 20 years and a highway that had been in service for approximately a year. They reflect the range in concentrations measured over the 64-day test period.

[f] Results for a laboratory column test where compounds were leached from two RAP samples: scarified asphalt that was not stored and scarified asphalt that was stored for 2 years. Both samples came from the same highway road surface at 3 cm of depth that had been in use for 11 years.

Table 3. Water Quality Standards Comparison.

Constituent	Washington Groundwater Quality Standards[a]	Drinking Water Standards[b]
Total Metals (in micrograms per liter [µg/L])		
Aluminum	–	–
Arsenic	0.05	10
Antimony	–	6
Barium	1,000	2,000
Beryllium	–	4
Cadmium	10	5
Chromium	50	100
Copper	1,000	1,300[c]
Iron	300	–
Lead	50	15[c]
Manganese	50	–
Mercury	2	2
Molybdenum	–	–
Nickel	–	100
Selenium	10	50
Silver	50	–
Thallium	–	2
Zinc	5,000	–
Polycyclic Aromatic Hydrocarbons (PAHs) (in micrograms per liter [µg/L])		
Acenaphthene	0.01	–
Acenaphthylene	0.01	–
Anthracene	0.01	–
Benzo(a)anthracene	0.01	–
Benzo(a)pyrene	0.008	0.20[d]
Benzo(b)fluoranthene	0.01	–
Benzo(k)fluoranthene	0.01	–
Benzo(g,h,i)perylene	0.01	–
Chrysene	0.01	–
Dibenzo(a,h)anthracene	0.01	–
Fluoranthene	0.01	–
Fluorene	0.01	–
Indeno(1,2,3-cd)pyrene	0.01	–
Naphthalene	0.01	–
Phenanthrene	0.01	–
Pyrene	0.01	–

– = Not reported or not available

[a] Washington State Groundwater Quality Standards (WAC 173-200-040)

[b] Washington State Drinking Water Standards for Group A Public Water Supplies (WAC 246-290-310)

[c] Although the state board of health has not established maximum contaminant levels for copper and lead, there is sufficient public health significance connected with copper and lead levels to require inclusion in inorganic chemical and physical source monitoring. For copper and lead, the US EPA has established distribution-system-related levels at which a system is required to consider corrosion control. These Action Levels are 0.015 mg/L for lead and 1.3 mg/L for copper (WAC 246-290-310).

[d] US EPA Drinking Water Standard

REFERENCES

Aydilek, A.H., Z. Mijic, and O. Seybou-Insa. 2017. Hydraulic and Environmental Behavior of Recycled Asphalt Pavement in Highway Shoulder Applications. Final Report. University of Maryland, College Park. October.

Birgisdottir, H., J. Gamst, and T.H. Christensen. 2007. Leaching of PAHs from Hot Mix Asphalt Pavements. Environmental Engineering Science. Volume 24, Number 10.

Brantley, A.S., and T.G. Townsend. 1999. Leaching of Pollutants from Reclaimed Asphalt Pavement. Environmental Engineering Science Volume 16, Number 2. 105–116.

Harrison, H., R.J. Charlson, G.D. Christian, N.R. Horike, E.J. Knudson, T.V. Larson, H. Riley, R. Vanderwort, and R. Weiss. 1977. Acid Rain in Puget Sound. In: Proceedings US Energy Research and Development Administration ERDA Symposium Series 41, pp. 602–610.

Kang, D.H., S.C. Gupta, A.Z. Ranaivoson, R. Roberson, and J. Siekmeier. 2011. Recycled Materials as Substitutes for Virgin Aggregates in Road Construction: II. Inorganic Contaminant Leaching. Soil Society of America Journal 75:1276–1284.

Lakeside Industries. 2018. Letter to Thurston County Community Planning and Economic Development. November 6.

Larsson, L. 1998. Temporary Storing of Asphalt: Leaching of Dug Asphalt – part 1; Report 468. Swedish Geotechnical Institute, Linkoping, Sweden.

Legret, M., L. Odie, D. Demare, and A. Jullien. 2005. Leaching of heavy metals and polycyclic aromatic hydrocarbons from reclaimed asphalt pavement. Water Research 39:3675–4685.

Mehta, Y.M., A. Ayman, B. Yan, A.E. McElroy, and Y. Huiming. 2017. Environmental Impacts of Reclaimed Asphalt Pavement (RAP). FHWA-NJ-2017-008.

Morse, A., A.M. Jackson, and R. Davio. 2001. Environmental Characterization of Traditional Construction and Maintenance Materials. In T.T. Eighmy, ed., Proceedings of an International Conference on Beneficial Use of Recycled Materials in Transportation Applications, Arlington, Virginia. November 13–15, 2001. University of New Hampshire, Durham.

Norin, M., and A-M. Strömvall. 2004. Leaching of Organic Contaminants from Storage of Reclaimed Asphalt Pavement. Environmental Technology, Volume 25, pp. 323–340.

Townsend, T., and Brantley, A. 1998. Leaching Characteristics of Asphalt Road Waste, Final Project Report. Gainesville, Florida. Florida Center for Solid and Hazardous Waste Management, University of Florida.

APPENDIX A

Literature Considered for Phase 2 of the Literature Review for Contaminant Leaching from Recycled Asphalt Pavement

Appendix A: LIterature Considered for Phase 2 of the Literature Review for Contaminant Leaching from Recycled Asphalt Pavement

Author	Title	Date	Overall Rating	Rating Rationale
Aydilek, Ahmet H.; Mijic, Zorana; Seybou-Insa, Ousmane	Hydraulic and Environmental Behaviour of Recycled Asphalt Pavement in Highway Shoulder Applications	2017	High	Direct testing of leaching 7 different RAP. High quality study.
Birgisdottir, H.; Gamst, J; Christensen, T. H.	Leaching of PAHs From Hot Mix Asphalt Pavements	2007	High	Direct testing of different RAP sources. High quality study.
Brantley, A.S.; Townsend, T.G.	Leaching of Pollutants from Reclaimed Asphalt Pavement	1999	High	Laboratory batch and column tests of 6 different RAP samples. Detection limits were high, limiting the value of this study.
Kang, Dong Hee; Gupta, Satish C; Ranaivoson, Andry Z; Roberson, Ruth; Siekmeier, John A.	Recycled Materials as Substitutes for Virgin Aggregates in Road Construction: II. Inorganic Contaminant Leaching	2011	High	Focus of testing is fly ash and mixtures but one test sample is 100% RAP.
Legret, M.; Odie, L.; Demare, D.; Jullien, A.	Leaching of heavy metals and polycyclic aromatic hydrocarbons from reclaimed asphalt pavement	2005	High	Direct testing of RAP. High quality study.
Mehta, Yusuf; Ayman, Ali; Beizhan, Yan; McElroy, Anne E.; Huiming, Yin	Environmental Impacts of Reclaimed Asphalt Pavement	2017	High	High quality study. Assessed various RAP sources including "fresh" RAP and evaluated affects of weathering.
Morse, A., A.M. Jackson, and R. Davio	Environmental Characterization of Traditional Construction and Maintenance Materials	2001	High	Direct testing of RAP from 3 different districts in Tx was tested following std SPLP protocol.
Norin, Malin; Strömvall, A-M.	Leaching of Organic Contaminants from Storage of Reclaimed Asphalt Pavement	2004	High	Direct testing of RAP. High quality study
Arulrajah, A.; Piratheepan, J.; Disfani, M. M.	Reclaimed Asphalt Pavement and Recycled Concrete Aggregate Blends in Pavement Subbases: Laboratory and Field Evaluation	2014	Low	Testing is related to its physical properties and therefore RAP use as a subbase material.
Azah, Edmund; Kim, Hwidong; Townsend, Timothy	Assessment of Direct Exposure and Leaching Risk from PAHs in Roadway and Stormwater System Residuals	2017	Low	Not about RAP. Samples were from stormwater maintenance operations.
Beyers, C; Clifton, M.	Land use planning and the impacts of odour emissions from waste recycling in asphalt production	2017	Low	Testing was based on manufacturing of product not impacts of recycled product. Comparison of odor emissions from hot mix and RAP facilities.
Brandt, H.C.A; de Groot, P.C.	Aqueous Leaching of Polycyclic Aromatic Hydrocarbons From Bitumen and Asphalt	2001	Low	Not about RAP but about petroleum bitumens that make up asphalt and one asphalt product.
Cai, Hongmei; Wei, Jianming; Zhang, Yuzhen; Changtai, Jin	The Research on the Potential Leachability of Asphalt	2011	Low	Testing is of 5 types of asphalt binders not RAP.

Appendix A: LIterature Considered for Phase 2 of the Literature Review for Contaminant Leaching from Recycled Asphalt Pavement

Author	Title	Date	Overall Rating	Rating Rationale
Harrington, Joseph T.; Wagter, James M; R., Kevin	Toxicity of Milled Asphalt Pavement to Aquatic Organisms and its Effect on Stream Substrates in Deep Creek, San Bernardino County	1996	Low	Could not acquire this report. The age of the study would have limited its usefulness due to poor detection limits and likely false negatives.
Jullien, A., Monéron, P., Quaranta, G. and Gaillard, D.	Air emissions from pavement layers composed of varying rates of reclaimed asphalt	2006	Low	Testing of air emissions during newly laid (hot mix) asphalt pavement with different ratios of RAP. Results are related to air emissions during roadway building and for hot asphalt. Not related to RAP storage.
Kang, Dong Hee; Gupta, Satish C; Ranaivoson, Andry Z; Roberson, Ruth; Siekmeier, John A.	Leaching Characteristics of Fly Ash, Recycled Asphalt, and Aggregate Mixtures	2010	Low	Testing was of fly ash and RAP mixes. Therefore any results woud be biased by fly ash component.
Kayhanian, M., Vichare, A., Green, P.G. and Harvey, J.	Leachability of dissolved chromium in asphalt and concrete surfacing materials	2009	Low	Leaching test on different pavement types but doesn't appear to be RAP in any of the mixes.
Kayhanian, Masoud; Vichare, Akshay; Green, Peter G.; Alaimo, Chris; Hwang, Hyun-Min; Signore, James M.; Troxler, Mark; Jones, David; Harvey, John	Water Quality Evaluation of Leachate Produced from Pavement Specimens Under Controlled Laboratory Conditions	2011	Low	Testing is of different new roadway materials, many w an asphalt component but not directly pertaining to RAP.
Kriech, A.J.; Kurek, J.T.; Osborn L.V, et al.	Determination of Polycyclic Aromatic Compounds in Asphalt and in Corresponding Leachate Water	2002	Low	Research on "virgin" asphalts from 6 sources. Not about recylced asphalt. No contaminants from its use in the roadway would have been tested.
Licbinsky, R.; Huzlik, J.; Provalilova, I.; Jandova, V.; Licbinska, M.	Groundwater Contamination Caused by Road Construction Materials	2012	Low	Testing is done on boreholes in existing roadway. RAP may or may not be part of the roadway structure. Either way, the results would not reflect RAP alone.
Lopez, S; Sanchez, F; Kosson, D S	Evaluation of the impact of environmental conditions on constituent leaching from granular materials during intermittent infiltration	2001	Low	Did not test asphalt or RAP
Mitchel, M.R.; Link, R.E.; Hongmei, Cai; Xiaosheng, Huang; Peng, Wang; Yuzhen, Zhang	Factors Influencing the Leaching of Asphalt Components	2009	Low	Testing is of asphalt binders not RAP. Precursor to 2011 report.

Appendix A: LIterature Considered for Phase 2 of the Literature Review for Contaminant Leaching from Recycled Asphalt Pavement

Author	Title	Date	Overall Rating	Rating Rationale
Nelson, P.O., Eldin, N.N., Huber, W.C., Lundy, J.R., Williamson, K.J., Quigley, M.M., Azizian, M.F., Thayumanavan, P., and Frey, K.M.	Environmental impact of construction and repair materials on surface and ground waters. *Final report* , *4* , pp.25-9.	2000	Low	This report was superceded by NCHRP 448 listed above.
Nielsen, E. et al	Processing and RA management at the mixing plant. Final report. Deliverable 4.6 of Re-Road – End of life strategies of asphalt pavements	2012	Low	Not about environmental impacts but about maximizing use of RAP in pavements.
Ogunro, Vincent O.; Inyang, Hillary I.	Relating Batch and Column Diffusion Coefficients for Leachable Contaminants in Particulate Waste Materials	2003	Low	Leaching test was asphalt mixed with municipal waste. Results would be biased by municipal waste component.
The Recycled Materials Resource Center – Dr. David Kosson of Vanderbilt University	Project 11 – Leaching from Granular Materials Used in Highway Construction During Intermittent Wetting	2006	Low	Test objective was looking at impact of freeze/thaw cycles on leaching on recyled concrete
Townsend, Timothy G.	Leaching Characteristics of Asphalt Road Waste	1998	Low	Graduate study. Laboratory batch and column tests of 6 different RAP samples. See Brantly and Townsend for reviewed paper
Unknown	Asphalt Test Show Little Leachate	1998	Low	News summary. No data. Superceded by Brantly and Townsend study.
Ventura, A. Jullien, A., and P. Moneron.	Polycyclic aromatic hydrocarbons emitted from a hot-mix drum, asphalt plant: study of the influence from use of recycled bitumen	2007	Low	Testing was based on air emissions from manufacturing of product not impacts of recycled product or leaching from RAP.
Norrman, Jenny; Rosén, Lars; Norin, Malin	Decision Analysis for Storage for Reclaimed Asphalt	2005	Moderate	This is about storage and fate/transport. Refers to Norin paper as source of original leachate tests.
Sadecki, Roger W., et al.	An Investigation of Water Quality In Runoff From Stockpiles of Salvaged Concrete And Bituminous Paving	1996	Moderate	Comparison of leaching from stockpiles of concrete and RAP in field application. Just a few heavy metals were sampled and PAHs; however the tests were done in mid-1990s and no information on detection limits was provided. Age of study and likely high detection limits, limit its value.

Appendix A: LIterature Considered for Phase 2 of the Literature Review for Contaminant Leaching from Recycled Asphalt Pavement

Author	Title	Date	Overall Rating	Rating Rationale
Student Investigators: Nemeth, Andrew F.; Ward, Devon A.; Woodington, Walter G. Advisor: Mathisen, Paul P.	The Effect of Asphalt Pavement on Stormwater Contamination	2010	Moderate	Methods appear to be good and it is specifically about RAP. However, it is undergraduate student work. Doesn't appear to have had much review. Does not meet test of having met peer review standards.
Student Investigators: Shedivy, Ryan F.; Meier, Amara Advisors: Edil, Tuncer B.; Tinjum, James M.; Benson Craig H.	Leaching Characteristics of Recycled Asphalt Pavement Used as Unbound Road Base	2012	Moderate	Methods appear to be good and it is specifically about RAP. However, it appears to be undergraduate student work. Doesn't appear to have had much review. Does not meet test of having met peer review standards.
NCHRP	Environmental Impact of Construction and Repair Materials on Surface and Ground Waters: Summary of Methodology, Laboratory Results, and Model Development	2001	Moderate	Extensive study but RAP was only tested in initial toxicity phase. Because there was no toxic effect it was eliminated from further testing.
Thayumanavan, P., Nelson, P., Azizian, M., Williamson, K., and Lundy, J.	Environmental impact of construction and repair materials on surface water and groundwater: Detailed evaluation of waste-amended highway materials	2001	Moderate	Looked at leaching from a wide range of recycled materials and impacts in aquatic environment. RAP was tested RAP during the first phase of aquatic toxicity testing, since No Toxic Effect was observed, it was not included in follow up testing.

APPENDIX B

Copies of Selected Literature

The contents of this appendix will be provided separately.

Attachment C:

Proposed Options

Comprehensive Plan Amendments: 2020-2021 Docket Item 11
NSAP Asphalt Recycling Policy Review Project (Policy E.5)

Current Text (Policy E.5, p.21):

Allow accessory activities to be considered inside the mined out portion of the gravel pit through the site plan review process. Examples of allowable accessory uses would include concrete pipe and/or septic tank construction and the recycling of used concrete. The reprocessing of imported mineral materials shall not be the primary accessory use and the reprocessing of asphalt shall not be allowed due to water quality concerns. These activities shall be discontinued once reclamation of the pit is completed in accordance with the WDNR standards.

Proposed Options:

Option 1:

Make no changes to the current policy E.5 of the Nisqually Subarea Plan. Continue to prohibit reprocessing of asphalt.

No change from current text.

Option 2:

Adopt the applicant's proposed amendment to Policy E.5 of the Nisqually Subarea Plan, thus removing the prohibition on asphalt recycling as an accessory use within the Nisqually Subarea.

> "Allow accessory activities to be considered inside the mined out portion of the gravel pit through the site plan review process. Examples of allowable accessory uses would include concrete pipe and/or septic tank construction and the recycling of used concrete and asphalt pavement. The reprocessing of imported mineral materials shall not be the primary accessory use. ~~and the reprocessing of asphalt shall not be allowed due to water quality concerns.~~ These activities shall be discontinued once reclamation of the pit is completed in accordance with the WDNR standards."

Option 3:

Adopt the applicant's proposed amendment to Policy E.5 of the Nisqually Subarea Plan, with additional amendments. This option would remove the prohibition on asphalt recycling as an accessory use within the Nisqually Subarea, but add the requirement that Best Management Practices be employed (specifically for covering stockpiles). This option would also require text changes in the Thurston County Code.

> "Allow accessory activities to be considered inside the mined out portion of the gravel pit through the site plan review process. Examples of allowable accessory uses would include concrete pipe and/or septic tank construction and the recycling of used concrete and asphalt pavement. Operators shall employ best management practices for covered storage of recycled asphalt to ensure minimal environmental harm and impact due to leachate. Best management practices will be determined through the site-level permit review process, but may include tarping, storage sheds, or other methods. The reprocessing of imported mineral materials shall not be the primary accessory use. ~~and the reprocessing of asphalt shall not be allowed due to water quality concerns.~~ These activities shall be discontinued once reclamation of the pit is completed in accordance with the WDNR standards."

Attachment D:

Code Language to Pair with Option 3

Thurston County Community Planning and Economic Development Department

Community Planning Division

THURSTON COUNTY PLANNING COMMISSION DRAFT

Titles: 20.54

October 7, 2020

SPECIAL USE.

Chapter: 20.54 (attachment-A) (Amended)

Deleted Text:	~~Strikethrough~~	Proposed Changes:	Underlined
Staff Comments:	*Italics*	Unaffected Omitted Text	…

The below code changes are being reviewed in conjunction with the Recycled Asphalt Policy review, which is item number 11 on the 2020/2021 Official Comprehensive Plan Docket.

The proposed code changes below would complement Option 3.

Thurston County Zoning Ordinance, Special Use Permit (Title 20)

Chapters:

Chapter 20.54 – SPECIAL USE

Sections:

…

20.54.070 – Use – Specific Standards.

…

3.1 Asphalt Production. Asphalt plants (hot mix or batch plants) are subject to the following provisions:

…

l. For operations that process and store Recycled Asphalt Pavement (RAP) within the Nisqually Subarea, operators shall employ best management practices to mitigate leachate by providing covered storage of processed/recycled asphalt stockpiles. Specific practices will be determined through the site-level permit review process, but may include tarping, storage sheds, or other methods.

…

Attachment E:

Public Comment

You may also view all previous public comments online at:

https://www.thurstoncountywa.gov/planning/planningdocuments/CP-11_Matrix%20Summary.pdf

Planning Commission Public Hearing: CPA Docket Item CP-11 - Recycled Asphalt Policy Review
Comments Received 09-16-2020 to 10-07-2020

Unique ID	Date	Commenter Name	Type of Comment	Summary	County Response
PC-H-1	9/8/2020	Kathleen O'Connor	Against	Please do not accept any motions to consider or allow recycled asphalt in Nisqually Subarea. Citizens have said no with scientific backing. Please stop.	Received and recorded.
PC-H-2	9/14/2020	Howard Glastetter	Against	Sent copy of letter and exhibit sent to DS related to the Special Use Permit for the Holroyd Gravel Pits. Letter outlined concerns and implications of the site related to polltion of foreign materials, affects on ground water, lakes, streams, and other water sources.	Received and recorded.
PC-H-3	9/20/2020	Marianne Tompkins	Against	Opposed to the new languuage. Please do not recycle toxic asphalt. "Re-processing" hundreds of of tons of asphalt will destroy the Nisqually aquifer/our drinking water.	Received and recorded.

Last Updated: September 25, 2020

From: tolumpia
To: Shannon Shula
Subject: Asphalt in Nisqually
Date: Friday, September 18, 2020 10:05:06 PM

Board of County Commissioners,
Please do not accept any motions to consider or allow recycled asphalt in the Nisqually subarea. Citizens have said no, with scientific backing, over and over again. Please stop.
Sincerely,
Kathleen O'Connor

Mr. Howard Glastetter
11110 Kuhlman Rd. SE
Olympia, WA 98513

9-14-2020

Maya,

I went thru my old files & found copies (with attachments) of what I sent the county almost 10 years ago.

Howard

Maya Teeple
Thurston County Planning
2000 Lakeridge Dr SW
Olympia, WA 98502

Howard Glastetter
11110 Kuhlman Road SE
Olympia, WA 98513-9605

February 22, 2011

Thurston County Development Services
Resource Stewardship Department
Attn: Mr. Tony Kantas
2000 Lakeridge Drive SW
Olympia WA 98502-6045

Dear Mr. Kantas,

The following is a close copy of a letter I sent to Mike Kain on June 16, 2010 after hearing about the following Holroyd Gravel Pit request (Case #: 2010100505, Mine Expansion Special Use Permit #: 10 101562 ZM). In the near future, I will try to review and respond to any other case documents available since my original observations.

The purpose of this letter is to add observations to **Holroyd Co. Inc. & Neilsen Pacific LTD's** February 25, 2010 request for a Special Use Permit. The Holroyd company wants to continue mining part of the valley floor of their pit, converting it to a 120-foot deep, 2,018 feet long, 1,700 feet wide lake. This translates into an 80-acre lake. I've read their request and related exhibits. I'm not trained in geology or hydrology, but I still know there are some implications to this request that have not been addressed.

I have lived in three different locations in the valley over the past 40+ years, including a home on a 5-acre lot, just north of Holroyd's, across Old Pacific Highway. I have been publicly involved with issues affecting the valley during much of that time. So, I have some views that could aid in evaluating the above Special Use Permit request.

I'll summarize some concerns about this request. Water seeks the low point and some issues have not been addressed. Most of the exhibits were written before the 1996 flood, the 2001 earthquake and the 2007 addition of an asphalt plant at the site.

Nothing is said about potential pollution from the new asphalt plant that would be contiguous to the new lake. The plant is in the map of the site, but that's it. The plant currently wants to import recycled asphalt pavement (RAP) to use in its industrial process. This foreign material can contain pollution, beyond asphalt binders and gravel. Page 2 of Holroyd's Exhibit A, written in 1995, says an asphalt plant would be a contamination concern to a pit with open ground water.

Lost Lake lies just south of the pit (Attachment #1, #2 – location l), just across the railroad tracks. The water level of this lake is 85 feet, roughly 60 feet higher than the current pit floor. Could Lost Lake drain if a 120-foot deep lake were dug **two hundred yards** down stream from it? There are artesian springs north of the pit, just across Old

Pacific Highway (Attachment 2 – location 2). The high-pressure source of these artesian wells, likely runs under the pit and could be intercepted by the new lake. This could have a greater effect on the proposed lake's level than any Holroyd exhibits indicate.

The water sources flowing underground to McAllister springs are southwest of Holroyd's (Attachment 2 location 3). This is the current and future **water supply needed by Olympia and Lacey**. The Nisqually River runs about a half mile east of the pit, before it curves further east along the rail line. Over the years, the river has been forced to the higher side of the valley by rail line and highway construction. Emergency Manager, Andrew Kinney can verify this. The 1996 flood in the valley affected the pit and would have flooded any lake in the pit. I have included a 1996 aerial photo (Attachment 3) of the pit taken, by my son, a few hours after the flood peaked.

The Olympian discussed future municipal wells in the McAllister Springs Sensitive Area, above McAllister Springs, southwest of Holroyd's pit (Attachment 4 – 9/8/2008 News Article). The article pointed out concerns about well extraction affecting local lake levels (e.g., Saint Clair, Pattison, Long). Could an 80-acre / 120-foot deep lake at Holroyd's affect these lakes? Could it affect **future** municipal wells above McAllister Springs?

Native Americans have a small enclave reservation (Attachment 2 – location 5) just east of Durgin Road from the pit. The land level of this small neighborhood is not much higher than the expected level of the proposed lake. Additionally, residential lots owned by Holroyd surround this enclave. The Holroyd lots have been filled with mine overburden and fill from other sources. Would seepage from the new lake affect this neighborhood? The fill, on Holroyd's lots, has prevented enclave drainage (Attachment 5) of prior Nisqually River floodwaters (e.g., February 1996, November 1995).

There are hydraulic effects in the valley now. I lived across from the pit from 1973 to 1990. The well on that property was so full of iron it was unfit for washing or drinking. Fortunately, we were able to hook up to city water and use the well for irrigation only. Currently, I live ¼ mile northeast of the pit. My shallow irrigation well here has less iron, but is still noticeable. However, from season to season, I can see slight indentions in my lawns that indicate significant hydraulic activity. I'm not saying these hydraulics have anything to do with the pit, but there is a lot of water movement under properties in the valley.

Holroyd's Exhibit B, page 3 indicates, "the salt-water estuary is about 3 miles from the proposed lake". My map indicates it's more like 2 miles. Pages 10 and 11 of Exhibit B discount the probability of saline encroachment of local farm wells as a result of the man-made lake. Recently, the nature preserve dikes on the delta were breached to allow salmon enhancement advantages. Salt water now daily flows to within a few dozen feet of I-5 (Attachment 2 – location 6) about a mile away from the proposed lake. Could this, coupled with the proposed 120 feet deep lake, affect farmers' wells just south of I-5? Incidentally, there is visible artesian spring hydraulics coming out of a six-inch pipe in the brackish tidal area just north of the beginning of the new delta boardwalk.

These are questions and issues that I have observed that need addressing as part of the county's evaluation of this Special Use Permit.

Sincerely,

Howard H. Glastetter
Attachments

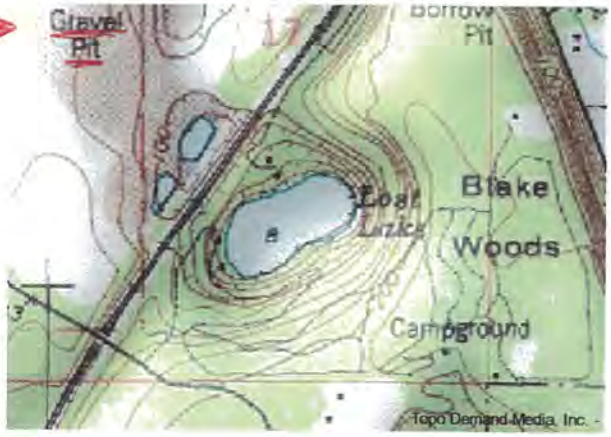
Attachment #1

Nisqually Topo Map at Lat 47.0429°N Long -122.7018°W Zoom 15 S Size

Find aerial photos, topo maps & topographic data like elevation, lat and long lines, or coordinates and more.

Save to My Maps **Map Size:** Like

Print Portrait | Print Landscape | Save as PNG...



Center: 47.0429°N 122.7018°W
Elevation at center: 85 feet (26 meters)
Quad: Nisqually
Drg Name: o47122a6
Drg Source Scale: 1:24,000
Projection: NAD83/WGS84
47.0448°N 122.6986°W
Distance to center: 0.2046 miles (0.3292 km)

Display format:
Decimal Degrees
Show center marker

Search Topo Maps

Feature Name (e.g. pikes peak)

All States

Select Feature Type

Search

Lost Lake: 1,000' x 500'

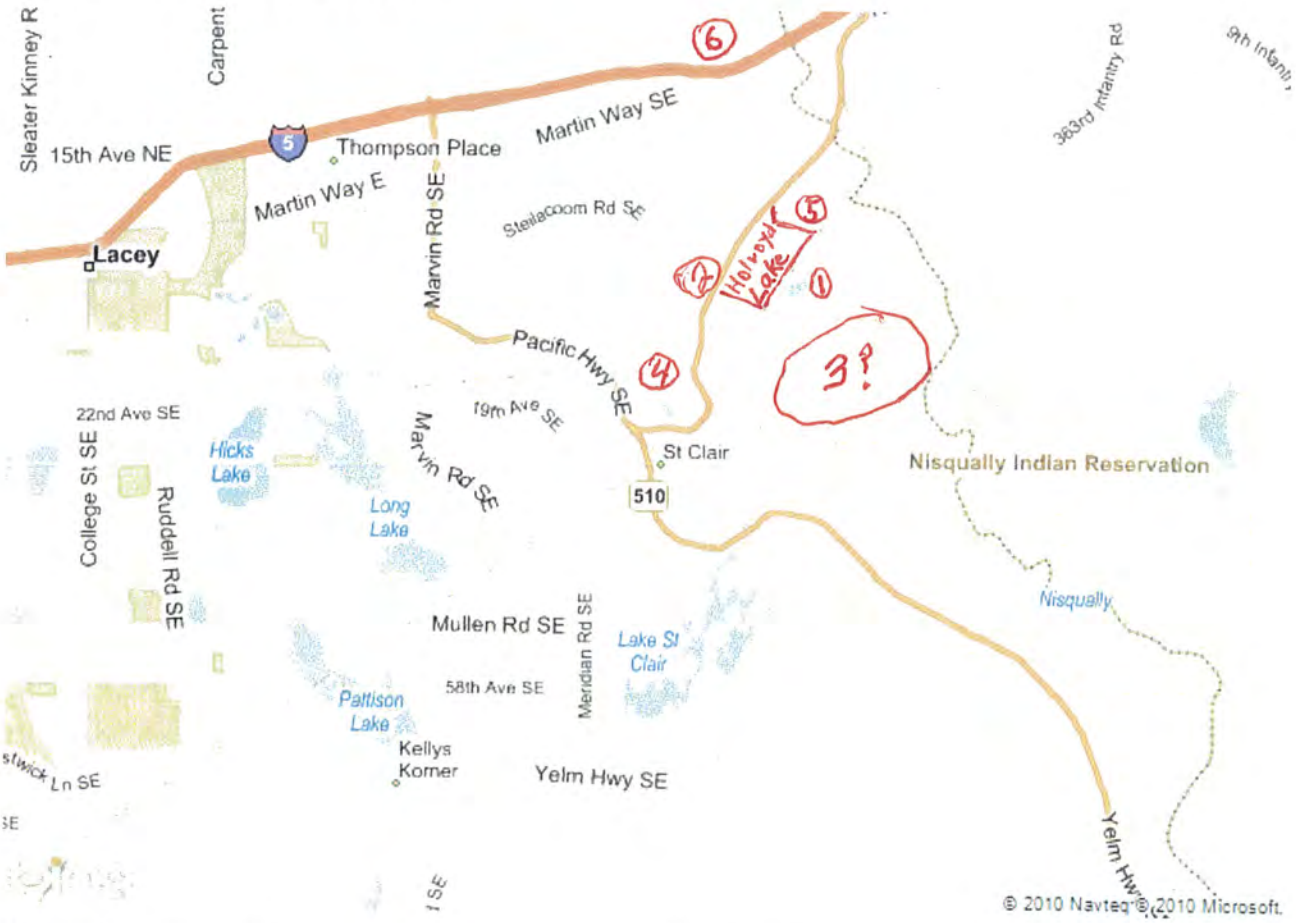
State Topo Maps

Alabama Topo Maps
Alaska Topo Maps
Arizona Topo Maps
Arkansas Topo Maps
Northern California Topo Maps
Southern California Topo Maps
Colorado Topo Maps
Connecticut Topo Maps
Delaware Topo Maps
Florida Topo Maps
Georgia Topo Maps
Hawaii Topo Maps
Idaho Topo Maps
Illinois Topo Maps
Indiana Topo Maps
Iowa Topo Maps
Kansas Topo Maps
Louisiana Topo Maps
Maine Topo Maps
Maryland Topo Maps
Massachusetts Topo Maps
Michigan Topo Maps
Minnesota Topo Maps
Mississippi Topo Maps
Missouri Topo Maps
Montana Topo Maps
Nebraska Topo Maps
Nevada Topo Maps
New Hampshire Topo Maps
New Jersey Topo Maps
New Mexico Topo Maps
New York Topo Maps
North Carolina Topo Maps
North Dakota Topo Maps
Ohio Topo Maps
Oklahoma Topo Maps
Oregon Topo Maps
Pennsylvania Topo Maps
Rhode Island Topo Maps
South Carolina Topo Maps
South Dakota Topo Maps
Tennessee Topo Maps
Texas Topo Maps
Utah Topo Maps
Vermont Topo Maps
Virginia Topo Maps
Washington State Topo Maps
Washington DC Topo Maps
West Virginia Topo Maps
Wisconsin Topo Maps
Wyoming Topo Maps

Attachment #2

multimap from bing

Map of **Lacey, United States**



Nearest transport link

Tube:

Railway: King Street Amtrak Station (44.01mi, 70.83km)

Your notes

① Lost Lake
② Artesian Wells
③ Future Municipal Wells
④ McAllister Springs
⑤ Durgin Road Native Americans
⑥ Salt water @ high tide

Attachment #3

Attachment #4

September 8, 2008
Section: News

Lacey to submit its water plan
CHRISTIAN HILL
THE OLYMPIAN

LACEY - The city will submit a plan Friday that's crucial to its effort to receive state approval to pump more drinking water.

The plan represents the anticipated first step by the city to secure approval froserm the state Department of Ecology to pump more water to serve future growth and potentially lift the de facto moratorium on virtually all development within the city's urban growth area. The restriction has derailed plans for developers and property owners for more than three years.

Pumping from wells can divert, to varying degrees, the groundwater streams and lakes need to maintain flows and levels during the summer months. Ecology has barred or restricted additional pumping that adversely affects major freshwater water bodies in and around Thurston County's urban area unless an applicant can show how they will mitigate - or negate - those effects.

The plan defines for Ecology, the overseer of public waters in the state, how Lacey will mitigate the effect that pumping an additional 4,166 acre-feet of water, or 1.3 billion gallons, each year will have on the Nisqually River, McAllister and Woodland creeks, and Hicks, Long and Pattison lakes. That's enough water to serve 20 years of growth, city projections show.

"This is the plan Ecology has been waiting for," water resources manager Peter Brook said.

The City Council heard a presentation on the plan Thursday.

As an example under the plan, the city proposes to purchase and either retire or put into public trust privately owned water rights along the Deschutes River basin to mitigate the effect in that area; the water will remain in the ground instead of being pumped out.

It proposes decommissioning two city-owned wells along the Nisqually River to mitigate the effect in that basin.

A computer model that Olympia completed in 2002 calculated the effects from additional pumping in the region. It shared the model with Lacey and Yelm three years later.

The city of Olympia is a critical partner in this plan.
Olympia plans to retire McAllister Springs as its municipal water source and jointly develop a new wellfield with the Nisqually tribe. It is required under federal law to either treat McAllister Springs with a costly ultraviolet disinfection system or find a replacement water source by October 2012. The springs are exposed and vulnerable to contamination, particularly from spills of railcars running on the nearby line.
Lacey's plan stipulates that the cities of Lacey and Olympia would jointly develop and operate a plant where treated wastewater would seep into the ground to mitigate the effect on Woodland Creek. The cities can't flow the highly treated water directly into the creek. Seeping this water into the ground will lower its temperature and remove remaining contaminants. The cities also would purchase land to further buffer the creek from development. These joint projects would help mitigate the effects for both cities.
Olympia City Manager Steve Hall declined Friday to discuss the negotiations with Lacey. The city will submit to Ecology its plan to mitigate the effects of the new wellfield, he said.
Lacey also will finalize an agreement with the Nisqually tribe that details how it will mitigate the effects on the Nisqually River.
Lacey is scheduled to use the rest of its uncommitted water in either 2009 or 2010. The city serves about 66,000 residents living in and out of the city limits.
Three years ago, the city halted virtually all development within its urban growth area because it didn't have sufficient water to serve the new homes and businesses; development within the city limits continues. It does agree to provide water to a new home on a parcel of land created prior to the restriction taking effect.
"We're really running close to the ragged edge, which is why we need to move some of these water-right applications sooner rather than later," Brooks said.
Christian Hill covers Lacey and the Port of Olympia for The Olympian. He can be reached at 360-754-5427 or chill@theolympian.com.

Attachment #5 2 days after Feb 1996 flood

From: Marianne Tompkins
To: Shannon Shula
Subject: Re: 2020/2021 Official Comprehensive Plan Docket Item CP-11
Date: Sunday, September 20, 2020 4:37:54 PM

Dear Shannon,

The proposed amendment would change the language of Policy E.5 in the Nisqually Subarea Plan to allow for asphalt recycling within the subarea. I am opposed to this. Please do not recycle toxic asphalt in the Nisqually Subarea. It doesn't seem to matter that the Nisqually Valley was deemed a "critical area", or that it has the aquifer for the drinking water for our area, or that it is a huge agricultural area. "Re-processing" hundreds of tons of asphalt will destroy the Nisqually aquifer/ our drinking water.

I want to attend the public hearing by Zoom. When/ how is the link available? Thank you.

Regards,
Marianne Tompkins
360.545.5229

COMMENTS RECEIVED PRIOR TO THE PLANNING COMMISSION PUBLIC HEARING

Unique ID	Date	Commenter Name	Source	Summary	County Response	Response Date
1	5/24/2019	Howard Glastetter	Email	Would like to submit a final variation of a comment made over the past several years on the Nisqually Valley issue in an attached comment emailed on March 5, 2017 in response to Goal E-5 of the Nisqually Subarea Plan. The no-RAP provision was designed to protect the rural character from industrial dominance. Three sites were referenced as having business impacts. There are ongoing concerns with flooding and the impact on water quality. The best practice for using RAP in asphalt production is to keep it dry under an un-walled building or a cover that allows air in, but keeps moisture out. Lakeside RAP storage at Hogum Bay does not meet "Best" or even "Second Best" practices.	Confirmed receipt.	5/24/2019
2	5/26/2019	EJ Zita	Email	Would like to be added to the mailing list.	Added to mailing list and confirmed	5/26/2019
3	5/28/2019	Howard Glastetter	Email	Is unable to attend the meeting and would like the comments sent in attached document available at the meeting. Noted that the literature review was even-handed and concluded that RAP leaches chemicals and is an issue of concern, albeit somewhat minor in this area. Prefaced with a comment on the Lakeside operation at Holroyd Gravel Mine and that the operation is state of the art, rarely smells of any hot asphalt; Lakeside is a good neighbor. Commented on Toxicity Testing in New Jersey on page 10, referring to permeable soiled gravel mines; notes that highly acidic mining environment could be interpreted as coal mines, but did research that shows there are no major coal mines in NJ and metal mining is a thing of the past, so the assumption should be toxicity testing as it relates to permeable soiled gravel mines. Notes that he knows of 3 homes in the Valley below Holroyd's mine with red/brown turbidity, which is most commonly iron contamination according to the link provided. Also, page 19 relating to Cu and Zn tests exceeding U.S. EPA WQLs. Notes asphalt roofing shingles are also recycled, and some come with copper to prevent moss buildup, as well as landowner introduced zinc. Nisqually Valley is a wellhead protection area, and a rural area. Residents get their water from wells. Lacey City well is close to Lakeside's asphalt plant, which sits in the permeable soil of Holroyd's gravel mine. RAP deliveries to the pit would also mean increased truck traffic. Mentions "this site is a very sensitive part of the valley and could become a stressed one." If RAP were ever allowed, it should be under cover and out of the weather before and during its use. Please see a past comment on RAP that I resubmitted May 24, 2019. It shows weather protection is an industrial "Best Practice"."	Confirmed receipt	5/28/2019

4	6/12/2019	Kyler Danielson, Lakeside Industries	Email	RAP materials have been successfully recycled since the 1970s. Herrera analyzes the potential for leachate and generally concludes that the impact to the environment from RAP is limited or negligible. The review includes several inaccurate statements and excludes important information which may create unnecessary cause for concern. Additionally, Herrera did not consider Best Management Practices (BMPs), available to eliminate concerns regarding leachate. For example, Lakeside would be willing to cover its RAP stockpiles within the Nisqually Subarea to mitigate for concerns of initial flushing. RAP is critical to sustainable use of natural resources, does not harm fisheries, water quality, other habitat or humans. Asphalt, including RAP, is used to line fish hatchery ponds and drinking water reservoirs. Use of RAP is a standard practice in Washington and is consistent with the vision in the Comprehensive Plan. It preserves the human environment by encouraging jobs in the community and preserves the natural environment by encouraging protection of mineral resource lands, limiting the carbon footprint of asphalt paving, and prevents unnecessary waste in landfills. Prohibition of RAP in the NSAP is due to water quality concerns. One month after its adoption, Thurston County Public Health Department to the position that asphalt recycling poses minimal environmental health concerns. Herrera Review found limited or no cause for concern. The three key conclusions are 1) RAP is highly variable, 2) contaminants leached in laboratory tests sometimes exceed state groundwater quality standards, and 3) The initial flush can result in concentrations exceeding groundwater quality standards, but these concentrations decrease quickly. Based on these conclusions, RAP is not an environmental concern. While RAP may leach some contaminants at first flush, they quickly decrease below detection limits creating a negligible overall impact. Other points were raised regarding Herrera Literature Review: -The review does not accurately reflect local conditions or local RAP impacts. -The review presents information in a manner that exaggerates study results. -The review summarized conclusions that are quite dissimilar from the conclusions in the underlying studies. -The review has a limited scope and does not consider Best Management Practices that would prevent leachate	Confirmed receipt	6/12/2019

5	6/13/2019	Howard Marks, David Gent WAPA/NAPA	Email	We strongly question the credibility and validity of the literature review and recommend it be removed from the public record. In 2017, about 1.2 million tons of RAP was used in new pavement mixtures in Washington state alone. A recent study by UW identified 63 existing RAP stockpiles of significant volume containing approximately 1.4 million tons of RAP distributed across the state. Nationwide, 99% of RAP collected is put back to use in pavement, saving more than 48 million cubic yards of landfill space annually. The report mischaracterizes study results and is of questionable relevance to the issue. Issues of the report include: -The review contains numerous inconsistencies -The review mischaracterizes findings and conclusions from analyzed studies -Credibility and validity of the revised draft questioned In summary, we emphasize the following: 1)In decades of environmental and transportation agency studies, and in decades of independent academic research, including those mischaracterized in the Revised Draft, there appears limited if any concern associated with stormwater runoff or leachate from RAP stockpiles. 2)Across the U.S., we know of no other agency, county, or municipality that restricts the stockpiling of RAP. All recognize the material as environmentally safe. 3)Summaries of the identified studies (in the Literature Review) significantly mischaracterize the original research results to such an extent that it raises real concerns about the validity and credibility of the findings.	Confirmed receipt	6/13/2019
6	6/13/2019	Pamela Keeley	Email	No asphalt recycling plant without consultation with Nisqually Tribe. Honor the treaties. No more pollution!	Confirmed receipt	6/13/2019
7	6/13/2019	Benita K. Moore	Email	Asphalt recycling plant off reservation road in Nisqually – Ground water contamination will happen. There has been no meaningful consultation with the Nisqually Tribe and no environmental impact study.	Confirmed receipt	6/13/2019
8	6/13/2019	Beverly Finlay	Email	Please respect Native Americans. Conduct surveys, do research. Clean water is the most precious resource on this planet.	Confirmed receipt	6/13/2019
9	6/14/2019	Karen White	Email	Asphalt plants do not belong near the water. Asphalt is harmful to fish, contains PHA and bitumen which reduces their fat stores, causes their muscles to stiffen and causes kidney damage, reducing their first year of survival at sea.	Confirmed receipt	6/14/2019
10	6/14/2019	Phyllis Farrell	Email	I am opposed to the proposal by Lakeside Industries to remove policy language that prohibits asphalt reprocessing (recycling) within the Subarea. It is prohibited due to water quality concerns. That has not changed. Piles of asphalt are known to leach toxic chemicals affecting groundwater. It is preposterous to consider this proposal given the proximity to the Nisqually River. Environmental effects of increased truck traffic should be considered as well.	Confirmed receipt	6/14/2019
11	6/14/2019	David Hillman	Email	The literature review indicates that chemicals and metals are leached into surface and groundwater from stockpiles. The review also concludes “as a source of contaminants, RAP is highly variable…” What I take from this review is that pollutants can vary widely and significantly in type and concentration. It is impossible to know exactly what types of chemicals and metals are present in any particular RAP stockpile. This RAP review solidly supports the original language in policy E.5. I am strongly against changing the language in section E.5 of the Nisqually Subarea Plan to allow asphalt recycling.	Confirmed receipt	6/14/2019

12	6/14/2019	Julie Hillman	Email	RAP can widely vary in the type of pollutants and concentration. It would be impossible to know. This RAP review solidly supports the original language in policy E.5. I am strongly against changing the language in section E.5 of the Nisqually Subarea Plan to allow asphalt recycling.	Confirmed receipt	6/14/2019
13	6/14/2019	Daniel Hull	Email	I am not in favor of changing the language in section E.5 of the Nisqually Subarea Plan to allow asphalt recycling. I have read the literature review which clearly states that this can and does have an effect on the environment. The Nisqually watershed is one of the finest in the state, this is not an activity we should change language to allow. Please add me to mailing list. I am alarmed that many of the residents in my area had no idea about this.	Confirmed receipt	6/14/2019
14	6/14/2019	Ryan Ransavage	Email	Asphalt is a key building material in supporting physical and economic growth of the state. Department of Ecology regulates runoff from operations that recycle pavement. The limits of the discharge have been determined through years of study and research. Thurston County should consider the requirements DOE has determined. These limits have been set to ensure minimal degradation to waters of the state and the overall environment. Miles Sand & Gravel supports RAP operations be allowed within all areas of Thurston County when meeting current regulatory standards from solid waste rules and Sand and Gravel permit conditions.	Confirmed receipt	6/14/2019
15	6/14/2019	Numerous	Mail/Postc	42 signatures on petition. We the undersigned submit this document as a public comment on the literature review. RAP poses concerns over possible leaching. Leachate can exceed state groundwater quality standards. We urge the Thurston County Commissioners to 1) Hire consultants to do additional study and 2) NOT to rezone this area to permit RAP.		
16	6/15/2019	Faith Morgan	Email	No to asphalt plant.	Confirmed receipt	6/15/2019
17	6/16/2019	Esther Kronenberg	Email	I oppose the processing of recycled asphalt at the Holroyd site for the following reasons: 1)The lower Nisqually Valley is classified by Thurston County as a wellhead protection area. It is protected as a rural environment. 2)The water sources for residents are wells. Lacey City well is less than half a mile from Lakeside's asphalt plant. 3)Lakeside knew RAP was not allowed before they built their plant at Holroyd's pit. Two court decisions reaffirmed they could not use RAP in the Nisqually Valley. Olympia Region Clean Air Agency (ORCAA) reaffirmed they could not, due to Subarea plan rules. 4)If Lakeside is allowed to process recycled asphalt, best practices should be enforced.	Confirmed receipt	6/16/2019

18	6/17/2019	Sandra Herndon	Email	Please accept this comment from the League of Women Voters. I am writing to express concern about the proposed recycled asphalt plant in the Nisqually. The League believes that concerning water resources is the overriding consideration. The consultants report is laboratory based. They state that laboratory tests are not necessarily representative of field conditions. We ask that planning not move forward with this plan.	Confirmed receipt	6/17/2019
19	6/18/2019	Kathy Lawhon	Email	Please do not allow water plant here. We are running out of water.	Confirmed receipt	6/18/2019
20	6/19/2019	Howard Glastetter	Email	Found a 1/3/2000 memo from the 1992 Subarea Plan project Manager that gives a history of how policy E.5 evolved. Will share that memo with me tomorrow.	Confirmed receipt	6/19/2019
21	6/22/2019	Madeline Bishop	Email	Please do NOT remove policy language that prohibites recycled asphalt. We need a phase 2 investigation. 1. The lower Nisqually valley is a wellhead protection area and is also protected as a rural environment. 2) The water sources are from wells, and the Lacey City well is close to Lakeside's asphalt plant. This plant sits aon permeable soil and in the 100-year floodplain. 3) Lakeside knew RAP was not allowed before they built their plant at Holroyds. Two court decisions reaffirmed they could not use RAP. DNR requires they must move out when the pit is mined, will they?	Confirmed receipt	6/24/2019
22	6/20/2019	Dave Newborne	Open Hou	There should be NO approval for asphalt recycling. NO approval to change the comp plan.	Confirmed receipt	6/20/2019
23	6/20/2019		Open Hou	This proposal makes a mockery of the effort to restore the Nisqually estuary. The millions of dollars invested in the restoration project will be a waste if this proposal is allowed. How can Thurston County guarantee the safety of groundwater if this is allowed to happen? How can the county guarantee that the internal committee and commissioners will not take bribes from Lakeside Industries? I see this as a form of silent genocide against the Nisqually Tribe. It's absolutely appalling that Lakeside Industries is making this proposal.		6/20/2019
24	6/20/2019		Open Hou	Issues with field studies (in this report tonight). "Swedish study" Conclusion: "underestimating contaminants". We should not allow recycled asphalt in the Nisqually Valley.		6/20/2019
25	6/20/2019		Open Hou	I am against this proposal. After living in the county for 30 years, I know that the Nisqually Area is special. It is unique. It has our city of oly drinking water at the Allison Springs wellhead. We must not pute this area with more trucks, recycled asphalt, etc.		6/20/2019
26	2/21/2019	Kyler Danielson, Lakes	Email	Consultant report exaggerates findings, not credible or valid.	Confirmed receipt. Noted that while the County concurs on some of the issues raised in their comment, other items will be treated as a public comment and should be submitted during the written comment period on the report.	2/21/2019
27	2/21/2019	Howard Marks, David Gent WAPA/NAPA	Email	Consultant report exaggerates findings, not credible or valid. Should be removed from the record	Confirmed receipt.	2/21/2019

28	11/6/2018	Kyler Danielson, Lakes	Email	The draft Consultant report should include more U.S. studies. Foreign studies are not representative of local asphalt and conditions. The report also does not account for differences in regulatory standards.	Confirmed receipt. Noted the comment about US versus foreign studies and relevant differences that may impact the results of the study. Staff considered, and then revised the SOW for consultant to add 3 additional US-based studies to have a more equal representation in the report.	11/8/2018
29	6/28/2019	David Hillman	Email	100% of the citizens that submitted are against the policy change. Those in favor of the change are employees of the asphalt industry, and I am sure that few of them are citizens of the Nisqually Subarea. Of the four people in favor of the change, one works for the company that submitted the policy request. One is from Maryland, one is from Renton, and one is from Puyallup. All four of their comments were most likely drafted by their lawyers and they were on the clock when they signed their names. The tally for those against is 54 and those in favor is 4 - that is a 14:1 ratio. The Nisqually is one of the cleanest watersheds and estuaries in the United States, land use is held to a high standard. Lakeside must conform to the same stringent policies in this unique place. The people demand this policy be rejected as soon as possible. If it moves forward, then more study and public comment is required (Phase 2). In light of public opposition, it would be off if this policy skipped Phase 2.	Confirmed receipt.	6/27/2019
30	7/6/2019	Madeline Bishop	Email	I am very concerned about the proposed policy change for the Nisqually Subarea that would be the first step towards issuing permits to recycle asphalt. Citizens are put at a disadvantage since Lakeside can hire experts to testify, as seen in the 2000 decision to allow the asphalt plant to move to the Nisqually. What circumstances would make it likely that contamination would occur? Incidents such as regulations not followed, earthquake, flood, acidic rain, excessively dirty asphalt, slow amounts building up over time etc. And are you willing to take the risk? I care about the water quantity, water quality and preservation of farmland.	Confirmed receipt	7/8/2019
31	6/20/2019	Howard Glastetter	Email	Attached is a memorandum by Steve Morrison, the project manager of the original 1992 Subarea Plan. This was used to reject Lakeside's request to put a plant in the Nisqually Valley. Courts allowed Lakeside in due to a county WAC that said an sphalt plant was an accessory use to a gravel mine. That law was changed from accessory use to permitted use to prevent this from happening again. There is more to this issue than: "Is RAP OK or not OK"	Confirmed receipt	
32	7/9/2019	Robert Clark	Email	Add me to the email list.	Added to mailing list and confirmed with sender.	7/9/2019
33	7/10/2019	Phyllis Farrell	Email	Lakeside's recycled asphalt policy E.5 in the Nisqually area shouldnot be considered due to flooding, proximity to the river, wells, etc.	Comfirmed receipt	7/10/2019
34	7/11/2019	Vera Spooner	Mail/Postc	Protect water. Allowing RAP would be a violation of the subarea plan	Comment recorded.	7/11/2019
35	7/11/2019	A. R. Kuischur	Mail/Postc	No Recycled Asphalt in the Nisqually.	Comment recorded.	7/11/2019
36	7/11/2019	Shelley C	Mail/Postc	Protect water. Allowing RAP would be a violation of the subarea plan	Comment recorded.	7/11/2019
37	7/11/2019	LWV	Mail/Postc	Protect water. Don't allow RAP in the Nisqually.	Comment recorded.	7/11/2019
38	7/11/2019	Charlotte Persons - LV	Mail/Postc	Protect water. Allowing RAP would be a violation of the subarea plan	Comment recorded.	7/11/2019
39	7/11/2019	Barbara Buchan - LWV	Mail/Postc	Protect water. Allowing RAP would be a violation of the subarea plan	Comment recorded.	7/11/2019

40	10/4/2019	Nisqually River Counci	Email	The NRC requests the Board to require on-the-ground field studies of RAP leachate behavior in our region prior to moving forward with any change to current policy. Per their March 2017 letter, a narrow review may have unintended consequences that could be avoided through an adaptive management of the entire plan. The Subarea is critical for local water supply and ESI-listed species. Additionally, this study should be considered in pair with other concurrent proposals, such as the potential for sub-aquifer mining. THE NRC continues to support a holistic view of the Plan.	Comment recorded.	10/21/2019
41	11/17/2019	Phyllis Farrell - LWV	Email	List of points for which the League of Women Voters supports or opposes measures based on. Stated that depending on certain policy for Nisqually Subarea Plan or Recycled Asphalt Policy, if there is scientific evidence to support/oppose the LWV measures, they could weigh in. Measures include: "Policies and procedures to preserve a natural estuarine environment for the Nisqually Delta should be supported; Any land or water uses which affect the Delta should be compatible in type and intensity with is ecological balance;; Changes to the ecosystem of the Nisqually River basin, Delta, and Nisqually Reach should be made only after their effect upon the Delta is considered; The state should assume primary responsibility for developing management goals and strategies for this area of statewide concern; priority must be given to implementation of a comprehensive, regionwide plan for the management of the area..."	Comment recorded.	
42	9/10/2018	Howard Glastetter	Email	The recent Thurston County Hydrological report says nothing about reprocessing ground up recycled asphalt pavement (RAP) in the permeable soil of gravel mines. Yet, there is a current study going on with this issue for the Nisqually Sub-Area. There are tests that can be done under the remainder of RAP piles at the old Lakeside Hogum Bay site, that could show whether or not leaching of polycyclic aromatic hydrocarbons are occurring here due to RAP wet weather storage. However, the Sub-Area study is only doing a summary of what has been written in the past.	Comment recorded. The hydro study is specific to the mapping of the mineral lands designation, and does not specifically address recycling of asphalt. This is being considered as a separate policy consideration.	9/11/2018
43	1/15/2020	Howard Glastetter	Email	The code should discuss batching and recycling as entirely separate entities. The code should also be specific that accessory uses must be consistent with Subarea Plans. I strongly believe that there should be a statement that says : “Storage and processing of RAP, if allowed, should meet Best Management Practices that will prevent or strongly mitigate leaching of weather related water into soils or aquifer below the plant”.	Code language to be addressed with the RAP review	1/16/2020
44	1/21/2020	David Hillman	Email	Requested update on schedule	Provided schedule	1/21/2020
45	7/6/2020	Howard Glastetter	Email	Resubmitted past comments on the issue regarding the origination of Policy E.5, the consultant report, water quality concerns and best management practices to mitigate impacts.	Comment recorded for the record.	
46	7/14/2020	Esther Kronenberg	Email	Processing RAP at the Holroyd site is extremely risky to our water resources, and these resources can never be replaced once tainted. Extreme weather events are happening more frequently. RAP was a bad idea in 1992 when the original plan was adopted. Since then we've added more people, and in 2020 its a worse idea and even more dangerous now. The only beneficiaries are a few employees and one company. The risks are potentially catastrophic.	Comment recorded.	7/15/2020

47	7/14/2020	Madeline Bishop	Email	I oppose RAP in the Nisqually Suabrea for the following reasons: 1) the lower Nisqually is a wellhead protection area; 2) water sources are from wells mostly and there is the City of Lacey well, Holroyd is on permeable soil and sites in the 100-year floodplain; 3) Lakeside knew RAP was not allowed before they built their new plant at Holroyd; 4) The pit is mined out and DNR should reclaim it; 5) a section of the pit is over the aquifer and dangerous toxins can infect the aquifer.	Comment recorded	7/15/2020
48	7/14/2020	Phyllis Farrell	Email	The goal of the plan is to protect existing rural environment of the Nisqually Planning area for future generations. The subarea has critical aquifer recharge areas and mcallister geologically sensitive area - these areas are sensitive to contamination. The site is close to the Nisqually River and in the 100 year floodplain. RAP leachate could threaten water quality and Nisqually River fish stocks. There has not been a SEPA process for this proposal; the Planning Commission should have this information before making any recommendations. South Sound Sierra Club Group opposes the removel of the RAP prohibition.	Comment recorded	7/15/2020
49	7/15/2020	Howard Glastetter	Email	I have a comment regarding the Policy E.5. One sentence reads: “The proposed amendment would allow the recycling of asphalt pavement to occur as an accessory use within the mined-out portion of gravel pits within the Nisqually Subarea”. I believe the term “accessory use” is currently incorrect and should be changed to “permitted use”.	Comment recorded. Responded about the policy and permitted vs. accessory use.	7/15/2020
50	7/15/2020	Howard Marks, NAPA	Email	We ask that Thurston County amend the Nisqually Subarea Plan to allow for recycling in the subarea. We previously expressed concern over the consultant's report and have contracted with a university to conduct a review of existing literature - the result is different than what the County's consultant identified.	Comment recorded.	7/15/2020
51	7/15/2020	Karen Tvedt, League of Women Voters	Email	The LWVTC has concerns about Lakeside Industries' request to allow asphalt recycling in the Nisqually Subarea. This policy protects the subarea. If a change were to be made there would need to be circumstances that warrant the change. There have been no change in circumstances. Making a change to an established plan is not sound land use policy. A mined out gravel pit is likely one of the worst sites for RAP because the ground is very porous. Finally SEPA should be done at the earliest opportunity.	Comment recorded. The Applicant's environmental checklist has been included with the 7-15-2020 Planning Commission memo. A determination will be completed prior to a public hearing with the Board of County Commissioners.	7/15/2020
52	7/30/2020	Howard Glastetter	Email	This comment is supplemental to several other comments I've submitted over the years. Holroyd has a request to mine 80 feet below the water table - this should be considered ecologically unacceptable and there should be an agreement that this will not happen if RAP is allowed in the pit. Furthermore, Goal E.5 states that reprocessing of imported mineral materials shall not be the primary accessory use. This indicates that more than 50% must come from the pit (less than 50% must be imported). Finally, I'd like to comment on option 3, which mentions tarping as an acceptable BMP. This would work if air space were between the tarp and the pile, but without it, the tarp will cause existing water to be held inside the pile. Lakeside's Aberdeen currently uses this tarp/airspace technique and it cuts processing costs while reducing air pollution.	Comment recorded	7/30/2020

53	7/30/2020	Lee Blankenship	email	I find it appalling that a government body would stand in the way of a proven environmentally friendly practice with far-reaching environmental benefit. As a scientist, the objections to this project are simply not credible. I urge you to follow the science and data. You should require monitoring of potential water runoff and use adaptive management principles to address issues that arise. I ask that you approve this the policy amendment request.	Comment recorded.	7/30/2020
54	7/30/2020	Loren Cohen	Email	I am in support of this request. Lakeside is a trusted employer in the labor and construction industry. Recycling asphalt is a sustainable environmental practice that is needed to support economic recovery, and it is a common practice. It lessens environmentasl impacts and reduces air emissions.	Comment recorded.	7/30/2020
55	7/30/2020	Kent and Maureen Ca	Email	We ask that you do not allow RAP in the Nisqually Valley. This area has productive farmland, please consider the health of the citizens.	Comment recorded.	7/30/2020
56	7/31/2020	Jana Wiley	Email	Do not allow RAP in the subarea. There is no compelling data that there would be no harm to people that live here, or the land, water and air.	Comment recorded.	7/31/2020
57	8/3/2020	Thurston County Chamber of Commerce	Email	Raw material for infrastruction is critical to the Thurston County Community. This amendment aligns with values of recycling and reuse. This policy contributes to environmental degradation and creates economic disadvantages. Please correct the policy to allow for asphalt recycling.	Comment recorded.	8/3/2020
58	8/3/1930	Dave Knutzen	Email	I urge you to follow the science and amend the Nisqually Subara Plan to allow for recycled asphalt at Lakeside's facility. Recycling asphalt uses less energy, reduces air emissions, decreases the need for other natural resources, and is a practice that EPA and WA Dept of Ecology endorses. Please end decades of bad environmental policy.	Comment recorded.	8/4/2020
59	8/4/2020	Norm Dicks	Email	Science supports benefits of the use of recycled asphalt, including reduction of greenhouse gas emissions, reduced need to mine aggregate, and reduces need to landfill material. As a former congressmen that fought for protection of this area, I urge you to listen to the science and take action to encourage recycled asphalt. The county can require monitoring of any impacts as all other counties do. I urge you to listen to FDOT, WSDOT, DOE, EPA, the Labor Community and the Business community, and to move forward immediately with this proposal.	Comment recorded.	8/4/2020
60	8/4/2020	Curt Smitch	Email	I had the opportunity to appear before the Board in 2014 to put this amendment on the docket. Thurston County has been dragging its feet to embrace a viable environmental practice. As an Olympia resident and former Assistant Regional Director of the U.S. Fish and Wildlife Service, I strongly recommend you take necessary steps to approve Lakeside's application.	Comment recorded.	8/4/2020
61	8/5/2020	Jeff Herriford - Lakesi	Email	We ask that the Planning Commission approve this amendment as written, so that we can seek a permit to recycle asphalt. Asphalt recycling preserves natural resources, results in 0% waste, requires no additional energy or materials, is encouraged nationwide, is an important aspect of an industry essential to economic growth, and is critical during economic downturns. Letter also includes 42 signatures of support.	Comment recorded.	8/5/2020
62	8/5/2020	Rick Hicks, Joint Coun	Email	We urge you to forward a favorable recommendation to the Thurston County Board of Commissioners. We made the same recommendation in Devember 2011. This is an environmentally friendly and sustainable practice.	Comment recorded.	8/5/2020
63	8/5/2020	Kevin Tedrick, Local 6	Email	Asphalt recycling is a sustainable practice that results in zero waste and can save landfill space. It is practiced throughout the united states. There is no clear evidence that asphalt ecycling poses a real threat to water quality.	Comment recorded.	8/5/2020
64	8/3/2020	Russ Walpole - Teams	Mail/Postc	I ask that you approve the proposed amendment. This is a sustainable practice that results in zero waste and helps protect resources	Comment recorded.	8/14/2020
65	9/2/2020	Jody Disney	Email	I am concerned about the aquifer and water. I do not support allowing Lakeside to recycle RAP at this location.	Comment recorded.	9/2/2020
66	9/2/2020	Jan Dillon	Email	I support your efforts in the Nisqually.	Comment recorded.	9/2/2020
67	9/2/2020	Annabel Kirschner	Email	I strongly oppose asphalt recycling in the Nisqually. During the 1990s the County prohibited this activity based on water quality concerns. Time has not lessened these concerns.	Comment recorded.	9/2/2020

68	9/2/2020	Shari Silverman	Email	Please do not revoke the prohibition on recycled asphalt in the Nisqually Subarea. Keep the 1992 plan as is.	Comment recorded.	9/2/2020
69	9/12/2020 and 8/21/2020	Howard Glastetter	Email	The first attachment contains concerns I have had over the years with Lakeside's attempt to reprocess RAP in Holroyd's pit. The second contains observations about serious flaws in Holroyd's almost ten year old original application to mine 100 feet below the water table in their valley pit. I don't have electronic referenced attachments to the second document, but can get to hard copies if needed. The third document contains my observations about the Herrera RAP Study Document that was submitted to the county last year. I think the Planning Commission needs to be aware of both these high impact issues before any decision is made on either one. The Nisqually Sub-Area Plan will be meaningless if both Lakeside's and Holroyd's requests get approved before the rest of the plan gets discussed. If the Planning Commission wants to rule on Lakeside's request, they should also make a written judgement that Holroyd's Request shall not be considered separately from reconsidering the rest of the 1992 Sub-Area Plan.	Comment recorded.	9/21/2020

Maya Teeple

From: Howard Glastetter <howard.glastetter@comcast.net>
Sent: Friday, May 24, 2019 3:31 PM
To: Shannon Shula
Subject: Comments on the Herrera Review.
Attachments: Proposed Docket Ammendment 1703.doc

Follow Up Flag: Follow up
Flag Status: Flagged

Shannon,

I will study the review and get my comments to you when I finish. In the meantime, I'd like to submit a final variation of one of my comments that I've made over the past several years on this Nisqually Valley issue. The comments (attached) relate to the Herrera report and are already on record over the years at Thurston County in similar forms. The main point I'd like to emphasize now (as I have in the past) is that best practice for using RAP in asphalt production is to keep it dry under an un-walled building or a cover that allows air in, but keeps moisture out. Lakeside does this now at their Aberdeen, Washington plant. It allows asphalt pavement to be created at a lower temperature (due to not having to evaporate water in the RAP pile). This saves production cost and reduces both air and water pollution. It is a win for all parties.

-Howard

Howard H Glastetter
Howard.glastetter@comcast.net
(360)491-6645

Everything should be as simple as it can be, but no simpler.
Albert Einstein

Emailed to Thurston County March 5, 2017

This email is a public response to Lakeside Industries' latest docket attempt to remove Goal E-5 from the 1992 Nisqually Sub-Area plan. They want to reprocess Recycled Asphalt Pavement (**RAP**) at their Holroyd's Gravel Pit site in lower Nisqually Valley.

The overall goal of the November 1992 Nisqually Sub-Area Plan was to "**Maintain the existing rural environment of the Nisqually planning area with the primary emphasis on preserving … its rural, aesthetic character for future generations.**" (Page17). This overall goal has been in the forefront of the 1992 Plan as well as ongoing public and private efforts to restore and maintain the Nisqually River Valley. The no-RAP provision of Policy E.5, along with the other E goals (Page 20-21, attached) was designed to protect the rural character from industrial dominance.

The county has an obligation to defend this well thought out plan and strengthen it when it comes up for renewal. However, business impacts have increased, rather than be phased out as the plan has required. Examples:
1) A mined out pit at Yelm Highway and Reservation Road, in the Nisqually Sub-Area, has been converted to a construction waste site (The Sub-Area Plan (Goal E.1.) and DNR require mined out pits to be reclaimed). Stumps and construction material, including RAP, are hauled in from as far as Mason County. This operation is located in the Nisqually Sub-Area, contiguous to the McAllister Springs Sensitive Area - above Lacey and Olympia municipal wells. People in county government are aware of this violation.
2) After the flood of 1996, neighbors could only replace lost homes by putting them on high foundations. No lot filling was allowed. However, the gun factory, in the middle of the neighborhood, was given permission to put 20,000 cubic yards of fill on their 1996 flood inundated property. They have yet to use this filled area. That filled part of the property is now for sale.
3) Lakeside got into the valley on a technicality and now wants to add the RAP storage and recycling to their process. This would have an increased truck traffic impact on the valley and opens the door to possible water and air pollution.

There are ongoing concerns with flooding. In 1996, much of the lower Nisqually Valley was under floodwaters, including portions of the Holroyd gravel mine. Due to past rail line, bridge and highway construction the Nisqually River has been artificially forced to the higher **east** side of the valley. When the river has major floods, it naturally flows to the **west**, above the rail line, through the Durgin Road Tunnel upstream, from the Holroyd Gravel Mine. If floodwaters enter the pit, aquifer groundwater could be infiltrated by pollutants from RAP storage in the pit, if RAP were ever allowed. (Flooding in Nisqually Valley will continue to be an issue as long as Tacoma Power is allowed to top off the Alder Lake Reservoir in the fall/winter seasons.) **Goal E.5 states: "… the reprocessing of asphalt shall not be allowed due to <u>water quality</u> concerns".** Note: RAP is recycled pavement. When it is ground up the surface area dramatically

increases and allows greater leaching of chemicals in the RAP. Please see next paragraph. Yellow highlighting is mine.

http://www.rmrc.unh.edu/tools/uguidelines/rap131.asp "For unbound applications, leachability from the RAP may also be a concern. This same leachability would be a concern if RAP was stockpiled or stored and exposed to precipitation." **What this URL is saying is that using RAP as one would use raw gravel for a road or driveway would cause more (possibly unacceptable) leaching into the soil than, say, a solid road made of bound asphalt. The reason being, that increased surfaces of the unbound RAP particles would have far more surface area to leach from than a hard surface road (much the same as a RAP stockpile exposed to the weather).**

If RAP is allowed, and I'm not recommending it, there is a way to mitigate its effects. Below is the "Best Practice" to reduce moisture in RAP. It allows RAP to be processed at a lower temperature, reducing the cost of producing asphalt. There are two additional side benefits to this. Less heat means less energy, reducing air pollution. Keeping RAP dry also prevents chemical leaching into the ground water. This is a win for the asphalt company (less cost) and the neighborhood (less water/air pollution).

The **un-walled building** cover technique was also recommended in two different articles in the handout we used when I was on the Thurston County Asphalt Advisory Task Force (AATF) in 2007-8. A Lakeside employee told me they had no intention of doing this.

Note of caution: This still would not solve the problem of having a large **source** RAP pile in the pit. Suppose Lakeside were allowed to have RAP at their site. If Lakeside were to maintain a source RAP pile of the size they had when they were at the Hogum Bay Olympia Landfill a few years ago, it likely would create a water pollution problem. They had an irregular pile 60+ feet in height and around 150 feet across at the base. That may have been marginally ecologically acceptable, because the water table could be around 100 feet below ground level at the Hogum Bay site. The current permeable gravel floor at Holroyd's is about 15 to 20 feet above an aquifer water table, even less in wintertime. Holroyd's pit is also in the Nisqually 100-year floodplain. I have photos that show they were flooded in 1996.

http://www.morerap.us/files/rap-best-practices.pdf

Stockpiling to Minimize Moisture

Moisture content of aggregates and RAP is a primary factor affecting an asphalt plant's production rate and drying costs. Some contractors have implemented creative approaches to reducing moisture content in stockpiles. The best practice to minimize the accumulation of moisture in stockpiles is to cover the stockpile with a shelter or building to prevent precipitation from getting to the RAP. Second to that, it is a good practice to use conical stockpiles to naturally shed rain or snow, and to place the stockpile on a paved and sloped surface to help water drain from the pile. Irregular-shaped stockpiles with surface depressions that will pond water should be corrected by shaping the pile as it is being built with the front-end loader or a small dozer. However, the use of heavy

equipment on the top of RAP stockpiles should be minimized to avoid compaction of the RAP. Likewise, it is also recommended that RAP stockpiles be limited to 20 feet in height to reduce the potential for self-consolidation of the stockpile.

Final thoughts:
Lakeside RAP storage at the Hogum Bay site did not meet "**Best**" or even "**Second Best**" practices. Would they do better in Holroyd's pit? The jury is out on that. The aquifer below the pit is the source of drinking water for some as well as farm / garden irrigation for many in the valley.

Lakeside knew RAP was not allowed before they built their new plant at Holroyd's pit. The County Commissioners and two court decisions ruled they could not use RAP in Nisqually Valley. ORCAA reaffirmed they could not, due to Sub-Area Plan rules. They chose to push their way into this rural residential area, anyway. Since then, they've been posturing that they have been treated unfairly.

Holroyd's pit is close to being mined out. DNR and the Sub-Area Plan say they have to move out when that happens. Will they? Or, will they want increase truck traffic and change infrastructure to haul in **gravel** from another pit **as well as RAP**? This would also be in violation of the Sub-Area Plan. **(Goal E.5 says: "The reprocessing of imported mineral resources shall not be the <u>primary</u> accessory use … ."** Gravel is a mineral and is supposed to come from inside the pit.

Thank you for your consideration.

Sincerely,

Howard Glastetter
howard.glastetter@comcast.net
(360)491-6645

From: EJ Zita
To: Maya Teeple
Cc: Shannon Shula
Subject: Recycled Asphalt Plant info
Date: Sunday, May 26, 2019 1:40:57 PM

Hi, Shannon and Maya, please do put me on the mailing list for this. Thank you for your work, and for letting us know.

I understand that public comment is due 14 June, and the hearing is 20 June.

Best, Zita

E.J. Zita, Commissioner, Port of Olympia, District 3

*ejz@portolympia.com * 360-481-9315 * www.portolympia.com*

We're working for sustainable economics, community benefit, and environmental stewardship at the Port of Olympia.
My personal response may not represent all Port perspectives.
If you do not receive a response within a week, please try again. Thank you - Zita

-----Thurston County Community Planning <wwm-webmaster@co.thurston.wa.us> wrote: -----

To: ejz@portolympia.com
From: Thurston County Community Planning <wwm-webmaster@co.thurston.wa.us>
Date: 05/22/2019 10:30AM
Subject: Consultant Literature Review on Recycled Asphalt Now Available Online. Public Info Meeting on the Report on June 20, 2019.

From Thurston County Government

COMMUNITY PLANNING

(Formerly Long Range Planning)

Webmail sent May 22, 2019

Hello from Community Planning

Consultant Literature Review on Recycled Asphalt Now Available Online.

The public is invited to submit written comment on the report, and attend an informational public meeting on June 20, 2019.

Citizens can now review and provide comments on the literature review conducted by Herrera Environmental Consultants. This literature review was conducted as part of a proposed policy change. The proposal would amend a single policy within the Nisqually Subarea Plan to remove language that currently prohibits asphalt recycling within the subarea.

A public meeting will be held by Community Planning to provide information on the literature review. Herrera Environmental Consultants will give a presentation on the report at this meeting beginning at 6:30 PM.

What: Public Information Meeting on the Consultant Literature Review *as part of the Proposed Amendment to the Nisqually Subarea Plan Recycled Asphalt Policy (Policy E.5)*
When: Thursday, June 20, 2019
Time: 6:00 p.m. - 7:30 p.m.
A presentation will begin at 6:30 p.m.
Where: Lacey Community Center, Meeting Rooms 1 & 2 at 6729 Pacific Ave. SE in Olympia, 98502

Persons with disabilities requiring reasonable accommodations to participate in the meeting should call the staff contact listed below to request ADA accommodation at least five days prior to the public meeting. Persons with speech or hearing disabilities may call via Washington Relay: 711 or 800-833-6388.

HOW TO SUBMIT WRITTEN COMMENTS & PROVIDE INPUT

The public may submit mailed or emailed comments on Herrera Environmental Consultant's literature review report. Comments can be emailed to Shannon Shula, Associate Planner, at Shannon.Shula@co.thurston.wa.us, hand delivered, or mailed to:

Thurston County Community Planning and Economic Development
Attn: Shannon Shula, Associate Planner
2000 Lakeridge Dr. SW
Olympia WA, 98502

Comments must be received no later than 5:00 p.m. on Friday, June 14, 2019.

LEARN MORE ONLINE

View additional information regarding the meeting, the County's review process, and opportunities for public involvement online at the 2017/2018 Official Comprehensive Plan Amendment Docket - Item 11 (Recycled Asphalt Policy Consideration) webpage.

HOW TO GET MORE INFORMATION OR TALK TO SOMEONE

If you have questions, please contact Shannon Shula by email at Shannon.Shula@co.thurston.wa.us or call 360-786-5474.

Sincerely,

Thurston County Community Planning Staff

SUBSCRIBE TO OUR EMAIL LIST

VISIT OUR WEBSITE

Thurston County Planning Department,
2000 Lakeridge Drive S.W., Olympia, WA 98502

Comments on Herrera's Contaminant Leaching from RAP document

By Howard Glastetter
11110 Kuhlman Road SE
Olympia, WA 98513
Howard.glastetter@comcast.net
Cell: (360)556-1574

May 28, 2019

The Herrera document was based on available, easily accessed, online studies; most of which have been around for several years. The report was even-handed and concluded that recycled asphalt pavement (RAP) leaches chemicals and is an issue of concern, albeit somewhat minor in this area.

I'd like to preface my comments on the document with an observation of the Lakeside operation at Holroyd Gravel Mine. Their operation is state of the art. It is very rare to smell any odor of hot asphalt from the pit. Nisqually neighbors get a whiff of it when covered trucks drive by, but that's it. Lakeside employees have been respectful ladies and gentlemen. So, Lakeside is a good neighbor.

A couple comments in Herrera's document caught my eye. I knew that New Jersey had very stringent rules about RAP. On page 10 of the document, under **Toxicity Testing** in New Jersey, it states: RAP "… could be used as an unbound material in all environments except those which are highly acidic PH < = 4), such as mines … (Note: the assumption is that the authors are referring to coal- and metal-type mines and not gravel-type …)" I did a little research, see below.

https://www.sourcewatch.org/index.php/New_Jersey_and_coal#Major_coal_mines

Major coal mines

There are no coal mines in New Jersey.[18]

https://www.state.nj.us/dep/njgs/pricelst/gsreport/gsr25.pdf
The introduction to the PDF says: Sand and gravel production in New Jersey is a $100 million annual business with 786 mining operations, around 100 of which are active.
- - - - - - - - -
Metal mining in New Jersey appears to be a thing of the past and was done via tunneling and not open pit. So, a better Herrera assumption would be that the "authors are referring to **permeable soiled gravel** mines". I'm familiar with wells at 3 different homes in Nisqually Valley below Holroyd's mine. They all contain a certain amount of red / brown turbidity, which I believe is caused, to a certain extent, by gravel mining in the pit. See below.
- - - - - - - -
https://www.reference.com/home-garden/causes-well-water-suddenly-turn-brown-f7f4fce6acfcb870

"The most common cause of brown well water is iron contamination. A sudden change in water-color means that the contaminant is newly introduced to the well, and it may be caused by **industrial contamination**, rusty plumbing fixtures or natural iron leaching from the ground". Nisqually valley soil contains iron.

- - - - - - - - -

Back to the Herrera document: A point was made (page **17 - *Comparison Studies to Expected conditions in Nisqually***) that "European RAP tests may not relate to U.S. tests, because asphalt pavement was made there with tar as an additive until 1975 and emits more polycyclic aromatic hydrocarbons than RAP produced from bitumen which is what has been used in the U.S. since WW 2."

Page **19** item 1 made me pause. It stated that tests showed: "Cu and Zn (copper and zinc) also exceeded U.S. EPA WQLs". This reminded me that there is a more modern ingredient that is popular in U.S. asphalt production: recycled asphalt roofing shingles. Some of the more expensive shingles come impregnated with copper flakes to prevent moss buildup. Many home owners put zinc on asphalt roofs, either as metal strips, liquid applications, or solid zinc flake applications to do the same thing. Does reprocessing these used shingles add these metals to asphalt roads that will eventually be ground up, returned and stored to open weather at an asphalt plant site? I'm not seriously suggesting this as the source of Cu and Zn metals found in the above test. I mention it because, most of us are initially pleased to hear about recycling. However, as Einstein said: "Everything should be as simple as it can be, but no simpler". The reprocess should be safe. Keep RAP dry when storing it over a permeable floored gravel mine.

The Herrera study painted Nisqually Valley with a broad brush. I'd like to add a few details. The lower valley is classified by Thurston County as a Wellhead Protection Area. It is also protected, as a rural environment, by a Thurston County Sub-Area Plan.

The water sources for all residents in the lower valley are from wells. Many residents, but not all, get drinking water from a Lacey City well next to the Nisqually River - less than a half mile from Lakeside's Asphalt Plant. The plant sits in the permeable soil of Holroyd's Gravel Mine at the very beginning of the Nisqually Delta in lower Nisqually Valley. The pit was once the end of a glacier. There is a capped-artesian-springs well just across Old Pacific Highway from the pit. These springs obviously run under the pit and likely continue through rural residential land to Puget Sound. (There was, until recently, a capped artesian spring pipe near the board walk in the tide lands at the Nisqually Delta sanctuary.) This mine / industrial activity is up-river from many homes that have private wells because Lacey Water doesn't serve them. Holroyd's Pit, itself, has a several-year-old active request at the county to mine the pit from its current permeable floor level to 80 feet below the water table. Delivering RAP to the pit would also mean increased truck traffic on the two-lane roads in the valley. So, this site is a very sensitive part of the valley and could become a stressed one.

If RAP were ever allowed, it should be under cover and out of the weather before and during its use. Please see a past comment on RAP that I resubmitted May 24, 2019. It shows weather protection is an industrial "Best Practice".

Sincerely,

Howard Glastetter

LAKESIDE INDUSTRIES

P.O. Box 7016 / Issaquah, WA 98027
ph: 425.313.2600 / lakesideindustries.com

June 12, 2019

Via email

Thurston County Community Planning & Economic Development
Attn: Shannon Shula, Associate Planner
2000 Lakeridge Drive SW
Olympia, WA 98502

Re: Lakeside Industries' Comments on Herrera Review Literature Review - Leaching from Recycled Asphalt Pavement

Dear Shannon:

Thank you for this opportunity to comment on the Literature Review on Contaminant Leaching from Recycled Asphalt Pavement ("RAP") prepared by Herrera Environmental Consultants, Inc. and dated May 14, 2019 ("Herrera Review").

RAP materials "have been successfully reused and recycled into new asphalt pavements since the 1970s."[1] The Herrera Review analyzes the potential for leachate from RAP and generally concludes that the impact to the environment from RAP stockpiles is limited or negligible. Unfortunately, the Herrera Review includes several inaccurate statements and excludes important information, which may create unnecessary concern. We address those issues below.

Additionally, the Herrera Review did not consider or address the various best management practices ("BMPs") available to eliminate any possible concerns regarding RAP leachate. For example, Lakeside would be willing to cover its RAP stockpiles within the Nisqually Sub-Area to mitigate any possible concerns with the "initial flushing" identified in the Herrera Review.

Background

There is a good reason why no city or county in the United States, other than the Nisqually Subarea in Thurston County, prohibits the use of RAP in new asphalt production. RAP is safe for use in producing new asphalt and it is the most recycled product in the Country. RAP is critical to sustainable use of our natural resources. RAP does not harm fisheries, water quality, other habitat or humans. Asphalt, including asphalt with RAP, is used to line fish hatchery ponds and drinking water reservoirs.

Asphalt has been called the "ultimate recyclable product" and the use of RAP is a standard practice in Washington and throughout the world. Reprocessing asphalt is consistent with the

[1] Mehta et al. (2017), pg. 1.

vision in Thurston County's Comprehensive Plan. It preserves the human environment by encouraging jobs in the community. It preserves the natural environment by encouraging protection of mineral resource lands, limiting the carbon footprint of asphalt paving, and preventing unnecessary waste in landfills. It promotes economic health by reducing the cost of asphalt manufacturing, which supports local asphalt paving businesses and property owners.

Thurston County adopted the Nisqually Sub-Area Plan in November 1992. As adopted, the Nisqually Sub-Area Plan prohibits the use of RAP in the mined-out portion of a gravel pit based on "water quality concerns." One month after its adoption, the Thurston County Public Health Department took the position that "a waste asphalt recycling operation presents none to very minimal environmental health concerns." *See Attachment 1.* Despite the Thurston County Public Health Department's finding, the Nisqually Sub-Area Plan still prohibits the use of RAP in the Nisqually Sub-Area. Lakeside Industries requested an amendment to the Nisqually Sub-Area Plan to remove this prohibition. To further advance the County's understanding of water quality impacts from RAP, the County contracted with Herrera to analyze available leaching research.

The Herrera Review found limited or no cause for concern

The Herrera Review's ultimate conclusions find limited or no cause for concern caused by leaching of RAP. The purpose of the Herrera Review was to "review available research on direct measurements of leachate from RAP."[2] After an initial assessment of over 100 articles, the Herrera Review analyzed eight "highly rated" studies by Aydilek et al., Legret et al., Mehta et al., Birgisdóttir[3] et al., Norin and Strömvall, Kang, et al., Morse et al., and Brantley and Townsend.[4] Consistent with its purpose, the Herrera Review came to three key conclusions:

- RAP is highly variable;
- Some contaminants leached from RAP in laboratory tests at concentrations exceeding state groundwater quality standards; and
- The initial flush of contaminants from RAP "can result in concentrations exceeding Washington state groundwater quality standards, but these peak concentrations decrease quickly to below detection limits as more water is flushed through the RAP."

The Herrera Review also noted in its conclusions: "a number of the researchers suggested that the impact to the environment would be negligible if dilution and assimilation were considered."[5]

Based on the Herrera Review's conclusions, leachate from RAP is not an environmental concern. While RAP may leach some contaminants at first flush, levels decrease to below detection limits quickly, creating a negligible overall impact. Despite these clear conclusions, the Herrera Review contains inaccurate statements and excludes contextual information.

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[2] Herrera Review, Executive Summary.
[3] The Herrera Review repeatedly misspells this author as either "Birgisdottir" or "Birgisdotter." (See e.g. Herrera Review, pg. 19).
[4] On page 19 of the Herrera Review, Brantley and Townsend is misspelled as "Brently and Townsend."
[5] Herrera Review, pg. 18.

The Herrera Review does not accurately reflect local conditions or local RAP impacts.

The Herrera Review makes inaccurate statements or excludes crucial information regarding local conditions relevant to the impact of RAP in the Nisqually Sub-Area. First, three of the studies analyzed in the Herrera Review were conducted in Europe, where road usage is quite dissimilar from the U.S. Popular vehicle manufacturers and models in Europe are not as common in the U.S. Diesel fuel is more prevalent in Europe. European road products are also different. For example, in Scandinavia, where the Birgisdóttir and Norin and Strömvall studies were performed, studded tire road wear and winter de-icing solutions are more prevalent than in the Nisqually Sub-Area. These differences likely influenced data in the studies.

Additionally, the Herrera Review incorrectly asserts that rainwater in the Puget Sound region is quite acidic; however, more recent analysis determined that local rainwater is not as acidic as Herrera's Review declared. The Norin and Strömvall study used water with a pH of 4.0 or 4.5 for its batch tests. The Herrera Review relied on a 1977 document to assert that "the acidic test conditions used in the [Norin and Strömvall] batch tests are not too low to represent expected conditions in Nisqually." Fortunately, the Pacific Northwest does not currently experience such acidic rainfall. For the last thirty years, pH in the Puget Sound region has ranged between approximately 5.0-5.3.[6] The pH scale is logarithmic. Thus, a pH of 4.0 is ***ten times*** more acidic than a pH of 5.0. For this reason, acidic test conditions used in the Norin and Strömvall study were, in fact, too low to represent expected local conditions.

The Herrera Review presents information in a manner that exaggerates study results.

The Herrera Review presents information in an ineffective manner. For example:

- Tables included in the Herrera Review depict data in ranges. This does not consider that the highest number in the range can be (and often is) an outlier, which consequently highlights the rare exceedances.
- In some instances, a range should be provided in a table but is not. For example, the Legret et al. (2005) study found 0.055 µg/L of dibenzo(a,h)anthracene in column tests on Day 2 of the study; however, that concentration decreased to below detection levels for every additional test. Table 2 shows the exceedance without noting the numerous samples with no dibenzo(a,h)anthracene detected.
- A couple studies used RAP from highly contaminated property, such as a gas station[7] and a roadway containing lead paint.[8] Such samples were not representative of RAP that would be accepted for recycle in Thurston County. The Thurston County Code does not allow recycling of asphalt from a gas station[9] and lead is no longer used in paint.

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[6] See data from the National Atmospheric Deposition Program/National Trends Network.
[7] The Birgisdóttir study used RAP from a gas station.
[8] The Mehta study used RAP containing lead paint.
[9] TCC 20.54.070 (3.1) ("The source of Recycled Asphalt Pavement (RAP) shall only be from highways, roadways, runways, paring lots and shall not be from a contaminated site such as a Superfund site or Model Toxic Control Act (MTCA) site.").

- The Herrera Review Table 1 includes batch test data the Norin and Strömvall column, but the Norin and Strömvall authors did not conduct batch tests – the data was taken from a separate study.[10] Herrera's decision to incorporate data from a separate study conflicts with its stated goal to use only primary data sources in its literature review.[11]

The Herrera Review's summarized conclusions are quite dissimilar from the conclusions in the underlying studies.

The Herrera Review provided two to three sentence summaries of the studies,[12] but those summaries inaccurately reflect the key conclusions of the report. Namely, the following are direct quotes from several of the study conclusions that are not reflected in the Herrera Report:

> Aydilek: "[Water Leach Test (WLT)] and [Column Leach Test (CLT)] results could not be compared due to differences in liquid-to-solid ratios (20:1 for WLT versus 0.1:1 for CLT), test durations (18 hours for WLT versus two months for CLT), and test conditions (static for WLT versus dynamic for CLT). Nonetheless, both tests provided an insight into the leaching potential of RAP. ***RAP did not release excessive amounts of toxic metals in either case.***"[13]
>
> Legret: "The various extraction methods used during this study, as well as the batch and column experiments, have shown that pollutant leaching is rather weak for most of the studied parameters. Concentrations in the solutions derived from batch leaching tests generally remained below EC limit values for drinking water….In all instances however, assessments were restricted, with leachate concentrations generally falling below detection limits."[14]
>
> Mehta: "RAP may be used as an unbound material in all environments except those which are highly acidic (pH ≤ 4) such as, but not limited to, mines with sulfur-containing minerals or landfills where other materials may decompose creating an acidic environment."[15]
>
> Birgisdóttir: "Concentrations of PAHs that are found above the Danish soil quality criteria near roads in Denmark paved with bitumen-based asphalt is very unlikely to be caused by leaching of PAHs from the asphalt."[16]

Unfortunately, the Herrera Report does not adequately present these and other study conclusions.

---

[10] Herrera Review, Table 1, footnote h. The Herrera Review explains in a footnote that the data attributed to Norin and Strömvall was taken from another study, stating that "[r]esults reported are from batch tests performed during previous research (Larsson 1998) that were performed on finely ground material."
[11] Herrera Review, pg. 2 ("The remaining sources were sorted with the objective of including only those that serve as primary data sources; studies that did not contain data or that summarized data collected by others were excluded.")
[12] *See* Herrera Review, pg. 19.
[13] Aydilek et al. (2017), pg. 70 (emphasis added).
[14] Legret et al. (2005), pg. 3684.
[15] Mehta et al. (2017), pg. 4 and 84.
[16] Birgisdóttir et al. (2007), pg. 1420.

The Herrera Review has a limited scope and does not consider Best Management Practices that would prevent leachate and/or transport of materials.

Best management practices could prevent leachate altogether or could prevent transport of materials to ground or surface water. However, the authors of the Herrera Review note, "[t]he study scope was specifically constrained to summarizing research on direct leaching of pollutants. For example, it does not account for use of best management practices (BMPs) such as covering the material to reduce the amount of precipitation that comes into contact with the RAP, thereby limiting leachate formation. It also does not address fate and transport as leached materials move over or through ground and water."

While it is clear from the conclusions of the analyzed studies that there is limited or no cause for concern of leaching from RAP, numerous BMPs could address and prevent leaching and transport of materials, including storm water controls and/or installation of a cover (e.g. a tarp or shed) to prevent rainfall on RAP piles. The ultimate decision whether to permit the recycling of asphalt within the Nisqually Sub-Area should be based on all relevant information, including the availability of BMPs.

Asphalt stockpiling is currently allowed throughout Thurston County

Asphalt recycling is allowed throughout Thurston County, with the small exception of the Nisqually Sub-Area. In fact, facilities within the Nisqually Sub-Area are permitted to recycle and stockpile RAP as long as the facility is not located within the "mined-out portion of a gravel pit." Several facilities in Thurston County have been recycling asphalt for years.

Conclusion

Relevant studies and data show that RAP leachate is not an environmental concern. Notwithstanding these findings, BMPs can even further ensure that RAP creates zero impact on water quality within the Nisqually Sub-Area.

Thank you again for your time and consideration on this important issue.

Sincerely,

Kyler Danielson
Land Use Project Manager
Lakeside Industries

Enclosure

cc: Maya Teeple, Associate Planner, Thurston County

Attachment 1

THURSTON COUNTY
WASHINGTON
SINCE 1852

RECEIVED
DEC 1 5 1992
THURSTON CO. PLANNING DEPT.

PUBLIC HEALTH AND
SOCIAL SERVICES DEPARTMENT

Patrick M. Libbey, Director
Diana T. Yu, MD, MSPH
Health Officer

December 15, 1992

Michael Kain
Thurston County Planning Department

Re: Policy statement - Asphalt/concrete recycling

Dear Mike,

This is a reply to your recent request for a position response from the health department with regard to site specific use for recycling of waste concrete and asphalt. After review and consultation with DOE and the initial examination of the Jone's Quarry S.U.P. for the on-site recycling of concrete and asphalt, our department has taken the approach that a waste asphalt recycling operation presents none to very minimal environmental health concerns.

Formerly, our department's greatest concern was the possibility of leaching PAH's from the asphalt materials to ground or surface waters. Present research and information suggests that this is not a serious problem as PAH's are basically insoluble in water and adsorb well to organic soils. If future information about asphalt indicates otherwise, then our department will reassess our current approach.

However, as a condition of issuance of a solid waste permit for such a facility, other parameters would need to be addressed:

1) the hydrogeological characteristics of the site would need to be assessed, ie., waste material would not be stored in a wetlands or flood plain area, nor should the material have direct contact with surface or groundwater or placed on excessive slopes.

2) all waste materials received at the site is to be quantified (by weight or volume) and the source of the material must be known. For instance, if the waste asphalt or concrete came from a known industrial site or petroleum spill, this material would not be suitable for recycling. The operator would be obligated to turn away the material or test the material prior to acceptance.

3) Surface water run-off at the site would need to be addressed.

Environmental Health Division: 2000 Lakeridge Dr. SW, Olympia, Washing

ATTACHMENT 3

The recycling of waste materials is also in concert with stated county and Washington State goals to divert waste items from landfilling to a more beneficial use. Asphalt and concrete recycling definitely support these goals and the county should be supportive if site specific proposals can meet the appropriate solid waste permitting criteria.

I hope this will help in future determinations about this issue. If you have further inquiries, please contact me at 786-5461.

Sincerely,

John Libby

John Libby
Solid Waste Program

cc: Gregg Grunenfelder
Jane Hedges

June 13, 2019

Thurston County Community Planning & Economic Development
Attn: Shannon Shula, Associate Planner
2000 Lakeridge Drive SW
Olympia, WA 98502

Transmitted via email to:
Shannon.Shula@co.thurston.wa.us

NAPA/WAPA comments regarding Literature Review of RAP leachate

The industry appreciates the opportunity to review and comment on Herrera Environmental Consultant's Literature Review entitled "Contaminant Leaching from Recycled Asphalt Pavement" ("Literature Review" or "Report") as its findings could greatly impact asphalt pavement facility operations. Based on our reading of the Report, ***we strongly question the credibility and validity of the Literature Review and recommend it be removed from public record***. Supporting evidence for this statement is available below

To our knowledge, the Nisqually Sub-Area's prohibition of storage and use of RAP, a valuable recycled material that has been stockpiled and used across the U.S. for at least four decades with no adverse environmental or health impacts, is a first. Because of the importance and implications associated with Thurston County's upcoming decision, and due to the serious mischaracterizations in the Literature Review, we find it necessary to provide our written response as part of the public comment process.

National Asphalt Pavement Association ("NAPA") is a 501(c)(6) trade association representing asphalt pavement material producers and paving contractors at the national level. Last year, the approximately 3,500 asphalt plants across the country produced more than 350 million tons of asphalt pavement mixture and employed some 250,000 individuals in the production and placement of asphalt-based pavements. The continued use of RAP in asphalt pavements is critical to ensure the nation's paved roadway surfaces are economically constructed and smooth, safe, and quiet for the travelling public.

Washington Asphalt Pavement Association ("WAPA") likewise represents asphalt pavement material producers/paving contractors at the state level and has served this function since its founding in 1954. WAPA member companies own and operate 60+ asphalt plants which produce 98% of the hot mix asphalt ("HMA") manufactured statewide. WAPA continuously partners with the Washington State Department of Transportation and the American Public Works Association of WA to develop and refine the use of RAP in HMA. RAP use has been a broadly accepted standard/technology in Washington for over 20 years and represents in excess of 20% of the annual HMA volume produced for both the public and private market.

Introduction

Across the country, as part of everyday maintenance, repair, and construction activity, old asphalt pavement material is removed from roads and parking lots and then reclaimed for future use. In 2017,

about 1.2 million tons of RAP was used in new pavement mixtures in Washington state alone. A recent study by the University of Washington identified 63 existing RAP stockpiles of significant volume containing approximately 1.4 million tons of RAP distributed across the state, all of which is destined to be incorporated into new pavements. Nationwide, more than 99% of RAP collected is put back to use in new asphalt pavements, saving more than 48 million cubic yards of landfill space annually and helping to reduce the cost of new pavement mixtures compared to all-virgin-material mixes.

Because use of RAP is now ubiquitous, many state transportation and environmental agencies have investigated the environmental implications of RAP stockpiles. These agency investigations, along with the majority of independent academic research studies, have not found reason for concern from the storage of, and stormwater runoff from, RAP stockpiles. As of year-end 2017, over 100 million tons of RAP was stockpiled in the U.S., and decades of monitoring runoff from RAP stockpiles has similarly found no reason for concern associated with stormwater runoff from RAP stockpiles. For example, Virginia Department of Transportation ("DOT") conducted a literature review of RAP leachate, similar to Thurston County's review, and concluded that although "concern has been expressed that lechate [sic] resulting from flood or rainfall could be contaminated by such recycled asphalt and thus have negative environmental consequences, … [r]esults of numerous field studies and standardized tests, including the Toxicity Characteristic Leachate Procedure (TCLP) test, suggest that typical RAP can be used as 'clean fill' without undue negative environmental consequences."[1]

The Literature Review Report stands in stark contrast to these decades of proven findings. Unfortunately, the Report mischaracterizes study results and is of questionable relevance to the issue of the environmental implications of RAP stockpiles. The Report also fails to address the numerous issues with many of the studies initially raised in comments previously submitted to the County.

Holistic Assessment of RAP Stockpiling

Before we call to your attention a few of the report's most serious misstatements and mischaracterizations, we think it important to holistically assess the potential for environmental harm from RAP stockpiles.

RAP is no different than typical asphalt pavement surfaces. The primary source of contaminants of concern come not from the asphalt material itself, but instead from emissions associated with continuous vehicular traffic. For this reason, the case can be made that runoff from RAP stockpiles is a less likely source for stormwater contaminant runoff than in situ hardscape (i.e. existing road surfaces) because, beyond an initial flushing, as documented in the Literature Review, no further contaminants would leach from a RAP stockpile. This is intuitive and incontrovertible.

Similar with other state DOTs, the Washington State DOT and the Federal Highway Administration have allowed RAP to be used in a number of different roadway and highway applications for decades, including as a crushed rock supplement and as common fill and side-slope fill (see WSDOT Standard Specification 9-03.21(1)E).

[1] See http://vtrc.virginiadot.org/rsb/RSB4.pdf

The Literature Review Contains Numerous Inconsistencies

As mentioned, there are a number of inconsistencies and misstatements in the Literature Review; however, instead of identifying misstatements that should have been revised, we will highlight several mischaracterizations that lead us to question the report's overall credibility and validity.

First, the issue of potential RAP leachate on water quality has already been addressed by many state and federal agencies since the 1990s and most recently in 2017. Although the Literature Review identifies two comprehensive state/federal agency studies (Mehta et al. (2017) and Aydilek et al. (2017)), The Report's summary of these comprehensive reports focuses on a few insignificant, individual factors in certain water quality standards from testing apparatuses purposefully designed to over-estimate potential leachate.

Second, Herrera Environmental Consultants do identify that some foreign studies (e.g., Norin and Stromvall, 2004) may be non-representative of typical U.S. asphalt pavement production practices, specifically because coal tar was historically used in some European countries. Herrera further states that because of "this and other sources of variability, only broad summaries can be drawn from the research." However, it remains unclear why the Literature Review relies heavily on the Norin and Stromvall (2004) study to illustrate excessive PAH leachate, even though it acknowledges coal tar contains thousands of times more PAHs than bitumen.

Last, the Literature Review Report relies on studies without analyzing or considering how differences in pH, RAP characteristics, testing conditions, and storage conditions influence the analysis. The studies cited all analyze differing material under differing circumstances that are not necessarily consistent with the conditions in Thurston County.

The Literature Review Mischaracterizes Findings and Conclusions from the Analyzed Studies

While the Literature Review Report attempts to characterize the impact of RAP leachate, it mischaracterizes the reviewed literature to such an extent that its findings should not be relied upon. Instead, Thurston County should rely on the numerous state and federal agency characterizations of RAP leachate potential in deciding whether to allow RAP stockpiling in the Nisqually Sub-Area.

Although we are concerned with the entirety of the Literature Review, our letter focuses on a few examples to demonstrate how the Report mischaracterizes studies.

Mehta et al. (2017)

The "Mehta et al." study from 2017 was an almost $500,000, 100-page study, which included extensive toxicity testing conducted by both Columbia University and Rowan University, and sponsored by both the U.S. DOT and the New Jersey DOT. The study "abstract," which describes the purpose and findings of the study, states:

> The primary goal of this study was to investigate the environmental impacts of reclaimed asphalt pavement (RAP) while it is freshly processed (i.e., fresh HMA) and after subjecting it to accelerated weathering. ... The results of these experiments showed that high molecular weight polycyclic aromatic hydrocarbons (PAHs) can elute from the weathered RAP materials, but none was above EPA guidelines. These released pollutants were largely attenuated in the soils. ... Based on the results, RAP may be used as an unbound material in all environments except those which are highly acidic (i.e., pH ≤ 4).

In direct contrast to the Mehta et al. study's stated findings, the Literature Review's summary of Mehta et al. (2017) states the following:

> Lead was close to or higher than US EPA drinking water standards for a number of the weathered NORTHRAP samples in batch tests ... [and] ... benzo(a)anthrazene [sic] was detected at levels of concern based on 1995 US EPA human health advisory levels. In the experiments conducted with a strong solvent, many of the PAHs exceeded US EPA 2016 Clean Water Act criteria.

Further, the Report concludes: "While some portion of the contaminants is generated from components of the asphalt itself, exposure to roadways (and traffic) was identified as a major contributor of contaminants that were available for leaching in three of the studies (Mehta et al. 2017, ...)."

Based on the above-quoted summaries, we do not find evidence from the original study to support the Literature Review's "summary." In fact, it would be likely that strong solvents will certainly dissolve asphalt pavement, releasing PAHs typically bound and unavailable in RAP. How this has relevance to the issue of PAH leachate from RAP is questionable.

<u>Aydilek et al. (2017)</u>

A similar comprehensive 250-page study sponsored by Maryland State Highway Administration (MSHA) and conducted by University of Maryland in 2017 (Aydilek et al. 2017) addressed a similar issue as Mehta et al. (2017), specifically the MSHA "expressed concern over the limited guidance on the use of RAP in highway shoulder applications and the lack of information on ... exposure of pavement to chemicals generated from the 'vehicle exhaust, gasoline, lubricating oils, and metals ...' frequently found in many RAP stockpiles..." Aydilek et al. summarizes their study's purpose and conclusions as:

> A research study was undertaken to investigate the environmental impacts associated with RAP on highway base and shoulders in Maryland. A battery of laboratory pH-dependent leaching tests and toxicity characteristics leaching procedure (TCLP) tests were conducted to determine the environmental suitability of RAP. … The following conclusions can be made: ... The concentrations of all metals, except As, in the pH-dependent leaching tests were below the U.S EPA WQL within the drinking water pH (pH 6.5–9). Based on literature, As is most probably present in its oxidizing form [As(V)] in the leachates of Maryland RAPs and does not present any concern ... The TCLP concentrations of all metals were below the U.S EPA WQL. The TCLP concentrations of most polycyclic aromatic hydrocarbons (PAHs) were below the detection limits. ... In surface waters, the concentrations of metals leached from RAP were below the EPA water quality limits (WQLs) for protection of aquatic life and human health in freshwaters ....

Other similar conclusions were drawn by the study authors and summarized in the publication abstract as:

> The concentrations of all metals released during the water leach tests were below the water quality limits, except for copper. Column leach tests yielded generally low or non-detectable metal concentrations. The deviation from this trend occurred for copper and zinc concentrations, but they fell below the regulatory limits at 4 and 0.5 pore volumes of flow, respectively. ... Concentrations of all metals from RAP conformed to the water quality standards in surface waters after passing through the natural formation.

Compare the directly-quoted findings above to the summary in the Literature Review:

> Aydilek et al. (2017) reported that Cu, Al, B, Ba, Co, Mn, Ni, and Zn exceeded Maryland's ATLs in either batch or column tests. Of those, Cu and Zn also exceeded US EPA WQLs.

Again, the original study does not support the Report's selective summary, which fails to comprehensively and accurately reflect the conclusions from the original study.

Birgisdóttir et al. (2007)

In the case of conclusions from the Birgisdóttir et al. (2017) study, we must bring to light significant inaccuracies in the Literature Review. Birgisdóttir et al. (2017) specifically looked at the ability of PAHs to leach or transfer from asphalt pavement to soil adjacent to the road. The study focused on two types of asphalt pavement: one in use for over 20 years at a gas station and one on a typical roadway. In each sample, the study analyzed both the lower courses (base material) and the upper roadway wearing courses. In both cases, regardless of the levels of PAHs in the lower courses, the upper courses showed higher PAH concentration, and as expected, the gas station contaminated surface course had substantially elevated PAH concentrations as compared to the roadway surface material. As the Literature Review correctly points out, only one asphalt sample showed PAH concentrations higher than Danish soil criteria — that sample was from the surface course of the gas station. This is to be expected; the surface of the wearing course pavement at the gas station included decades of potentially spilled gasoline and diesel fuel. These fuels, in contrast to asphalt, include lighter-end, more mobile PAHs that can potentially migrate a short distance from the source (e.g., 1 meter in this study). The key distinction is that asphalt PAHs are **not** mobile and are essentially "locked in" to the RAP. Asphalt, by its chemical nature, simply cannot readily migrate into the environment. Even using the most contaminated asphaltic samples, the study authors found:

> Assuming that the PAHs leached are accumulated in the uppermost 5 cm of the soil (or gravel) under and 1 m next to the road ... the concentration of those PAHs ... after 25, 50, and 100 years of leaching ... is far below the Danish soil quality criteria, and it can be expected that leaching of PAHs from bitumen based asphalt will only slightly influence the amount of PAHs in soils near roads.

Compare these direct study findings to the synopsis provided in the Literature Review: "the total content of PAHs in the wear course exceeded Danish soil quality criteria." The Literature Review Report also surprisingly asserted that: "exposure to roadways was identified as a major contributor of contaminants that were available for leaching."

Conclusions in the Literature Review are not supported by the plain language of the Birgisdóttir study.

Credibility and Validity of the Revised Draft Questioned

As evidenced above, ***we strongly question the credibility and validity of the Literature Review***. We encourage both Thurston County and the Report's authors to have direct dialogue with the original research study authors in order to fully understand their original research study results and we implore Thurston County to not rely on summarizations of these studies by Herrera Environmental, a third party. We also urge Thurston County to recognize the plain, overwhelming reality that RAP is stockpiled, processed, and recycled continuously throughout the state and across the country, in thousands of jurisdictions, without incident and to the net benefit of the public.

Summary

Instead of comparing the Literature Review's summary statements for the five other studies to the actual findings of the study authors, we emphasize the following:

1) In decades of environmental and transportation agency studies, and in decades of independent academic research, including those mischaracterized in the Revised Draft, there appears limited if any concern associated with stormwater runoff or leachate from RAP stockpiles.
2) Across the U.S., we know of no other agency, county, or municipality that restricts the stockpiling of RAP. All recognize the material as environmentally safe.
3) Summaries of the identified studies (in the Literature Review) significantly mischaracterize the original research results to such an extent that it raises ***real concerns about the validity and credibility of the findings***.

We encourage Thurston County to closely review our comments, to take into account the decades of environmentally safe management of RAP stockpiles in Washington state and across the nation, and to understand the importance of RAP as a sustainable recycled material for roadbuilding, the use of which has significant public benefits.

Over the decades, NAPA has accumulated numerous research articles reviewing RAP leachate and we are happy to provide those references to Thurston County, as well as to have an open discussion of any RAP leachate concerns.

Best Regards,

Howard Marks, Ph.D., JD, MPH
Vice President, Environment, Health & Safety
National Asphalt Pavement Association
5100 Forbes Blvd.
Lanham, MD 20706
(301) 731-4748

David Gent, P.E.
Executive Director
Washington Asphalt Pavement Association
451 SW 10th Street, Suite 110A
Renton WA 98057
(425) 207-8814

Maya Teeple

From: Thurston County | Send Email <spout@co.thurston.wa.us>
Sent: Thursday, June 13, 2019 2:16 PM
To: Shannon Shula
Subject: Asphalt Recycling Plant

This email was created by the County Internet web server from the email masking system. Someone from the Public has requested to contact you with the following information:

To: **Shannon Shula**

Subject: **Asphalt Recycling Plant**

From: **Pamela Keeley**

Email (if provided): **pamkeeley@mac.com**

Message:
NO asphalt recycling plant without consultation with Nisqually Tribe. Honor the treaties. No more pollution!

Revised 1/22/2017

Maya Teeple

From: Thurston County | Send Email <spout@co.thurston.wa.us>
Sent: Thursday, June 13, 2019 2:16 PM
To: Shannon Shula
Subject: recycling asphalt plant NO

This email was created by the County Internet web server from the email masking system. Someone from the Public has requested to contact you with the following information:

To: **Shannon Shula**

Subject: **recycling asphalt plant NO**

From: **Benita K. Moore**

Email (if provided): **ebby253@gmail.com**

Message:
ASPHALT RECYCLING PLANT OFF RESERVATION ROAD IN NISQUALLY... GROUND WATER CONTAMINATION WILL HAPPEN ! THERE HAS BEEN NO MEANINGFUL CONSULTATION WITH THE NISQUALLY TRIBE ... NO ENVIRONMENTAL IMPACT STUDY #WATERPROTECTORS #AIRQUALITY

Revised 1/22/2017

Maya Teeple

From: Thurston County | Send Email <spout@co.thurston.wa.us>
Sent: Thursday, June 13, 2019 2:16 PM
To: Shannon Shula
Subject: Nisqually Nation environmental health!

This email was created by the County Internet web server from the email masking system. Someone from the Public has requested to contact you with the following information:

To: **Shannon Shula**

Subject: **Nisqually Nation environmental health!**

From: **Beverly Finlay**

Email (if provided): **berafin@yahoo.com**

Message:
PLEASE RESPECT NATIVE AMERICANS! Let's pretend this Tribe were white folk. Treat THESE FOLK with the same respect. Conduct surveys, DO RESEARCH honestly! Clean water is the most precious resource on this Planet - RESPECT THE PLANET AND HER PEOPLE!

Revised 1/22/2017

Maya Teeple

From: Shannon Shula
Sent: Friday, June 14, 2019 11:07 AM
To: Karenlwhite1962@yahoo.com
Cc: Maya Teeple
Subject: Fw: Asphalt plant

Karen,

Thank you for submitting your comment for the recycled asphalt policy review. We have received your email and it will be added to the public comments.

Sincerely,

Shannon Shula
Associate Planner
Thurston County Community Planning & Economic Development
2000 Lakeridge Drive SW, Olympia, WA 98502
(360) 786-5474 | shannon.shula@co.thurston.wa.us

Email may be considered a public record subject to public disclosure under RCW 42.56

_____
From: Thurston County | Send Email <spout@co.thurston.wa.us>
Sent: Friday, June 14, 2019 6:19:32 AM
To: Shannon Shula
Subject: Asphalt plant

This email was created by the County Internet web server from the email masking system. Someone from the Public has requested to contact you with the following information:
To: Shannon Shula
Subject: Asphalt plant
From: Karen white
Email (if provided): Karenlwhite1962@yahoo.com
Message:
Asphalt plants don't belong near water!,asphalt is harmful to fish,it contains PHA and bitumen reducing their fat stores ,causing their heart muscle to stiffen and causes kidney damage,reducing their chance of survival their first year at sea.
Revised 1/22/2017

Maya Teeple

From: Thurston County | Send Email <spout@co.thurston.wa.us>
Sent: Friday, June 14, 2019 3:58 PM
To: Shannon Shula
Subject: Nisqually Sub Area Plan Review

This email was created by the County Internet web server from the email masking system. Someone from the Public has requested to contact you with the following information:

To: **Shannon Shula**

Subject: **Nisqually Sub Area Plan Review**

From: **Phyllis Farrell**

Email (if provided): **7600 Redstart Dr. SE, Olympia, WA 98513**

Message:
I am opposed to the current proposal by Lakeside Industries to amend the Nisqually Subarea Plan Policy E.5 to remove the existing policy language that prohibits asphalt reprocessing (recycling) within the Nisqually Subarea. The current plan prohibits the manufacture of recycled asphalt in the Nisqually area due to water quality concerns. That has not changed. Piles of recycled asphalt are known to leach toxic chemical affecting groundwater. I find it preposterous to consider the proposal given the proximity of the Nisqually River and potential flooding. The environmental effects of increased truck traffic should be considered as well.

I am not opposed to the manufacture of asphalt (we all use roads), but the Nisqually sub area's groundwater should not be jeopardized.

Respectfully,

Phyllis Farrell

Revised 1/22/2017

Maya Teeple

From: David Hillman <davidhillman@hotmail.com>
Sent: Friday, June 14, 2019 2:54 PM
To: Shannon Shula
Subject: Recycled Asphalt Pavement Literature Review

I have read the literature review concerning recycled asphalt pavement (RAP) contaminant leaching that was prepared by Herrera Environmental Consultants, Inc.

It indicates that chemicals and metals are leached into surface and ground water from stockpiles of RAP at levels that exceed Washington State groundwater quality standards. One of the studies reviewed (Norin and Strömvall) concluded that their findings:

”clearly show that the release of organic pollutants from asphalt storage could cause environmental problems.”

The literature review also concludes this: "As a source of contaminants, RAP is highly variable. Factors contributing to variability in leachate from RAP appear to include the asphalt manufacturing process, the RAP source, the duration and degree to which it has weathered and been exposed to pollution generating sources, and how long it is stored."

What I take from this and other parts of the review is that the pollutants can vary widely and significantly in type and concentration. The stockpiled RAP can come from sources as varied as a heavily used highway, to a shopping center parking lot, to a roadway or storage area at a toxic industrial site. It would be nearly impossible to know exactly what kinds of chemicals and metals are present in any particular RAP stockpile. Thus the citizens of the Nisqually Sub-Area would have little to no idea exactly what metals and toxic chemicals are entering their creeks, rivers, fisheries, estuary, shellfish farms, farmland irrigation sources, and most importantly, their drinking water. Nor would they know at what concentrations these variably unknown contaminants are leaching into their ecosystem and water supply.

In talking over the RAP literature review with family, neighbors, and friends in the Nisqually Sub-Area, and in reading the Nisqually Sub-Area Plan, I have come to the conclusion that this RAP literature review solidly supports the original language in section E.5 of the Nisqually Sub-Area Plan that prohibits asphalt recycling in the Sub-Area. The fact that the that the proposed language change in section E.5 is a 180 degree stance to the original language obviously points out that THE RECYCLED ASPHALT PAVEMENT LITERATURE REVIEW DOES NOT SUPPORT THE PROPOSED LANGUAGE CHANGE IN ANY WAY.

I will quote a part of the RAP literature review introduction, as it efficiently and very clearly explains my point:

"Between the time when RAP is removed and when it is reused, it must be stockpiled. When stockpiled, precipitation falling onto the stockpile can result in contaminants leaching from the RAP. These contaminants can then be transported to nearby surface waters or infiltrated to groundwater. The latter is especially a concern in areas where the groundwater is more vulnerable to contamination due to fast-draining soils and where it is used as a drinking water supply, such as in the Nisqually area of Thurston County. Because of concerns about RAP leaching contaminants while it is stockpiled, the Nisqually Sub-Area plan of the Thurston County Comprehensive Plan specifically prohibits the use of mined-out gravel pits for the reprocessing of asphalt due to water quality concerns."

To make myself perfectly clear, after reading the above mentioned materials I have reached this conclusion: As a resident and citizen of the Nisqually Sub-Area, I am strongly against changing the language in section E.5 of the Nisqually Sub-Area Plan to allow asphalt recycling.

Warmest Regards,

David Hillman

Maya Teeple

From: Julie <cj_hillman@hotmail.com>
Sent: Friday, June 14, 2019 2:57 PM
To: Shannon Shula
Subject: Recycled Asphalt Pit (RAP)

I have read the literature review concerning recycled asphalt pavement (RAP) contaminant leaching that was prepared by Herrera Environmental Consultants, Inc.

It indicates that chemicals and metals are leached into surface and ground water from stockpiles of RAP at levels that exceed Washington State groundwater quality standards. One of the studies reviewed (Norin and Strömvall) concluded that their findings:

”clearly show that the release of organic pollutants from asphalt storage could cause environmental problems.”

The literature review also concludes this: "As a source of contaminants, RAP is highly variable. Factors contributing to variability in leachate from RAP appear to include the asphalt manufacturing process, the RAP source, the duration and degree to which it has weathered and been exposed to pollution generating sources, and how long it is stored."

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In talking over the RAP literature review with family, neighbors, and friends in the Nisqually Sub-Area, and in reading the Nisqually Sub-Area Plan, I have come to the conclusion that this RAP literature review solidly supports the original language in section E.5 of the Nisqually Sub-Area Plan that prohibits asphalt recycling in the Sub-Area. The fact that the that the proposed language change in section E.5 is a 180 degree stance to the original language obviously points out that THE RECYCLED ASPHALT PAVEMENT LITERATURE REVIEW DOES NOT SUPPORT THE PROPOSED LANGUAGE CHANGE IN ANY WAY.

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"Between the time when RAP is removed and when it is reused, it must be stockpiled. When stockpiled, precipitation falling onto the stockpile can result in contaminants leaching from the RAP. These contaminants can then be transported to nearby surface waters or infiltrated to groundwater. The latter is especially a concern in areas where the groundwater is more vulnerable to contamination due to fast-draining soils and where it is used as a drinking water supply, such as in the Nisqually area of Thurston County. Because of concerns about RAP leaching contaminants while it is stockpiled, the Nisqually Sub-Area plan of the Thurston County Comprehensive Plan specifically prohibits the use of mined-out gravel pits for the reprocessing of asphalt due to water quality concerns."

To make myself perfectly clear, after reading the above mentioned materials I have reached this conclusion: As a resident and citizen of the Nisqually Sub-Area, I am strongly against changing the language in section E.5 of the Nisqually Sub-Area Plan to allow asphalt recycling.

Thanks!

Collis J Hillman CJ_Hillman@Hotmail.com

Maya Teeple

From: Thurston County | Send Email <spout@co.thurston.wa.us>
Sent: Friday, June 14, 2019 3:57 PM
To: Shannon Shula
Subject: Nisqually Asphalt Recycling

This email was created by the County Internet web server from the email masking system. Someone from the Public has requested to contact you with the following information:

To: **Shannon Shula**

Subject: **Nisqually Asphalt Recycling**

From: **Daniel Hull**

Email (if provided): **nrnc@nisqullyestuary.org**

Message:
Comment: Hello planning professionals,
I am writing to let you know that I am not in favor of changing the language in section E.5 of the Nisqually Sub Area plan to allow asphalt recycling. I have read the literature review witch clearly states that this can and does have an effect on the environment. Seeing at Nisqually is one of the finest Watershed where Communities, Non Profits, State, Tribe and Federal entities have worked together over the years to have over 70% of the Nisqually Watershed protected, I truly feel that this is not an activity we should change language to allow. There should be much better places to do an activity like this that will not harm one of the finest Watersheds in Washington State.

I am somewhat alarmed that many of the residents in my area had know idea about this. Please add me to your mailing list as I can help spread the word to the people in my community.

Daniel A. Hull
Chair of the Nisqually Aquatic Reserve Citizen Stewardship committee.
120 citizens Strong.

Revised 1/22/2017

Maya Teeple

From: Ryan Ransavage <Ryan.Ransavage@miles.rocks>
Sent: Friday, June 14, 2019 5:08 PM
To: Shannon Shula
Subject: Comments on the Recycled Asphalt literature Review

Below are comments regarding the Recycled Asphalt Literature Review.

The concern to protect the environment is a concern of all citizens of Washington State. Asphalt is key building material key in supporting the physical and economic growth of the state. Currently, the Department of Ecology (DOE) regulates the runoff from operations that recycle pavement. The limits of the discharge limits have been determined through years of study and research. Limits have been changed for the majority of discharge limits. One of the items that is directly regulated within the DOE Sand & Gravel General Permit is Recycled Asphalt. DOE has determined that water discharged to ground are only limited to pH monitoring and oil sheen monitoring. Discharges to Surfacewater are not currently allowed (S&G General Permit Table 2). RAP also has operational limits put in place regarding material handling practices for RAP and Recycled Concrete aggregate.

It seems appropriate for Thurston County to consider the requirements DOE has determined. These limits have been set to ensure minimal degradation to waters of the state and the overall environment. It seems inappropriate for Thurston County to subvert the standards set by DOE as they have both determined impact level and are responsible for compliance with both the national and state clean water act.

Miles Sand & Gravel supports RAP operations be allowed within all areas of Thurston County when meeting current regulatory standards from solid waste rules and Sand and Gravel General Permit conditions.

Thank you

RYAN RANSAVAGE
Office: 253.833.3705 x 436
Mobile: 253.377.1760
400 Valley Ave NE • Puyallup, WA 98372-2516
WWW.MILES.ROCKS

RECYCLED ASPHALT PLANT (RAP) in the NISQUALLY SUBAREA? WE SAY NO!

We the undersigned submit this document as public comment to the Consultant Literature Review Report by Herrera Environmental Consulting. Key summary points from this review include:

"Recycled asphalt pavement (RAP) is typically asphalt that has been removed from roadways or parking lots during repair and replacement of the roadway surface. It is then reused extensively in the creation of new roadway surfaces. Concerns over possible leaching of pollutants from RAP stem from the original composition of the asphalt as well as from the pollutants added during its use, for example, when the RAP has been taken from roadways where it has been exposed to vehicle traffic and the metals and petroleum products that are associated with that use."

"Contaminants [can] leach from RAP at concentrations that exceeded state groundwater quality standards. There were five polycyclic aromatic hydrocarbons (PAHs) that were measured above state groundwater quality standards... Some metals were also leached, primarily in tests run under low pH environments [e.g. in much of Thurston County]." https://www.thurstoncountywa.gov/planning/Pages/comp-plan-cp11-home.aspx

Based on Herrera's review, we urge Thurston County Commissioners

- **To hire consultants to do additional study**
- **And NOT to rezone this area to permit RAP**

NAME	ADDRESS	EMAIL (optional)
Nancy Armstrong	P.O. Box 1441. Oly WA 98507	
Cheryl Duryea	3616 Summit Park	
Robert C Zeigler	1102 A Creekwood Dr SE Oly 98501	
Therese Sprunger	2331 Mt. Hood St Lacey	
JOHN M. DAVIS	60 SE CURRIE WY SHELTON	
Frederick Romero	2023 Westlake SE Lacey	
Catherine Schwisow	3341 Bloomfield Rd. Shelton	
LoriAnn Dunlap	1698 Vista Lp SW Tumwater	louann.dunlap@abolympia.com
Craig Partridge	1698 Vista Lp. SW Tumwater	
Charlene Johnson	4043 49th AVE SW #37 OLYMPIA WA 98512	
MaryEllen Jaeschke	9017 Meren Ct NE Lacey 98516	
TRAVIS Butler	1037 Gallea St NE Olympia 98516	
TONI Houghton	1832 LAKEWOOD CIR SE. 98501	
Dave Mortensen	2080 E Spencer Lake Rd Shelton Wa.	
Loreen Ryan	1115 San Francisco Ave NE Oly 98506	
John NAPSOW	1741 Park St. NE	Olympia 98506
Ann Egerton	P.O. Box 1205 Shelton	
Matthew Moser-Dudley	P.O. Box 591 Elma	

THURSTON COUNTY RECEIVED JUN 14 2019

Return these signatures to Shannon.Shula@co.thurston.wa.us by 5:00 on Friday 14 June (or hand-deliver to the County Courthouse – Planning Division

RECYCLED ASPHALT PLANT (RAP) in the NISQUALLY SUBAREA? WE SAY NO!

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Based on Herrera's review, <u>we urge Thurston County Commissioners</u>

- **To hire consultants to do additional study**
- **And NOT to rezone this area to permit RAP**

NAME	ADDRESS	EMAIL (optional)
E.J. ZITA	1551-88th Ave SW - Oly	98512
[illegible]	2606 - 56th Ct. SW 98512	dorians@comcast.net
Shawn Hazbouni	3337 36th Ave NW Olympia	WA 98502
Karimot Afolabi	611 Capitol Way S. Olympia	Apt 201 Olympia WA 98501
Victoria Mijnaan	701 Alta St SW	Apt B20 Olympia, WA 98502
Moredith Inocencio	5221 Capitol Forest Dr. Oly, WA	
Susan Burstetter	2020 Crestline Blvd NW, Olympia WA 98502	
Mia Livingston	1227 Oly Ave NE 98506	
Stephen Beck	1372 Lybarger SE	Oly 01
TERRY SETTER	6240 Woodard Bay	Oly, WA.
		THURSTON COUNTY RECEIVED
		JUN 14 2019
		DEVELOPMENT SERVICES

Return these signatures to Shannon.Shula@co.thurston.wa.us by 5:00 on Friday 14 June (or hand-deliver to the County Courthouse – Planning Division

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Based on Herrera's review, we urge Thurston County Commissioners

- **To hire consultants to do additional study**
- **And NOT to rezone this area to permit RAP**

NAME	ADDRESS	EMAIL (optional)
Cynthia Burns	805 Foote St NW Olympia WA 98502	—
Ray Baker	3516 Bakley Dr NE Lacey 98516	
Nikole Manteufel	3719 E. Clearlake Blvd	Nicole.leach.911@yahoo.com
Jesse Logan	1418 Bowman Ave NW	—
Charles Rickards	1705 Conger Ave NW	—
MARINA MARCONI	2307 Simmons Ave	marconi516@gmail
Patrick Kerin	43 Van Buren Ave	
Chris Schaeial	1900 Blacklake Blvd SW	
Florence Johnson	Eastside St, Olympia	—
Melanie Ashby	3536 French Rd NW	—
Mike Mock	6250 Restawhile Ct OLY	
Kevin Francis	227 Sherman St NW	—
Andrew Reece	3005 Country Club Loop NW	Andtippides@gmail.com
		THURSTON COUNTY RECEIVED
		JUN 14 2019
		DEVELOPMENT SERVICES

Return these signatures to Shannon.Shula@co.thurston.wa.us by 5:00 on Friday 14 June (or hand-deliver to the County Courthouse – Planning Division

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Based on Herrera's review, we urge Thurston County Commissioners

- **To hire consultants to do additional study**
- **And NOT to rezone this area to permit RAP**

NAME	ADDRESS	EMAIL (optional)
LAWRENCE TAYLOR	514 W BAMM FARMS RD SHELTON, WA 98584	ELTAY3@YAHOO.COM
		THURSTON COUNTY RECEIVED
		JUN 14 2019
		DEVELOPMENT SERVICES

Return these signatures to Shannon.Shula@co.thurston.wa.us by 5:00 on Friday 14 June (or hand-deliver to the County Courthouse – Planning Division

Maya Teeple

From: Thurston County | Send Email <spout@co.thurston.wa.us>
Sent: Saturday, June 15, 2019 7:46 PM
To: Shannon Shula
Subject: Asphalt plant

This email was created by the County Internet web server from the email masking system. Someone from the Public has requested to contact you with the following information:

To: **Shannon Shula**

Subject:

From: **Faith Morgan**

Email (if provided):

Message: **No to the plant!!!**

Revised 6/15/2019

Maya Teeple

From: Esther Grace Kronenberg <wekrone@gmail.com>
Sent: Sunday, June 16, 2019 11:10 PM
To: Shannon Shula
Subject: RAP in Nisqually Valley

Dear Ms. Shula,
Please excuse the lateness of this comment. I only became aware of it this weekend.

I stand opposed to the processing of recycled asphalt at the Holroyd site for the following reasons.

1. The lower Nisqually valley is classified by Thurston County as a Wellhead Protection Area. It is also protected, as a rural environment, by a Thurston County Sub-Area Plan.

2. The water sources for all residents in the lower valley are from wells. Many residents, but not all, get drinking water from a Lacey City well next to the Nisqually River - less than a half mile from Lakeside's Asphalt Plant. The plant sits in the permeable soil of Holroyd's Gravel Mine at the very beginning of the Nisqually Delta in lower Nisqually Valley. The mine sits in the 100 year floodplain of the Nisqually River.

3. Lakeside knew RAP was not allowed before they built their new plant at Holroyd's pit. Two court decisions reaffirmed they could not use RAP in Nisqually Valley. Olympic Region Clean Air Agency (ORCAA) reaffirmed they could not, due to Sub-Area Plan rules. Department of Natural Resources (DNR) and the Sub-Area Plan say they have to move out when the pit is mined out. Will they? Or, will they want increased truck traffic and change infrastructure to haul in gravel from another pit as well as RAP? This would also be in violation of the Sub-Area Plan. Doesn't the County have an obligation to honor its own plans and policies that are made with public input for the public good, or can they be ignored to further private interests? If not, isn't this government for the highest bidder?

4. If Lakeside is allowed to process recycled asphalt pavement (RAP), best practices state that asphalt be processed at a lower temperature to reduce air pollution, and kept under cover and out of the weather before and during its use to prevent chemical leaching into the groundwater. Keeping the RAP stockpile below 20 feet high and covered with a shelter or building to minimize moisture is essential to protecting the ground water, especially as the permeable soil of the Holroyd pit is only 15 feet above an aquifer water table.

Thank you for including these comments.
Esther Kronenberg

Maya Teeple

From: Sandra Herndon <sherndon@hctc.com>
Sent: Monday, June 17, 2019 7:52 AM
To: Shannon Shula
Cc: Karen Fraser; Karen Verrill; EJ Zita; Paula Holroyde; Carol Goss
Subject: recycled asphalt plant

Please accept this comment from the League of Women Voters even though it was due on Friday. Thank you. slh

TO: Thurston County Community Planning

FROM: Thurston League of Women Voters, Sandra Herndon, President

I am writing to express grave concern about the proposed recycled asphalt plant in Nisqually. The League believes that concerning water resources, the overriding consideration should be protecting the quantity and the quality of the water resource. It is critical always to err on the side of safety and caution when it comes to human health.

The consultant's report is based on laboratory tests and specifically states that in order to be definitive, testing under field conditions would be necessary. They state what all researchers know, that "batch and column laboratory tests, while informative, are not necessarily representative of what can be expected under field conditions." The literature review specifically did not include an assessment of potential environmental impact of contaminants.

Given the significance of the issues involved and the consequences of placing this plant in Nisqually, we ask the planning group not to move ahead with this plan.

slh

Maya Teeple

From: Shannon Shula
Sent: Tuesday, June 18, 2019 12:45 PM
To: Maya Teeple
Subject: FW: That freaking water plant

RAP comments?

From: Thurston County | Send Email [mailto:spout@co.thurston.wa.us]
Sent: Tuesday, June 18, 2019 12:05 PM
To: Shannon Shula <shannon.shula@co.thurston.wa.us>
Subject: That freaking water plant

This email was created by the County Internet web server from the email masking system. Someone from the Public has requested to contact you with the following information:

To: **Shannon Shula**

Subject:

From: **Kathy Lawhon**

Email (if provided):

Message: **Please do not allow this water plant here. We are fast running out of water, and the idea of letting them profit off the water they will then sell back to us, is insane. We are already in moderate drought in Seattle and Tacoma, and summer is just getting started. This is crazy.**

Revised 6/15/2019

Maya Teeple

From: Howard Glastetter <howard.glastetter@comcast.net>
Sent: Wednesday, June 19, 2019 1:03 PM
To: Maya Teeple
Subject: Nisqually Sub-Area Goal E-5

Maya,

I dug up a copy of a January 3, 2000 Memo from, 1992 Sub-Area Plan Project Manager, Steve Morrison to Donald Krupp. The memo gives the history of how the (E.5.) No RAP provision evolved. I didn't think of it until I was discussing the Sub-Area at the NRC's Citizens Advisory Committee (CAC) last evening. I found it today and will give you a copy tomorrow. I think it gives significant insight to the thinking that went into the E.5 policy and should be part of the current consideration about changing it. As I recall, the memo was part of Thurston County Planning Department's recommendation to reject Lakeside's move to Holroyd's pit. I think you will find it very interesting.

-Howard

Howard H Glastetter
Howard.glastetter@comcast.net
(360)491-6645

Everything should be as simple as it can be, but no simpler.
Albert Einstein

Maya Teeple

From: Thomasina Cooper
Sent: Monday, June 24, 2019 8:57 AM
To: Christina Chaput; Maya Teeple
Subject: FW: Recycled asphalt processed in Nisqually

Hi Chris and Maya,

Tye received the input below. Are one of you keeping the record of public comment? If not you, who should I send it to?

Thank you!
Thomasina

From: Madeline Bishop <mfbishop.bishop@gmail.com>
Sent: Saturday, June 22, 2019 10:47 AM
To: Gary Edwards <gary.edwards@co.thurston.wa.us>; John Hutchings <john.hutchings@co.thurston.wa.us>; Tye Menser <tye.menser@co.thurston.wa.us>
Cc: Ramiro Chavez <ramiro.chavez@co.thurston.wa.us>
Subject: Recycled asphalt processed in Nisqually

Please do NOT remove the policy language that currently prohibits recycled asphalt from being processed in the Nisqually area. We need a 'Phase 2' investigation of this issue.

The Thurston County League of Women Voters report of this issue:

1. The lower Nisqually valley is classified by Thurston County as a Wellhead Protection Area. It is also protected, as a rural environment, by a Thurston County Sub-Area Plan.

2. The water sources for all residents in the lower valley are from wells. Many residents, but not all, get drinking water from a Lacey City well next to the Nisqually River - less than a half mile from Lakeside's Asphalt Plant. The plant sits in the permeable soil of Holroyd's Gravel Mine at the very beginning of the Nisqually Delta in lower Nisqually Valley. The mine sits in the 100 year floodplain of the Nisqually River.

3. Lakeside knew RAP was not allowed before they built their new plant at Holroyd's pit. Two court decisions reaffirmed they could not use RAP in Nisqually Valley. Olympic Region Clean Air Agency (ORCAA) reaffirmed they could not, due to Sub-Area Plan rules. Department of Natural Resources (DNR) and the Sub-Area Plan say they have to move out when the pit is mined out. Will they? Or, will they want increased truck traffic and change infrastructure to haul in gravel from another pit as well as RAP? This would also be in violation of the Sub-Area Plan. Doesn't the County have an obligation to honor its own plans and policies that are made with public input for the public good, or can they be ignored to further private interests? If not, isn't this government for the highest bidder?

COMMENT #22

COMMENTS:

There should be NO Approval ~~of~~ for Asphalt Recycling
NO Approval to change the Comp Plan.

Dave Newgarne
olympia

COMMENT #23

COMMENTS:

This proposal makes a mockery of the effort to restore the Nisqually estuary. The millions of dollars invested in the restoration project will be a waste if this proposal is allowed.

How can Thurston county guarantee the safety of groundwater if this is allowed to happen?
How can the county guantee that the internal commitee and commisioners →

COMMENT #23

will not take bribes from Lakeside Industries.

I see this as a form of silent genocide against the Nisqually Tribe.

It's absolutely appalling that Lakeside Industries is making this proposal.

COMMENT #24

COMMENTS:

Issues with "field studies" (in this report to site).
"Swedish study" Conclusion: "Under-estimating contaminants.

We should not allow re-cycled asphalt in Nisqually Valley.

COMMENT #25

COMMENTS:

I AM AGAINST this proposal. After living in this county for 30 yrs., I know that the NISQUALLY AREA is special. It is unique.

It has our City of Oly drinking water at the Allison Springs well-head there. We must not polluted this AREA with more trucks, re-cycled asphalt, etc.

LAKESIDE INDUSTRIES

P.O. Box 7016 / Issaquah, WA 98027
ph: 425.313.2600 / lakesideindustries.com

February 21, 2019

Via email

Shannon Shula
Maya Teeple
Thurston County Community Planning & Economic Development
2000 Lakeridge Drive SW
Olympia, WA 98502

Re: Lakeside Industries' Comments on Revised Draft Literature Review - Leaching from Recycled Asphalt Pavement

Dear Shannon and Maya:

Thank you for this opportunity to provide stakeholder comments on the Revised Draft Literature Review by Herrera Environmental Consultants, Inc. regarding Contaminant Leaching from Recycled Asphalt Pavement ("Revised Draft").

Based on our review of the Revised Draft, Lakeside Industries found numerous misstatements, unreliable interpretations, and inaccurate standards. Whereas the available, reliable data from Thurston County's own Public Health Department, the stated conclusions in relevant reports, and numerous local jurisdictions have found no concerns with water quality from Recycled Asphalt Pavement ("RAP") leachate. Lakeside Industries requests that Thurston County remove the Revised Draft from the record and that Thurston County rely on its own reliable, local data regarding RAP leachate.

Background

Asphalt has been called the "ultimate recyclable product" and the use of RAP is a standard practice in Washington and throughout the world. Reprocessing asphalt is consistent with the vision in Thurston County's Comprehensive Plan. It preserves the human environment by encouraging jobs in the community. It preserves the natural environment by encouraging protection of mineral resource lands, limiting the carbon footprint of asphalt paving, and preventing unnecessary waste in landfills. It promotes economic health by reducing the cost of asphalt manufacturing, which supports local asphalt paving businesses and property owners.

Thurston County adopted the Nisqually Sub-Area Plan in November 1992. As adopted, the Nisqually Sub-Area Plan prohibits the use of RAP based on "water quality concerns." One month after its adoption, the Thurston County Public Health Department took the position that "a waste asphalt recycling operation presents none to very minimal environmental health

concerns." *See Attachment 1.* Despite the Thurston County Public Health Department's finding, the Nisqually Sub-Area Plan still prohibits the use of RAP. Lakeside Industries requested an amendment to the Nisqually Sub-Area Plan to remove this prohibition.

In an effort to further advance the County's understanding of the impact of RAP storage, the County contracted with Herrera to analyze the available research on contaminant leaching from RAP. Herrera completed its first draft of this Literature Review on October 19, 2018 ("Initial Draft"). After receiving comments from stakeholders, including Lakeside Industries, Herrera completed this Revised Draft on January 30, 2019. However, the Revised Draft contains numerous inaccurate standards, unreliable data, and misstatements. Based on the following analysis, we request that Thurston County remove the Revised Draft from the record and instead rely on the reliable data available to it.

The Revised Draft found limited or no cause for concern

The Revised Draft's ultimate conclusions find limited or no cause for concern caused by leaching of RAP. The purpose of the Revised Draft was to "review available research on direct measurements of leachate from RAP."[1] After an initial assessment of over 100 articles, the Revised Draft analyzed eight[2] "highly rated" studies by Aydilek et al., Legret et al., Mehta et al., Birgisdóttir[3] et al., Norin and Strömvall, Kang, et al., Morse et al., and Brantley and Townsend.[4] Consistent with its purpose, the Revised Draft came to three key conclusions, which are noted in its Executive Summary:

- RAP is highly variable;
- Typically some contaminants are leached from RAP in laboratory tests, "but in only a few cases at levels of concern"; and
- The initial flush of contaminants from RAP "can result in concentrations exceeding certain thresholds or standards, but these peak concentrations decrease quickly to below detection limits as more water is added."

The Revised Draft also noted that "a number of the researchers suggested that the impact to the environment would be negligible if dilution and assimilation were considered."[5]

Based on the Revised Draft's conclusions, leachate from RAP is not an environmental concern. While RAP may infrequently leach some contaminants, such leachate would result in negligible impacts to the environment. Even if the County relied entirely on the conclusions within the Revised Draft, it must find little or no concern relating to RAP leachate. Despite these clear conclusions finding no concern, the body of the Revised Draft contains numerous misstatements and unreliable findings. For the reasons noted below, Lakeside Industries

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[1] Revised Draft, Executive Summary.
[2] Note that Page 2 of the Revised Draft incorrectly states that it analyzes five studies.
[3] The Revised Draft repeatedly misspells the Birgisdóttir study as either "Birgisdottir" or "Birgisdotter." (See e.g. Revised Draft, pg. 17).
[4] On page 17 of the Revised Draft, Brantley and Townsend is misspelled as "Brently and Townsend."
[5] Revised Draft, pg. 18.

requests that Thurston County remove the Revised Draft from the record and rely on existing local data available to it.

The Revised Draft does not incorporate information required by Herrera's Revised Scope of Work.

The Revised Draft fails to incorporate two of the three required revisions to the Initial Draft, namely the expansion of study summaries to address physical characteristics of test materials and the new section comparing study conditions to likely local conditions. The Revised Scope of Work, dated November 13, 2018, requires the following features to be included in the Revised Draft:

- The study summaries included in the draft literature review report will be expanded to address physical characteristic of the test materials, where it is available and to provide a comparison of these materials.

  ...
- A section will be added on comparison of study conditions (e.g., pH, RAP characteristics, testing conditions, storage conditions) to likely local conditions in Nisqually.

The Revised Draft fails to complete above-quoted tasks.

First, the Revised Draft does not expand on the identified studies and contains limited changes to the study summary language, despite the Scope of Review's requirement to further discuss and compare the physical characteristics of test materials. Most of the study summaries in the Revised Draft are virtually unchanged from the Initial Draft. In particular, the Revised Draft neglected to examine in any detail how foreign RAP is unlike RAP in Washington. While the Revised Draft added one sentence admitting that foreign RAP is "less applicable,"[6] examinations of each of the foreign studies fail to analyze how differences between local and foreign RAP affect the studies' relevance. This omission is particularly clear in the Revised Draft's analysis of the Norin and Strömvall study, where the Revised Draft claims the Swedish study is "the most directly applicable"[7] to the Review without reconciling its later statement that foreign studies are "less applicable."

Additionally, the Revised Scope of Work states that "[a] section will be added on comparison of study conditions (e.g., pH, RAP characteristics, testing conditions, storage conditions) to likely local conditions in Nisqually." The Revised Draft does not add a new section to compare study conditions to local conditions, nor does it provide a reasonably thorough analysis summarizing study conditions to likely local conditions.

These two essential elements identified in the Revised Scope of Work were not included in the Revised Draft. Conditions reflected in the studies do not reflect the conditions occurring in the

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[6] Revised Draft, page 18 (noting that European studies are "less applicable" on account of differences in "the asphalt manufacturing process (e.g., the presence of coal tar in European pavement), the make and model of vehicles, and other factors (e.g., use of studded tires and winter de-icing solutions)."
[7] Revised Draft, Page 11.

Nisqually Area, but the Revised Draft fails to analyze those differences. For this reason alone, the Revised Draft is unreliable.

The Revised Draft makes numerous misstatements and exaggerates the study results.

The Revised Draft provides an inaccurate assessment of the leaching potential of RAP. The studies analyze several worst case scenarios – from roadway paint containing lead to pavement containing 20 years of contaminant accumulation at a gas station. The Revised Draft also focuses on individual exceedances of certain water quality standards (outliers), which overestimates potential leachate and provides an inaccurate picture of the impact from RAP leachate.

Tables included in the Revised Draft depict data in ranges. This does not consider that the highest number in the range can be (and often is) an outlier, which consequently highlights the rare exceedances. While in some instances, a range should be provided but is not. For example, the Legret et al. (2005) study found 0.055 µg/L concentrations of dibenzo(a,h)anthracene in column tests on Day 2 of the study; however, that concentration decreased to below detection levels for every additional test. Table 2 shows the exceedance without noting that the range of findings include numerous samples with no dibenzo(a,h)anthracene detected.

The Revised Draft makes an incorrect and misleading statement regarding the Nisqually Sub-Area Plan. It alleges that "the Nisqually Sub-Area plan of the Thurston County Comprehensive Plan specifically prohibits the use of mined-out gravel pits for commercial or industrial use." This language misstates the reason that the County contacted Herrera to write its Revised Draft. As mentioned above, Lakeside Industries is requesting an amendment to the Nisqually Sub-Area Plan to remove the Nisqually Sub-Area Plan's current prohibition of the use of RAP based on alleged "water quality" concerns.

Lakeside Industries consulted with the National Asphalt Paving Association (NAPA) and the Washington Asphalt Paving Association (WAPA) for additional review of the Revised Draft findings and conclusions from the analyzed studies. As a result, NAPA and WAPA found it necessary to provide a written response identifying where the Revised Draft repeatedly mischaracterizes findings and conclusions from the analyzed studies, creating an inaccurate assessment of the impact of RAP and raising real concerns about the validity and credibility of findings within the Revised Draft. Lakeside Industries incorporates the concerns in NAPA and WAPA's February 21, 2019 letter by reference, particularly those concerns relating to the Revised Draft's mischaracterization of each study's findings and conclusions.

Data in the Revised Draft's Tables are not reliable, which creates doubts regarding the Revised Draft's assumptions and conclusions.

Tables in the Revised Draft include numerous errors, including inaccurate standards and misstated findings. These errors call into question the entirety of the Revised Draft and its assumptions, which are based on data cited in its Tables.

The Revised Draft's Tables provide inaccurate criteria

The criteria in the Revised Draft contains several errors throughout Tables 1 and 2. First, several of the listed "standards" are considerably mislabeled. For example, the Revised Draft states that the "Drinking Water Criteria" for arsenic is 50 µg/L; however, the actual criterion is 0.05 µg/L.[8] Additionally, the Revised Draft states that the "Drinking Water Criteria" for copper is 100 µg/L, but the actual criterion is 1,000 µg/L.[9]

Several of the MCLs listed in the tables are not as stated. For example, the Tables list the MCL for copper as 1,300 and the MCL for lead as 15. However, "the state board of health has not established MCLs for copper, lead and sodium."[10] Instead, EPA established distribution system related levels, called "action levels," for lead and copper. The Revised Draft fails to acknowledge that listed MCLs for copper and lead are not MCLs – they are action levels.

Additionally, headings for the regulatory criteria and environmental standards are misleading. The heading "Drinking Water Criteria" refers to criteria taken from the Washington Administrative Code ("WAC") 173-200-040,[11] which is located within the WAC chapter for "Water Quality Standards for Groundwaters of the State of Washington."[12] Use of the heading "Drinking Water Criteria" is misleading because the criteria listed were created for the purpose of "establish[ing] maximum contaminant concentrations for the protection of a variety of beneficial uses of Washington's groundwater."[13] Whereas, the MCLs are used for Group A Public Water Supplies with the purpose of protecting "the health of consumers using public drinking water supplies."[14]

Furthermore, the Revised Draft does not provide any context regarding the varying Model Toxics Control Act ("MTCA") "standards" as listed in the Tables. Under MTCA, three approaches (Methods A, B, and C) are defined for establishing cleanup "levels" and are selected and developed on a site-specific basis. Applying the "default" Method A and B standards in this case is not appropriate. The Department of Ecology cautions against misusing defined Method A cleanup levels[15] and pre-calculated standard Method B and C levels provided by Ecology's Cleanup Levels and Risk Calculation (CLARC) database.[16] The Tables do not

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[8] WAC 173-200-040 Table 1.
[9] WAC 173-200-040 Table 1 (Please note that 1 mg/L equals 1,000 µg/L).
[10] See WAC 246-290-310(3)(a) Note **.
[11] See Revised Draft, Tables 1 & 2, footnote c.
[12] See Chapter 173-200 WAC.
[13] WAC 173-200-040(1).
[14] WAC 246-290-001.
[15] WAC 173-340-900, Table 720-1, footnote a ("**Caution on misusing this table.** This table has been developed for specific purposes... This table may not be appropriate for defining cleanup levels at other sites. For these reasons, the values in this table should not automatically be used to define cleanup levels that must be met for financial, real estate, insurance coverage or placement, or similar transactions or purposes. Exceedances of the values in this table do not necessarily mean the groundwater must be restored to those levels at all sites.") (emphasis in original).
[16] https://fortress.wa.gov/ecy/clarc/CLARCCautions.aspx ("The formula values pre-calculated under standard Method B and C and provided in CLARC are NOT cleanup levels.")

indicate which Method is used to define each respective cleanup level or how each level differs. This information is essential for providing context and for understanding the data.

The Revised Draft fails to provide accurate, trustworthy information regarding the regulatory standards applying to RAP leachate in Thurston County. While some examples of these inaccuracies and mischaracterizations are provided above, these examples call the entire Revised Draft into question. As it stands, the Revised Draft's data and conclusions are unreliable.

The Revised Draft's Tables misstate the original study data

Tables in the Revised Draft are entirely unreliable because they contain repeated, significant inaccuracies, which calls into question the entirety of the Revised Draft.

Batch test data in Table 1 under the Norin and Strömvall column is unreliable because the Norin and Strömvall authors did not conduct batch tests – the data was taken from a separate study.[17] Herrera's decision to incorporate data from a separate study conflicts with its stated goal to use only primary data sources in its literature review.[18] The Revised Draft does not analyze the data in the body of the draft, does not interpret the data, and does not explain its decision to incorporate secondary data into its Table 1.

Additionally, the Revised Draft appears to have manipulated data without explanation. The Norin and Strömvall study included one finding for chrysene. In a footnote, the Norin and Strömvall study explained that its chrysene batch test data is actually "the sum of benzo(a)anthracene and chrysene."[19] The study did not, however, provide any insight into how the results should be attributed to each constituent. The Revised Draft attributes half of the result to benzo(a)anthracene and the other half to chrysene,[20] but provides no rational basis for dividing the result in half and attributing the constituents in that manner. Due to the unreasoned nature of this decision, this data is unreliable.

Batch data for Birgisdóttir is equally inapplicable. The Revised Draft's summary of Birgisdóttir states that "no batch testing was performed"; however, Table 1 of the Revised Draft contains "batch test" data in a column labeled Birgisdóttir.

The Birgisdóttir column data is also not trustworthy. Table 2 depicts dibenzo(a,h)anthracene concentrations for the Birgisdóttir to be "<0.024 – 43." However, the Birgisdóttir data states that

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[17] Revised Draft, Table 1, footnote h. The Revised Draft explains in a footnote that the data attributed to Norin and Strömvall was taken from another study, stating that "[r]esults reported are from batch tests performed during previous research (Larsson 1998) that were performed on finely ground material."
[18] Revised Draft, pg. 2 ("The remaining sources were sorted with the objective of including only those that serve as primary data sources; studies that did not contain data or that summarized data collected by others were excluded.")
[19] See Norin and Strömvall 2004, pg. 327.
[20] See Revised Draft, Table 1, footnote h.

the highest concentration found is 43 nanograms/L,[21] which converts to 0.043 µg/L – one thousand times smaller than the concentration listed in the Revised Draft's Table 2.

Finally, Table 1 states that Kang et al. (2011) found concentrations of 37 µg/L of aluminum. However, in the cited study, Kang et al. found concentrations of .37 mg/L,[22] which converts to 370 µg/L. Thus, the Revised Draft provides data for aluminum that is ten times smaller than the study data.

The Revised Draft and its Tables contain numerous instances of misstated criteria and inaccurate data. This letter shares just a few of the repeated defects in the Revised Draft. These select defects (and others) raise serious doubts about the reliability of the Revised Draft as a whole.

Thurston County should remove the Revised Draft from the record and instead rely on data available to it.

As a consequence of the numerous concerning findings above, Lakeside Industries requests that Thurston County remove the Revised Draft from its records. The Revised Draft is unreliable to an extent that cannot be remedied at this stage, as shown by our letter and the letter from the national and state asphalt pavement associations.

There is a wealth of information available to the County to determine whether RAP leachate is a concern. The first-hand studies cited in the Revised Draft repeatedly conclude that RAP is of limited or no concern to water quality. Thurston County's own Public Health Department found "none to very minimal environmental health concerns" only one month after the Nisqually Sub-Area Plan was approved. *See Attachment 1.*

In fact, in 2010 the Thurston County Public Health Department analyzed stormwater runoff from a RAP stockpile situated locally. Based on its own study, the Thurston County Public Health Department found that "it does not appear that the RAP material is contributing pollution via stormwater runoff." *See Attachment 2.*

The Revised Draft has a limited scope and does not consider Best Management Practices that would prevent transport of materials.

The authors of the Revised Draft note, "[t]he study's scope was specifically constrained to summarizing research on direct leaching of pollutants; it does not account for use of best management practices (BMPs) to reduce leachate formation, and it does not address fate and transport as leached materials move over or through ground and water."

While it is clear from the conclusions of the analyzed studies that there is limited or no cause for concern of leaching from RAP, numerous BMPs could address and prevent leaching and transport of materials, including storm water controls and installation of a cover (e.g. a tarp or

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[21] Birgisdóttir et al. 2007, pg. 1416.
[22] Kang et al., Table 3.

shed) to prevent rainfall on RAP piles. The ultimate decision whether to permit the recycling of asphalt within the Nisqually Sub-Area should be considered based on all relevant information, including the availability of BMPs. Thurston County should allow for the future consideration of BMPs and transport of contaminants.

Thank you again for your time and consideration on this important issue.

Sincerely,

Kyler Danielson
Land Use Project Manager
Lakeside Industries

Attachment 1

COMMENT #26

COUNTY COMISSIONERS
George L. Barner, Jr.
District One
Diane Oberquell
District Two
Linda Medcalf
District Three

RECEIVED
DEC 1 5 1992
THURSTON CO. PLANNING DEPT.

THURSTON COUNTY
WASHINGTON
SINCE 1852

PUBLIC HEALTH AND
SOCIAL SERVICES DEPARTMENT

Patrick M. Libbey, Director
Diana T. Yu, MD, MSPH
Health Officer

December 15, 1992

Michael Kain
Thurston County Planning Department

Re: Policy statement - Asphalt/concrete recycling

Dear Mike,

This is a reply to your recent request for a position response from the health department with regard to site specific use for recycling of waste concrete and asphalt. After review and consultation with DOE and the initial examination of the Jone's Quarry S.U.P. for the on-site recycling of concrete and asphalt, our department has taken the approach that a waste asphalt recycling operation presents none to very minimal environmental health concerns.

Formerly, our department's greatest concern was the possibility of leaching PAH's from the asphalt materials to ground or surface waters. Present research and information suggests that this is not a serious problem as PAH's are basically insoluble in water and adsorb well to organic soils. If future information about asphalt indicates otherwise, then our department will reassess our current approach.

However, as a condition of issuance of a solid waste permit for such a facility, other parameters would need to be addressed:

1) the hydrogeological characteristics of the site would need to be assessed, ie., waste material would not be stored in a wetlands or flood plain area, nor should the material have direct contact with surface or groundwater or placed on excessive slopes.

2) all waste materials received at the site is to be quantified (by weight or volume) and the source of the material must be known. For instance, if the waste asphalt or concrete came from a known industrial site or petroleum spill, this material would not be suitable for recycling. The operator would be obligated to turn away the material or test the material prior to acceptance.

3) Surface water run-off at the site would need to be addressed.

ATTACHMENT 3

The recycling of waste materials is also in concert with stated county and Washington State goals to divert waste items from landfilling to a more beneficial use. Asphalt and concrete recycling definitely support these goals and the county should be supportive if site specific proposals can meet the appropriate solid waste permitting criteria.

I hope this will help in future determinations about this issue. If you have further inquiries, please contact me at 786-5461.

Sincerely,

John Libby

John Libby
Solid Waste Program

cc: Gregg Grunenfelder
Jane Hedges

Attachment 2

COUNTY COMMISSIONERS
COMMENT #26
Cathy Wolfe
District One

Sandra Romero
District Two

Karen Valenzuela
District Three

THURSTON COUNTY
WASHINGTON
SINCE 1852

PUBLIC HEALTH AND SOCIAL SERVICES DEPARTMENT

Sherri McDonald, RN, MPA,
Director
Diana T. Yu, MD, MSPH
Health Officer

Scott Schimelfenig- **January 22, 2010**

The Hazardous Waste staff was recently asked to help the Public Works Department determine if the recycled asphalt material (RAP) currently stored at the Waste and Recovery Center (WARC) is contributing to pollution. To determine this, I consulted a local laboratory to ensure that any sample collected was analyzed for the chemical contaminants that are most likely to be associated with RAP. The analytes that were selected were; metals (MTCA 5 – arsenic, cadmium, chromium, mercury and lead), total petroleum hydrocarbons (diesel extended range which includes longer petroleum hydrocarbon chains like oils), and polycyclic aromatic hydrocarbons (including the carcinogenic hydrocarbons).

On January 6th, I walked around the area where the RAP is stored (in the rain) and determined that the rain water that comes off the RAP material, and reaches the ground surface, combines with runoff from the upland landfill. To ensure that the sample collected constitutes only runoff from the RAP and no other source, I decided the most appropriate sample would be collected from rainwater dripping off the RAP pile (before it hits the ground).

On January 8 and 9, I collected two sets of samples in glass containers and poured them into appropriate sample bottles and hand delivered one set to an analytical lab and the other sample set was provided to Lakeside Industry personnel.

The attached laboratory data is the results of the analysis. The sample analysis shows that the RAP was not contributing arsenic, cadmium, chromium, mercury or lead into the stormwater runoff. Total petroleum hydrocarbons (oils and diesel0 were not detected in the runoff sample and neither were there any detectable polycyclic aromatic hydrocarbons (PAH's).

Although only one sample was collected from the RAP pile, there does not appear to be variability in the material stored, so collecting multiple samples from various points is unlikely to create a different result. At this time it does not appear that the RAP material is contributing pollution via stormwater runoff. If you have any questions or would like further clarification, please contact me.

Patrick Soderberg
Hazardous Waste Specialist
Thurston County Health Department

Attachment: Libby Labs analytical data

412 Lilly Rd. N.E., Olympia, Washington 98506-5132
(360) 867-2500 FAX (360) 867-2601 TDD (360) 867-2603 TDD(800)-658-6384
www.co.thurston.wa.us/health

NATIONAL ASPHALT PAVEMENT ASSOCIATION

WAPA
Washington Asphalt Pavement Association

February 21, 2019

Thurston County Community Planning & Economic Development
2000 Lakeridge Drive SW
Olympia, WA 98502

Transmitted via email to:
maya.teeple@co.thurston.wa.us
shannon.shula@co.thurston.wa.us

NAPA/WAPA comments regarding RAP leachate report

Recently, Lakeside Industries consulted with their national and state asphalt pavement associations for assistance in reviewing a draft report, issued by Herrera Environmental Consultants, Inc. ("Herrera"), to assess whether contaminants leach from reclaimed asphalt pavement ("RAP"). It is our understanding the County intends to rely on Herrera's review in determining whether to amend the Nisqually Sub-Area Plan's prohibition of the use of RAP. Because of the importance of and implications associated with Thurston County's upcoming decision, and due to the serious mischaracterizations in Herrera's revised draft literature review entitled "Contaminant Leaching from Recycled Asphalt Pavement," ("Revised Draft") we find it necessary to provide our own written response directly to Thurston County.

National Asphalt Pavement Association ("NAPA") is a 501(c)(6) trade association representing asphalt pavement material producers and paving contractors at the national level. Last year, the approximately 3,500 asphalt plants across the country produced more than 350 million tons of asphalt pavement mixture and employed some 250,000 individuals in the production and placement of asphalt-based pavements. The continued use of RAP in asphalt pavements is critical to ensure the nation's paved roadway surfaces are economically constructed and smooth, safe, and quiet for the travelling public.

Washington Asphalt Pavement Association ("WAPA") likewise represents asphalt pavement material producers/paving contractors at the state level and has served this function since its founding in 1954. WAPA member companies own and operate 60+ asphalt plants which produce 98% of the hot mix asphalt ("HMA") manufactured statewide. WAPA continuously partners with the Washington State Department of Transportation and the American Public Works Association of WA to develop and refine the use of RAP in HMA. RAP use has been a broadly accepted standard/technology in Washington for over 20 years and represents in excess of 20% of the annual HMA volume produced for both the public and private market.

Introduction

Across the country, as part of everyday maintenance, repair, and construction activity, old asphalt pavement material is removed from roads and parking lots and then reclaimed for future use. In 2017, about 1.2 million tons of RAP was used in new pavement mixtures in Washington state alone. A recent study by the University of Washington identified 63 existing RAP stockpiles of significant volume containing approximately 1.4 million tons of RAP distributed across the state, all of which is destined to be incorporated into new pavements. Nationwide, more than 99% of RAP collected is put back to use in

new asphalt pavements, saving more than 48 million cubic yards of landfill space annually and helping to reduce the cost of new pavement mixtures compared to all-virgin-material mixes.

Because use of RAP is now ubiquitous, many state transportation and environmental agencies have investigated the environmental implications of RAP stockpiles. These agency investigations, along with the majority of independent academic research studies, have not found reason for concern from the storage of, and stormwater runoff from, RAP stockpiles. As of year-end 2017, over 100 million tons of RAP was stockpiled in the U.S., and decades of monitoring runoff from RAP stockpiles has similarly found no reason for concern associated with stormwater runoff from RAP stockpiles. For example, Virginia Department of Transportation ("DOT") conducted a literature review of RAP leachate, similar to Thurston County's review, and concluded that although "concern has been expressed that lechate [sic] resulting from flood or rainfall could be contaminated by such recycled asphalt and thus have negative environmental consequences, … [r]esults of numerous field studies and standardized tests, including the Toxicity Characteristic Leachate Procedure (TCLP) test, suggest that typical RAP can be used as 'clean fill' without undue negative environmental consequences."[1]

The Revised Draft stands in stark contrast to these decades of proven findings. Unfortunately, the Revised Draft mischaracterizes study results and is of questionable relevance to the issue of the environmental implications of RAP stockpiles. The Revised Draft also fails to address the numerous issues with many of the studies initially raised in Lakeside Industries' written comments, dated November 6, 2018.

To ensure the credibility and validity of the report's findings, we strongly recommend that Thurston County or their environmental consultant, Herrera, contact the authors of the studies identified and summarized in the Revised Draft to ensure the Revised Draft's conclusions accurately reflect the studies' findings.

Holistic Assessment of RAP Stockpiling

Before we call to your attention a few of the report's most serious misstatements and mischaracterizations, we think it important to holistically assess the potential for environmental harm from RAP stockpiles.

RAP is no different than typical asphalt pavement surfaces. The primary source of contaminants of concern come not from the asphalt material itself, but instead from emissions associated with continuous vehicular traffic. For this reason, the case can be made that runoff from RAP stockpiles is a less likely source for stormwater contaminant runoff than in situ hardscape (i.e. existing road surfaces) because, beyond an initial flushing, as documented in the Revised Draft, no further contaminants would leach from a RAP stockpile. This is intuitive and incontrovertible.

Similar with other state DOTs, the Washington State DOT and the Federal Highway Administration have allowed RAP to be used in a number of different roadway and highway applications for decades, including as a crushed rock supplement and as common fill and side-slope fill (see WSDOT Standard Specification 9-03.21(1)E).

[1] See http://vtrc.virginiadot.org/rsb/RSB4.pdf

The Revised Draft Contains Numerous Inconsistencies

As mentioned, there are a number of inconsistencies and misstatements in the partially revised text of the Revised Draft; however, instead of identifying misstatements that should have been revised, we will highlight several mischaracterizations that lead us to question the report's overall credibility and validity.

First, the issue of potential RAP leachate on water quality has already been addressed by many state and federal agencies since the 1990s and most recently in 2017. Although the Revised Draft identifies two comprehensive state/federal agency studies (Mehta et al. (2017) and Aydilek et al. (2017)), The Revised Draft's summary of these comprehensive reports focuses on a few insignificant, individual factors in certain water quality standards from testing apparatuses purposefully designed to over-estimate potential leachate.

Additionally, the Revised Draft notes that the foreign studies are "less applicable" due to differences in manufacturing process, the make and model of vehicles, and other factors. At the same time, it incorrectly asserts that a Swedish study is the "most directly applicable" study in the Report. It is unclear how the Revised Draft can reconcile this inconsistency.

In fact, the Revised Draft relies on studies without analyzing or considering how differences in pH, RAP characteristics, testing conditions, and storage conditions influence the analysis. The studies all analyze differing material under differing circumstances that are not necessarily consistent with the conditions in Thurston County.

The Revised Draft Mischaracterizes Findings and Conclusions from the Analyzed Studies

While the Revised Draft attempts to characterize the impact of RAP leachate, it mischaracterizes the reviewed literature to such an extent that its findings should not be relied upon. Instead, Thurston County should speak directly with the study authors identified in the Revised Draft, or it should rely on the numerous state and federal agency characterizations of RAP leachate potential in deciding whether to allow RAP stockpiling in the Nisqually Sub-Area.

Although we are concerned with the entirety of the Revised Draft, our letter focuses on a few examples to demonstrate how the Revised Draft mischaracterizes studies.

Mehta et al. (2017)

The "Mehta et al." study from 2017 was an almost $500,000, 100-page study, which included extensive toxicity testing conducted by both Columbia University and Rowan University, and sponsored by both the U.S. DOT and the New Jersey DOT. The study "abstract," which describes the purpose and findings of the study, states:

> The primary goal of this study was to investigate the environmental impacts of reclaimed asphalt pavement (RAP) while it is freshly processed (i.e., fresh HMA) and after subjecting it to accelerated weathering. ... The results of these experiments showed that high molecular weight polycyclic aromatic hydrocarbons (PAHs) can elute from the weathered RAP materials, but none was above EPA guidelines. These released pollutants were largely attenuated in the soils. ... Based on the results, RAP may be used as an unbound material in all environments except those which are highly acidic (i.e., pH ≤ 4).

In direct contrast to the Mehta et al. study's stated findings, the Revised Draft's summary of Mehta et al. (2017) states the following:

> Lead was close to or higher than US EPA drinking water standards for a number of the weathered NORTHRAP samples in batch tests ... [and] ... benzo(a)anthrazene [sic] was detected at levels of concern based on 1995 US EPA human health advisory levels. In the experiments conducted with a strong solvent, many of the PAHs exceeded US EPA 2016 Clean Water Act criteria.

Further, the Revised Draft concludes: "While some portion of the contaminants is generated from components of the asphalt itself, exposure to roadways was identified as a major contributor of contaminants that were available for leaching in three of the studies (Mehta et al. 2017, ...)."

Based on the above-quoted summaries, we do not find evidence from the original study to support the Revised Draft's "summary."

<u>Aydilek et al. (2017)</u>
A similar comprehensive 250-page study sponsored by Maryland State Highway Administration (MSHA) and conducted by University of Maryland in 2017 (Aydilek et al. 2017) addressed a similar issue as Mehta et al. (2017), specifically the MSHA "expressed concern over the limited guidance on the use of RAP in highway shoulder applications and the lack of information on ... exposure of pavement to chemicals generated from the 'vehicle exhaust, gasoline, lubricating oils, and metals ...' frequently found in many RAP stockpiles..." Aydilek et al. summarizes their study's purpose and conclusions as:

> A research study was undertaken to investigate the environmental impacts associated with RAP on highway base and shoulders in Maryland. A battery of laboratory pH-dependent leaching tests and toxicity characteristics leaching procedure (TCLP) tests were conducted to determine the environmental suitability of RAP. … The following conclusions can be made: ... The concentrations of all metals, except As, in the pH-dependent leaching tests were below the U.S EPA WQL within the drinking water pH (pH 6.5–9). Based on literature, As is most probably present in its oxidizing form [As(V)] in the leachates of Maryland RAPs and does not present any concern ... The TCLP concentrations of all metals were below the U.S EPA WQL. The TCLP concentrations of most polycyclic aromatic hydrocarbons (PAHs) were below the detection limits. ... In surface waters, the concentrations of metals leached from RAP were below the EPA water quality limits (WQLs) for protection of aquatic life and human health in freshwaters ....

Other similar conclusions were drawn by the study authors and summarized in the publication abstract as:

> The concentrations of all metals released during the water leach tests were below the water quality limits, except for copper. Column leach tests yielded generally low or non-detectable metal concentrations. The deviation from this trend occurred for copper and zinc concentrations, but they fell below the regulatory limits at 4 and 0.5 pore volumes of flow, respectively. ... Concentrations of all metals from RAP conformed to the water quality standards in surface waters after passing through the natural formation.

Compare the directly-quoted findings above to the summary in the Revised Draft:

> Aydilek et al. (2017) reported that Cu, Al, B, Ba, Co, Mn, Ni, and Zn exceeded Maryland's ATLs in either batch or column tests. Of those, Cu and Zn also exceeded US EPA WQLs.

Again, the original study does not support the Revised Draft's selective summary, which fails to comprehensively and accurately reflect the conclusions from the original study.

<u>Birgisdóttir et al. (2007)</u>
In the case of conclusions from the Birgisdóttir et al. (2017) study, we must bring to light significant inaccuracies in the Revised Draft.

Birgisdóttir et al. (2017) specifically looked at the ability of PAHs to leach or transfer from asphalt pavement to soil adjacent to the road. The study focused on two types of asphalt pavement: one in use for over 20 years at a gas station and one on a typical roadway. In each sample, the study analyzed both the lower courses (base material) and the upper roadway wearing courses. In both cases, regardless of the levels of PAHs in the lower courses, the upper courses showed higher PAH concentration, and as expected, the gas station contaminated surface course had substantially elevated PAH concentrations as compared to the roadway surface material. As the Revised Draft correctly points out, only one asphalt sample showed PAH concentrations higher than Danish soil criteria — that sample was from the surface course of the gas station. This is to be expected; the surface of the wearing course pavement at the gas station included decades of potentially spilled gasoline and diesel fuel. These fuels, in contrast to asphalt, include lighter-end, more mobile PAHs that can potentially migrate a short distance from the source (e.g., 1 meter in this study). The key distinction is that asphalt PAHs are **not** mobile and are essentially "locked in" to the RAP. Asphalt, by its chemical nature, simply cannot readily migrate into the environment. Even using the most contaminated asphaltic samples, the study authors found:

> Assuming that the PAHs leached are accumulated in the uppermost 5 cm of the soil (or gravel) under and 1 m next to the road ... the concentration of those PAHs ... after 25, 50, and 100 years of leaching ... is far below the Danish soil quality criteria, and it can be expected that leaching of PAHs from bitumen based asphalt will only slightly influence the amount of PAHs in soils near roads.

Compare these direct study findings to the synopsis provided in the Revised Draft: "the total content of PAHs in the wear course exceeded Danish soil quality criteria." The Revised Draft also surprisingly asserted that: "exposure to roadways was identified as a major contributor of contaminants that were available for leaching."

Conclusions in the Revised Draft are not supported by the plain language of the Birgisdóttir study.

Credibility and Validity of the Revised Draft questioned
As evidenced above, *we strongly question the credibility and validity of the Revised Draft and recommend it be removed from public record*. We encourage Thurston County to have direct dialogue with the study authors in order to understand their study results and not rely on summarizations of these studies by a third party. We also urge Thurston County to recognize the plain, overwhelming reality that RAP is stockpiled, processed, and recycled continuously throughout the state and across the country, in thousands of jurisdictions, without incident and to the net benefit of the public.

Summary
Instead of comparing the Revised Draft's summary statements for the five other studies to the actual findings of the study authors, we emphasize the following:

1) In decades of environmental and transportation agency studies, and in decades of independent academic research, including those mischaracterized in the Revised Draft, there appears limited if any concern associated with stormwater runoff or leachate from RAP stockpiles.
2) Across the U.S., we know of no other agency, county, or municipality that restricts the stockpiling of RAP. All recognize the material as environmentally safe.
3) Summaries of the identified studies (in the Revised Draft) significantly mischaracterize the original research results to such an extent that it raises *real concerns about the validity and credibility of the findings.*

We encourage Thurston County to closely review our comments, to take into account the decades of environmentally safe management of RAP stockpiles in Washington state and across the nation, and to understand the importance of RAP as a sustainable recycled material for roadbuilding, the use of which has significant public benefits.

Over the decades, NAPA has accumulated numerous research articles reviewing RAP leachate; some of those relevant articles were provided to Herrera after the initial draft report was released. NAPA is happy to provide those references to Thurston County, as well as to have an open discussion of any RAP leachate concerns.

Best Regards,

Howard Marks, Ph.D., JD, MPH
Vice President, Environment, Health & Safety
National Asphalt Pavement Association
5100 Forbes Blvd.
Lanham, MD 20706
(301) 731-4748

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Washington Asphalt Pavement Association
451 SW 10th Street, Suite 110A
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LAKESIDE INDUSTRIES

P.O. Box 7016 / Issaquah, WA 98027
ph: 425.313.2600 / lakesideindustries.com

November 6, 2018

Shannon Shula
Maya Teeple
Thurston County Community Planning & Economic Development
2000 Lakeridge Drive SW
Olympia, WA 98502

Re: Lakeside Industries Comments on Draft Literature Review - Contaminant Leaching from Recycled Asphalt Pavement

Dear Shannon and Maya:

Thank you for this opportunity to provide stakeholder comments on the Draft Literature Review by Herrera Environmental Consultants, Inc. regarding Contaminant Leaching from Recycled Asphalt Pavement ("Herrera Review"). Based on our assessment, Lakeside Industries requests that the final draft of the Herrera Review limit its consideration to applicable U.S. studies in comparable leaching environments.

Background

Asphalt has been called the "ultimate recyclable product" and the use of RAP is a standard practice in Washington and throughout the world. Reprocessing asphalt is consistent with the vision in Thurston County's Comprehensive Plan. It preserves the human environment by encouraging jobs in the community. It preserves the natural environment by encouraging protection of mineral resource lands, limiting the carbon footprint of asphalt paving, and preventing unnecessary waste in landfills. It promotes economic health by reducing the cost of asphalt, which supports local asphalt paving businesses and property owners.

Thurston County's Nisqually Valley Sub-Area Plan currently prohibits the use of RAP due to water quality concerns; therefore, this literature review is an important step in the process of evaluating the potential for contaminant leaching from RAP and associated impacts to water quality. Based on the following analysis, we request the final draft of the Herrera Review focus conclusions based on applicable U.S. studies which better reflect the effects of U.S. manufactured asphalt paving mixtures on water quality.

The most applicable U.S. studies found limited or no cause for concern

The Herrera Review analyzed available research regarding leaching of pollutants from RAP. It started with 101 information sources, then limited the sources based on the date of the study

and whether the study was a primary data source. The remaining 33 studies were rated low, moderate, and high. The Herrera Review then focused on only five studies.

Of the five studies reviewed, only two of the studies were conducted in the U.S. Both U.S. studies found that leaching from RAP in typical local rainfall is not a cause for concern. First, the Maryland study from October 2017 concluded that "RAP from sources in Maryland does not release excessive amounts of toxic elements" and "if any kind of a weighted average were to be applied to the results, the concentrations for all constituents would be well below the most stringent standards." Herrera Review, pgs. 4-5. Additionally, the New Jersey study from May 2017 concluded: "Leaching of some PAHs and Pb may occur under acidic environments such as landfills, but typical New Jersey rainfall is expected to elute negligible contaminants." Herrera Report, at 8.

The Herrera Review considers foreign studies that are not representative of local asphalt and conditions

The Herrera Review considered three other studies, which were all conducted in Europe on foreign pavements and applied European standards.[1] U.S. and European pavement and road usage are quite dissimilar. There are vast differences in asphalt pavement design, petroleum binder, material makeup, and conditions of use.

Accumulation of constituents on European RAP is unlike RAP from the U.S. The types of fuel used, the makes and models of vehicles, and the products used on roads can influence the types of constituents found. Popular vehicle manufacturers and models in Europe are not as common in the U.S. In Scandinavia, studded-tire road wear and winter de-icing solutions are more prevalent than in the U.S and certainly more prevalent than in Western Washington and Thurston County. These differences likely influenced the constituents found.

Asphalt mixes in Europe vary from mixes in the United States. The presence of coal tar in European pavement may have contributed to increased PAH levels in the European studies cited in the Herrera Review. Many European pavement mixes have used coal tar as a full or partial replacement to bitumen, whereas coal tar has not been similarly used in U.S. since World War II. According to the Norin/Stromvall study, Sweden used coal tar as "a substitute, an additive or as an adhesive agent in asphalt until 1975" and "tar contains approximately 10^3 to 10^5 times more PAH than the bitumen used today." *See* Norin and Stromvall 2004, pgs. 323-4.

Additionally, a typical asphalt paving mix design in Scandinavia incorporates a "cutback" petroleum solvent – a highly volatile and PAH-rich petroleum product – to account for the cold climate. Such a mix has been eliminated from U.S. pavement design for decades, with the rare exception of some winter pothole patching materials.

The Herrera Review does not account for differences in regulatory standards

[1] The Norin/Stromvall study from 2004 was conducted in Sweden, the Legret study from 2005 was conducted in France, and the Birgisdottir study from 2007 was conducted in Denmark.

Regulatory standards cited throughout the Herrera Review are not applicable to Washington State. Review of regulatory standards from other jurisdictions provides an inapplicable view of the impacts from RAP. For example, the Norin/Stromvall study from 2004 compares its findings to "Swedish recommended values for groundwater in polluted soils at gas stations" and the Herrera Review notes exceedances of these Swedish standards. Herrera Review, pg. 12. Swedish standards for groundwater in soils at gas stations are irrelevant to the regulatory framework in Washington.

The Herrera Review analyzes studies from aggressive leaching environments, makes unsupported conclusions, and uses ambiguous language that overstates impacts

Multiple studies cited in the Herrera Review analyze impacts in aggressive environments that are inapplicable to the proposed RAP storage in Washington. The Birgisdottir study from Denmark analyzed a sample of RAP taken from pavement at a gas station, where fuel drips are highly more likely than a roadway or parking lot. Herrera, pg. 9. The Norin/Stromvall study was "performed in southwest Sweden where precipitation is quite acidic; therefore, the concentrations may not reflect what might occur in Washington." Herrera Review, at 18. The batch test in the New Jersey Metha study used acidified water "to simulate a very aggressive leaching environment, such as would occur in a landfill." Herrera Review, pg.7. The Herrera Study provides data from a batch test in the Norin/Stromvall study but does not provide any further details about the acidity of the water used. *See* Herrera Study, pgs.10-11, 13-14.

In its "Summary and Conclusions," the Herrera Review states that "vehicle traffic definitely was the major contributor of contaminants that were available for leaching." Herrera Review, pg. 18. Other portions of the Herrera Review do not support this finding.

The Herrera Review confusingly uses the term "fresh" asphalt to refer to asphalt that was taken directly from a road when the road surface was being milled. The Norin/Stromvall study referred to the same asphalt as "not stored" because it was not kept in storage for two years before testing. The use of the term "fresh" carries connotations that the asphalt was new or recently mixed, whereas "not stored" does not carry the same connotations.

The Norin/Stromvall study identified that the top 1-inch or "scarified" RAP had the greatest leaching potential of PAHs. However, there was a real difference in the surface area of the scarified RAP versus the "dug" RAP. It is unclear whether the study's finding was due to the vehicle surface contamination (as suggested by the authors) or to the difference in surface area.

Thank you again for your time and consideration on this important issue.

Sincerely,

Lakeside Industries

From: Thomasina Cooper
To: Maya Teeple
Subject: FW: Nisqually Subarea Plan proposed policy amendment E.5.
Date: Thursday, June 27, 2019 8:14:13 AM

Hi there-

I received the below public comment on the Nisqually Subarea Plan.

Thanks!
Thomasina

From: Thurston County | Send Email <spout@co.thurston.wa.us>
Sent: Thursday, June 27, 2019 6:00 AM
To: Thomasina Cooper <thomasina.cooper@co.thurston.wa.us>
Subject: Nisqually Subarea Plan proposed policy amendment E.5.

This email was created by the County Internet web server from the email masking system. Someone from the Public has requested to contact you with the following information:

To: **Thomasina Cooper**

Subject:

From: **David Hillman**

Email (if provided): davidhillman@hotmail.com

Message: **Hi Thomasina,**

I sent this to Commissioner Menser and because I wish to be thorough, I am now sending it to you:

I have been following the developments of the proposed amendment to The Nisqually Subarea Plan Policy E.5. After reading all of the public comments concerning the environmental review, I have compiled some noteworthy points that I would like to share.

An overwhelming number of citizens (actually 100% of the citizens that submitted) are against the policy change. I'm not counting the one woman who is against the water plant, but she was surely confused and should not count as either for or against the policy change.

100% of the submissions that are in favor of the change in policy are employees of the asphalt industry. I am certain that few (if not zero) of these people are citizens of the Nisqually Subarea.

Of the four people in favor of the policy change, one works for the company that has submitted the paperwork for the policy change, one is from Maryland, one is from Renton, and one is from Puyallup. All four submitted "their" comments on asphalt industry letterhead that were almost assuredly drafted, not by them, but by their lawyers. All four of them were almost assuredly on the clock when they signed their names.

Despite a very low awareness level of the proposed policy amendment among the citizenry at large, the tally for those against the policy change is 54. As mentioned before, the tally of those that are for the policy change is 4. This is nearly a 14 to 1 ratio. This is not counting the 120 members of Nisqually Aquatic Reserve Citizen Stewardship Committee or the uncounted members of the Thurston League of Women Voters. This count certainly makes a final tally of several hundreds of citizens vs. 4 industrialists. Many of these citizens found out about the situation at a very late date, and much commentary was submitted at the last moment. Very few, if any, had help from lawyers, or were on the clock.

Two main themes stood out to me as I read all of the comments:

Vehement opposition by citizens. Not only did 100% of the citizens say no, most said it loudly and with passion.

Assertions by industrialists that RAP was allowed everywhere else except The Nisqually Subarea. As few (or zero) of these four people actually live in the Nisqually Subarea, I can understand their ignorance as to how special and unique this place is.

Because the Nisqually Subarea is home to one of the cleanest watersheds and estuaries in the United States, we citizens are held to a higher standard concerning land use. My neighbors and I for example, must have our septic tanks inspected every 3 years, and dye tested every 6 years. We are also not allowed to add bedrooms to our existing one-family structures due to the stringent rules surrounding septic systems. No new septic systems are allowed except to replace a failing existing system. These new systems must meet stringent specifications. I knew this when I bought my house.

Despite how inconvenient and unfair they think it is, Lakeside Industries Inc. must conform to the same sort of stringent policies in this unique and special place. Just like me and everyone else in my neighborhood.

When I think about where all of this is headed, using the above comment submission data plus reading the recent environmental review and using The Nisqually Subarea Plan as a guide, I must come to the following conclusions:

The current language across the entirety of The Nisqually Subarea Plan, the findings of the recent environmental review, and THE WILL OF THE PEOPLE OF THE SUBAREA demand that this proposal amendment to policy E.5. be rejected as soon as possible.

If for whatever reason, the proposed policy amendment somehow moves forward, then much more study and additional public comment is required. I believe this is known as phase 2. Increased public outreach on the proposed policy change is in order as well.

In light of the emphatic and overwhelming public opposition, it would be very odd indeed if the proposal to amend policy E.5. moves forward by skipping phase 2, especially given the absolute lack of citizen support for the proposed change, and the non-existent support of businesses other than asphalt industrialists.

Thank you for taking the time to read this.

David Hillman
Nisqually Subarea Citizen

Revised 6/15/2019

From: Madeline Bishop
To: Tye Menser; John Hutchings
Cc: Maya Teeple; Ramiro Chavez
Subject: Recycling Asphalt
Date: Saturday, July 6, 2019 8:19:04 AM

Are you will to take the risk with our water?

I am very concerned abut the proposed policy change for the Nisqually Subarea that would be the fist step towards issuing permits to recycle asphalt. County Overview Recycled Asphalt Policy E.5 Amendment

It appears that citizens are put at a disadvantage since Lakeside can afford to hire experts to testify for their side as seen in the 2000 decision to allow the asphalt plant to move to Nisqually : Special Use Permit allowing Asphalt Production at Holroyd

My question is:
What circumstances would make it likely that contamination would occur? Incidents such as regulations not followed, earthquake, flood, acidic rain, excessively dirty asphalt, slow amounts building up over time etc. And are you willing to take the risk?

I care about the water quantity, water quality and preservation of farmland.

Sincerely,
Madeline Bishop
9529 62nd Ave SE Olympia, WA 98513

From: Howard Glastetter
To: Gary Edwards
Cc: Maya Teeple
Subject: E.5
Date: Sunday, June 30, 2019 9:14:07 AM
Attachments: IMG_20190622_0002_E5Memo.pdf

Commissioner Edwards,

I thought you might like to review the above attached PDF before you make a decision on this E.5 issue. It was written by Steve Morrison, the project manager of the original 1992 Sub-Area Plan. The memo was used as part of the support for Development Services recommendation to reject Lakeside's request to put a plant in Nisqually Valley. Courts allowed Lakeside to get in due to a county WAC that said an asphalt plant was an accessory use to a gravel mine. That law was changed from accessory use to permitted use to prevent this sort of thing from happening again. There is more to this issue than: "Is RAP OK or not OK".

-Howard

Howard H Glastetter
Howard.glastetter@comcast.net
(360)491-6645
Cell: (360)556-1574

Everything should be as simple as it can be, but no simpler.
Albert Einstein

ATTACHMENT
COMMENT #31 jj

THURSTON REGIONAL PLANNING COUNCIL

2404 HERITAGE COURT SW #B OLYMPIA, WASHINGTON 98502-6031

(360) 786-5480
FAX 754-4413

MEMORANDUM

TO: Don Krupp

FROM: Steven Morrison SJM

DATE: January 3, 2000

SUBJECT: History of the Nisqually Valley Sub-Area Planning Process

INTRODUCTION:

Per our telephone conversation of the week of December 13, 1999, I have reviewed the Nisqually Sub-Area Land Use Plan and Zoning (1992) regarding the proposed placement of an asphalt batch plant within the valley. In 1989 I was assigned the Nisqually Sub-Area Planning Process as part of Thurston Regional Planning Council's contract with Thurston County. My work included preparation of the emergency ordinance (O-#9316) up through the adoption of the sub-area plan by the Thurston County Board of Commissioners in November 1992. I will summarize those sections which I believe are relevant to your question.

FINDINGS:

Ordinance No. 9316 started the planning process and established several of the "themes" which were important throughout the planning process. **Water Quality Protection and Maintain the Rural Character** were noted in several findings. Finding 12 identified that land use activities near McAllister Springs (a regional water source) had been recently regulated by the Board of Health. Finding 8 identified the valley as comprised of low density uses such as agriculture forestry, undeveloped land and the Nisqually Wildlife Refuge. Several of the Findings (such as 6, 7, 8, 9, 10 and 11) identified that the Nisqually Valley could be threatened by surrounding development. The purpose of the Sub-Area Plan was to create a development pattern which was consistent with the County Comprehensive Plan and which would not lead to "irreparable damage to sensitive areas along the tributaries, flood plains and bluffs of the Nisqually River and McAllister Creek." [Finding 19]

COMMENT #31

These two themes were also very important in the early phases of the sub-area plan. The 1988 Thurston County Comprehensive Plan provided guidance as well and the recently adopted Washington State Growth Management Act. The goals and policies of the sub-area plan are listed on pages 17-27 of the adopted plan. Although the 12 categories are not noted in the sub-area plan as being in priority order, those first few categories were more important that the ones at the end. "1. Rural Character" was the first category because this was of overriding importance to all. This was followed by "2. Water Resources" and then by "5. Commercial Development".

The adopted Nisqually Sub-Area Plan policy which speaks most directly to the proposed batch plant is Policy E.5, which reads:

"E.5. Allow accessory uses to be considered inside mined out portion of a gravel pit through the site plan review process. Examples of allowable uses would include concrete pipe and/or septic tank construction and the recycling of used concrete. The reprocessing of imported mineral resources shall not be the primary accessory use and the reprocessing of asphalt shall not be allowed due to water quality concerns. The activities shall be discontinued once reclamation of the pit is completed in accordance with the WDNR standards."

Like all policies in the sub-area plan, there was an evolution of this policy. The earliest policy statement I could find regarding this topic was from Nisqually Bulletin #8, Draft Vision Statement: September 20, 1990. The policy can be found in section E Commercial Development.

"3. Identify existing mineral extractions, and establish guidelines for the design and locations of any new operations."

It was changed slightly in Nisqually Bulletin #9, Final Vision Statement: December 13, 1990.

"3. Recognize existing mineral extraction operations, require any new operations to be visually buffered from adjacent properties and roads, and prohibit the location of any new facilities north of the Burlington Northern Railroad to protect the visual integrity of the Nisqually valley viewshed."

The policy further evolved into the earliest complete draft of the sub-area plan, Committee Draft - October 1991. The wording changed to a form similar to that which was ultimately adopted. That policy read as follows:

"E.5. Allow accessory uses to be located inside the mined out portion of a gravel pit through the site plan review process. Reprocessing of imported mineral resources shall not be the primary accessory use and these activities shall be discontinued once reclamation of the pit is completed in accordance with the WDNR standards."

COMMENT #31

As I recall, this was one of the later policies to be added to the sub-area plan. I believe that discussion regarding this policy was desired by both Holroyd and a planning committee member from the environmental community. This discussion was clearer than most since it occurred on the day I took pictures of the sub-area planning committee at the Nisqually Tribal Center.

The addition of the types of uses came after discussions with what this policy would really mean. [... **"Examples of allowable uses would include concrete pipe and/or septic tank construction and the recycling of used concrete. ..."**] Since the pit already provided concrete products, then the reprocessing of concrete products was not seen as much of a change in use.

I also recall discussion about the reprocessing of broken up highways. Concrete was not a concern, (as noted above) but asphalt was not desired. [... **"the reprocessing of asphalt shall not be allowed due to water quality concerns. ..."**] The rationale for that was clearly the concern over water quality and the fact that asphalt production was not a part of Holroyd's operations.

The last point was the extent of the activity. [**"... The reprocessing of imported mineral resources shall not be the primary accessory use ..."**]. Another policy in the Commercial Development category provided the guidance which limited the need for further explanation. This other policy was E.1. which reads in part: *"Minimize the addition and new commercial activities within the planning area by prohibiting commercial expansion of properties not currently zoned beyond the existing lot and use ... and prohibit the use of mined out gravel pits for commercial and industrial uses."* This parallels the Goal for the Commercial Development section which read: *"Prohibit large scale commercial development within the Nisqually Valley, while recognizing existing commercial activities and designated commercial areas."* I find the operative words in this goal to be "existing commercial activities."

The planning committee redrafted the policy E.5. to its final wording. It was unchanged from August 1992 in the Planning Commission Draft Sub-Area Plan to its adoption by the Board in November. Nisqually Bulletin #14 (August 1992) indicated that there were no public hearing comments about this policy at the Planning Commission level. I do not have any records of the Board of County Commissioner's public hearing.

CONCLUSION

I do not recall any specific planning committee discussion regarding a batch plant in the valley. If this had been raised, I believe it would have been immediately rejected as being inconsistent with the sub-area plan on several accounts.

First, it conflicts with the Commercial Development goal which is "recognizing existing commercial activities." The planning committee added a limited amount of flexibility within the mined out pit to only deal with recycled products. It also clearly prohibited the use of mined out gravel pits for commercial and industrial uses by Policy E.1.

COMMENT #31

Secondly, a batch plant would appear to far exceed the level of intensity of "accessory activities." Ordinance No. 9316 (the emergency downzone) was issued because of the possible adverse impacts of intense land uses adjacent to and within the Nisqually Valley. Under the proposed batch plant scenario, the gravel mine would appear to be accessory use and the batch plant the primary use.

Lastly, the issue of water quality is a trump card to both previous issues. If the committee had water quality concerns regarding the handling of asphalt with an "accessory" recycling operation, then those concerns would be doubled with a batch plant operation.

I hope this history is useful. Should you have any additional questions, please contact me.

20:sp

Maya Teeple

From: Thurston County | Send Email <spout@co.thurston.wa.us>
Sent: Tuesday, July 9, 2019 7:57 AM
To: Maya Teeple
Subject: Nisqually subarea recycled asphalt policy

This email was created by the County Internet web server from the email masking system. Someone from the Public has requested to contact you with the following information:

To: **Maya Teeple**

Subject:

From: **Robert Clark**

Email (if provided): **rdclark147@gmail.com**

Message:
Add me to the email list for the Nisqually recycled asphalt policy changes.
Thanks,

June 25

Com. Tye Menser

To continue your work to protect water resources, please do not change the Nisqually watershed gravel mine zoning. Do not allow processing of recycled asphalt - it is a violation of the sub-area plan. Thank you!

Vera Spooner Keely

PROUD MEMBER
League of Women Voters

Please fully fund the Conservation District for the next 10 years as well

June 25, 2019

Commissioner John Hutchins,

To continue your work to protect water resources, please do not change the Nisqually watershed gravel mine zoning.

Do NOT allow processing of recycled asphalt - it is a violation of the sub-area plan. Thank you!

Vera Spooner Keely

PROUD MEMBER
League of Women Voters

Please fully fund the Conservation District for the next 10 years

Com Gary Edwards

June 25, 2019

To continue your work to protect water resources, please do not change the Nisqually watershed gravel mine zoning. Do not allow processing of re-cycled asphalt — it is a violation of the Sub-Area plan. Thank you!

Vera Spooner Keely

PROUD MEMBER
League of Women Voters

Please fund fully the Conservation District for the next 10 years

COMMENT #34

Dear Comm Edwards

NO RE-CYCLED ASPHALT in Nisqually watershed

C. R. Kusch

PROUD MEMBER
League of Women Voters

COMMENT #35

Dear Comm Hutchings

NO RE-CYCLED ASPHALT in the Nisqually watershed

C. R. Kusch

PROUD MEMBER
League of Women Voters

Dear Commissioner,

Please stop protect water quality and quantity in the Nisqually water shed. No asphalt recycling in a well head protection area.

Thank you-
Shelley Ethen

PROUD MEMBER
League of Women Voters

Dear Commissoner,

Please vote to fund the Thurston Conservation District for 10 years. The District has passed an audit and has a record of helping citizens & farmers in the County. Shelley Ethen

PROUD MEMBER
League of Women Voters

COMMENT #36

Commissioner Edwards,
the league of women voters believes that concerning water resources, the overriding consideration should be protecting the quality and quantity of the water SOURCE.
Recycled Asphalt, in the permeable soil of the gravel mine in the Nisqually watershed
thank you

PROUD MEMBER
League of Women Voters

Commissioner Messer
The League of women voters believes that, concerning water resources, the overriding consideration should be protecting the quality and quality of the water source. Please do not allow permitting of this process in the permeable soil of the gravel mine in the Nisqually watershed
thank You

Commissioner Hotchings
The league of women voters believes that concerning water resources, the overriding consideration should be protecting the quality and quantity of the water Source.
please do not allow permitting in the permeable soil of the gravel mine in the Nisqually watershed
thank you

PROUD MEMBER
League of Women Voters

COMMENT #37

COMMENT #38

Dear Com. Edwards –

The League of Women Voters believes the overwhelming consideration for water resources is to protect its quality. Do NOT change zoning to allow processing of re-cycled asphalt in the Nisqually watershed. This is a violation of the Sub-Area Plan.

Charlotte Persons
98506

COMMENT #39

Com Hutchings –

The League of Women Voters believes that the overriding consideration, with regard to Water Resources, should be protecting the quantity & quality of the SOURCE. Recycled Asphalt in the permeable soil of the gravel mine in the Nisqually watershed would be a Violation of the Sub-Area Plan.

Please act to protect our water.

Thank you Barbara Buchan

Nisqually River Council

12501 Yelm Highway • Olympia WA 98513 • (360) 438-8715

October 21, 2019

Thurston County Board of Commissioners
Thurston County Courthouse
2000 Lakeside Drive SW
Olympia, WA 98502

Dear Board of Commissioners,

The Nisqually River Council (NRC) appreciates the ongoing updates we receive from County staff on the Nisqually Sub-Area Plan review, and the related proposal to change the current policy prohibiting recycled asphalt pavement (RAP) within the Nisqually Sub-Area. As stated in our letter of March 22, 2017, the NRC supports a collaborative and inclusive effort to update the Sub-Area Plan, and we appreciate the County's work to keep us informed and involved in the process.

At the NRC meeting on July 19, 2019, County staff presented the findings from the Phase I RAP study, which reviewed the literature on contaminant and leachate potential from RAP. As noted in that presentation, this Phase I study did not look at local conditions in the Nisqually sub-area or best management practices (BMPs). There remain significant questions about the possible impacts of RAP on water quality in the Nisqually Valley that cannot be answered without further study. The NRC urges the Board of County Commissioners to require on-the-ground field studies of RAP leachate behavior in the Thurston County region prior to moving forward with any change to the current policy.

The NRC's March 2017 letter also noted that "we do not support a narrow review of a proposal to modify the plan relative to recycled asphalt….A narrow consideration may have unintended consequences that can be avoided through a complete adaptive management look at the entire plan." The Nisqually Sub-Area is critical for local water supply and for ESA-listed species, including Chinook salmon, steelhead, and southern resident orcas. Further studies of the proposal to bring RAP into the Nisqually sub-area should be considered alongside other concurrent proposals, particularly the potential for sub-aquifer gravel mining and the potential risks posed to groundwater supplies from these activities happening simultaneously. In addition to field studies, the NRC supports a rigorous comparative review of BMPs related to RAP storage and processing to minimize precipitation contact, runoff, and other risk factors to our groundwater and surface water resources.

Since it was adopted in 1992, the Nisqually Sub-Area Plan has done a good job of balancing economic activities with protections for the sub-area's rural character and natural resources. The NRC continues to support a complete and holistic review of the Plan based on the best available science and consultation with our community stakeholders about their goals and priorities for the sub-area over the coming decades. Once again, we appreciate the continued partnership with Thurston County throughout this process.

Sincerely,

David A. Troutt
Chair

From: Phyllis Farrell
To: Howard Glastetter
Cc: David Troutt; Emily McCartan; Lois Ward; fredndanrc@aol.com; Ed Kenney; Maya Teeple
Subject: Re: LWV state positions on Nisqually Delta
Date: Sunday, November 17, 2019 9:23:52 AM

Thanks! I agree the positions are somewhat dated, but what resonated with me was the priority of natural values over economic interests in order to preserve a natural estuarine environment. If the manufacture of recycled asphalt jeopardizes the estuarine Environment based on scientific evidence/conclusions, the LWV could weigh in.

The LWV is a non profit, non partisan organization that neither supports nor opposes candidates or parties and promotes civic engagement and good governance. It advocates for legislation and policies based on its positions which are developed from research, study and an extensive bipartisan consensus process. The LWV supportS or opposes proposals based on alignment with the positions.

Phyllis

Phyllis

Sent from my iPad

On Nov 17, 2019, at 8:31 AM, Howard Glastetter <howard.glastetter@comcast.net> wrote:

> Phyllis,igh In
>
> Those are nice ideas. However, they don't beat a strong, reasonably fair, Subarea Plan – which acts like a neighborhood covenant.
>
> Thurston County's gravel mining regulations have been recently compromised by outside county interests within the state. Other counties, plus industrial interests, want the rich gravel deposits here ewhat moto be viewed as a regional, rather than a county resource. Up until now, Thurston County was only required to designate enough gravel mining land to cover internal needs for the next 50? years. This was the state rule for all counties and maybe still is for those outside Thurston.
>
> So, addressing the sub-area plan upgrade and even expanding it, if possible, is a very necessary high priority that will aid in reaching some of the goals below.
>
> -Howard
>
> ---
>
> **From:** Phyllis Farrell <phyllisfarrell681@hotmail.com>
> **Sent:** Friday, November 15, 2019 10:00 PM
> **To:** howard.glastetter@comcast.net
> **Cc:** David Troutt <troutt.david@nisqually-nsn.gov>; Emily McCartan <emily@nisquallyriver.org>; Lois Ward <loisward@comcast.net>;

fredndanrc@aol.com; Ed Kenney <baldhillssolar@gmail.com>
Subject: LWV state positions on Nisqually Delta

FYI....just now noticed this piece in the LWV Program in Action publication 2019-2021:

Nisqually Delta (1981)
The League of Women Voters of Washington believes that:
ND-1: Policies and procedures to preserve a natural estuarine environment for the Nisqually Delta should be supported.
ND-2: Any land or water uses which affect the Delta should be compatible in type and intensity with its ecological balance.
ND-3: Changes to the ecosystem of the Nisqually River basin, Delta and Nisqually Reach should be made only after their effect upon the Delta is considered.
ND-4: The state should assume primary responsibility for developing management goals and strategies for this area of statewide concern.
ND-5: Priority must be given to implementation of a comprehensive, region-wide plan for the management of the area. Any mechanism for planning, management and enforcement should recognize natural values over economic interests, long term effects over short term interests and statewide over local interests

The LWV supports or opposes measures based on the alignment with the above positions. As you know, the LWV is a non profit, non partisan organization that neither supports nor opposes candidates or parties. It does advocate on issues based on positions. Positions are determined using studies taking usually 2-3 years. Scientific research is gathered, questions are developed around issues and there is an extensive process to develop positions based on questions on which there is a consensus. Positions are based on science, social justice and good governance principles and a non partisan process... and are therefore considered credible and respected.

The positions are dated 1981, but may still apply to any measures affecting the Nisqually watershed and delta.

Phyllis

Sent from Outlook

From: Maya Teeple
To: Allison Osterberg (osterba@co.thurston.wa.us)
Subject: FW: Mineral Lands Comment
Date: Tuesday, September 11, 2018 7:45:00 AM

FYI – Received this comment on the hydro report.

Maya Teeple
Associate Planner, M.S.P.
Community Planning & Economic Development | Thurston County
360.786.5578 | www.thurstonplanning.org

From: Thurston County | Send Email [mailto:spout@co.thurston.wa.us]
Sent: Monday, September 10, 2018 7:30 PM
To: Maya Teeple <maya.teeple@co.thurston.wa.us>
Subject: Mineral Lands

This email was created by the County Internet web server from the email masking system. Someone from the Public has requested to contact you with the following information:

To: **Maya Teeple**

Subject: **Mineral Lands**

From: **Howard Glastetter**

Email (if provided): howard.glastetter@comcast.net

Message:
The recent Thurston County Hydrological report says nothing about reprocessing ground up recycled asphalt pavement (RAP) in the permeable soil of gravel mines. Yet, there is a current study going on with this issue for the Nisqually Sub-Area. There are tests that can be done under the remainder of RAP piles at the old Lakeside Hogum Bay site, that could show whether or not leaching of polycyclic aromatic hydrocarbons are occurring here due to RAP wet weather storage. However, the Sub-Area study is only doing a summary of what has been written in the past.

Revised 1/22/2017

From: Howard Glastetter
To: Maya Teeple
Cc: phyllisfarrell681@hotmail.com
Subject: RE: Jan 22 Mineral Lands Planning Meeting
Date: Thursday, January 16, 2020 8:57:09 AM

Maya,

The rules below are good (e.g., the plant in the valley attempted to begin running their plant with diesel oil, even though their tests to get in the valley were done with natural gas). I still feel strongly that there should be a statement that says: "Storage and processing of RAP, if allowed, should meet Best Management Practices that will prevent or strongly mitigate leaching of weather related water into soils or aquifer below the plant".

-Howard

From: Maya Teeple <maya.teeple@co.thurston.wa.us>
Sent: Thursday, January 16, 2020 10:04 AM
To: Howard Glastetter <howard.glastetter@comcast.net>
Cc: phyllisfarrell681@hotmail.com
Subject: RE: Jan 22 Mineral Lands Planning Meeting

Hi Howard,

Thanks for that feedback.

I'm working with Development Services on code language regarding asphalt plants and recycling, but it is running separately from the county-wide mineral lands update. Most of the code changes related to the mineral lands update are about interpretation of a county-wide designation map, hydrologic protection measures, noise, and components related to discussions on co-designation with agriculture.

For clarity reasons, I'll be addressing any language surrounding asphalt (specifically asphalt recycling) with the Lakeside initiated 'recycled asphalt policy' review, and not the mineral lands update. Asphalt plant/production requires a special use permit – it has its own section separate from mineral extraction in the Special Use Permit Code, TCC 20.54. Under that section it does state that location needs to be consistent with the Comprehensive Plan and Subarea Plans (see excerpted text below). Asphalt recycling specifically has little mention in the code, so I hear your comment in that some clarifying language may be useful.

3.1 Asphalt Production. Asphalt plants (hot mix or batch plants) are subject to the following provisions:

a. Setbacks. The emissions point source at an asphalt plant shall be separated by a distance of at least five hundred feet from public parks and public preserves, which include parks, regional trails, national wildlife refuges, state conservation areas, wild life areas, and other government owned preserves, or three hundred

feet from the boundary of any residential zoning district with an existing or zoned density of greater than one dwelling unit per five acres, urban growth areas, and any residential lot less than one acre in size.

b. Asphalt plants are allowed in the rural resource industrial (RRI), light industrial (LI), and rural residential resource one dwelling unit per five acres (RRR1/5) zoning designations or within a permitted gravel mine located within selected zoning designations as reflected in Table 1. Existing asphalt plants located within a permitted mineral extraction use area may apply for a new special use permit when the extraction activity ceases.
c. **The location of asphalt plants shall be consistent with the Thurston County Comprehensive Plan, which includes, but is not limited to, sub-area plans.**
d. Prior to commencing operation, the asphalt plant operator shall provide evidence to the county that the facility has received coverage under the state's National Pollution Discharge Elimination Systems (NPDES) general permit applicable to asphalt plants, unless it provides written confirmation of an exemption from the agency with jurisdiction over such permit.
e. Asphalt plants shall provide necessary space to accommodate delivery trucks on the site.
f. Asphalt plants shall have County approved haul routes.
g. The source of Recycled Asphalt Pavement (RAP) shall only be from highways, roadways, runways, parking lots and shall not be from a contaminated site such as a Superfund site or Model Toxic Control Act (MTCA) site. The asphalt plant operator shall provide semiannual reports to the county documenting the source of all recycled asphalt pavement brought to the production site.
h. Asphalt plants shall comply with the requirements and best management practices of the Thurston County Drainage Design and Erosion Control Manual, as amended.
i. Asphalt plants shall be fueled by natural gas, propane, or an alternative fuel with the same or less hazardous emissions or waste as natural gas or propane.
j. The operation shall obtain and maintain a solid waste permit from Thurston County environmental health for operations that recycle asphalt.
k. Asphalt plants shall meet all applicable requirements of Chapter 17.20 TCC, Mineral Extraction and Asphalt Production.

Maya Teeple
Senior Planner
Thurston County | Community Planning Division
Community Planning & Economic Development Dept.
2000 Lakeridge Dr. SW, Olympia, WA 98502
www.thurstonplanning.org
(360) 786-5578

From: Howard Glastetter <howard.glastetter@comcast.net>
Sent: Wednesday, January 15, 2020 7:37 PM

To: Maya Teeple <maya.teeple@co.thurston.wa.us>
Cc: phyllisfarrell681@hotmail.com
Subject: Jan 22 Mineral Lands Planning Meeting

Maya,

I have a couple comments on pages 64 and 65 of the agenda documents.

These pages discuss gravel mine Accessory Uses. There are several mentions of concrete batching and recycling. Most people, reading these pages, would be inclined to visualize cold concrete that goes into a cement truck. There is no mention of asphalt concrete. It would seem to me that both should be mentioned and briefly discussed as separate entities.

I was on the Asphalt Advisory Task Force in 2007. We were all in agreement that an asphalt plant in a gravel mine was a Permitted –not- an Accessory Use. I understand this is how county rules still view it today. So, I suggest a little wording be added to these two pages to show subtle differences of these two products. It should also be mentioned that sub-area plans may also affect what "accessories" are allowed to be permitted in a gravel mine.

Again, If pages 64 and 65 are treating concrete as both hot asphalt and water based cement, it's a little confusing and even misleading. There should be a brief separate discussion of both processes.

-Howard

From: Thurston County | Send Email
To: Maya Teeple
Subject: Nisqually Sub Area Plan section E.5 - asphalt reprocessing
Date: Sunday, January 19, 2020 1:40:24 PM

This email was created by the County Internet web server from the email masking system. Someone from the Public has requested to contact you with the following information:

To: **Maya Teeple**

Subject:

From: **David Hillman**

Email (if provided): **davidhillman@hotmail.com**

Message:
Hi Maya,
I have not received any emails in a while concerning the proposed amendment. What is the latest news? What is the schedule for any meetings? Where is the process at this point? Thanks!
-David Hillman

From: Howard Glastetter
To: "Esther Grace Kronenberg"; "Lisa Riener"; "Maureen Canny"
Cc: Maya Teeple; "Phyllis Farrell"
Subject: RE: Nisqually Subarea Asphalt Recycling
Date: Monday, July 6, 2020 8:50:47 PM
Attachments: ATT00001.htm
RAP Comment 1905.docx
ATT00002.htm
Proposed Docket Ammendment 1703.doc
IMG_20190622_0002.pdf

Folks,

Here are my comments (attached) on this issue. The first two (Word) documents are what I have submitted in the past and still should be in the latest County comment record file on this issue. The PDF document is an interesting explanation of how the E.5 wording came about in the first place. It was written by Steve Morrison over 20 years ago. He was the lead in writing the 1992 Sub Area Plan. The short document is well worth a read.

The Planning Commission, back then, recommended not allowing the asphalt plant to come into the valley. The Hearings Examiner over-road the recommendation. The BoCC at the time reversed the Hearings Examiner. Two later court cases reversed the BoCC. The asphalt plant got into the valley on a technicality. County rules at the time allowed any gravel mine to have an asphalt plant as an "Accessory Use". That rule has been changed. An asphalt plant now is defined as a 'Permitted Use", requiring an Environmental Impact Statement. The asphalt plant was not allowed to process recycled asphalt pavement (RAP) because Goal E.5 of the 1992 Sub Area Plan prohibited it.

What I'm writing, including the attachments, should be considered a comment for the meeting, if Maya approves.

-Howard

From: Esther Grace Kronenberg <wekrone@gmail.com>
Sent: Monday, July 6, 2020 7:13 PM
To: Lisa Riener <northbeachcomm@cs.com>; Maureen Canny <mocanny@comcast.net>; Howard Glastetter <howard.glastetter@comcast.net>
Subject: Fwd: Nisqually Subarea Asphalt Recycling

Looks like it's time for this issue coming up. Howard, can you please remind us of salient points to write to Planning? Flood zone, groundwater pollution, original Nisqually plan specifically forbid it. Please copy us your comment. Thanks,
Esther

Sent from cyberheaven

Begin forwarded message:

From: Madeline Bishop <mfbishop.bishop@gmail.com>

Date: July 6, 2020 at 4:55:00 PM PDT
To: Esther Kronenberg <wekrone@gmail.com>
Subject: Fwd: Nisqually Subarea Asphalt Recycling

FYI
Sent from my iPhone

Begin forwarded message:

> **From:** Madeline Bishop <mfbishop.bishop@gmail.com>
> **Date:** July 6, 2020 at 3:57:44 PM PDT
> **To:** Lisa Ceazan <lisa.lisaceazan@outlook.com>
> **Subject: Fwd: Nisqually Subarea Asphalt Recycling**
>
> FYI
>
> Sent from my iPhone
>
> Begin forwarded message:
>
> > **From:** Maya Teeple <maya.teeple@co.thurston.wa.us>
> > **Date:** July 6, 2020 at 3:21:19 PM PDT
> > **To:** Madeline Bishop <mfbishop.bishop@gmail.com>
> > **Subject: RE: Nisqually Subarea Asphalt Recycling**
> >
> > Hi Madeline,
> >
> > The County is getting ready to take this policy review forward to the Planning Commission. I'll be discussing the policy review, and the public comments we've received (including comments requesting additional studies). The first discussion is tentatively next Wednesday, July 15 – if you receive the Community Planning webmailers, you'll get a notice with more information about that meeting.
> >
> > Planning Commission meetings are open to the public and there is a public comment opportunity to address the Commissioners (limited to 3 minutes) at the beginning of each meeting. Meeting materials will be posted towards the end of the week here: https://www.thurstoncountywa.gov/planning/Pages/pc-meetings.aspx

Maya Teeple
Senior Planner
Thurston County | Community Planning Division
Community Planning & Economic Development Dept.
2000 Lakeridge Dr. SW, Olympia, WA 98502
www.thurstonplanning.org
(360) 786-5578

From: Madeline Bishop <mfbishop.bishop@gmail.com>
Sent: Monday, July 6, 2020 2:57 PM
To: Maya Teeple <maya.teeple@co.thurston.wa.us>
Subject: Nisqually Subarea Asphalt Recycling

Could you update me on the status of Nisqually Subarea Asphalt Recycling? Last I heard we had requested a Phase 2 which will include more detailed research.

Thanks,
Madeline Bishop
Olympia Indivisible

Comments on Herrera's Contaminant Leaching from RAP document

By Howard Glastetter
11110 Kuhlman Road SE
Olympia, WA 98513
Howard.glastetter@comcast.net
Cell: (360)556-1574

May 28, 2019

The Herrera document was based on available, easily accessed, online studies; most of which have been around for several years. The report was even-handed and concluded that recycled asphalt pavement (RAP) leaches chemicals and is an issue of concern, albeit somewhat minor in this area.

I'd like to preface my comments on the document with an observation of the Lakeside operation at Holroyd Gravel Mine. Their operation is state of the art. It is very rare to smell any odor of hot asphalt from the pit. Nisqually neighbors get a whiff of it when covered trucks drive by, but that's it. Lakeside employees have been respectful ladies and gentlemen. So, Lakeside is a good neighbor.

A couple comments in Herrera's document caught my eye. I knew that New Jersey had very stringent rules about RAP. On page 10 of the document, under **Toxicity Testing** in New Jersey, it states: RAP "… could be used as an unbound material in all environments except those which are highly acidic PH < = 4), such as mines … (Note: the assumption is that the authors are referring to coal- and metal-type mines and not gravel-type …)" I did a little research, see below.

https://www.sourcewatch.org/index.php/New_Jersey_and_coal#Major_coal_mines

Major coal mines

There are no coal mines in New Jersey.[18]

https://www.state.nj.us/dep/njgs/pricelst/gsreport/gsr25.pdf
The introduction to the PDF says: Sand and gravel production in New Jersey is a $100 million annual business with 786 mining operations, around 100 of which are active.
- - - - - - - - -
Metal mining in New Jersey appears to be a thing of the past and was done via tunneling and not open pit. So, a better Herrera assumption would be that the "authors are referring to **permeable soiled gravel** mines". I'm familiar with wells at 3 different homes in Nisqually Valley below Holroyd's mine. They all contain a certain amount of red / brown turbidity, which I believe is caused, to a certain extent, by gravel mining in the pit. See below.
- - - - - - - -
https://www.reference.com/home-garden/causes-well-water-suddenly-turn-brown-f7f4fce6acfcb870

"The most common cause of brown well water is iron contamination. A sudden change in water-color means that the contaminant is newly introduced to the well, and it may be caused by **industrial contamination**, rusty plumbing fixtures or natural iron leaching from the ground". Nisqually valley soil contains iron.

- - - - - - - - -

Back to the Herrera document: A point was made (page **17 - *Comparison Studies to Expected conditions in Nisqually***) that "European RAP tests may not relate to U.S. tests, because asphalt pavement was made there with tar as an additive until 1975 and emits more polycyclic aromatic hydrocarbons than RAP produced from bitumen which is what has been used in the U.S. since WW 2."

Page **19** item 1 made me pause. It stated that tests showed: "Cu and Zn (copper and zinc) also exceeded U.S. EPA WQLs". This reminded me that there is a more modern ingredient that is popular in U.S. asphalt production: recycled asphalt roofing shingles. Some of the more expensive shingles come impregnated with copper flakes to prevent moss buildup. Many home owners put zinc on asphalt roofs, either as metal strips, liquid applications, or solid zinc flake applications to do the same thing. Does reprocessing these used shingles add these metals to asphalt roads that will eventually be ground up, returned and stored to open weather at an asphalt plant site? I'm not seriously suggesting this as the source of Cu and Zn metals found in the above test. I mention it because, most of us are initially pleased to hear about recycling. However, as Einstein said: "Everything should be as simple as it can be, but no simpler". The reprocess should be safe. Keep RAP dry when storing it over a permeable floored gravel mine.

The Herrera study painted Nisqually Valley with a broad brush. I'd like to add a few details. The lower valley is classified by Thurston County as a Wellhead Protection Area. It is also protected, as a rural environment, by a Thurston County Sub-Area Plan.

The water sources for all residents in the lower valley are from wells. Many residents, but not all, get drinking water from a Lacey City well next to the Nisqually River - less than a half mile from Lakeside's Asphalt Plant. The plant sits in the permeable soil of Holroyd's Gravel Mine at the very beginning of the Nisqually Delta in lower Nisqually Valley. The pit was once the end of a glacier. There is a capped-artesian-springs well just across Old Pacific Highway from the pit. These springs obviously run under the pit and likely continue through rural residential land to Puget Sound. (There was, until recently, a capped artesian spring pipe near the board walk in the tide lands at the Nisqually Delta sanctuary.) This mine / industrial activity is up-river from many homes that have private wells because Lacey Water doesn't serve them. Holroyd's Pit, itself, has a several-year-old active request at the county to mine the pit from its current permeable floor level to 80 feet below the water table. Delivering RAP to the pit would also mean increased truck traffic on the two-lane roads in the valley. So, this site is a very sensitive part of the valley and could become a stressed one.

If RAP were ever allowed, it should be under cover and out of the weather before and during its use. Please see a past comment on RAP that I resubmitted May 24, 2019. It shows weather protection is an industrial "Best Practice".

Sincerely,

Howard Glastetter

Emailed to Thurston County March 5, 2017

This email is a public response to Lakeside Industries' latest docket attempt to remove Goal E-5 from the 1992 Nisqually Sub-Area plan. They want to reprocess Recycled Asphalt Pavement (**RAP**) at their Holroyd's Gravel Pit site in lower Nisqually Valley.

The overall goal of the November 1992 Nisqually Sub-Area Plan was to "**Maintain the existing rural environment of the Nisqually planning area with the primary emphasis on preserving … its rural, aesthetic character for future generations.**" (Page17). This overall goal has been in the forefront of the 1992 Plan as well as ongoing public and private efforts to restore and maintain the Nisqually River Valley. The no-RAP provision of Policy E.5, along with the other E goals (Page 20-21, attached) was designed to protect the rural character from industrial dominance.

The county has an obligation to defend this well thought out plan and strengthen it when it comes up for renewal. However, business impacts have increased, rather than be phased out as the plan has required. Examples:
1) A mined out pit at Yelm Highway and Reservation Road, in the Nisqually Sub-Area, has been converted to a construction waste site (The Sub-Area Plan (Goal E.1.) and DNR require mined out pits to be reclaimed). Stumps and construction material, including RAP, are hauled in from as far as Mason County. This operation is located in the Nisqually Sub-Area, contiguous to the McAllister Springs Sensitive Area - above Lacey and Olympia municipal wells. People in county government are aware of this violation.
2) After the flood of 1996, neighbors could only replace lost homes by putting them on high foundations. No lot filling was allowed. However, the gun factory, in the middle of the neighborhood, was given permission to put 20,000 cubic yards of fill on their 1996 flood inundated property. They have yet to use this filled area. That filled part of the property is now for sale.
3) Lakeside got into the valley on a technicality and now wants to add the RAP storage and recycling to their process. This would have an increased truck traffic impact on the valley and opens the door to possible water and air pollution.

There are ongoing concerns with flooding. In 1996, much of the lower Nisqually Valley was under floodwaters, including portions of the Holroyd gravel mine. Due to past rail line, bridge and highway construction the Nisqually River has been artificially forced to the higher **east** side of the valley. When the river has major floods, it naturally flows to the **west**, above the rail line, through the Durgin Road Tunnel upstream, from the Holroyd Gravel Mine. If floodwaters enter the pit, aquifer groundwater could be infiltrated by pollutants from RAP storage in the pit, if RAP were ever allowed. (Flooding in Nisqually Valley will continue to be an issue as long as Tacoma Power is allowed to top off the Alder Lake Reservoir in the fall/winter seasons.) **Goal E.5 states: "… the reprocessing of asphalt shall not be allowed due to <u>water quality</u> concerns".** Note: RAP is recycled pavement. When it is ground up the surface area dramatically

increases and allows greater leaching of chemicals in the RAP. Please see next paragraph. Yellow highlighting is mine.

http://www.rmrc.unh.edu/tools/uguidelines/rap131.asp "For unbound applications, leachability from the RAP may also be a concern. This same leachability would be a concern if RAP was stockpiled or stored and exposed to precipitation." **What this URL is saying is that using RAP as one would use raw gravel for a road or driveway would cause more (possibly unacceptable) leaching into the soil than, say, a solid road made of bound asphalt. The reason being, that increased surfaces of the unbound RAP particles would have far more surface area to leach from than a hard surface road (much the same as a RAP stockpile exposed to the weather).**

If RAP is allowed, and I'm not recommending it, there is a way to mitigate its effects. Below is the "Best Practice" to reduce moisture in RAP. It allows RAP to be processed at a lower temperature, reducing the cost of producing asphalt. There are two additional side benefits to this. Less heat means less energy, reducing air pollution. Keeping RAP dry also prevents chemical leaching into the ground water. This is a win for the asphalt company (less cost) and the neighborhood (less water/air pollution).

The **un-walled building** cover technique was also recommended in two different articles in the handout we used when I was on the Thurston County Asphalt Advisory Task Force (AATF) in 2007-8. A Lakeside employee told me they had no intention of doing this.

Note of caution: This still would not solve the problem of having a large **source** RAP pile in the pit. Suppose Lakeside were allowed to have RAP at their site. If Lakeside were to maintain a source RAP pile of the size they had when they were at the Hogum Bay Olympia Landfill a few years ago, it likely would create a water pollution problem. They had an irregular pile 60+ feet in height and around 150 feet across at the base. That may have been marginally ecologically acceptable, because the water table could be around 100 feet below ground level at the Hogum Bay site. The current permeable gravel floor at Holroyd's is about 15 to 20 feet above an aquifer water table, even less in wintertime. Holroyd's pit is also in the Nisqually 100-year floodplain. I have photos that show they were flooded in 1996.

http://www.morerap.us/files/rap-best-practices.pdf

Stockpiling to Minimize Moisture

Moisture content of aggregates and RAP is a primary factor affecting an asphalt plant's production rate and drying costs. Some contractors have implemented creative approaches to reducing moisture content in stockpiles. The best practice to minimize the accumulation of moisture in stockpiles is to cover the stockpile with a shelter or building to prevent precipitation from getting to the RAP. Second to that, it is a good practice to use conical stockpiles to naturally shed rain or snow, and to place the stockpile on a paved and sloped surface to help water drain from the pile. Irregular-shaped stockpiles with surface depressions that will pond water should be corrected by shaping the pile as it is being built with the front-end loader or a small dozer. However, the use of heavy

equipment on the top of RAP stockpiles should be minimized to avoid compaction of the RAP. Likewise, it is also recommended that RAP stockpiles be limited to 20 feet in height to reduce the potential for self-consolidation of the stockpile.

Final thoughts:
Lakeside RAP storage at the Hogum Bay site did not meet "**Best**" or even "**Second Best**" practices. Would they do better in Holroyd's pit? The jury is out on that. The aquifer below the pit is the source of drinking water for some as well as farm / garden irrigation for many in the valley.

Lakeside knew RAP was not allowed before they built their new plant at Holroyd's pit. The County Commissioners and two court decisions ruled they could not use RAP in Nisqually Valley. ORCAA reaffirmed they could not, due to Sub-Area Plan rules. They chose to push their way into this rural residential area, anyway. Since then, they've been posturing that they have been treated unfairly.

Holroyd's pit is close to being mined out. DNR and the Sub-Area Plan say they have to move out when that happens. Will they? Or, will they want increase truck traffic and change infrastructure to haul in **gravel** from another pit **as well as RAP**? This would also be in violation of the Sub-Area Plan. **(Goal E.5 says: "The reprocessing of imported mineral resources shall not be the <u>primary</u> accessory use … ."** Gravel is a mineral and is supposed to come from inside the pit.

Thank you for your consideration.

Sincerely,

Howard Glastetter
howard.glastetter@comcast.net
(360)491-6645

ATTACHMENT
Comment #45 jj

THURSTON REGIONAL PLANNING COUNCIL

2404 HERITAGE COURT SW #B OLYMPIA, WASHINGTON 98502-6031

(360) 786-5480
FAX 754-4413

MEMORANDUM

TO: Don Krupp

FROM: Steven Morrison SJM

DATE: January 3, 2000

SUBJECT: History of the Nisqually Valley Sub-Area Planning Process

INTRODUCTION:

Per our telephone conversation of the week of December 13, 1999, I have reviewed the Nisqually Sub-Area Land Use Plan and Zoning (1992) regarding the proposed placement of an asphalt batch plant within the valley. In 1989 I was assigned the Nisqually Sub-Area Planning Process as part of Thurston Regional Planning Council's contract with Thurston County. My work included preparation of the emergency ordinance (O-#9316) up through the adoption of the sub-area plan by the Thurston County Board of Commissioners in November 1992. I will summarize those sections which I believe are relevant to your question.

FINDINGS:

Ordinance No. 9316 started the planning process and established several of the "themes" which were important throughout the planning process. **Water Quality Protection and Maintain the Rural Character** were noted in several findings. Finding 12 identified that land use activities near McAllister Springs (a regional water source) had been recently regulated by the Board of Health. Finding 8 identified the valley as comprised of low density uses such as agriculture forestry, undeveloped land and the Nisqually Wildlife Refuge. Several of the Findings (such as 6, 7, 8, 9, 10 and 11) identified that the Nisqually Valley could be threatened by surrounding development. The purpose of the Sub-Area Plan was to create a development pattern which was consistent with the County Comprehensive Plan and which would not lead to "irreparable damage to sensitive areas along the tributaries, flood plains and bluffs of the Nisqually River and McAllister Creek." [Finding 19]

ATTACHMENT
Comment #45 jj

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Comment #45

These two themes were also very important in the early phases of the sub-area plan. The 1988 Thurston County Comprehensive Plan provided guidance as well and the recently adopted Washington State Growth Management Act. The goals and policies of the sub-area plan are listed on pages 17-27 of the adopted plan. Although the 12 categories are not noted in the sub-area plan as being in priority order, those first few categories were more important that the ones at the end. "1. Rural Character" was the first category because this was of overriding importance to all. This was followed by "2. Water Resources" and then by "5. Commercial Development".

The adopted Nisqually Sub-Area Plan policy which speaks most directly to the proposed batch plant is Policy E.5, which reads:

> "E.5. Allow accessory uses to be considered inside mined out portion of a gravel pit through the site plan review process. Examples of allowable uses would include concrete pipe and/or septic tank construction and the recycling of used concrete. The reprocessing of imported mineral resources shall not be the primary accessory use and the reprocessing of asphalt shall not be allowed due to water quality concerns. The activities shall be discontinued once reclamation of the pit is completed in accordance with the WDNR standards."

Like all policies in the sub-area plan, there was an evolution of this policy. The earliest policy statement I could find regarding this topic was from Nisqually Bulletin #8, Draft Vision Statement: September 20, 1990. The policy can be found in section E Commercial Development.

"3. Identify existing mineral extractions, and establish guidelines for the design and locations of any new operations."

It was changed slightly in Nisqually Bulletin #9, Final Vision Statement: December 13, 1990.

"3. Recognize existing mineral extraction operations, require any new operations to be visually buffered from adjacent properties and roads, and prohibit the location of any new facilities north of the Burlington Northern Railroad to protect the visual integrity of the Nisqually valley viewshed."

The policy further evolved into the earliest complete draft of the sub-area plan, Committee Draft - October 1991. The wording changed to a form similar to that which was ultimately adopted. That policy read as follows:

"E.5. Allow accessory uses to be located inside the mined out portion of a gravel pit through the site plan review process. Reprocessing of imported mineral resources shall not be the primary accessory use and these activities shall be discontinued once reclamation of the pit is completed in accordance with the WDNR standards."

Comment #45

As I recall, this was one of the later policies to be added to the sub-area plan. I believe that discussion regarding this policy was desired by both Holroyd and a planning committee member from the environmental community. This discussion was clearer than most since it occurred on the day I took pictures of the sub-area planning committee at the Nisqually Tribal Center.

The addition of the types of uses came after discussions with what this policy would really mean. [... **"Examples of allowable uses would include concrete pipe and/or septic tank construction and the recycling of used concrete. ..."**] Since the pit already provided concrete products, then the reprocessing of concrete products was not seen as much of a change in use.

I also recall discussion about the reprocessing of broken up highways. Concrete was not a concern, (as noted above) but asphalt was not desired. [... **"the reprocessing of asphalt shall not be allowed due to water quality concerns. ..."**] The rationale for that was clearly the concern over water quality and the fact that asphalt production was not a part of Holroyd's operations.

The last point was the extent of the activity. [**"... The reprocessing of imported mineral resources shall not be the primary accessory use ..."**]. Another policy in the Commercial Development category provided the guidance which limited the need for further explanation. This other policy was E.1. which reads in part: *"Minimize the addition and new commercial activities within the planning area by prohibiting commercial expansion of properties not currently zoned beyond the existing lot and use ... and prohibit the use of mined out gravel pits for commercial and industrial uses."* This parallels the Goal for the Commercial Development section which read: *"Prohibit large scale commercial development within the Nisqually Valley, while recognizing existing commercial activities and designated commercial areas."* I find the operative words in this goal to be "existing commercial activities."

The planning committee redrafted the policy E.5. to its final wording. It was unchanged from August 1992 in the Planning Commission Draft Sub-Area Plan to its adoption by the Board in November. Nisqually Bulletin #14 (August 1992) indicated that there were no public hearing comments about this policy at the Planning Commission level. I do not have any records of the Board of County Commissioner's public hearing.

CONCLUSION

I do not recall any specific planning committee discussion regarding a batch plant in the valley. If this had been raised, I believe it would have been immediately rejected as being inconsistent with the sub-area plan on several accounts.

First, it conflicts with the Commercial Development goal which is "recognizing existing commercial activities." The planning committee added a limited amount of flexibility within the mined out pit to only deal with recycled products. It also clearly prohibited the use of mined out gravel pits for commercial and industrial uses by Policy E.1.

Comment #45

Secondly, a batch plant would appear to far exceed the level of intensity of "accessory activities." Ordinance No. 9316 (the emergency downzone) was issued because of the possible adverse impacts of intense land uses adjacent to and within the Nisqually Valley. Under the proposed batch plant scenario, the gravel mine would appear to be accessory use and the batch plant the primary use.

Lastly, the issue of water quality is a trump card to both previous issues. If the committee had water quality concerns regarding the handling of asphalt with an "accessory" recycling operation, then those concerns would be doubled with a batch plant operation.

I hope this history is useful. Should you have any additional questions, please contact me.

20:sp

Maya Teeple

From: Esther Grace Kronenberg <wekrone@gmail.com>
Sent: Tuesday, July 14, 2020 6:15 PM
To: Maya Teeple
Subject: CP-11 Recycled Asphalt Policy

Dear Ms. Teeple,
Please include this email as part of the public comments on the above matter.

I write as a private citizen who is also a member of the League of Women Voters of Thurston County's Water Study team. For the past 2 years, we have been learning about and educating the public about water issues in Thurston County through a series of public forums. What has stood out from these meetings is the precariousness of our water resources, both as to the quantity necessary for adequate instream flow to support the aquifers and our salmon, and the water quality, which is deteriorating due to more development, more pollution, more septic systems, more cars, etc.

The 1992 sub-area plan for the Nisqually Valley states as a primary goal to "Maintain the existing rural environment of the Nisqually planning area with the primary emphasis on preserving … its rural, aesthetic character for future generations." It specifically excludes recycled asphalt processing (RAP) due to water quality concerns for good reasons. The Holroyd site is within 1/2 mile of a Lacey City well, as well as to the Nisqually River, which flooded as recently as 1996. The lower valley is designated a Wellhead Protection Area by the County as well as a rural area that should be protected as such. The bottom of the pit floor is a mere 15-20 feet above the underlying aquifer. RAP is extremely likely to leach chemicals into the aquifer. The Plan's Goal E.5 says: "The reprocessing of imported mineral resources shall not be the primary accessory use," which is what RAP is.

The Holroyd mine has been mined out and needs to be reclaimed under DNR rules and the sub-Area plan. Processing RAP at the site is extremely risky to our water resources that can never be replaced or ameliorated once tainted. It is not a question of if the Nisqually will overflow its banks, but only a matter of when, especially with extreme weather events becoming more frequent.

RAP was a bad idea in 1992 when the Nisqually plan was adopted and the population of Thurston County was about 160,000. Since then, about another 100,000 people live here with all the negative effects that increased development and population inevitably brings - less water for more people, for salmon and wildlife, including threatened species, and worse water quality, in addition to the uncertainties of the climate crisis.

If it was a bad idea in 1992, it is an absolutely horrible and crazy idea in 2020. There is nothing that has happened in the last 28 years that makes it safer or more feasible. On the contrary, it's an even more dangerous proposition now. The only beneficiaries are a few employees of one company, which has many other operations around the state that could do the work that is proposed here. The risks and potentially catastrophic consequences of this operation will be inflicted on and borne by all the residents of Thurston County and its wildlife and environment. Why this is even being considered by the County is puzzling and somewhat disconcerting. It should never have been accepted for consideration at all.

The County must stand by the original sub-Area Plan for the Nisqually Area and reject this proposed policy completely and forever.

Thank you for protecting our vital, essential and irreplaceable water resources.

Sincerely,

Esther Kronenberg

Maya Teeple

From: Madeline Bishop <mfbishop.bishop@gmail.com>
Sent: Tuesday, July 14, 2020 6:49 PM
To: Maya Teeple
Subject: RAP

Please accept my testimony opposing allowing a Recycle Asphalt Plant in the Nisqually Sub Area.

1. The lower Nisqually valley is classified by Thurston County as a Wellhead Protection Area. It is also protected, as a rural environment, by a Thurston County Sub-Area Plan.

2. The water sources for all residents in the lower valley are from wells. Many residents, but not all, get drinking water from a Lacey City well next to the Nisqually River - less than a half mile from Lakeside's Asphalt Plant. The plant sits in the permeable soil of Holroyd's Gravel Mine at the very beginning of the Nisqually Delta in lower Nisqually Valley. The mine sits in the 100 year floodplain of the Nisqually River.

3. Lakeside knew RAP was not allowed before they built their new plant at Holroyd's pit. Two court decisions reaffirmed they could not use RAP in Nisqually Valley. Olympic Region Clean Air Agency (ORCAA) reaffirmed they could not, due to Sub-Area Plan rules. The Department of Natural Resources (DNR) and the Sub-Area Plan say they have to move out when the pit is mined out.

4. The pit is mined out and DNR should reclaim it.

5. A section of the pit is over the aquifer and dangerous toxins can damage our water supply.

Madeline Bishop

9529 62nd Ave SE

Olympia, WA 98513

July 14, 2020

Thurston County Planning Commission
2000 Lakeridge Dr. SW
Olympia, WA 98502

Re: Recycled Asphalt in Nisqually Valley

Greetings Commissioners,

The South Sound Sierra Club Group, representing over 1400 members and supporters in Thurston County, objects to the proposal by Lakeside Industries to remove the prohibition on the manufacture of recycled asphalt in the Nisqually valley being considered in the Nisqually Subarea Plan review.

The goal of the 1992 Nisqually Sub-Area Plan was to *"Maintain the existing rural environment of the Nisqually planning area with the primary emphasis on preserving its rural, aesthetic character for future generations."* There was a no-Rap provision of Policy E.5 which states *"the reprocessing of asphalt shall not be allowed due to water quality concerns."*

There have been previous attempts to amend or revoke the prohibition, but they have failed for good reasons. The Nisqually subarea includes critical aquifer recharge areas (CARAs) and the McAllister Geologically Sensitive Area, which is a CARA. By definition, CARAs are vulnerable to contamination.

Thurston County successfully litigated this provision against Lakeside Industries in 2004. https://caselaw.findlaw.com/wa-court-of-appeals/1389372.html The court noted:

> "The proposed asphalt facility would be approximately two miles upwind and upriver from the Nisqually National Wildlife Refuge, home to numerous wildlife species and endangered salmon. The groundwater around the mine site is between four and fifteen feet below the extremely porous surface. The site is also located in the County's aquifer protection district. The County has spent approximately $2.4 million to purchase development rights in the immediate area adjacent to the proposed facility to prevent environmental damage."

The site area is close to the Nisqually River, in a 100 year floodplain and close to drinking water sources. Recycled asphalt could potentially leach harmful chemicals threatening water quality and Nisqually River fish stocks. Increased truck traffic would impair the rural character of the area.

To my knowledge there has not been a SEPA determination of this proposal. I understand Lakeside Industries paid for an environmental study, but WAC 197-11-055 states: "the SEPA process shall be integrated with agency activities at the earliest possible time to ensure that planning and decisions reflect environmental values, to avoid delays later in the process, and to seek to resolve potential problems." The Planning Commission should have this information before making any recommendations.

The South Sound Sierra Club Group opposes the removal of the prohibition of the manufacture of recycled asphalt from the Sub Area 5 section of the Comprehensive Plan due to environmental concerns.

Respectfully,

Phyllis Farrell, Chair
South Sound Sierra Club Group

Cc: Maya Teeple

Maya Teeple

From: Howard Glastetter <howard.glastetter@comcast.net>
Sent: Wednesday, July 15, 2020 11:48 AM
To: Maya Teeple
Cc: phyllisfarrell681@hotmail.com
Subject: Memorandum to Recycled Asphalt Policy Amendment

Maya,

I have a comment on the "Applicant Request" paragraph of the above document written for tonight's meeting. One sentence reads: "The proposed amendment would allow the recycling of asphalt pavement to occur as an accessory use within the mined-out portion of gravel pits within the Nisqually Subarea".

I believe the term "accessory use" is currently incorrect and should be changed to "permitted use". When I was on the Asphalt Advisory Task Force in 2007 – 8, we recommended changing the term "accessory use" to "permitted use" in relation to allowing asphalt plants in gravel mines. This would require an Environmental Impact Statement to bring in a plant. The term "accessory use" implies a legal right (e.g. an accessory use to a police uniform is a holster containing a loaded pistol). Prior County Codes described an asphalt plant as an accessory use to a gravel mine. This was the legal technicality that allowed Lakeside build their asphalt plant into the valley in the first place.

I believe, this request should be subject to the latest "permitted use" County Rules, since it is a new request under the updated rules.

-Howard

Howard H Glastetter
Howard.glastetter@comcast.net
Cell (360)556-1574

Everything should be as simple as it can be, but no simpler.
Albert Einstein

NATIONAL ASPHALT PAVEMENT ASSOCIATION

July 15, 2020

Ms. Maya Teeple
Thurston County Community Planning & Economic Development
2000 Lakeridge Drive SW
Olympia, WA 98502
(via email maya.teeple@co.thurston.wa.us)

RE: Docket Item CP-11

Ms. Teeple:

The National Asphalt Pavement Association ("NAPA") urges approval of Thurston County's 2020-2021 Comprehensive Plan Docket Item CP-11, Recycled Asphalt Policy Amendment. This amendment would allow for asphalt recycling in the Nisqually Subarea.

The stockpiling and processing of reclaimed asphalt pavement ("RAP") is vital to our nation's infrastructure needs. Across the country, as part of everyday maintenance, repair, and construction activity, old asphalt pavement material is removed from roads and parking lots and then reclaimed for future use. Nationwide, more than 99% of RAP collected is put back to use in new asphalt pavements, saving more than 48 million cubic yards of landfill space annually, reducing the cost of new asphalt pavement mixtures, and minimizing life-cycle greenhouse gas emissions associated with pavement manufacturing.

A year ago, NAPA sent a comment letter to Thurston County regarding your consultant's review of RAP leachate potential. At that time, we expressed significant concerns about the validity of that review. In the interim, we have contracted with a nationally-recognized university that is conducting a more thorough review of existing information; their preliminary results are quite different than what your consultant identified. Information from the current study is slated to be published in a peer-reviewed journal. In short, the university's preliminary findings are similar to the vast majority of existing peer-reviewed literature, indicating the stockpiling of RAP creates no undue environmental burden nor poses environmental risk or hazard.

Because use of RAP is now ubiquitous due to its benefits, many state transportation and environmental agencies have thoroughly investigated the environmental implications of RAP stockpiles. These agency investigations, along with the majority of independent academic research studies, have not found reason for concern from the storage of, and stormwater runoff from, RAP stockpiles. Across the U.S., we know of no other agency, county, or municipality that restricts the stockpiling of RAP. All recognize the material as environmentally safe.

For these reasons, we ask that Thurston County amend the Nisqually Subarea Plan to allow for asphalt recycling within the subarea. We are more than happy to share the breadth of published research on this issue.

Best Regards,

Howard Marks, PhD
Vice President – Environment, Health & Safety

NAPA is a 501(c)(6) trade association representing asphalt pavement material producers and paving contractors at the national level. Last year, the approximately 3,500 asphalt plants across the country produced more than 350 million tons of asphalt pavement mixture and employed some 250,000 individuals in the production and placement of asphalt-based pavements. The continued use of RAP in asphalt pavements is critical to ensure the nation's paved roadway surfaces are economically constructed and smooth, safe, and quiet for the travelling public.

ASPHALT.
AMERICA RIDES ON US.
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AsphaltPavement.org
NAPA@AsphaltPavement.org

From: Karen Tvedt
To: Maya Teeple
Subject: LWVTC-Comments on CP-11 Recycled Asphalt Policy
Date: Wednesday, July 15, 2020 2:29:27 PM
Attachments: image.png

LEAGUE OF WOMEN VOTERS® OF THURSTON COUNTY

Thurston County Planning Commission

Re: Concerns re Comprehensive plan Docket Item CP-11

Dear Commissioners:

The League of Women Voters of Thurston County (LWVTC) is a nonpartisan organization that does not support or oppose any candidate or party. That being said, LWVTC does take positions on issues. LWVTC promotes a healthy and clean environment and sound land use planning.

The LWVTC has concerns about Lakeside Industries' request that Thurston County amend the Nisqually Subarea plan to allow recycling of asphalt pavement (RAP) in mined-out gravel pits. Sound land use planning is planning for the long term. The current plan protects this valuable subarea. If a change is made to a plan, there should be some kind of change in circumstances triggering the need for such a change. As far as we can tell, there has been no change in circumstances regarding this issue. Making a change to an established plan simply because it has been requested is not sound land use planning.

The Applicant's proposal, even if warranted at some places in the Nisqually Subarea, is far too broad and opens up the entire area to RAP uses. A mined-out gravel pit is likely one of the worst sites to place such an activity, since RAP releases a number of harmful chemicals. As the Court of Appeals noted in its 2004 decision, on this very proposal, the soils on the site are very "porous." The Court decision describes the site as approximately two miles upriver from the Nisqually National Wildlife Refuge, home to numerous wildlife species and endangered salmon.

Moreover, the Nisqually subarea includes critical aquifer recharge areas (CARAs) and the McAllister Geologically Sensitive Area, which is a CARA. By definition, CARAs are vulnerable to contamination. We believe the science behind protecting CARAs supports <u>no</u> change in the current plan.

Finally, the County has elected to do a SEPA analysis on proposed changes to the comprehensive plan after the planning commission review. We believe SEPA analysis should be done at the earliest opportunity, and certainly before the planning commission makes its recommendation. The planning commission should know what the environmental repercussions may be while considering this request.

Thank you for considering our comments. Let us know if you have any questions.

Sincerely,

Karen Tvedt, President
League of Women Voters of Thurston County
tvedtkl@msn.com
360-584-4526

Further Comments on Docket Item 11

Howard Glastetter
11110 Kuhlman Road SE
Olympia, WA 98513
Howard.glastetter@comcast.net
Cell: (360)556-1574

July 30, 2020

I would like the following to be included in the record of the Planning Commission meeting on August 5, 2020. I am giving these comments in reaction to the memorandum created for the August 5, 2020 meeting.

I have several comments on record over the years on Goal E.5 of the Thurston County 1992 Nisqually Valley Sub-Area Plan. This is clarifying information I hope will add to what I have already said and help to resolve this issue.

It should be remembered that Holroyd Gravel Mine has (an active?) decade old request with the County to mine the pit that contains Lakeside's plant to eighty 80 feet below the water table. I believe this should be considered ecologically unacceptable. There should be an agreement that this will not happen if RAP is allowed in the pit.

Please note **page 13** of 15 of the August 5, 2020 memorandum. Goal E.5 also states: "The reprocessing of imported mineral materials shall not be the **primary** accessory use". RAP is an "imported mineral". Interestingly so is gravel. The point is the word "primary" means more that 50%. Therefore, this appears to mean that more than 50% of mineral product must come from inside the pit. This is reasonable because the primary use purpose of the pit is mining. Any "accessory" industrial use is secondary and "… shall be discontinued once reclamation of the pit is completed in accordance with WDNR standards" also according to E.5.

Finally, I would like to make a comment on Option 3, also on page 13. It mentions that tarping may be used as a way of keeping RAP piles dry. This would work if there is air space between the tarp and the top of the pile. Otherwise, the tarp will cause any existing water to be held inside the pile and would require more heat (air pollution) to process it. Lakeside's plant in Aberdeen currently uses this tarp / airspace technique. It cuts processing costs while reducing air pollution.

Sincerely,

Howard Glastetter

July 27, 2020

Dear Planning Commission Members,

I am writing to you on behalf of Lakeside Industries and their more than a decade long effort to bring recycled asphalt to Thurston County. As a former Washington Department of Fish and Wildlife employee, fishing scientist, and a resident of Thurston County, I find it appalling that a government body would stand in the way of a proven environmentally friendly practice with far-reaching environmental benefit. Working to find and support processes and products that are the most environmentally friendly, have the lowest carbon impact, and are used for our crumbling infrastructure would seem to be a logical win for the County. Instead, Thurston has blocked every attempt to bring this important advancement to our community.

Over the years I have listened to some of the concerns with Lakeside's application. As a scientist, the objections are simply not credible. I would urge you to follow the science and data. You should require monitoring of potential water runoff and use adaptive management principles to address issues if any arise. Taking these steps will ensure the best environmental outcome.

I would ask that you reverse over a decade of bad environmental policymaking and recommend to the County Commissioners that they approve Lakeside's application to make recycled asphalt.

Respectfully,

Lee Blankenship
Chief Scientist
Northwest Marine Technology

MC CONSTRUCTION
CONSULTANTS

MC CONSTRUCTION
CONSULTANTS, INC.
5219 N. SHIRLEY ST. #100
RUSTON, WA 98407

O: 253.752.2185
F: 253.752.7083

July 30, 2020

SENT VIA EMAIL ONLY

Thurston County Planning Commission
Maya Teeple, Senior Planner
maya.teeple@co.thurston.wa.us

Dear Planning Commissioners,

I am writing you in support of Lakeside Industries and their request to make recycled asphalt. Lakeside is a trusted employer in the labor and construction industry. I grew up in Thurston County, my family still does business there, and we remain active in the community.

We believe it is time for Thurston County to join in supporting this sustainable environmental practice that is needed to support our economic recovery. I urge you to recommend Lakeside's application. As a commercial builder and developer, using recycled asphalt is a common practice and on most Federal and State contracts it is a requirement. Recycled asphalt reduces air emissions and lessons the environmental impacts of asphalt production that is needed for construction and our roads.

Sincerely,

Loren M. Cohen
Managing Director

Maya Teeple

From: Thurston County | Send Email <spout@co.thurston.wa.us>
Sent: Thursday, July 30, 2020 6:06 PM
To: Maya Teeple
Subject: Nisqually Valley

This email was created by the County Internet web server from the email masking system. Someone from the Public has requested to contact you with the following information:

To: **Maya Teeple**

Subject:

From: **Kent and Maureen Canny**

Email (if provided): **mocanny@comcast.net**

Phone: (if provided): **360-438-7424**

Message:
Dear Ms. Teeple,
Below is a letter sent to the BoCC.
Thank you.

Dear Commissioners Menser, Hutchings and Edwards,

We are submitting these as public comments as you decide on the matter of recycled asphalt processing (RAP) in the Nisqually Valley.

We strongly urge you to NOT allow RAP in the Nisqually Valley. Without enumerating the huge number of concerns that you must have certainly heard by now, RAP would be an environmental disaster for the water-sensitive, shallow-aquifer areas of the Valley. Besides fouling the productive farmland, please consider the health of citizens, from RAP chemicals leeching into water sources and the obvious problems with flooding of the Nisqually River.

Please retain the protective plan over this sensitive area. The health and safety of people and our environment must come before profits.

Thank you,
Kent and Maureen Canny

Maya Teeple

From: PlanningCommission
Sent: Friday, July 31, 2020 9:13 AM
To: Maya Teeple
Cc: Polly Stoker
Subject: FW: Asphalt Recycling

Please see below for a written comment

From: Thurston County | Send Email <spout@co.thurston.wa.us>
Sent: Thursday, July 30, 2020 5:40 PM
To: PlanningCommission <PlanningCommission@co.thurston.wa.us>
Subject: Asphalt Recycling

This email was created by the County Internet web server from the email masking system. Someone from the Public has requested to contact you with the following information:

To: **Planning Commission**

Subject:

From: **Jana Wiley**

Email (if provided): Janalynwiley@aol.com

Phone: (if provided):

Message:
How many times to the citizens of Thurston County need to say NO to Lakeside regarding dirty asphalt recycling in a estuarine/delta environment? NO should mean NO. I would like to see compelling data that there would be NO harm to the people that live around there or the land, air and water.

THURSTON COUNTY CHAMBER
BUILDING PROSPERITY IN
LACEY • OLYMPIA • TUMWATER

July 27, 2020

Dear Thurston County Planning Commission,

Thank you for the opportunity to comment on Lakeside Industries application to recycle asphalt at their facility on Durgin Road. While this process has taken over a decade to come to a conclusion, I am encouraged that the process is moving forward.

The Chamber believes that quality raw material for infrastructure and building construction is critical to the greater Thurston County community and aligns with values of recycling, reuse, and using resources in the most responsible manner. Most public bids require the use of recycled asphalt and the ability to have a source close to work sites means less expanse for both private and public entities. It also means utilizing less raw materials and hauling asphalt less road miles and thus a reduction in carbon footprint, a practice should be supported.

Recycled asphalt is being used across the nation safely as a best environmental practice. It is both illogical and concerning that after a decade Thurston County still has prohibition against the use of recycled asphalt at Lakeside's Durgin Road facility. This policy actually contributes to environmental degradation and creates economic disadvantages to Lakeside needlessly. The time has truly come to correct the policy and allow Lakeside to recycle asphalt.

The Chamber urges you to recommend Lakeside's application.

Sincerely,

David Schaffert
President/CEO

Northwest Marine Technology, Inc.

July 27, 2020

Dear Planning Commission,

I am writing to you today on behalf of Lakeside Industries and their decade long effort to bring Thurston County up to date on best environmental practices by allowing recycled asphalt. As the CEO of Northwest Marine Technology and a Thurston County resident, I would urge you to follow the science and amend the Nisqually subarea plan to allow for recycled asphalt at Lakeside's Durgin Road facility.

My company, Northwest Marine Technology, has been a leader in protecting endangered fish species throughout the world for decades. I have always encouraged leaders in our state to follow the science to determine the best environmental practices in the protection of salmon. Recycling asphalt uses less energy, reduces air emissions, decreases the need for other natural resources, and is a practice that the Environmental Protection Agency and the Washington Department of Ecology endorses. Put simply, it is an environmental practice that should be applauded not punished.

I would urge you to allow Lakeside to recycle asphalt and end decades of bad environmental policy. It is time for Thurston County to join the rest of the State of Washington and the nation and embrace this sustainable environmental practice that is needed to support our fish and economic recovery.

Thank you,

Dave Knutzen
CEO,
Northwest Marine Technology

July 27, 2020

Dear Planning Commission Members,

I write to you today concerning Lakeside Industries applications to recycle asphalt at its Durgin Road Facility. Put simply, after more than 10 years of inaction Lakeside should be afforded the opportunity to recycle asphalt.

Thurston County's inaction flies in the face of the science that clearly demonstrates the benefits of the use of recycled asphalt which includes the reduction of greenhouse emissions, reduces the need to mine for new aggregate, and reduces the need to landfill this material. Furthermore, as a former Democratic Congressman who has fought for over 40 years to protect our environment including the protection of the Nisqually Delta, the Nisqually Wildlife Refuge and the Fish and Wildlife in the Nisqually Basin, I would urge you to listen to the science and take action to encourage recycled asphalt. The County can require monitoring of any impacts of recycled asphalt as all other counties do across the State. We invest hundreds of millions of dollars in an attempt to address the decline of Puget Sound, I find it reprehensible that Thurston County is stuck in the past defending a non-environmentally friendly construction practice.

I respect the difficulty of elected and appointed officials in making land-use decisions. However, I have found that there is never a good excuse to not follow what the science tells us about the risks and the benefits of decisions that affect our land, water, and air. I would urge you to listen to FDOT, WSDOT, DOE, EPA, the Labor Community, and the Business Community and move forward immediately to recommend Lakeside's proposal to recycle asphalt.

Respectfully,

Norm Dicks
Former Member of Congress

July 27, 2020

Dear Planning Commission Members,

I had the opportunity in 2014 to appear before the Thurston County Board of Commissioners to urge them to put the Lakeside Industries petition to produce recycled asphalt at their Durgin Road facility on the tier one planning docket. For well over a decade, Thurston County has been dragging its feet to embrace a viable environmental practice that has proven benefits to our air quality.

As an Olympia resident and former Assistant Regional Director of the United States Fish and Wildlife Service, I would strongly recommend you take the necessary step to approve Lakeside's application to recycle asphalt. After over ten years, it is time we objectively evaluate Lakeside's application and the benefits of recycled asphalt. Recycled asphalt uses less energy, reduces air emissions, decreases the need for other natural resources and is a practice that the Environmental Protection Agency and the Washington Department of Ecology endorses. As a scientist, I was astounded and very disappointed that Thurston County would not join the 21st century's best environmental practices and allow Lakeside to recycle asphalt. There is simply no excuse to allow environmental degradation when economically viable best practices like recycling are available.

Thurston County has the opportunity to correct the failure of the previous Commission and restore sound science decision making by approving Lakeside's application. You should require Lakeside to cover the asphalt piles to reduce risk of runoff and have them conduct ongoing monitoring to measure any impacts, if any, to water quality. Thank you for your consideration.

Thank you,

Curt Smitch

Curt Smitch, PhD

LAKESIDE INDUSTRIES

P.O. Box 7016 / Issaquah, WA 98027
ph: 425.313.2600 / lakesideindustries.com

Thurston County Community Planning
2000 Lakeridge Dr. SW
Olympia, WA 98502

RE: Thurston County Comprehensive Plan Docket Item CP-11
Recycled Asphalt Policy Amendment

Dear Thurston County Planning Commission and Board of County Commissioners:

Lakeside Industries is seeking this minor text amendment to the Nisqually Subarea Plan to allow for asphalt recycling within the Subarea. We ask that the Planning Commission and the Board of County Commissioners approve the amendment as written.

Lakeside Industries' Durgin Road asphalt plant is a state-of-the-art facility that employs over 40 employees for its operations. Our employees are members of the community who care about the environment where they live. Our asphalt plant provides road construction materials to residential, commercial, and industrial properties in the community. Thurston County residents drive on roads paved by Lakeside Industries every day. We ask that the County approve the amendment to the Nisqually Subarea Plan to allow for asphalt recycling, so that we can seek a permit amendment to recycle asphalt at our Durgin Road Plant.

Asphalt recycling preserves natural resources. The use of recycled asphalt decreases the need for newly-mined aggregate and reduces the amount of asphalt cement required in manufacturing asphalt. Petroleum and aggregates that would otherwise be needed to produce new asphalt would be directly replaced with recycled asphalt on a 1:1 basis.

Asphalt recycling results in 0% waste. Any recycled asphalt is effectively removed from the waste stream. It should be understood that these are very large amounts of reclaimed asphalt typically measured in the hundreds of thousands of tons. This is RAP that would otherwise go into a landfill.

Asphalt recycling requires no additional energy or materials. Unlike most other recyclables, very little additional energy is required to recycle asphalt. To recycle asphalt, the recycled material is simply ground up and introduced into the already heated mix. No chemicals or additives are used.

Asphalt recycling is encouraged nationwide. National, state, and local governmental agencies support and encourage the use of recycled asphalt. The National Federal Highway Administration (FHA) "supports and promotes the use of recycled highway materials in pavement construction in an effort to preserve the natural environment, reduce waste, and provide a cost effective material for constructing highways."[1] Additionally, Washington State law

[1] https://www.fhwa.dot.gov/pavement/recycling/rap/

specifically requires that the state's preference for recycled content must be a factor in state capital improvement projects.[2]

Asphalt recycling is an important aspect of an industry essential to economic growth. Economic growth, including growth in housing, retail, and commercial sectors, cannot occur without adequate roads and infrastructure. Roads and infrastructure cannot be built without aggregate and asphalt. Asphalt recycling is a key aspect of everyday operations in road construction because it ensures an adequate supply of natural resources to support growth and development for years to come.

Asphalt recycling is especially critical during economic downturns. The use of recycled asphalt would encourage greater market competition for road construction in Thurston County because it is more cost-effective to recycle asphalt. Particularly in this challenging time of pandemic and reduced local tax income, increased market competition could result in cost savings for the County and its taxpayers.

We appreciate the County's time and efforts in moving this amendment forward, and we ask that you approve of this amendment.

Sincerely,

Tony Hammett
Regional Manager

Jeff Herriford
Division Manager

Signing in support and agreement of the comments presented in this letter:

Signature	Name	Address
Rob McNelly	Rob McNelly	998 Holly St. Napavine
Dean LaCroix	Dean LaCroix	134 Camp Creek RD Montesano
Amy Laveway	Amy Laveway	23le 159th LN SE Tenino, WA
	Steve Laveway	" "
Ann Frank	Ann Frank	169 Pascoe Ave Chehalis, WA.

[2] RCW 39.04.133 (1) ("The state's preferences for the purchase and use of recycled content products shall be included as a factor in the design and development of state capital improvement projects.")

specifically requires that the state's preference for recycled content must be a factor in state capital improvement projects.[2]

Asphalt recycling is an important aspect of an industry essential to economic growth. Economic growth, including growth in housing, retail, and commercial sectors, cannot occur without adequate roads and infrastructure. Roads and infrastructure cannot be built without aggregate and asphalt. Asphalt recycling is a key aspect of everyday operations in road construction because it ensures an adequate supply of natural resources to support growth and development for years to come.

Asphalt recycling is especially critical during economic downturns. The use of recycled asphalt would encourage greater market competition for road construction in Thurston County because it is more cost-effective to recycle asphalt. Particularly in this challenging time of pandemic and reduced local tax income, increased market competition could result in cost savings for the County and its taxpayers.

We appreciate the County's time and efforts in moving this amendment forward, and we ask that you approve of this amendment.

Sincerely,

Tony Hammett
Regional Manager

Jeff Herriford
Division Manager

Signing in support and agreement of the comments presented in this letter:

Signature	Name	Address
	Pat Papac	414 Wynoochee Rd. West Montesano WA 98563
	Debra Chapman	1318 N C St Aberdeen WA 98520
	JOHN ROSS	620 HANNA AVE ABERDEEN WA 98520
	Chris Heikkila	PO Box 879 Cosmopolis, WA 98537
	Stacey Balsac	59. Rainier Gardens Rd Aberdeen WA. 98520

[2] RCW 39.04.133 (1) ("The state's preferences for the purchase and use of recycled content products shall be included as a factor in the design and development of state capital improvement projects.")

Signature	Name	Address
	Benjamin Clark	3618 Landau ave ne Olympia
	Jeremy Cherry	3192 centralia Alpha Rd onalaska WA
	James Kalku SR	P.O. BOX 801 Tenino, WA
	John Escobedo	14109 Littlerock Rd SW
	Julio Garcia	12725 Morris RD SE yelm wa.
	DAVID M	40 SE LACOM LN Shelton
	ERIC MEIN	6625 188th Ave SW Rochester WA
	Douglas B Smith	4910 Indian Summer DR SE Oly
	CLINT MOORE	2411 17th AVE SE Tenino
	Sherry Gallington	658 Wilkie Ln. Montesano, WA
	Zach Beard	4605 Parkside Dr SE
	MARK S. TURNER	3414 Pear ST SE Olympia, WA 98501
	Dusty Borrimer	1954 Prospect ave NE Olympia, WA 98506
	TODD NELSON	16637 SHELDON LN SW ROCHESTER
	Peter Irwin	1810 Goddard Rd SW Tenino WA
	Mark Bosler	543 NORTH 10th Elma wa
	Tyler Mittge	2221 SW Salsbury Ave Chehalis 98532
	Elizabeth Morris	212 156th LN SE, Tenino, WA 98589
	Mike Tennant	1602 Ridgeview Loop SW Tumwater
	Kim TENNANT	1601 Ridgeview Loop SW
	Rob Raedle	51 SE Cooper Mountain Shelton
	Dawn Sprague	14749 high valley ln se tenino wa
	Mitchell Szymanski	9802 Donovan CT SE Yelm WA
		5411 Kentucky St SE Lacey
	Torrus Dillingham	
	Anthony Rybalkin	4343 S 291st ST Auburn WA 98001

Signature	Name	Address
	Tim Holcomb	40 Lynnwood Lane Aberdeen
	Bo Sturdivant	108 valley meadows Loop Chehalis
	Jeremy Johnson	21638 Oregon Tel. Centralia
	Chris Snodgrass	336 burchett Rd, Onalaska
	Rafael L Cuevas	PO Box 324 Centralia
	Kacey Torgerson	145 Oak point Dr. Chehalis
	Scott Hamilton	3821 Grot Rd Centralia
	Rhonie Hiatt	232 Fin Ct. Napavine WA
	Gordon Bowcutt	2124 Spirit Lake Hwy Castle Rock WA
	Nicole Carter	20603 15th Ave S. SeaTac WA
	Braiden Johnson	20145 pruett LN SE Tenino

Signature	Name	Address
	MARK Wilson	10 Rustemeyer Rd. Aberdeen WA 98520
	Leigh J Chase	2415 Aberdeen Ave Hoquiam
	Bob Valentine	623 E Kennaston Ave Montesano WA 98563
	Jesse Schurr	P.O. Box 147 Montesano WA. 98563
	Joe Brown	267 Lund Rd Cosmopolis, WA 98527
	Sean Allen	220 E. Roanoke Centralia WA 98531
	Daniel Wareham	4884 Wishkah Rd. Aberdeen WA 98520
	JOHN FRANCISCO	286 S.E. CRATER RD. SHELTON, WA 98584
	Reese Wade	904 Garden Rd, Aberdeen 98520
	William Sharp	607 Stewart Blvd Aberdeen 98520
	MIKE SOTTEKBY	PO BOX 919 Elma WA 98541

JOINT COUNCIL OF TEAMSTERS NO. 28

Affiliated with the International Brotherhood of Teamsters

14675 Interurban Ave S, Suite 301
Tukwila, Washington 98168
(206) 441-7470 • Fax (206) 441-3157

Rick Hicks, President

August 5, 2020

Ms. Jennifer Davis
Community Planning Manager
Thurston County Courthouse Complex
2000 Lakeridge Dr. SW
Olympia, WA 98502

Re: Lakeside Industries

Dear Thurston County Planning Commission:

On behalf of the more than 55,000 active Teamsters members and their families, Joint Council of Teamsters No. 28 (JC-28) urges you to forward a favorable recommendation of Lakeside Industries application to recycle asphalt to the Thurston County Commissioners. JC-28 made this same recommendation in December of 2011, and we think that after more than 10 years, Thurston County should embrace this sustainable environmental practice.

The Teamsters Union has had a long and positive working relationship with Lakeside Industries. We know them to have genuine concern about the health and welfare of their workers and they are committed to the local communities they operate in. The overwhelming amount of data and science supports recycling asphalt. It reduces air emissions, uses less energy, and is highly recommended by the Washington Department of Ecology and the Environmental Protection Agency.

Once again in 2020, we are asking you to follow the best available science and allow Lakeside Industries to recycle asphalt at their Durgin Road facility. Thank you for your consideration of our request.

Respectfully,

JOINT COUNCIL OF TEAMSTERS NO. 28

RICK HICKS, PRESIDENT

RH:dm

International Union of Operating Engineers

Locals
612 ~ 612A ~ 612B ~ 612C ~ 612RA

1555 South Fawcett Avenue
P O Box 1735
Tacoma WA 98401-1735
BUS: 253.572.9612
FAX: 253.591.9882

Todd J. Mickelson
Business Manager / Financial Secretary
Kevin A. Tedrick
President
Christina L. Hall
Recording~Corresponding Secretary

Comment #63

August 5, 2020

Thurston County Community Planning
2000 Lakeridge Dr. SW
Olympia, WA 98502

RE: Thurston County Comprehensive Plan Docket Item CP-11
Recycled Asphalt Policy Amendment

To Whom it May Concern:

I ask that you approve Lakeside Industries' proposed amendment to allow asphalt recycling in the Nisqually Subarea.

Asphalt recycling is a cost-effective, sustainable practice that results in zero waste. Recycling asphalt can save over 60 million cubic yards of landfill space per year.[1] This well accepted recycling practice throughout the United States and the world conserves our precious natural resources while allowing federal and local agencies to deliver quality pavements to the traveling public in a cost-effective manner.

For years, Lakeside has sought a text amendment to Thurston County's Nisqually Subarea Plan to allow for asphalt recycling. The Subarea's rule has been in place for almost two decades and presumes a potential threat to water quality, yet there is no clear evidence that asphalt recycling poses a real threat to water quality as the rule suggests. In fact, asphalt recycling is a common practice encouraged throughout Thurston County and supported by local, state, and federal agencies. Asphalt recycling is part of normal operations for asphalt plants across the country and world.

Sincerely,

Kevin Tedrick

Kevin A. Tedrick
President ~ Business Representative
IUOE Local 612

[1] National Asphalt Pavement Association. "Asphalt for Recycling and Energy Reduction." https://www.asphaltpavement.org/index.php?option=com_content&view=article&id=201&Itemid=495

CHAUFFEURS, TEAMSTERS & HELPERS UNION
LOCAL NO. 252

Affiliated with the International Brotherhood of Teamsters

217 East Main Street, Centralia, WA 98531 • (360) 736-9979 • Fax (360) 330-0377

July 29, 2020

Thurston County Community Planning
2000 Lakeridge Dr. SW
Olympia, WA 98502

RE: Thurston County Comprehensive Plan Docket Item CP-11 Recycled Asphalt Policy Amendment

To Whom it May Concern:

I ask that you approve Lakeside Industries' proposed amendment to allow asphalt recycling in the Nisqually Subarea.

Asphalt recycling is a cost-effective, sustainable practice that results in zero waste. Recycling asphalt can save over 60 million cubic yards of landfill space per year.[1] This well accepted recycling practice throughout the United States and the world conserves our precious natural resources while allowing federal and local agencies to deliver quality pavements to the traveling public in a cost-effective manner.

For years, Lakeside has sought a text amendment to Thurston County's Nisqually Subarea Plan to allow for asphalt recycling. The Subarea's rule has been in place for almost two decades and presumes a potential threat to water quality, yet there is no clear evidence that asphalt recycling poses a real threat to water quality as the rule suggests. In fact, asphalt recycling is a common practice encouraged throughout Thurston County and supported by local, state, and federal agencies. Asphalt recycling is part of normal operations for asphalt plants across the country and world.

Sincerely,

Russ Walpole, Secretary Treasurer
Teamsters Union Local #252
217 East Main Street
Centralia, WA 98531
360-736-9979

[1] National Asphalt Pavement Association. "Asphalt for Recycling and Energy Reduction." https://www.asphaltpavement.org/index.php?option=com_content&view=article&id=201&Itemid=495

Maya Teeple

From: Polly Stoker
Sent: Wednesday, September 2, 2020 4:21 PM
To: jodyannette1@gmail.com
Cc: Jennifer Davis; Maya Teeple
Subject: RE: Comment to the Thurston County Planning Commission

Hello Ms. Disney,
Thank you for your comment. I will forward to the Planning Commissioners and upload to the PC website today.
Sincerely,

Polly Stoker

Thurston County Community Planning &
Economic Development (CPED)
360-786-5473
Cell 360-972-6785
stokerp@co.thurston.wa.us
2000 Lakeridge Dr SW
Building One, 2nd Floor
Building Development Center

From: jodyannette1@gmail.com <jodyannette1@gmail.com>
Sent: Wednesday, September 02, 2020 4:13 PM
To: Polly Stoker <polly.stoker@co.thurston.wa.us>
Subject: Comment to the Thurston County Planning Commission

Dear Polly,

As a Thurston County Resident I am deeply concerned about our Aquifer and the quality of our water. I do not support allowing the Lakeside Company to recycle asphalt (RAP) in the Nisqually Valley location. There are existing areas in Thurston County to recycle asphalt which do not include the potential of contaminating water in the Nisqually Valley.

There is an existing ruling and plan from the 1980s to prevent this type of venture. Do not remove it as it protects all of us from illness and exposure to toxins in the water. RCW78.44.010 states "comprehensive regulations of mining and thorough reclamation of mined lands is necessary to prevent or mitigate conditions that would be detrimental to the environment and to protect the general welfare, health, safety, and property rights of the citizens of the state." Lakeside needs to clean up this site after using it as is required by law and to not be able to avoid doing what is required and what they were well informed of when they entered into this mining venture.

Thank you in advance for being good stewards of our natural environment.

Sincerely,

Jody A. Disney RN, PhD
1609 Evergreen Park Lane SW
Oly, WA 98502

Sent from Mail for Windows 10

Maya Teeple

From: Polly Stoker
Sent: Wednesday, September 2, 2020 4:04 PM
To: Jan Dillon
Cc: Jennifer Davis; Maya Teeple
Subject: RE: Nisqually watershed

Hello Ms. Dillon,
Thank you for your comment. I will forward to the Planning Commission and upload to the PC website today.
Sincerely,
Polly Stoker

Polly Stoker

Thurston County Community Planning &
Economic Development (CPED)
360-786-5473
Cell 360-972-6785
stokerp@co.thurston.wa.us
2000 Lakeridge Dr SW
Building One, 2nd Floor
Building Development Center

From: Jan Dillon <diljr@outlook.com>
Sent: Wednesday, September 02, 2020 3:20 PM
To: Polly Stoker <polly.stoker@co.thurston.wa.us>
Subject: Nisqually watershed

I support your efforts and appreciate what you're doing for the Nisqually watershed.
Jan Dillon

Sent from my Verizon LG Smartphone

Maya Teeple

From: Polly Stoker
Sent: Wednesday, September 2, 2020 3:49 PM
To: Annabel Kirschner
Cc: Jennifer Davis; Maya Teeple
Subject: FW: Lakeside mining request
Attachments: Lakeside mining .pdf

Hello Ms. Kirschner,
Thank you for your comment. I will forward to the Planning Commission and upload to the PC website today.
Sincerely,
Polly Stoker

From: Annabel Kirschner <kirschner01@gmail.com>
Sent: Wednesday, September 02, 2020 3:46 PM
To: Polly Stoker <polly.stoker@co.thurston.wa.us>
Subject: Lakeside mining request

As my attached letter shows, I STRONGLY OPPOSE any consideration of recycling asphalt in the Nisqually aquifer area.

September 2, 2020

Thurston County Planning Commission:

It is my understanding that a mining company, “Lakeside”?, is seeking permission to store recycled asphalt (RAP) at its operation in the Nisqually watershed.

Why are you even considering this request??

During the 1990's, the county prohibited this type of activity in the Nisqually area because of the fragility of the aquifer and water quality concerns. Time has NOT lessened these concerns but made them more pressing.

The company has almost mined out its operation there. It is now time for them to reclaim the land instead of polluting it further. It appears that they are trying to avoid an obligation they knew about all along.

Obviously Lakeside only cares about its profits and not about the quality of the environment. Pulling this kind of stunt should lead the county to ban them from any further operations here.

Once again, I must ask **why are you even considering this?** You should have referred Lakeside to the 1990's decision and sent them on their way. This is a waste of your time and our time. It leads me to wonder if one of the county or planning commissioners have a special interest in Lakeside Mining. I can think of no other reason for this request to be on the table.

Annabel Kirschner
1008 Loete Ct. SE 98501
kirschner01@gmail.com

Maya Teeple

From: Polly Stoker
Sent: Wednesday, September 2, 2020 12:59 PM
To: Shari Silverman
Cc: Maya Teeple; Jennifer Davis
Subject: RE: No to Lakeside request

Hello Ms. Silverman,
Thank you for your comment. I will forward to the Planning Commission and upload to the website today.
Sincerely,
Polly Stoker

Thurston County Community Planning &
Economic Development (CPED)
360-786-5473
Cell 360-972-6785
stokerp@co.thurston.wa.us
2000 Lakeridge Dr SW
Building One, 2nd Floor
Building Development Center

-----Original Message-----
From: Shari Silverman <silverman.shari@gmail.com>
Sent: Wednesday, September 02, 2020 12:20 PM
To: Polly Stoker <polly.stoker@co.thurston.wa.us>
Subject: No to Lakeside request

For inclusion in the public record Thurston County Planning Commission

Commissioners,

Please do not revoke the prohibition on recycled asphalt in the Nisqually Subarea Plan. This prohibition of recycled asphalt was established years ago and has served Thurston County well during all this time.

Lakeside Inc built their plant fully knowing the 1992 Niaqually Subarea Plan was in effect.

To allow recycled asphalt to impact an aquifer and multiple acres of farmland would be harmful to the health and livelihoods of Thurston residents would be a grave injustice to our community.

Please keep the 1992 Nisqually Subarea Plan as is.

Thank you,

Shari Silverman

2775 Tuscany Ln SW
Tumwater

From: Howard Glastetter
To: Maya Teeple
Cc: "Emily McCartan"
Subject: Lakeside"s Request
Date: Wednesday, September 23, 2020 8:50:17 AM

Maya,

I misunderstood a comment David Troutt made a couple NRC Zoom meetings ago. He talked about Lakeside's RAP request, then mentioned Holroyd's secondary request. I took that comment to mean that Holroyd's back burner request had become active. Holroyd's pit has had a ten-year-old request to mine 100 feet below the water table at their site. My recent comments to you reflect that I thought this request had moved from passive to active.

I think it is good for the Planning Commission to be aware of the Holroyd request, because I've been told by county employees that it is open / active. However, it is not my intention to exaggerate this secondary issue beyond what is occurring.

-Howard

Howard H Glastetter
Howard.glastetter@comcast.net
Cell (360)556-1574

Everything should be as simple as it can be, but no simpler.
Albert Einstein

From: Howard Glastetter
To: Maya Teeple
Cc: "Emily McCartan"
Subject: Holroyd Aquifer Mining Request
Date: Saturday, September 12, 2020 8:58:46 AM
Attachments: Holroyd Lake 1102.doc

Maya,

David Trout mentioned, at the last RAP-in-the-Sub-Area meeting, that the Holroyd Pit still wants to mine well below the water table, via a drag shovel. David pointed out and I also commented that this should not happen. Holroyd made this request ten years ago and has evidently kept it active, but has been quietly waiting until Lakeside gets to process RAP before making their move. This is probably a technique to reduce a concern about two pit permitted uses doubling ecological impacts.

When this mine-below-the-water-table issue came up, ten years ago, I submitted a letter (above) to the county. I do not have the attachments in electronic form, but it should all be on record at the county. If needed, I could come up with hard copies. The attached letter, without its attachments, is still easy to visualize and follow.

I think the Planning Commission should be aware of this second issue while evaluating Lakeside's request, which is much larger than RAP (protected from weather) reprocessing. It combines to make a single very large issue that should not be considered as two separate issues. My letter outlines some of the impacts of going below the water table in this very sensitive area.

Thank you,

Howard H Glastetter
Howard.glastetter@comcast.net
Cell (360)556-1574

Everything should be as simple as it can be, but no simpler.
Albert Einstein

From:	Howard Glastetter
To:	"Emily McCartan"; troutt.david@nisqually-nsn.gov
Cc:	baldhillssolar@gmail.com; Gary Edwards; phyllisfarrell681@hotmail.com; Maya Teeple; Kevin Hansen
Subject:	Follow Up to Today"s NRC Meeting
Date:	Friday, August 21, 2020 2:26:05 PM
Attachments:	ATT00001.htm Proposed Docket Ammendment 1703.doc Holroyd Lake 1102.doc ATT00002.htm RAP Comment 1905.docx

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Folks,

The above comments are an attempt to back up some of the concerns I brought up at today's meeting. They are already on record in Thurston County at various locations. The first attachment contains concerns I have had over the years with Lakeside's attempt to reprocess RAP in Holroyd's pit. The second contains observations about serious flaws in Holroyd's almost ten year old original application to mine 100 feet below the water table in their valley pit. I don't have electronic referenced attachments to the second document, but can get to hard copies if needed. The third document contains my observations about the Herrera RAP Study Document that was submitted to the county last year.

As I stated at the meeting: RAP should only be allowed in the pit under an unwalled building protected from rain and snow. This is the asphalt industrial recognized Best Management Practice (BMP). Holroyd should not be allowed to mine below the water table. If these two things happen separate from the upgrade of the well thought out Nisqually Sub-Area Plan, it might as well be tossed into the waste basket.

-Howard

Howard H Glastetter
Howard.glastetter@comcast.net
Cell (360)556-1574

Everything should be as simple as it can be, but no simpler.
Albert Einstein

Emailed to Thurston County March 5, 2017

This email is a public response to Lakeside Industries' latest docket attempt to remove Goal E-5 from the 1992 Nisqually Sub-Area plan. They want to reprocess Recycled Asphalt Pavement (**RAP**) at their Holroyd's Gravel Pit site in lower Nisqually Valley.

The overall goal of the November 1992 Nisqually Sub-Area Plan was to "**Maintain the existing rural environment of the Nisqually planning area with the primary emphasis on preserving … its rural, aesthetic character for future generations.**" (Page17). This overall goal has been in the forefront of the 1992 Plan as well as ongoing public and private efforts to restore and maintain the Nisqually River Valley. The no-RAP provision of Policy E.5, along with the other E goals (Page 20-21, attached) was designed to protect the rural character from industrial dominance.

The county has an obligation to defend this well thought out plan and strengthen it when it comes up for renewal. However, business impacts have increased, rather than be phased out as the plan has required. Examples:
1) A mined out pit at Yelm Highway and Reservation Road, in the Nisqually Sub-Area, has been converted to a construction waste site (The Sub-Area Plan (Goal E.1.) and DNR require mined out pits to be reclaimed). Stumps and construction material, including RAP, are hauled in from as far as Mason County. This operation is located in the Nisqually Sub-Area, contiguous to the McAllister Springs Sensitive Area - above Lacey and Olympia municipal wells. People in county government are aware of this violation.
2) After the flood of 1996, neighbors could only replace lost homes by putting them on high foundations. No lot filling was allowed. However, the gun factory, in the middle of the neighborhood, was given permission to put 20,000 cubic yards of fill on their 1996 flood inundated property. They have yet to use this filled area. That filled part of the property is now for sale.
3) Lakeside got into the valley on a technicality and now wants to add the RAP storage and recycling to their process. This would have an increased truck traffic impact on the valley and opens the door to possible water and air pollution.

There are ongoing concerns with flooding. In 1996, much of the lower Nisqually Valley was under floodwaters, including portions of the Holroyd gravel mine. Due to past rail line, bridge and highway construction the Nisqually River has been artificially forced to the higher **east** side of the valley. When the river has major floods, it naturally flows to the **west**, above the rail line, through the Durgin Road Tunnel upstream, from the Holroyd Gravel Mine. If floodwaters enter the pit, aquifer groundwater could be infiltrated by pollutants from RAP storage in the pit, if RAP were ever allowed. (Flooding in Nisqually Valley will continue to be an issue as long as Tacoma Power is allowed to top off the Alder Lake Reservoir in the fall/winter seasons.) **Goal E.5 states: "… the reprocessing of asphalt shall not be allowed due to <u>water quality</u> concerns".** Note: RAP is recycled pavement. When it is ground up the surface area dramatically

increases and allows greater leaching of chemicals in the RAP. Please see next paragraph. Yellow highlighting is mine.

http://www.rmrc.unh.edu/tools/uguidelines/rap131.asp "For unbound applications, leachability from the RAP may also be a concern. This same leachability would be a concern if RAP was stockpiled or stored and exposed to precipitation." **What this URL is saying is that using RAP as one would use raw gravel for a road or driveway would cause more (possibly unacceptable) leaching into the soil than, say, a solid road made of bound asphalt. The reason being, that increased surfaces of the unbound RAP particles would have far more surface area to leach from than a hard surface road (much the same as a RAP stockpile exposed to the weather).**

If RAP is allowed, and I'm not recommending it, there is a way to mitigate its effects. Below is the "Best Practice" to reduce moisture in RAP. It allows RAP to be processed at a lower temperature, reducing the cost of producing asphalt. There are two additional side benefits to this. Less heat means less energy, reducing air pollution. Keeping RAP dry also prevents chemical leaching into the ground water. This is a win for the asphalt company (less cost) and the neighborhood (less water/air pollution).

The **un-walled building** cover technique was also recommended in two different articles in the handout we used when I was on the Thurston County Asphalt Advisory Task Force (AATF) in 2007-8. A Lakeside employee told me they had no intention of doing this.

Note of caution: This still would not solve the problem of having a large **source** RAP pile in the pit. Suppose Lakeside were allowed to have RAP at their site. If Lakeside were to maintain a source RAP pile of the size they had when they were at the Hogum Bay Olympia Landfill a few years ago, it likely would create a water pollution problem. They had an irregular pile 60+ feet in height and around 150 feet across at the base. That may have been marginally ecologically acceptable, because the water table could be around 100 feet below ground level at the Hogum Bay site. The current permeable gravel floor at Holroyd's is about 15 to 20 feet above an aquifer water table, even less in wintertime. Holroyd's pit is also in the Nisqually 100-year floodplain. I have photos that show they were flooded in 1996.

http://www.morerap.us/files/rap-best-practices.pdf

Stockpiling to Minimize Moisture

Moisture content of aggregates and RAP is a primary factor affecting an asphalt plant's production rate and drying costs. Some contractors have implemented creative approaches to reducing moisture content in stockpiles. The best practice to minimize the accumulation of moisture in stockpiles is to cover the stockpile with a shelter or building to prevent precipitation from getting to the RAP. Second to that, it is a good practice to use conical stockpiles to naturally shed rain or snow, and to place the stockpile on a paved and sloped surface to help water drain from the pile. Irregular-shaped stockpiles with surface depressions that will pond water should be corrected by shaping the pile as it is being built with the front-end loader or a small dozer. However, the use of heavy

equipment on the top of RAP stockpiles should be minimized to avoid compaction of the RAP. Likewise, it is also recommended that RAP stockpiles be limited to 20 feet in height to reduce the potential for self-consolidation of the stockpile.

Final thoughts:
Lakeside RAP storage at the Hogum Bay site did not meet "**Best**" or even "**Second Best**" practices. Would they do better in Holroyd's pit? The jury is out on that. The aquifer below the pit is the source of drinking water for some as well as farm / garden irrigation for many in the valley.

Lakeside knew RAP was not allowed before they built their new plant at Holroyd's pit. The County Commissioners and two court decisions ruled they could not use RAP in Nisqually Valley. ORCAA reaffirmed they could not, due to Sub-Area Plan rules. They chose to push their way into this rural residential area, anyway. Since then, they've been posturing that they have been treated unfairly.

Holroyd's pit is close to being mined out. DNR and the Sub-Area Plan say they have to move out when that happens. Will they? Or, will they want increase truck traffic and change infrastructure to haul in **gravel** from another pit **as well as RAP**? This would also be in violation of the Sub-Area Plan. **(Goal E.5 says: "The reprocessing of imported mineral resources shall not be the <u>primary</u> accessory use … ."** Gravel is a mineral and is supposed to come from inside the pit.

Thank you for your consideration.

Sincerely,

Howard Glastetter
howard.glastetter@comcast.net
(360)491-6645

Howard Glastetter
11110 Kuhlman Road SE
Olympia, WA 98513-9605

February 22, 2011

Thurston County Development Services
Resource Stewardship Department
Attn: Mr. Tony Kantas
2000 Lakeridge Drive SW
Olympia WA 98502-6045

Dear Mr. Kantas,

The following is a close copy of a letter I sent to Mike Kain on June 16, 2010 after hearing about the following Holroyd Gravel Pit request (Case #: 2010100505, Mine Expansion Special Use Permit #: 10 101562 ZM). In the near future, I will try to review and respond to any other case documents available since my original observations.

The purpose of this letter is to add observations to **Holroyd Co. Inc. & Neilsen Pacific LTD's** February 25, 2010 request for a Special Use Permit. The Holroyd company wants to continue mining part of the valley floor of their pit, converting it to a 120-foot deep, 2,018 feet long, 1,700 feet wide lake. This translates into an 80-acre lake. I've read their request and related exhibits. I'm not trained in geology or hydrology, but I still know there are some implications to this request that have not been addressed.

I have lived in three different locations in the valley over the past 40+ years, including a home on a 5-acre lot, just north of Holroyd's, across Old Pacific Highway. I have been publicly involved with issues affecting the valley during much of that time. So, I have some views that could aid in evaluating the above Special Use Permit request.

I'll summarize some concerns about this request. Water seeks the low point and some issues have not been addressed. Most of the exhibits were written before the 1996 flood, the 2001 earthquake and the 2007 addition of an asphalt plant at the site.

Nothing is said about potential pollution from the new asphalt plant that would be contiguous to the new lake. The plant is in the map of the site, but that's it. The plant currently wants to import recycled asphalt pavement (RAP) to use in its industrial process. This foreign material can contain pollution, beyond asphalt binders and gravel. Page 2 of Holroyd's Exhibit A, written in 1995, says an asphalt plant would be a contamination concern to a pit with open ground water.

Lost Lake lies just south of the pit (Attachment #1, #2 – location l), just across the railroad tracks. The water level of this lake is 85 feet, roughly 60 feet higher than the current pit floor. Could Lost Lake drain if a 120-foot deep lake were dug **two hundred yards** down stream from it? There are artesian springs north of the pit, just across Old

Pacific Highway (Attachment 2 – location 2). The high-pressure source of these artesian wells, likely runs under the pit and could be intercepted by the new lake. This could have a greater effect on the proposed lake's level than any Holroyd exhibits indicate.

The water sources flowing underground to McAllister springs are southwest of Holroyd's (Attachment 2 location 3). This is the current and future **water supply needed by Olympia and Lacey**. The Nisqually River runs about a half mile east of the pit, before it curves further east along the rail line. Over the years, the river has been forced to the higher side of the valley by rail line and highway construction. Emergency Manager, Andrew Kinney can verify this. The 1996 flood in the valley affected the pit and would have flooded any lake in the pit. I have included a 1996 aerial photo **(**Attachment 3) of the pit taken, by my son, a few hours after the flood peaked.

The Olympian discussed future municipal wells in the McAllister Springs Sensitive Area, above McAllister Springs, southwest of Holroyd's pit **(**Attachment 4 – 9/8/2008 News Article). The article pointed out concerns about well extraction affecting local lake levels (e.g., Saint Clair, Pattison, Long). Could an 80-acre / 120-foot deep lake at Holroyd's affect these lakes? Could it affect **future** municipal wells above McAllister Springs?

Native Americans have a small enclave reservation (Attachment 2 – location 5) just east of Durgin Road from the pit. The land level of this small neighborhood is not much higher than the expected level of the proposed lake. Additionally, residential lots owned by Holroyd surround this enclave. The Holroyd lots have been filled with mine overburden and fill from other sources. Would seepage from the new lake affect this neighborhood? The fill, on Holroyd's lots, has prevented enclave drainage (Attachment 5) of prior Nisqually River floodwaters (e.g., February 1996, November 1995).

There are hydraulic effects in the valley now. I lived across from the pit from 1973 to 1990. The well on that property was so full of iron it was unfit for washing or drinking. Fortunately, we were able to hook up to city water and use the well for irrigation only. Currently, I live ¼ mile northeast of the pit. My shallow irrigation well here has less iron, but is still noticeable. However, from season to season, I can see slight indentions in my lawns that indicate significant hydraulic activity. I'm not saying these hydraulics have anything to do with the pit, but there is a lot of water movement under properties in the valley.

Holroyd's Exhibit B, page 3 indicates, "the salt-water estuary is about 3 miles from the proposed lake". My map indicates it's more like 2 miles. Pages 10 and 11 of Exhibit B discount the probability of saline encroachment of local farm wells as a result of the man-made lake. Recently, the nature preserve dikes on the delta were breached to allow salmon enhancement advantages. Salt water now daily flows to within a few dozen feet of I-5 (Attachment 2 – location 6) about a mile away from the proposed lake. Could this, coupled with the proposed 120 feet deep lake, affect farmers' wells just south of I-5? Incidentally, there is visible artesian spring hydraulics coming out of a six-inch pipe in the brackish tidal area just north of the beginning of the new delta boardwalk.

These are questions and issues that I have observed that need addressing as part of the county's evaluation of this Special Use Permit.

Sincerely,

Howard H. Glastetter
Attachments

Mr. Howard Glastetter
11110 Kuhlman Rd. SE
Olympia, WA 98513

9-14-2020

Maya,

I went thru my old files & found copies (with attachments) of what I sent the county almost 10 years ago.

Howard

Maya Teeple
Thurston County Planning
2000 Lakeridge Dr SW
Olympia, WA 98502

Howard Glastetter
11110 Kuhlman Road SE
Olympia, WA 98513-9605

February 22, 2011

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Resource Stewardship Department
Attn: Mr. Tony Kantas
2000 Lakeridge Drive SW
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Lost Lake lies just south of the pit (Attachment #1, #2 – location 1), just across the railroad tracks. The water level of this lake is 85 feet, roughly 60 feet higher than the current pit floor. Could Lost Lake drain if a 120-foot deep lake were dug **two hundred yards** down stream from it? There are artesian springs north of the pit, just across Old

These are questions and issues that I have observed that need addressing as part of the county's evaluation of this Special Use Permit.

Sincerely,

Howard H. Glastetter
Attachments

Attachment #1

Comment #69

Nisqually Topo Map at Lat 47.0429°N Long -122.7018°W Zoom 15 S Size

Find aerial photos, topo maps & topographic data like elevation, lat and long lines, or coordinates and more.

Save to My Maps **Map Size:** Like

Print Portrait | Print Landscape | Save as PNG...

Center: 47.0429°N 122.7018°W
Elevation at center: 85 feet (26 meters)
Quad: Nisqually
Drg Name: o47122a6
Drg Source Scale: 1:24,000
Projection: NAD83/WGS84
47.0448°N 122.6986°W
Distance to center: 0.2046 miles (0.3292 km)

Display format:
Decimal Degrees
Show center marker

Search Topo Maps

Feature Name (e.g. pikes peak)

All States

Select Feature Type

Search

Lost Lake: 1,000' x 500'

State Topo Maps

Alabama Topo Maps
Alaska Topo Maps
Arizona Topo Maps
Arkansas Topo Maps
Northern California Topo Maps
Southern California Topo Maps
Colorado Topo Maps
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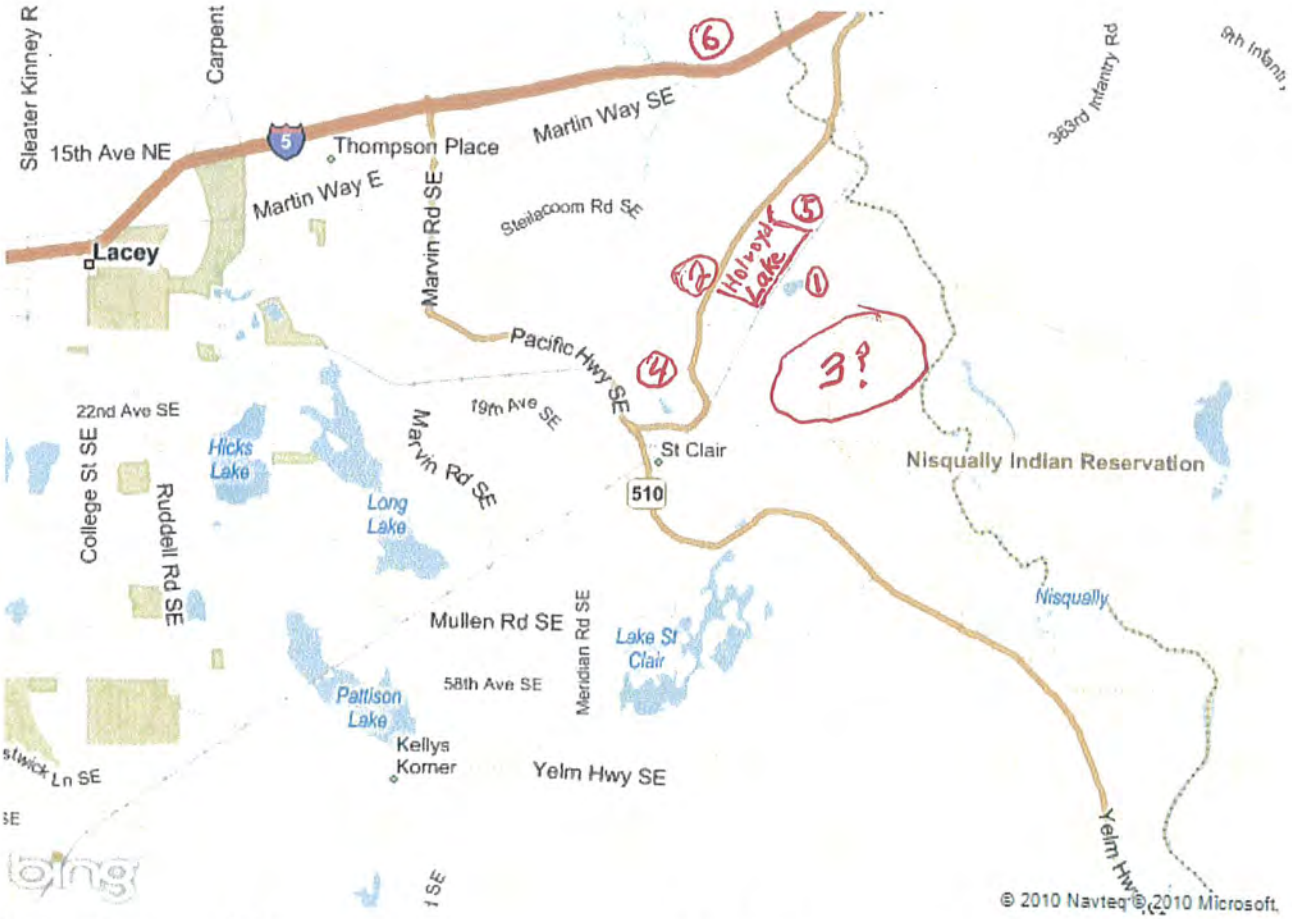
Vermont Topo Maps
Virginia Topo Maps
Washington State Topo Maps
Washington DC Topo Maps
West Virginia Topo Maps
Wisconsin Topo Maps
Wyoming Topo Maps

Attachment #2

Comment #69

multimap from bing

Map of **Lacey, United States**



Nearest transport link

Tube:

Railway: King Street Amtrak Station (44.01mi, 70.83km)

Your notes

① Lost Lake
② Artesian Wells
③ Future Municipal Wells
④ McAllister Springs
⑤ Durgin Road Native Americans
⑥ Salt water @ high tide

Attachment #3

Comment #69

Attachment #4

Comment #69

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September 8, 2008
Section: News

Lacey to submit its water plan
CHRISTIAN HILL
THE OLYMPIAN

LACEY - The city will submit a plan Friday that's crucial to its effort to receive state approval to pump more drinking water.

The plan represents the anticipated first step by the city to secure approval froserm the state Department of Ecology to pump more water to serve future growth and potentially lift the de facto moratorium on virtually all development within the city's urban growth area. The restriction has derailed plans for developers and property owners for more than three years.

Pumping from wells can divert, to varying degrees, the groundwater streams and lakes need to maintain flows and levels during the summer months. Ecology has barred or restricted additional pumping that adversely affects major freshwater water bodies in and around Thurston County's urban area unless an applicant can show how they will mitigate - or negate - those effects.

The plan defines for Ecology, the overseer of public waters in the state, how Lacey will mitigate the effect that pumping an additional 4,166 acre-feet of water, or 1.3 billion gallons, each year will have on the Nisqually River, McAllister and Woodland creeks, and Hicks, Long and Pattison lakes. That's enough water to serve 20 years of growth, city projections show.

"This is the plan Ecology has been waiting for," water resources manager Peter Brook said.

The City Council heard a presentation on the plan Thursday.

As an example under the plan, the city proposes to purchase and either retire or put into public trust privately owned water rights along the Deschutes River basin to mitigate the effect in that area; the water will remain in the ground instead of being pumped out.

It proposes decommissioning two city-owned wells along the Nisqually River to mitigate the effect in that basin.

A computer model that Olympia completed in 2002 calculated the effects from additional pumping in the region. It shared the model with Lacey and Yelm three years later.

The city of Olympia is a critical partner in this plan.
Olympia plans to retire McAllister Springs as its municipal water source and jointly develop a new wellfield with the Nisqually tribe. It is required under federal law to either treat McAllister Springs with a costly ultraviolet disinfection system or find a replacement water source by October 2012. The springs are exposed and vulnerable to contamination, particularly from spills of railcars running on the nearby line.
Lacey's plan stipulates that the cities of Lacey and Olympia would jointly develop and operate a plant where treated wastewater would seep into the ground to mitigate the effect on Woodland Creek. The cities can't flow the highly treated water directly into the creek. Seeping this water into the ground will lower its temperature and remove remaining contaminants. The cities also would purchase land to further buffer the creek from development. These joint projects would help mitigate the effects for both cities.
Olympia City Manager Steve Hall declined Friday to discuss the negotiations with Lacey. The city will submit to Ecology its plan to mitigate the effects of the new wellfield, he said.
Lacey also will finalize an agreement with the Nisqually tribe that details how it will mitigate the effects on the Nisqually River.
Lacey is scheduled to use the rest of its uncommitted water in either 2009 or 2010.
The city serves about 66,000 residents living in and out of the city limits.
Three years ago, the city halted virtually all development within its urban growth area because it didn't have sufficient water to serve the new homes and businesses; development within the city limits continues. It does agree to provide water to a new home on a parcel of land created prior to the restriction taking effect.
"We're really running close to the ragged edge, which is why we need to move some of these water-right applications sooner rather than later," Brooks said.
Christian Hill covers Lacey and the Port of Olympia for The Olympian. He can be reached at 360-754-5427 or chill@theolympian.com.

Attachment #5 2 days after Feb 1996 flood

Oral Comments Received
Audio is official record

Unique ID	Date	Commenter Name	Summary	County Response
O-1	7/15/2020	Charlotte Persons - BHAS	I'm in opposition of this request. Leachate leaks into ground and contaminates the water. No SEPA has been done. This applies to the whole subarea	Comment recorded.
O-2	7/15/2020	Tony Hamon	I ask you to approve this amendment. It's a standard practice around the world and reduces raw materials	Comment recorded.
O-3	7/15/2020	Phyllis Farrell	I am against this amendment. Leachate is a toxin to groundwater. I remind you of a Nisqually River Council letter that this policy should be reviewed holistically with the entire plan.	Comment recorded.
O-4	7/15/2020	John Adams	Lakeside is a good steward and employer. I support this amendment.	Comment recorded.
O-5	7/15/2020	Christy White	I'm in opposition of this amendment.	Comment recorded.
O-6	7/15/2020	Jeff Herriford	We ask that you approve this policy. It's allowed throughout the County. We are unaware of any other jurisdiction that prohibits RAP. Proper BMPs can mitigate concerns of leachate and this is a sustainable practice.	Comment recorded.
O-7	7/15/2020	Tim Thomson	There is overwhelming data that recycled asphalt is good for the environment. Science and data unites us.	Comment recorded.
O-8	7/15/2020	Bill Dempsey	I'm the production manager of the site. I invite the commission to come out and see technology that's used for recycling and asphalt production. My contact is 425-864-0844.	Comment recorded.
O-9	7/15/2020	Kyler Danielson, Lakeside Industries	I request that you approve this amendment. Over 20 years ago the county prohibited RAP in this area. There is more science available to show that its not as harmful as previously thought. BMPs can mitigate for concern of water quality issues.	Comment recorded.
O-10	7/15/2020	Howard Glastetter	RAP should not be approved in a vacuum. If it is approved, BMPs are a MUST. BMPs mean less pollution.	Comment recorded.
O-11	7/15/2020	Esther Kronenberg	Protecting water quality is critical. Once pollution is in the water you can't get it out. The plan hasn't changed over 20 years and there is no catalyst to change this policy. We need to conserve our natural resources and clean water.	Comment recorded.
O-12	7/15/2020	Emily McCartan	We are mindful of the need for sustainable practices. Significant work has gone into this watershed, moreso than any other watershed. Before this proposal goes any further there needs to be site specific studies to ensure quality is maintained or improved.	Comment recorded.
O-13	8/5/2020	Tony Hammond	Here to ask that you approve Lakeside's request for an amendment. Currently, we have to send asphalt elsewhere, to a landfill or another recycling facility. This would allow use to reuse it on site.	Comment recorded.
O-14	8/5/2020	Loretta Seppanen	Think about the farmland in the Nisqually Subarea. I ask that staff show you this farmland in this area on a map before you make any decisions.	Comment recorded.

Oral Comments Received
Audio is official record

O-15	8/5/2020	Tim Thompson	Data and science should guide decisions. Thurston County is behind by continuing to prohibit this practice in this area.	Comment recorded.
O-16	8/5/2020	Kyler Danielson, Lakeside Industries	The Herrera report repeatedly found there was no cause for concern. You can review a letter I have on file regarding the report. Additionally there are already several BMPs in place at the Lakeside facility. As your staff will present, the code already requires many BMPs. Lakeside supports option 2 and requests that there be no addition requiring BMP for covering. This should be determined at the permit level through the site-review process rather than required outright.	Comment recorded.
O-17	8/5/2020	David Schaffer, Thurston County Chamber of	The Chamber is supportive of this amendment. If there is a decline in economy, RAP can increase opportunity for the industry.	Comment recorded.
O-18	8/5/2020	Jeff Herriford, Lakeside Industries	Here to ask that you support this amendment. It was nice to see some of the Commissioner's the other week.	Comment recorded.
O-19	8/5/2020	Howard Glastetter	I'm a resident of the Nisqually Valley, Lakeside is my neighbor. They are a good neighbor. I was involved on the asphalt task force in the early 2000s. As part of that task force, keeping RAP covered was identified as a BMP at that time. It keeps costs lower for processing, and reduces exposure of leachate. The cheap way is tarping - Lakeside implements this at their Aberdeen plant. The Nisqually Subarea is a sensitive area and warrants the extra protection.	Comment recorded.
O-20	9/2/2020	Howard Glastetter	I've submitted comments over the years. Lakeside's pit is a CARA I, residents get water from nearby wells. Kevin Hansen wrote a hydro report for the mineral lands project that states asphalt plants pose less risk than concrete plants, but stormwater is still a risk. An unwalled building will mitigate stormwater concerns.	Comment recorded.
O-21	9/2/2020	Phyllis Farrel	I oppose the removal of prohibition of RAP. Previous attempts to change have failed for good reason. This area has CARA and McAllister Geologically Sensitive Areas. The County successfully litigated in 2004. This site could leach, truck traffic may impact area. Also no SEPA has been done, and the PC should have this before decisions are made.	Comment recorded.
O-22	9/2/2020	Shelley Kneip	Commenting on process tonight - RAP, mineral lands, SMP. Planning Commission should have all of the information before making a decision. County states SEPA is delayed until after PC review and that isn't right, the SEPA must be considered at the earliest time possible.	Comment recorded.
O-23	9/2/2020	Annabel Kirschner	Recycled asphalt - why are we considering this? Nothing has changed since the plan was adopted in 1992, policy should not be changed.	Comment recorded.
O-24	9/2/2020	Christy White	I'd like to echo Shelley's comment about SEPA. The planning commission should continue to look at areas for process improvements, speakers can come in to talk abou the issue more and the Planning Commission can see both sides.	Comment recorded.