Becky Crockett

From: Becky Crockett
Sent: Monday, February 3, 2020 8:20 AM
To: 'Shannon Zience'
Subject: RE: Asphalt Plant

Hi Shannon: Thank you for your input on this application. I will include it in to the record of hearing for this application.

Becky Crockett
Planning Director
(541) 247-3228
crockettb@co.curry.or.us

From: Shannon Zience [mailto:shannonkzience@gmail.com]
Sent: Sunday, February 2, 2020 4:15 PM
To: Becky Crockett; Nancy O'Dwyer
Subject: Asphalt Plant

Good Afternoon!

I've read the detailed materials from the submission on the conditional use permit for the asphalt deposit site across from the KOA in Langlois. These are my concerns I hope the Commission will address them with the applicant, and require written evidence from the applicant on these matters missing from their application:

1. On page 4, describing findings in connection to 3.052, the provision clearly references a "tempòrary" holding site for a "specific project" but the applicant is not citing a specific project and instead is speaking to multiple projects that have no apparent end in site. This is contrary to the purpose of the provision and not what was envisioned.
2. Provisions 3.070 to 3.078 might apply to this land per the Forestry Grazing Zone provisions if the property was predominantly farm use on January 1 1993. This is not addressed in the application.
3. Section 9.5 economy - The applicant did not address (b) how to handle discharge from equipment.
4. On page 11, 17(a) - the findings are conclusory and do not evidence that the applicant has researched the surrounding areas and assessed the impact of their activities on them. They are assuming their plans with the water covers all the bases.
*5. pg 13-14 - Section 3.3 erosion and sediment control - these provisions intend to cover health and safety of the people, animals and environment surrounding the site. The applicant states earlier In the application that they need to remove vegetation, but then does not document here, as required, a plot plan documenting such removal. Also, a plan is required by the director and nothing can happen on the site until that plan is approved, which has not happened. Lastly, they have not received a permit from DEQ yet. (this is the most important information that is lacking in this report and should be addressed before a permit is allowed).

Thank you for your consideration

Shannon Zience, Attorney at law and resident of Langlois

Becky Crockett

From: pamela travis <pltravisiw@yahoo.com>
Sent: Monday, February 3, 2020 1:45 PM
To: Becky Crockett
Subject: Proposed asphalt Plant

My house is on the other side of the street. Its bad enough with the Rock quarry and traffic now an asphalt plant. I strongly recommend a no on this. Not only that it is forest grazing land now zoned. The smell will be terrible. My water (with water rights

also comes from that location on Fosters property. Will my water be safe? Can you guarantee my safe water! Looking forward to meeting

Sent from Yahoo Mail for iPhone

STATE OF OREGON

COUNTY OF CURRY

CERTIFICATE OF WATER RIGHT

THIS CERTIFICATE ISSUED TO

DOUGLAS AND PAMELA TRAVIS
46592 HWY 101
LANGLOIS OR 97450

NORMA MORROW
BOX 184
PORT ORFORD OR 97465

confirms the right to use the waters of AN UNNAMED SPRING, WITHIN AN UNNAMED STREAM BASIN, TRIBUTARY TO THE FLORAS LAKE BASIN, for DOMESTIC USE INCLUDING IRRIGATION OF LAWN OR NON-COMMERCIAL GARDEN NOT TO EXCEED ONE HALF ACRE IN AREA FOR TWO HOUSEHOLDS, FURTHER LIMITED APRIL 1 THROUGH NOVEMBER 30 TO HUMAN CONSUMPTION WHEN THE SPRING CONTRIBUTES SURFACE FLOW TO THE UNNAMED STREAM.

This right was perfected under Permit 53530. The date of priority is AUGUST 20, 1992. The amount of water to which this right is entitled is limited to an amount actually used beneficially, and shall not exceed 0.01 CUBIC FOOT PER SECOND, measured at the point of diversion.

Period of allowed use is year round, as limited below when the spring contributes surface flow to the unnamed stream.

The point of diversion is located as follows:

Twp	Rng	Mer	Sec	Q-Q	GLot	DLC	Survey Coordinates
31 S	15 W	WM	22	SW NE			1750 FEET SOUTH & 3000 FEET EAST FROM NW CORNER, SECTION 22

A description of the place of use to which this right is appurtenant is as follows:

Twp	Rng	Mer	Sec	Q-Q
31 S	15 W	WM	22	SW NW

NOTICE OF RIGHT TO PETITION FOR RECONSIDERATION OR JUDICIAL REVIEW

This is an order in other than a contested case. This order is subject to judicial review under ORS 183.484. Any petition for judicial review must be filed within the 60-day time period specified by ORS 183.484(2). Pursuant to ORS 536.075 and OAR 137-004-0080, you may either petition for judicial review or petition the Director for reconsideration of this order. A petition for reconsideration may be granted or denied by the Director, and if no action is taken within 60 days following the date the petition was filed, the petition shall be deemed denied. In addition, under ORS 537.260 any person with an application, permit or water right certificate subsequent in priority may jointly or severally contest the issuance of the certificate at any time before it has issued, and after the time has expired for the completion of the appropriation under the permit, or within three months after issuance of the certificate.

Becky Crockett

From: Becky Crockett
Sent: Wednesday, February 5, 2020 7:15 AM
To: 'C Steeler'
Subject: RE: Asphalt plant

Thank you for your comments Chad. They will be included into the record of hearing for this application.

Becky Crockett
Planning Director
(541) 247-3228
crockettb@co.curry.or.us

From: C Steeler [mailto:steelepainting1@gmail.com]
Sent: Tuesday, February 4, 2020 6:50 PM
To: Becky Crockett
Subject: Asphalt plant

Hello,
I do not believe in asphalt plant is an appropriate use for land that is zoned as forestry grazing. Forestry grazing has been given many conditional-use permits, for many things, but an asphalt plant does not fit the definitions of things that are typically granted for this zoning. The by-products of asphalt production are harmful for the environment, wildlife and waterways in this area. The primary application has not addressed the concerns of proper disposal of these by-products, erosion and soil stability in the area.

There is also the issue of increased traffic. There currently is a rock quarry on the adjacent road to the proposed asphalt facility. I'm assuming that they would have to share this road and therefore double the amount of trucks going in and out of this area. This is a very dangerous stretch of road (as it is a passing lane) and northbound traffic commonly speeds up to very high speeds to overtake other vehicles in this section. It is inevitable that there will be accidents and possible fatalities because of this.

This area is known for being quiet and having very healthy wildlife and waterways. An asphalt plant is completely contradictory to that and would be harmful to this area in many ways. In conclusion, forestry grazing zoning should not be considered a place where industrial facilities that release many toxins into the air and waterways can be placed. I am confident that the county will make the right decision and not allow forestry grazing to be used for this purpose. Thank you for consideration.

Chad Steele
Langlois, OR

Becky Crockett

From: Becky Crockett
Sent: Wednesday, February 5, 2020 7:16 AM
To: 'Roberta Davis'
Subject: RE: Asphalt Plant

Thank you for your comments Roberta. They will be included into the record of hearing for this applicaton.

Becky Crockett
Planning Director
(541) 247-3228
crockettb@co.curry.or.us

From: Roberta Davis [mailto:robertada71@gmail.com]
Sent: Tuesday, February 4, 2020 8:10 PM
To: Becky Crockett
Subject: Asphalt Plant

Hello, I am a property owner nearby the proposed asphalt plant. After reading the application it is clear that the applicant is intending to use this as a permanent facility. I currently live on forestry grazing zoning and have studied it intensively. Forestry grazing was originally created for people that farmed (livestock and agriculture) part of the year and grew and sold Christmas trees the other part of the year. This zoning allowed people to do things seasonally on land that was considered for agricultural production. Temporary businesses.
The applicant has not shown that this will be a temporary facility but instead have intentionally left that "open-ended" for the purpose of having it be a permanent facility.

Also, these areas were zoned forestry grazing because of their sensitive waterways, erosion factors and susceptibility to environmental hazards. An asphalt plant seems to be a completely inappropriate business to have on zoning for forestry grazing. An industrial zoning would seem more appropriate and it is in my belief that the business applying for the asphalt plant should seek out zoning that is appropriate for the environmental hazard that they produce.
I look forward to seeing you on February 20th and voicing my concerns in person.

Sincerely,
Roberta Davis
Langlois,OR

Becky Crockett

From: Becky Crockett
Sent: Monday, February 10, 2020 7:55 AM
To: 'Steve Mazur'
Subject: RE: AD-1926

Hi Steve: The packet for this application is located on the Curry County Planning Commission web site under February 20, 2020. The "packet" includes the application and a staff report. I can forward your comments to the Planning Commission so they can determine the extent to which they desire to address these issues. I will recommend that the applicant identify the creek with the 50 foot setback and specifically include erosion and sediment control protections. Appreciate your comments. Thanks

Becky Crockett
Planning Director
(541) 247-3228
crockettb@co.curry.or.us

From: Steve Mazur [mailto:Steve.J.Mazur@state.or.us]
Sent: Friday, February 7, 2020 10:18 AM
To: Becky Crockett
Subject: AD-1926

Becky,

I am trying to find the packet for this application and in particular a site map showing the creek running through the property and the riparian set back associated with Swanson Creek. I see that in the staff report that the applicant is required to have a minimum 50 foot set back, but it would be good to have the riparian area delineated on a map and possibly on the ground so that all know this is an area that needs protected. Another issue is erosion and water runoff from the site into the creek. ODFW would expect proper Best Management Practices be utilized.

Swanson Creek is an important coho spawning tributary to Floras Lake/New River and we would expect juvenile coho to utilize the creek year around in proximity to the project site.

If you have any questions, feel free to give me call or email. Thanks Steve

Steven Mazur
Supervisory District Fish Biologist
South Coast District
P.O. Box 642
29907 Airport Way
Gold Beach, OR 97444
541-247-7605 x 222 office
541-247-2321 fax

Becky Crockett

From: Becky Crockett
Sent: Thursday, February 13, 2020 7:41 AM
To: 'jarvises@earthlink.net'
Subject: RE: Asphalt Plant

Eric and Thale thank you for your comments on this application. Your comments will be included in the record of the hearing.

Becky Crockett
Planning Director
(541) 247-3228
crockettb@co.curry.or.us

From: Eric Jarvis [mailto:jarvises@earthlink.net]
Sent: Wednesday, February 12, 2020 4:00 PM
To: Becky Crockett
Subject: Asphalt Plant

Dear Ms. Crockett and the Curry County Planning Department:

We are writing to express our concern about the proposed asphalt plant south of Langlois on Hwy 101. This part of the coast highway is one of the most beautiful and pristine stretches in Oregon, and there are serious issues with locating such a plant in this area. We live to the northeast of the proposed site and are very worried about the noise and smell issues that would impact us and our neighbors.

Some of our specific concerns are:

1) Asphalt plants are associated with serious emissions of a variety of toxic air pollutants, such as formaldehyde, hexane, phenol, polycyclic organic matter, and toluene (according to the EPA). Exposure to these compounds can cause serious health consequences, including cancer, liver damage, and respiratory problems.
2) A spill from the plant could be devastating to local water supplies and fish habitat.
3) The noise generated by the plant would likely be very disruptive to nearby residents and wildlife.
4) The thousands of trucks per year accessing the plant would cause serious traffic and safety issues on Hwy 101.
5) It is unclear that there would be any local economic benefit. In fact, the opposite would be true, as it would likely put the KOA Campground across the road in serious jeopardy. It is very hard to imagine anyone wanting to camp that close to the noise, dust, and smell. This will have trickle-down consequences to other local businesses. Tourism and agriculture are the major economic drivers on this part of the coast, and are incompatible with this proposed industrial activity.
6) It is misleading for the proposed plant to be called "temporary" when no end date has been proposed.
7) Locating this plant in an area that is zoned Forestry Grazing is inconsistent with good planning practices.

We feel very strongly that the proposed asphalt plant is inappropriate for this area. Thank you for your consideration.

Eric & Thale Jarvis
Langlois, OR

Becky Crockett

From: Becky Crockett
Sent: Tuesday, February 18, 2020 7:42 AM
To: 'Sylvia Ernst'
Subject: RE: Asphalt plant, please say NO to the asphalt plant

Thank you Sylvia for your comments. They will be entered into the record for this application.

Becky Crockett
Planning Director
(541) 247-3228
crockettb@co.curry.or.us

From: Sylvia Ernst [mailto:sylviaernst@gmail.com]
Sent: Sunday, February 16, 2020 9:16 PM
To: Becky Crockett
Subject: Asphalt plant, please say NO to the asphalt plant

Dear Mrs. Crocket,

When I first heard about an application for an asphalt plant here close to Langlois I was a bit in disbelief. An asphalt plant? In northern Curry county? An area which receives much of its income from the tourists it is attracting?

Making asphalt requires great amounts of petroleum products which not only need to be constantly trucked in and stored - both which pose potential risks and hazards. But also in the process of making asphalt those are being heated, which creates fumes, Hydrocarbons, Naphtalene products and all that - this stuff not only smells bad but poses a serious health hazard. An asphalt plant ***continuously*** churns those out.
Here is a link to the OSHA site https://www.osha.gov/archive/oshinfo/priorities/asphalt.html listing some of the health issue workers (only temporarily exposed) experienced, including cancer.

With such a plant in the vicinity tourists will certainly continue driving and not staying in the area (there is the KOA campground across the street). Besides the immediate vicinity - judging from where I live which is some miles away.....I do hear already the adjacent mine on some days (depending on the wind direction). Not only the immediate vicinity of the plant is affected but also the wider area. Property values near the plant will decline and perhaps also those in the area where I live, everywhere where one can hear and smell the plant - which likely means less property tax income for the county.

Are there any benefits from that plant for the locals, north county or even the whole big Curry county? Any jobs created? Reading about asphalt plants it appears those do not require much staff and also the proposal does not elude to any job creation. The owner is not even a Curry county resident.

Curry county and especially North County is a nature marvel which is attracting tourists who are escaping the dirt and noises of the cities. An asphalt plant is a tourism killer, no doubt. But tourism (NOT heavy industries) are the livelihood of everyone in Curry County. If you have to chose - this is an easy choice, right?

Please reject this application, this is bringing only harm and no good to
Curry county.

Thank you! - Sylvia Ernst, Langlois

Becky Crockett

From: Becky Crockett
Sent: Tuesday, February 18, 2020 12:14 PM
To: 'Ann Vileisis'
Subject: RE: Kalmiopsis Audubon Society Comments re AD-1926

Thank you Ann for your comments. The letter will be included into the record of hearing for the Bandon Concrete application.

Becky Crockett
Planning Director
(541) 247-3228
crockettb@co.curry.or.us

-----Original Message-----
From: Ann Vileisis [mailto:annvil@earthlink.net]
Sent: Tuesday, February 18, 2020 12:05 PM
To: Becky Crockett
Subject: Kalmiopsis Audubon Society Comments re AD-1926

Hi Becky,
Here are comments from the Kalmiopsis Audubon Society regarding the proposed asphalt plant in Langlois: AD-1926 ahead of Thursday's planning commission meeting. Please add them to the record.

All best,
Ann

Ann Vileisis
President
Kalmiopsis Audubon Society
P.O. Box 1265
Port Orford, OR 97465

541-332-0261
www.kalmiopsisaudubon.org

KALMIOPSIS AUDUBON SOCIETY
P.O. Box 1265 • Port Orford OR • 97465

To: Curry County Planning Commission members
Re: AD-1926 Application for Asphalt plant in Langlois, concerns and recommended conditions
Date: February 18, 2020

Dear Curry County Planning Commission members:

I am writing on behalf of the Kalmiopsis Audubon Society. Our group has 400 members in Curry County who are concerned about conservation of habitat for birds, fish, and wildlife and about quality of life for our members and neighbors.

We have several concerns about AD-1926, the proposal for a portable asphalt plant in Langlois, and request that you either deny this proposal or add substantive conditions to address our concerns.

1) Portable asphalt plant is not actually "temporary."

Section 3.052 of the Curry County Comprehensive Plan, Conditional Uses Subject to Administrative Approval by the Director (25) conditionally allows for:

Portable asphalt and concrete batch plants as a temporary use for a specific highway/road construction or maintenance project (1, 10, 17).

However, in the project application, there is no indication of any time frame for which this facility will be used nor any indication of any specific project that would suggest a time frame.

Because there is no start date and no end date—yet the possibility that the permit can be renewed again and again, this project cannot be considered "temporary."

Nearby property owners and business owners (KOA campground) will be subjected to endure considerable nuisances, including noxious fumes and noises associated with the asphalt plant, that could be significantly damaging to their lives and livelihoods. It is one thing to know that an asphalt plant would be running for a single year, but it is an entirely different situation to not have any idea when or what project is coming and how long it may endure.

The county has permitted other projects of this sort on a project-by-project basis, with information about specific time frames and amounts of material to be processed. This helps to

informs neighbors and gives them the opportunity to make adjustments on their properties and in their schedules.

It seems that this proposal is asking for a blanket approval to use the property for a series of asphalt operations that are not actually specified. For that reason, we are concerned that this application does not comply with the ordinance.

The surrounding resource lands are forestry and grazing lands; permitting this so-called "temporary" asphalt plant without any additional sideboards would seem to fundamentally re-make the area, now zone FG, into an industrial zone.

To address this concern, we urge the Planning Commission, as conditions of approval, to:

- require the project applicant to provide more specific information about the timing and scale of each specific project to be carried out at the site.
- consider if there is some other way to make sure that the plant is truly "temporary" by adding further temporal sideboards.

2) Asphalt plants need a permit for air quality discharge; needs to be added as a condition

Asphalt plants of any size need to obtain permits from DEQ for discharge of contaminants into the air, as specified in OAR 340-216-8010 (Table 1, Part B, #8). Because this project is set up such that the land owner is asking for blanket approval of a series of potential asphalt operations, it's not clear who has the responsibility to comply with DEQ requirements for air quality.

County staff has recommended (and typically recommends) that the applicant must obtain necessary DEQ permits related to erosion but makes no mention of the need for operations to obtain DEQ permits related to air quality.

For the health and well-being of community members, we urge the Planning Commission to add a condition of approval to help ensure protection of air quality:

- Require that any asphalt operations at the site will need to obtain the necessary DEQ permit for discharge of air contaminants.

3) Hwy 101 Scenic-Byway considerations

U.S. Highway 101 is a federally recognized "scenic byway," designation of which encourages local governments and businesses to take actions that help enhance the experience of travelers on highway 101. The staff report has recommended a condition that the applicant construct and maintain a 30-foot wide berm to buffer operations from the traveling public.

We strongly support this condition and urge the Planning Commission to add the following conditions, as well:

- require that the berm be maintained with attractive vegetation
- require that noxious weeds, such as gorse and scotch broom, are controlled on the site.

4) Considerations for Oregon Coast coho, a federally threatened salmon species
The stream on the project property, Swanson Creek, holds important spawning and rearing habitat for Oregon coast coho in the Floras Lake-New River watershed. The watershed is particularly important because the lake provides winter rearing habitat for coho that few other systems offer. The conservation of threatened coho is important for Curry County and the state of Oregon, and many local landowners have voluntarily engaged in stewardship activities to help secure the future of these salmon, also known as silver salmon.

The preliminary project site plan provided by the applicant does not adequately show how the project layout (settling ponds, stockpiles, asphalt plant) will be situated in relation to Swanson Creek. (See maps on next page.

Relying on Section 7.040 (10) (2) of the county zoning ordinance, the planning staff report suggests that only projects for "mining, quarrying, and other extractive activity" must provide sufficient information for the Planning Commission to review and set standards related to the impact of the proposed use on fish habitat.

However, we think Planning Goal 5 means that other projects that have the potential to degrade and impact fish habitat should also provide adequate information to demonstrate that important fish habitat will be adequately stewarded.

Given the presence of Oregon Coast coho, we urge the Planning Commission to add the following conditions to help protect this species from further imperilment:

- Require applicant to provide adequate site map that shows project elements in relationship to necessary riparian setbacks and stream
- Require applicant to have a site visit from ODFW to ensure that best management practices will be followed.
- Require applicant to mark boundaries of riparian setback on the ground to ensure that project operators will not inadvertently encroach or damage the important buffer zone

I thank you for considering our input and for your public service as planning commission members.

Sincerely,

Ann Vileisis

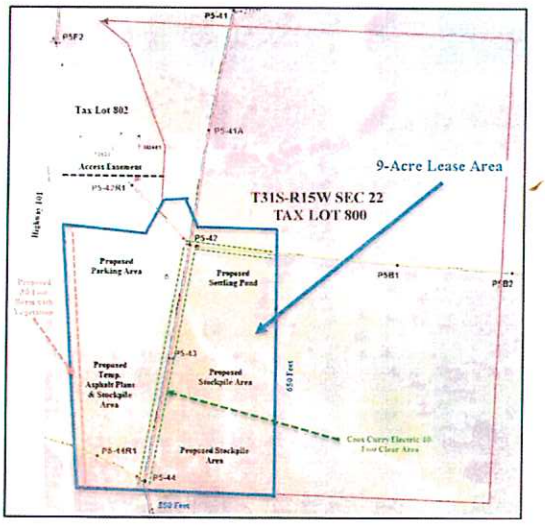
Ann Vileisis
President, Kalmiopsis Audubon Society

Swanson Creek as spawning and rearing habitat for coho

Tax lot 800 with Swanson Creek flowing through

Preliminary Site Plan

This Preliminary Site Plan is not to scale. It has been organized by the applicant to show the components to be considered and accommodated on the site.



Preliminary site plan provided by applicant with no indication of Swanson Creek

It appears that the proposed settling pond will be located too close to the stream.

Becky Crockett

From: Bob Morrow <bobmorrow@gmail.com>
Sent: Wednesday, February 19, 2020 9:03 AM
To: Becky Crockett
Subject: AD-1926 Economic Shortfalls - Please Deny
Attachments: AD-1926 Economic Impact Attachments to Planning Commission.zip; AD-1926 Economic Impact Letter to Planning Commission.pdf

Ms. Crockett,
I have written requesting that the Planning Commission DENY AD-1926 the conditional use permit to stockpile rock and establish an Asphalt Plant on Highway 101 South of Langlois.

There are two PDF files attached which outline why *AD-1926 provides no economic benefit to Curry County* Even if conditionally approved AD-1926 will definitely reduce income for the community as well as the coffers of the county while eliminating full time jobs in the area.

The smaller file is my letter to the commissioners which expands on the *economic failures of this deal* while touching on the *pollution concerns* and direct *known health risks* associated with an asphalt plant. Please note that there are active hyperlinks to web pages and ordinances referenced in my letter. If you or the commissioners have any difficulty accessing these please let me know and I can send the full url's to you.

The larger document you will find attached within a Zip file containing Attachments A, B, C and D in one PDF. These are the salient pages referenced in the letter describing the negative economic impact of AD-1926. I can resend under separate cover if you have difficulty with the Zip file in the county e-mail system.

Thank you for including these two PDF documents and cover e-mail in the file for AD-1926 to be considered on Thursday, February 20th 2020.

Regards,
Bob Morrow
Property owner and resident in Langlois

Bob Morrow
Langlois, Oregon

February 18, 2020

Curry County Planning Commission:
Chair Ted Freeman
Vice-Chair Diana St. Marie
Commissioner Robert von Bergman
Commissioner Lynne Dewald
Commissioner Sharon Jensen
Commissioner Michael Lange

Re: AD-1926 will have Negative Economic Impact on Curry County and should be denied

Dear Commissioners,

There is no economic benefit to Curry County and its citizens of a stockpiling and "temporary" portable asphalt plant. For this reason alone, AD-1926 should be denied.

In the application submitted by Bandon Concrete of Coquille, they several times state that approval of this application would benefit the community but make no presentation as to how this would be true. ORS 215.296(2) would require that they provide this information. Especially as it pertains to surrounding lands as stated in ORS215.296(1)(b).

Contrary to what the applicant alludes to, *the approval of AD-1926 would have a significant negative impact to the economy of North Curry County and in particular the communities and businesses of Langlois and Port Orford.* Income generated from North Curry County Parks would be reduced. Nearby property values would be drop by an average of 27%, and up to 56%, cutting into the county's property tax base. (See Attachment A)

To analyze the lack of economic benefit of AD-1926 let's look no further than across the street from the proposed asphalt plant at the long-established local business KOA.

No business is more reliant on tourists to the Scenic Wild Rivers Coast. Guests who fish the Elk River, walk the beaches, wind surf Floras Lake, take a Jet Boat up the Rouge River or golf Bandon Dunes will stay at KOA. They travel from all over the country to take advantage of the unique and epic nature that is also our home. While they are here, they might drop a hundred bucks a day at the Langlois Market or on dinner at the Crazy Norwegian in Port Orford. However, they will not stay here long - or at all - if their lungs are burning and their eyes are watering from "fugitive emissions."

The RV'ers would be the lucky ones as they could drive on spend their money elsewhere and not face the known health hazards identified by the United States Environmental Protection Agency of Hot Mix Asphalt plants (HMA) (See Attachment B) or the United States Department of Labor Occupational Safety and Health Administration (See Attachment C).

Conservatively, let's extrapolate out the five months of plant operation (150 days) with fifty (50) of the 73 campsites at KOA being empty. That is at least $5,000 a day that will be taken from tourist season income of the local community just buying beer and a fish and chip, excluding camp fees, gas, or other local services. For the five months of plant operation this modest napkin calculation estimates three quarters of a million dollars ($750,000) taken out of the quick cash flow circulation of North Curry County. This from Total Direct Travel Spending on the South Coast of $413.5 million. For every $64,106 spent by tourists in Curry County a full time job is created (See Appendix D pg 48, 89). Those KOA campsites emptied as the new business neighbor begins operations would mean a loss of at least 12 full time jobs in the area. In exchange for what?

The applicant confirmed repeatedly ***"there will be no full-time employees at the site."*** The net effect would be Curry County subsidizing the installation of a plant that would do nothing for our economy while creating great risks to our environment with estimated health impacts to 45% of nearby citizens within two years of beginning operations.

What are the economic risks to Curry County if there is a spill into Swanson Creek a known year-round coho habitat that runs into Floras Lake and New River? Expensive drawn out law suits involved with large payouts would result. The applicant for AD-1926 would claim they have no responsibility since they ***"envision that the portable asphalt plant will be owned and operated by any company who would like to utilize the site."*** (AD-1926 Application pg. 4 of Analysis and Findings Section 3.052.25 Finding).

So, you have no idea who will be operating the plant in the future but are being asked to rubber stamp it. Will this perpetual Merry-go-Round of Operators have approved equipment? DEQ approval? Will they even be bonded? To blindly accept an unending parade of unknown operators of a hazardous industrial site is naïve. The consequences of bad contingencies would be litigation. With a spill, drinking water rights associated with the lot would be violated. Floras Lake, a gemstone of tourism in the area would be polluted. The impacts of air pollution on the health of citizens is not even a potential risk – it is a known reality. Any of these scenarios could be an economic nightmare for the county. Would county insurance cover any of those costs? Are you prepared to embrace all this risk for no economic benefit to the county?

The applicant is not even aware of all the agencies it needs to receive approval from and clearly, has made no effort to reach out to some critical to the process. The Oregon Department of Environmental Quality for example would point to Chapter 340-236-0400 to 0440 for Hot Mix Asphalt Emission Standards, and 340-216-8010 for an Air Contaminant Discharge Permit. Does the Department of Forestry know the trees they asked to plant will be removed?

Yet they are asking you to consider a conditional use permit to change a quiet rural area with cattle, cranberry bogs, blueberry fields and a rock pit into an industrial zone producing carcinogenic dust and aerosols with a putrid smell that can drift for miles all with an underlying noise of trucks delivering materials on 101, with heavy rock equipment and processing equipment running from sunup to sundown. Driving tourists away, driving land values down, driving foot traffic down for local businesses, driving the county tax base down while increasing noise pollution, increasing air pollution, increasing serious and severe health risks to both citizens, their farm animals and regional wildlife, increasing truck traffic, turning congestion and air brake noise on Highway 101, and most egregiously increasing the liability risks to Curry County of a significant spill and the health impact to citizens, all to create a net loss to the local economy.

If you follow the money you will get to the clearest answer, the money only leaves Curry County on this deal. There is no economic rationale to turn this Forest Grazing land into a de facto Industrial Zone. Please deny AD-1926.

Sincerely,

Bob Morrow
Property owner and resident, Langlois, Oregon

Attachment A: Pineola Property Value Study

Attachment B: EPA Hot Mix Asphalt Plants

Attachment C: OSHA Asphalt (Bitumen) Fumes

Attachment D: Oregon Travel Impacts Statewide Estimates 1992 – 2018p

Cc: Planning Department Director Becky Crockett

Attachment A: Pineola Property Value Study

PINEOLA PROPERTY STUDY SHOWS ADVERSE IMPACTS FROM ASPHALT PLANT

The Blue Ridge Environmental Defense released a study showing the adverse impacts on property values and quality of life around an asphalt plant in Pineola, North Carolina. The study shows reductions in property values near the plant of up to 56%. Avery County tax adjustment officials used distance from Maymead Materials, Inc. asphalt plant and noxious odorous emissions as the bases for property value devaluation.

The largest percentage drop was recorded on property located directly across the road from the plant. The largest dollar loss of $45,300 was at a church adjacent to the plant. The study documents property value losses up to 3,200 feet from the plant.

Pineola resident Dale Thompson and many of his neighbors sought tax relief when the asphalt plant effectively reduced their use and enjoyment of their homes and land. Mr. Thompson cited particulate pollution, reduced visibility and vile odors as reasons why he and his family can no longer spend time outdoors comfortably at either recreation or work. Many asphalt plant neighbors blame Maymead and the state for the onset of asthma and other respiratory problems. Other adverse health impacts include frequent nausea and psychological distress.

The Pineola experience with property devaluation give us only a small part of the picture. Before any more permits are given to asphalt plants, states' health officials must conduct epidemiological studies around such facilities. It's simply absurd to say that asphalt plants have no impact.

List of property values around Maymead Materials asphalt plant
Map of properties surrounding Maymead Materials asphalt plant

(posted: 3/8/2002)

http://www.bredl.org/air/maymead_propertystudy.htm

BLUE RIDGE ENVIRONMENTAL DEFENSE LEAGUE
PO Box 88 Glendale Springs, North Carolina 28629 www.bredl.org Phone 336-982-2691 ~ Fax 336-982-2954 ~ Email bred@skybest.com

Properties Devalued Around Pineola Asphalt Plant
From Avery County Tax Department Data January 26, 2001

Parcel ID No.	valuation before	valuation after	dollar difference	percent drop	notes
184400500955	31,800	30,800	1,000	3	95 BER ADJ for location and odor
184400512610	121,400	76,100	45,300	37	1996 BER ADJ plant location
184400513659	50,900	34,900	16,000	31	1996 BER ADJplant loc, BER 97 ADJ
184400501543	32,600	25,700	6,900	21	1996 BER ADJ Plant loc, BER 97 no change
184400406450	76,800	69,100	7,700	10	1996 BER ADJ plant loc
184400406450	23,800	16,900	6,900	29	1996 BER ADJ plant loc
184400406450	34,000	24,800	9,200	27	1996 BER ADJ plant loc
184400418234	40,600	26,200	14,400	35	1996 BER ADJ plant loc
184400418349	9,900	4,400	5,500	56	1996 BER ADJ plant loc
184400417089	32,300	24,700	7,600	24	1996 BER ADJ PLANT LOC
184400502356	12,300	9,300	3,000	24	1996 BER ADJ PLANT LOC.
184400406243	20,800	14,500	6,300	30	1996 BER ADJ PLANT LOC.
184300596581	71,400	53,200	18,200	25	94 PUV
All parcels total		**$148,000 loss**		**27% drop**	

Asphalt production increased after Maymead Materials, Inc acquired and expanded an existing plant in Pineola in Avery County
January 24, 1995 150 tons/hour and 378,000 tons/year, new state air permit (R6) issued for change in plant ownership
March 29, 1996 325 tons/hour and 650,000 tons/year, new state air permit (R8) issued for expansion and relocation of plant

Chart compiled from NC DAQ permit files and Avery County Board of Equalization Review (BER) appraisal data, February 2001 by Louis A. Zeller

http://www.bredl.org/air/flyers/Pineola/index.html

11.1 Hot Mix Asphalt Plants

11.1.1 General[1-3,23, 392-394]

Hot mix asphalt (HMA) paving materials are a mixture of size-graded, high quality aggregate (which can include reclaimed asphalt pavement [RAP]), and liquid asphalt cement, which is heated and mixed in measured quantities to produce HMA. Aggregate and RAP (if used) constitute over 92 percent by weight of the total mixture. Aside from the amount and grade of asphalt cement used, mix characteristics are determined by the relative amounts and types of aggregate and RAP used. A certain percentage of fine aggregate (less than 74 micrometers [μm] in physical diameter) is required for the production of good quality HMA.

Hot mix asphalt paving materials can be manufactured by: (1) batch mix plants, (2) continuous mix (mix outside dryer drum) plants, (3) parallel flow drum mix plants, and (4) counterflow drum mix plants. This order of listing generally reflects the chronological order of development and use within the HMA industry.

In 1996, approximately 500 million tons of HMA were produced at the 3,600 (estimated) active asphalt plants in the United States. Of these 3,600 plants, approximately 2,300 are batch plants, 1,000 are parallel flow drum mix plants, and 300 are counterflow drum mix plants. The total 1996 HMA production from batch and drum mix plants is estimated at about 240 million tons and 260 million tons, respectively. About 85 percent of plants being manufactured today are of the counterflow drum mix design, while batch plants and parallel flow drum mix plants account for 10 percent and 5 percent respectively. Continuous mix plants represent a very small fraction of the plants in use (≤0.5 percent) and, therefore, are not discussed further.

An HMA plant can be constructed as a permanent plant, a skid-mounted (easily relocated) plant, or a portable plant. All plants can have RAP processing capabilities. Virtually all plants being manufactured today have RAP processing capability. Most plants have the capability to use either gaseous fuels (natural gas) or fuel oil. However, based upon Department of Energy and limited State inventory information, between 70 and 90 percent of the HMA is produced using natural gas as the fuel to dry and heat the aggregate.

11.1.1.1 Batch Mix Plants –

Figure 11.1-1 shows the batch mix HMA production process. Raw aggregate normally is stockpiled near the production unit. The bulk aggregate moisture content typically stabilizes between 3 to 5 percent by weight.

Processing begins as the aggregate is hauled from the storage piles and is placed in the appropriate hoppers of the cold feed unit. The material is metered from the hoppers onto a conveyer belt and is transported into a rotary dryer (typically gas- or oil-fired). Dryers are equipped with flights designed to shower the aggregate inside the drum to promote drying efficiency.

As the hot aggregate leaves the dryer, it drops into a bucket elevator and is transferred to a set of vibrating screens, where it is classified into as many as four different grades (sizes) and is dropped into individual “hot” bins according to size. At newer facilities, RAP also may be transferred to a separate heated storage bin. To control aggregate size distribution in the final batch mix, the operator opens various hot bins over a weigh hopper until the desired mix and weight are obtained. Concurrent with the aggregate being weighed, liquid asphalt cement is pumped from a heated storage tank to an asphalt bucket, where it is weighed to achieve the desired aggregate-to-asphalt cement ratio in the final mix.

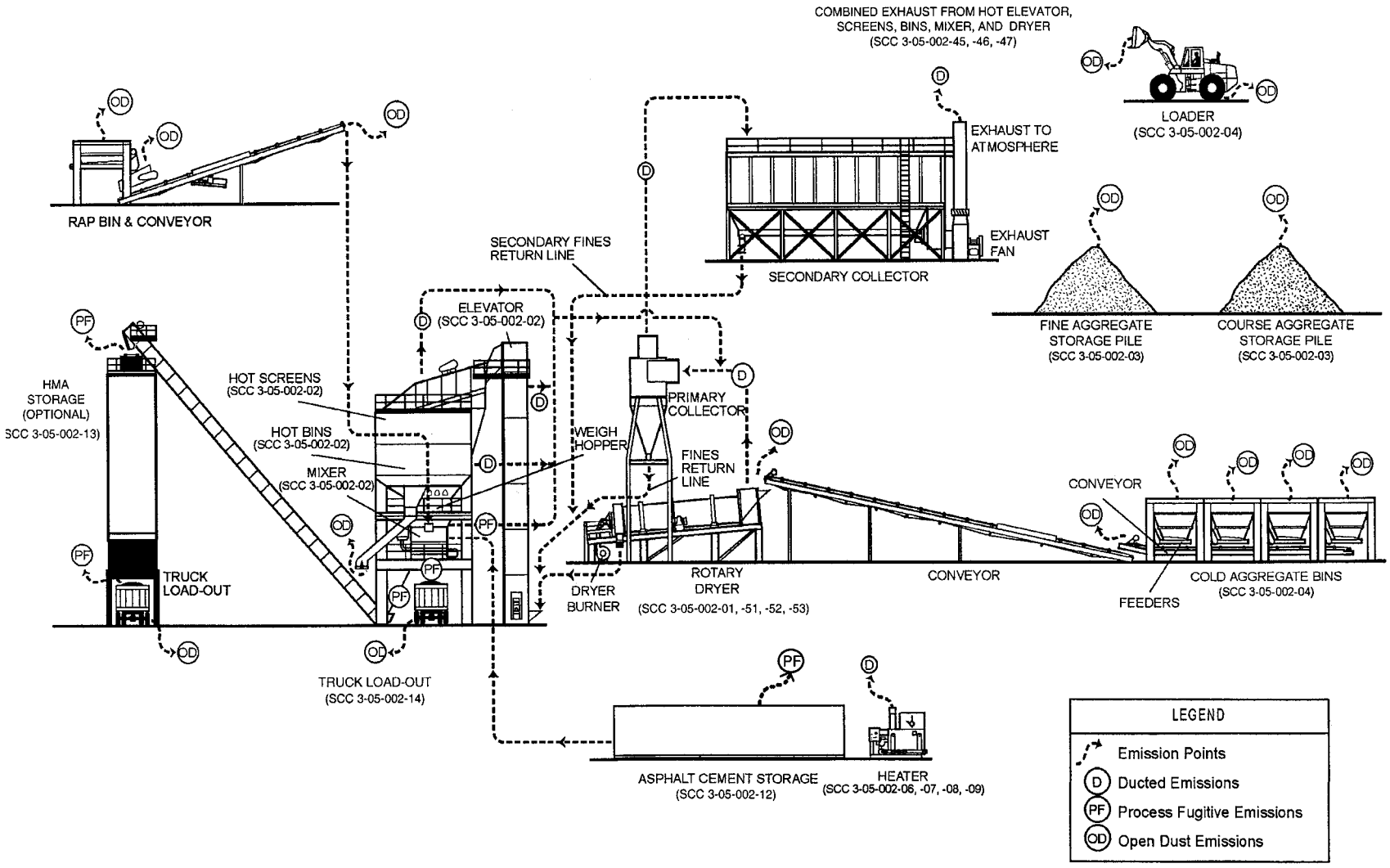


Figure 11.1-1. General process flow diagram for batch mix asphalt plants (source classification codes in parentheses).[3]

The aggregate from the weigh hopper is dropped into the mixer (pug mill) and dry-mixed for 6 to 10 seconds. The liquid asphalt is then dropped into the pug mill where it is mixed for an additional period of time. At older plants, RAP typically is conveyed directly to the pug mill from storage hoppers and combined with the hot aggregate. Total mixing time usually is less than 60 seconds. Then the hot mix is conveyed to a hot storage silo or is dropped directly into a truck and hauled to the job site.

11.1.1.2 Parallel Flow Drum Mix Plants –

Figure 11.1-2 shows the parallel flow drum mix process. This process is a continuous mixing type process, using proportioning cold feed controls for the process materials. The major difference between this process and the batch process is that the dryer is used not only to dry the material but also to mix the heated and dried aggregates with the liquid asphalt cement. Aggregate, which has been proportioned by size gradations, is introduced to the drum at the burner end. As the drum rotates, the aggregates, as well as the combustion products, move toward the other end of the drum in parallel. Liquid asphalt cement flow is controlled by a variable flow pump electronically linked to the new (virgin) aggregate and RAP weigh scales. The asphalt cement is introduced in the mixing zone midway down the drum in a lower temperature zone, along with any RAP and particulate matter (PM) from collectors.

The mixture is discharged at the end of the drum and is conveyed to either a surge bin or HMA storage silos, where it is loaded into transport trucks. The exhaust gases also exit the end of the drum and pass on to the collection system.

Parallel flow drum mixers have an advantage, in that mixing in the discharge end of the drum captures a substantial portion of the aggregate dust, therefore lowering the load on the downstream PM collection equipment. For this reason, most parallel flow drum mixers are followed only by primary collection equipment (usually a baghouse or venturi scrubber). However, because the mixing of aggregate and liquid asphalt cement occurs in the hot combustion product flow, organic emissions (gaseous and liquid aerosol) may be greater than in other asphalt mixing processes. Because data are not available to distinguish significant emissions differences between the two process designs, this effect on emissions cannot be verified.

11.1.1.3 Counterflow Drum Mix Plants –

Figure 11.1-3 shows a counterflow drum mix plant. In this type of plant, the material flow in the drum is opposite or counterflow to the direction of exhaust gases. In addition, the liquid asphalt cement mixing zone is located behind the burner flame zone so as to remove the materials from direct contact with hot exhaust gases.

Liquid asphalt cement flow is controlled by a variable flow pump which is electronically linked to the virgin aggregate and RAP weigh scales. It is injected into the mixing zone along with any RAP and particulate matter from primary and secondary collectors.

Because the liquid asphalt cement, virgin aggregate, and RAP are mixed in a zone removed from the exhaust gas stream, counterflow drum mix plants will likely have organic emissions (gaseous and liquid aerosol) that are lower than parallel flow drum mix plants. However, the available data are insufficient to discern any differences in emissions that result from differences in the two processes. A counterflow drum mix plant can normally process RAP at ratios up to 50 percent with little or no observed effect upon emissions.

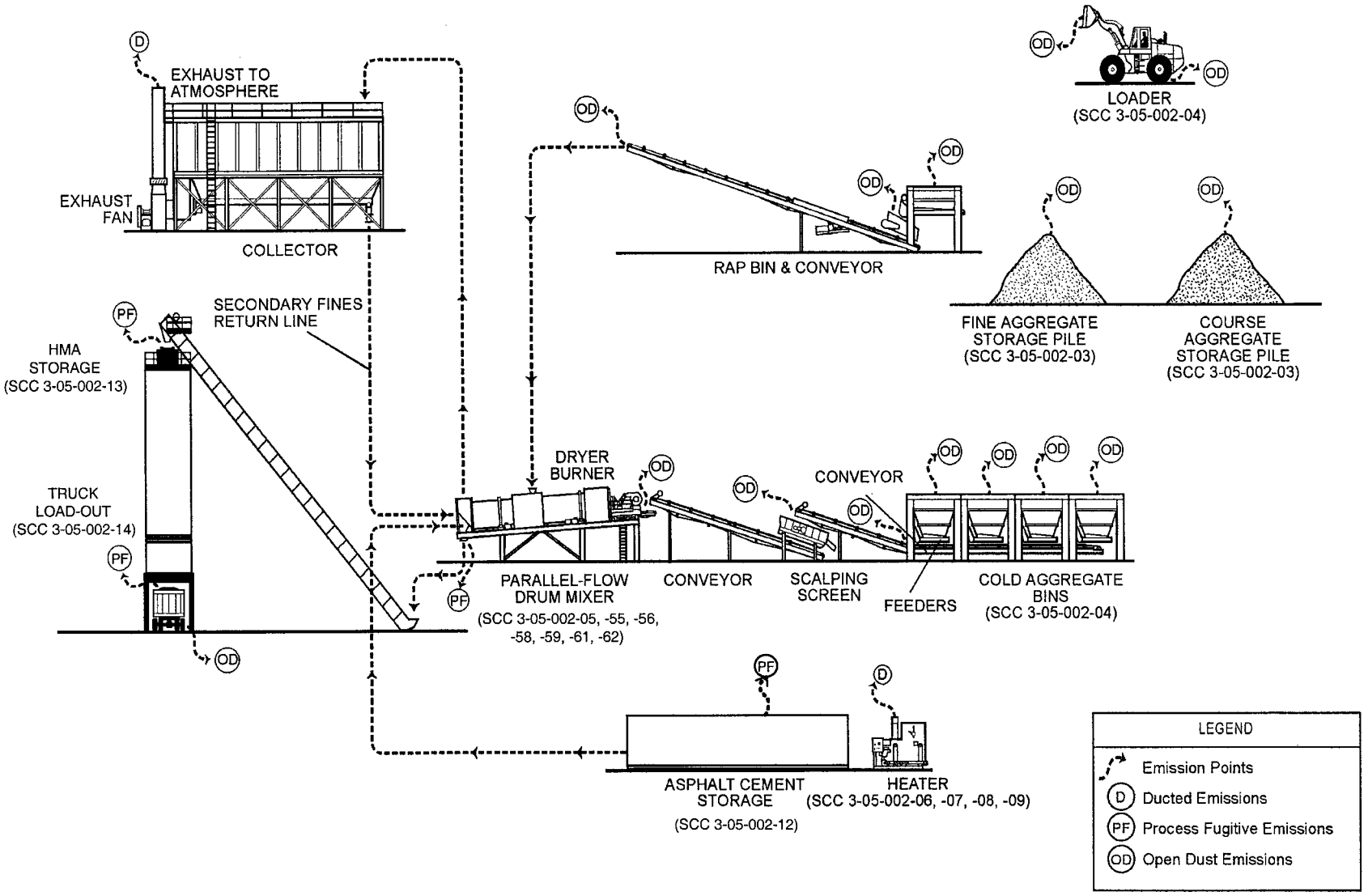


Figure 11.1-2. General process flow diagram for parallel-flow drum mix asphalt plants (source classification codes in parentheses).[3]

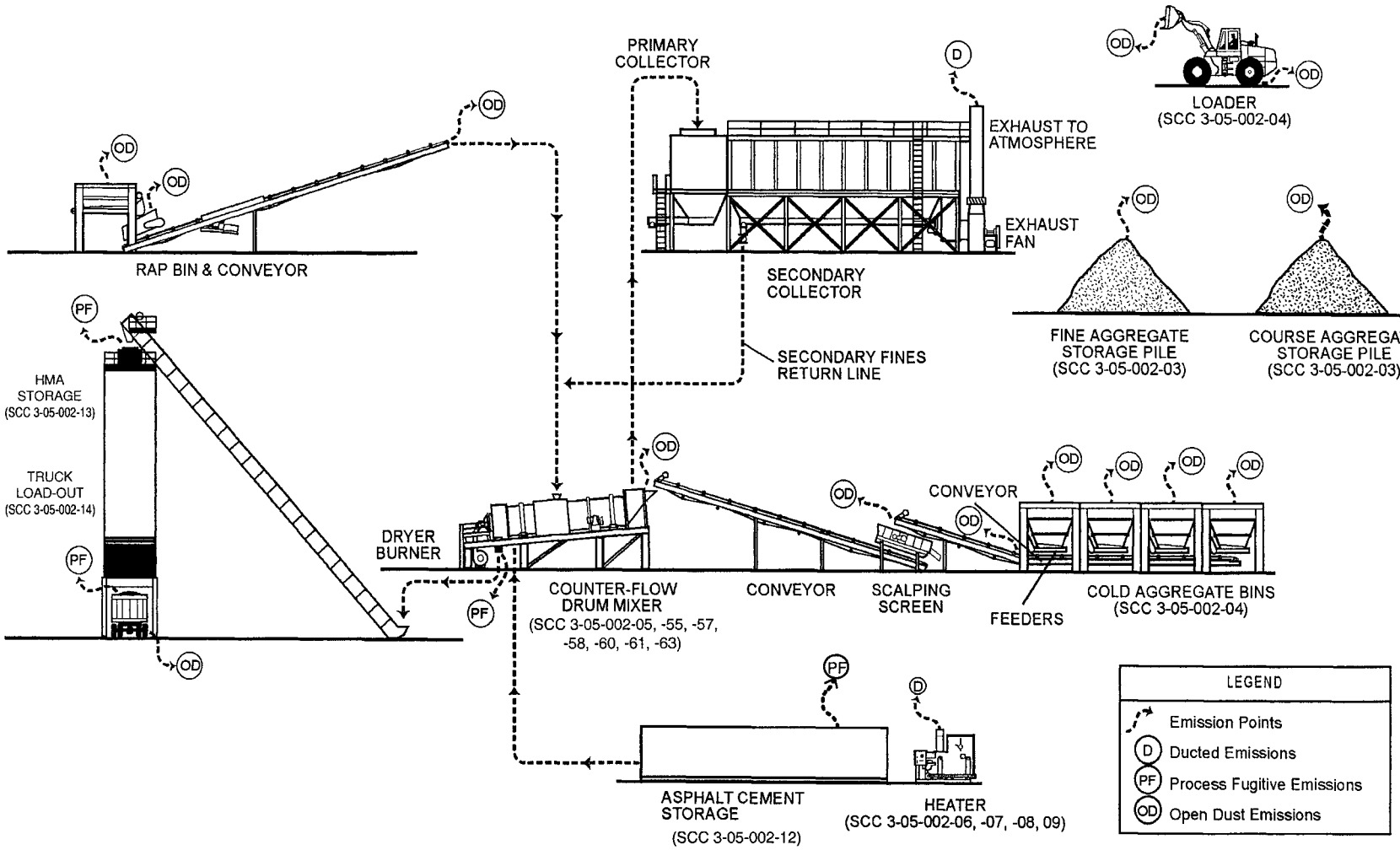


Figure 11.1-3. General process flow diagram for counter-flow drum mix asphalt plants (source classification codes in parentheses).[3]

11.1.1.4 Recycle Processes[393] –

In recent years, the use of RAP has been initiated in the HMA industry. Reclaimed asphalt pavement significantly reduces the amount of virgin rock and asphalt cement needed to produce HMA.

In the reclamation process, old asphalt pavement is removed from the road base. This material is then transported to the plant, and is crushed and screened to the appropriate size for further processing. The paving material is then heated and mixed with new aggregate (if applicable), and the proper amount of new asphalt cement is added to produce HMA that meets the required quality specifications.

11.1.2 Emissions And Controls[2-3,23]

Emissions from HMA plants may be divided into ducted production emissions, pre-production fugitive dust emissions, and other production-related fugitive emissions. Pre-production fugitive dust sources associated with HMA plants include vehicular traffic generating fugitive dust on paved and unpaved roads, aggregate material handling, and other aggregate processing operations. Fugitive dust may range from 0.1 μm to more than 300 μm in aerodynamic diameter. On average, 5 percent of cold aggregate feed is less than 74 μm (minus 200 mesh). Fugitive dust that may escape collection before primary control generally consists of PM with 50 to 70 percent of the total mass less than 74 μm. Uncontrolled PM emission factors for various types of fugitive sources in HMA plants are addressed in Sections 11.19.2, "Crushed Stone Processing", 13.2.1, "Paved Roads", 13.2.2, "Unpaved Roads", 13.2.3, "Heavy Construction Operations", and 13.2.4, "Aggregate Handling and Storage Piles." Production-related fugitive emissions and emissions from ducted production operations are discussed below. Emission points discussed below refer to Figure 11.1-1 for batch mix asphalt plants and to Figures 11.1-2 and 11.1-3 for drum mix plants.

11.1.2.1 Batch Mix Plants –

As with most facilities in the mineral products industry, batch mix HMA plants have two major categories of emissions: ducted sources (those vented to the atmosphere through some type of stack, vent, or pipe), and fugitive sources (those not confined to ducts and vents but emitted directly from the source to the ambient air). Ducted emissions are usually collected and transported by an industrial ventilation system having one or more fans or air movers, eventually to be emitted to the atmosphere through some type of stack. Fugitive emissions result from process and open sources and consist of a combination of gaseous pollutants and PM.

The most significant ducted source of emissions of most pollutants from batch mix HMA plants is the rotary drum dryer. The dryer emissions consist of water (as steam evaporated from the aggregate); PM; products of combustion (carbon dioxide [CO_2], nitrogen oxides [NO_x], and sulfur oxides [SO_x]); carbon monoxide (CO); and small amounts of organic compounds of various species (including volatile organic compounds [VOC], methane [CH_4], and hazardous air pollutants [HAP]). The CO and organic compound emissions result from incomplete combustion of the fuel. It is estimated that between 70 and 90 percent of the energy used at HMA plants is from the combustion of natural gas.

Other potential process sources include the hot-side conveying, classifying, and mixing equipment, which are vented either to the primary dust collector (along with the dryer gas) or to a separate dust collection system. The vents and enclosures that collect emissions from these sources are commonly called "fugitive air" or "scavenger" systems. The scavenger system may or may not have its own separate air mover device, depending on the particular facility. The emissions captured and transported by the scavenger system are mostly aggregate dust, but they may also contain gaseous organic compounds and a fine aerosol of condensed organic particles. This organic aerosol is created by the condensation of vapor into particles during cooling of organic vapors volatilized from the asphalt cement in the mixer (pug mill). The amount of organic aerosol produced depends to a large extent on the temperature of the asphalt cement and aggregate entering the pug mill. Organic vapor and its associated

aerosol also are emitted directly to the atmosphere as process fugitives during truck load-out, from the bed of the truck itself during transport to the job site, and from the asphalt storage tank. Both the low molecular weight organic compounds and the higher weight organic aerosol contain small amounts of HAP. The ducted emissions from the heated asphalt storage tanks include gaseous and aerosol organic compounds and combustion products from the tank heater.

The choice of applicable emission controls for PM emissions from the dryer and vent line includes dry mechanical collectors, scrubbers, and fabric filters. Attempts to apply electrostatic precipitators have met with little success. Practically all plants use primary dust collection equipment such as large diameter cyclones, skimmers, or settling chambers. These chambers often are used as classifiers to return collected material to the hot elevator and to combine it with the drier aggregate. To capture remaining PM, the primary collector effluent is ducted to a secondary collection device. Most plants use either a fabric filter or a venturi scrubber for secondary emissions control. As with any combustion process, the design, operation, and maintenance of the burner provides opportunities to minimize emissions of NO_x, CO, and organic compounds.

11.1.2.2 Parallel Flow Drum Mix Plants –

The most significant ducted source of emissions from parallel-flow drum mix plants is the rotary drum dryer. Emissions from the drum consist of water (as steam evaporated from the aggregate); PM; products of combustion; CO; and small amounts of organic compounds of various species (including VOC, CH_4, and HAP). The organic compound and CO emissions result from incomplete combustion of the fuel and from heating and mixing of the liquid asphalt cement inside the drum. Although it has been suggested that the processing of RAP materials at these type plants may increase organic compound emissions because of an increase in mixing zone temperature during processing, the data supporting this hypothesis are very weak. Specifically, although the data show a relationship only between RAP content and condensible organic particulate emissions, 89 percent of the variations in the data were the result of other unknown process variables.

Once the organic compounds cool after discharge from the process stack, some condense to form a fine organic aerosol or "blue smoke" plume. A number of process modifications or restrictions have been introduced to reduce blue smoke, including installation of flame shields, rearrangement of flights inside the drum, adjustments of the asphalt injection point, and other design changes.

11.1.2.3 Counterflow Drum Mix Plants –

The most significant ducted source of emissions from counterflow drum mix plants is the rotary drum dryer. Emissions from the drum consist of water (as steam evaporated from the aggregate); PM; products of combustion; CO; and small amounts of organic compounds of various species (including VOC, CH_4, and HAP). The CO and organic compound emissions result primarily from incomplete combustion of the fuel, and can also be released from the heated asphalt. Liquid asphalt cement, aggregate, and sometimes RAP, are mixed in a zone not in contact with the hot exhaust gas stream. As a result, kiln stack emissions of organic compounds from counterflow drum mix plants may be lower than parallel flow drum mix plants. However, variations in the emissions due to other unknown process variables are more significant. As a result, the emission factors for parallel flow and counterflow drum mix plants are the same.

11.1.2.4 Parallel and Counterflow Drum Mix Plants –

Process fugitive emissions associated with batch plant hot screens, elevators, and the mixer (pug mill) are not present in the drum mix processes. However, there are fugitive PM and VOC emissions from transport and handling of the HMA from the drum mixer to the storage silo and also from the load-out operations to the delivery trucks. Since the drum process is continuous, these plants have surge

bins or storage silos. The fugitive dust sources associated with drum mix plants are similar to those of batch mix plants with regard to truck traffic and to aggregate material feed and handling operations.

Table 11.1-1 presents emission factors for filterable PM and PM-10, condensable PM, and total PM for batch mix HMA plants. Particle size data for batch mix HMA plants, based on the control technology used, are shown in Table 11.1-2. Table 11.1-3 presents filterable PM and PM-10, condensable PM, and total PM emission factors for drum mix HMA plants. Particle size data for drum mix HMA plants, based on the control technology used, are shown in Table 11.1-4. Tables 11.1-5 and -6 present emission factors for CO, CO_2, NO_x, sulfur dioxide (SO_2), total organic compounds (TOC), formaldehyde, CH_4, and VOC from batch mix plants. Tables 11.1-7 and -8 present emission factors for CO, CO_2, NO_x, SO_2, TOC, CH_4, VOC, and hydrochloric acid (HCl) from drum mix plants. The emission factors for CO, NO_x, and organic compounds represent normal plant operations without scrutiny of the burner design, operation, and maintenance. Information provided in Reference 390 indicates that attention to burner design, periodic evaluation of burner operation, and appropriate maintenance can reduce these emissions. Table 11.1-9 presents organic pollutant emission factors for batch mix plants. Table 11.1-10 presents organic pollutant emission factors for drum mix plants. Tables 11.1-11 and -12 present metals emission factors for batch and drum mix plants, respectively. Table 11.1-13 presents organic pollutant emission factors for hot (asphalt) oil systems.

11.1.2.5 Fugitive Emissions from Production Operations –

Emission factors for HMA load-out and silo filling operations can be estimated using the data in Tables 11.1-14, -15, and -16. Table 11.1-14 presents predictive emission factor equations for HMA load-out and silo filling operations. Separate equations are presented for total PM, extractable organic PM (as measured by EPA Method 315), TOC, and CO. For example, to estimate total PM emissions from drum mix or batch mix plant load-out operations using an asphalt loss-on-heating of 0.41 percent and temperature of 290°F, the following calculation is made:

$$
\begin{aligned}
EF &= 0.000181 + 0.00141(-V)e^{((0.0251)(290 + 460) - 20.43)} \\
&= 0.000181 + 0.00141(-(-0.41))e^{((0.0251)(290 + 460) - 20.43)} \\
&= 0.000181 + 0.00141(0.41)e^{(-1.605)} \\
&= 0.000181 + 0.00141(0.41)(0.2009) \\
&= 0.000181 + 0.000116 \\
&= 0.00030 \text{ lb total PM/ton of asphalt loaded}
\end{aligned}
$$

Tables 11.1-15 and -16 present speciation profiles for organic particulate-based and volatile particulate-based compounds, respectively. The speciation profile shown in Table 11.1-15 can be applied to the extractable organic PM emission factors estimated by the equations in Table 11.1-14 to estimate emission factors for specific organic PM compounds. The speciation profile presented in Table 11.1-16 can be applied to the TOC emission factors estimated by the equations in Table 11.1-14 to estimate emission factors for specific volatile organic compounds. The derivations of the predictive emission factor equations and the speciation profiles can be found in Reference 1.

For example, to estimate TOC emissions from drum mix plant load-out operations using an asphalt loss-on-heating of 0.41 percent and temperature of 290°F, the following calculation is made:

$$
\begin{aligned}
EF &= 0.0172(-V)e^{((0.0251)(290 + 460) - 20.43)} \\
&= 0.0172(-(-0.41))e^{((0.0251)(290 + 460) - 20.43)} \\
&= 0.0172(0.41)e^{(-1.605)} \\
&= 0.0172(0.41)(0.2009) \\
&= 0.0014 \text{ lb TOC/ton of asphalt loaded}
\end{aligned}
$$

To estimate the benzene emissions from the same operation, use the TOC emission factor calculated above and apply the benzene fraction for load-out emissions from Table 11.1-16:

EF = 0.0014 (0.00052)
= 7.3×10^{-7} lb benzene/ton of asphalt loaded

Emissions from asphalt storage tanks can be estimated using the procedures described in AP-42 Section 7.1, Organic Liquid Storage Tanks, and the TANKS software. Site-specific data should be used for storage tank specifications and operating parameters, such as temperature. If site-specific data for Antoine's constants for an average asphalt binder used by the facility are unavailable, the following values for an average liquid asphalt binder can be used:

A = 75,350.06
B = 9.00346

These values should be inserted into the Antoine's equation in the following form:

$$\log_{10} P = \frac{-0.05223A}{T} + B$$

where:

P = vapor pressure, mm Hg
T = absolute temperature, Kelvin

The assumed average liquid molecular weight associated with these Antoine's constants is 1,000 atomic mass units and the average vapor molecular weight is 105. Emission factors estimated using these default values should be assigned a rating of E. Carbon monoxide emissions can be estimated by multiplying the THC emissions calculated by the TANKS program by 0.097 (the ratio of silo filling CO emissions to silo filling TOC emissions).

Vapors from the HMA loaded into transport trucks continue following load-out operations. The TOC emissions for the 8-minute period immediately following load-out (yard emissions) can be estimated using an emission factor of 0.00055 kg/Mg (0.0011 lb/ton) of asphalt loaded. This factor is assigned a rating of E. The derivation of this emission factor is described in Reference 1. Carbon monoxide emissions can be estimated by multiplying the TOC emissions by 0.32 (the ratio of truck load-out CO emissions to truck load-out THC emissions).

11.2.3 Updates Since the Fifth Edition

The Fifth Edition was released in January 1995. Revisions to this section since that date are summarized below. For further detail, consult the background report for this section. This and other documents can be found on the CHIEF Web Site at http://www.epa.gov/ttn/chief/, or by calling the Info CHIEF Help Desk at (919)541-1000.

December 2000

- All emission factors were revised and new factors were added. For selected pollutant emissions, separate factors were developed for distilate oil, No. 6 oil and waste oil fired dryers. Dioxin and Furan emission factors were developed for oil fired drum mix plants. Particulate, VOC and CO factors were developed for silo filling, truck load out and post truck load out operations at batch plants and drum mix plants. Organic species profiles were developed for silo filling, truck load out and post truck load out operations.

March 2004

- The emission factor for formaldehyde for oil fired hot oil heaters was revised. An emission factor for formaldehyde for gas fired hot oil heaters and emission factors for CO and CO_2 for gas and oil fired hot oil heaters were developed. (Table 11.1-13)

Table 11.1-1. PARTICULATE MATTER EMISSION FACTORS FOR BATCH MIX HOT MIX ASPHALT PLANTS[a]

Process	Filterable PM				Condensable PM[b]				Total PM			
	PM[c]	EMISSION FACTOR RATING	PM-10[d]	EMISSION FACTOR RATING	Inorganic	EMISSION FACTOR RATING	Organic	EMISSION FACTOR RATING	PM[e]	EMISSION FACTOR RATING	PM-10[f]	EMISSION FACTOR RATING
Dryer, hot screens, mixer[g] (SCC 3-05-002-45, -46, -47)												
Uncontrolled	32[h]	E	4.5	E	0.013[j]	E	0.0041[j]	E	32	E	4.5	E
Venturi or wet scrubber	0.12[k]	C	ND	NA	0.013[m]	B	0.0041[n]	B	0.14	C	ND	NA
Fabric filter	0.025[p]	A	0.0098	C	0.013[m]	A	0.0041[n]	A	0.042	B	0.027	C

[a] Factors are lb/ton of product. SCC = Source Classification Code. ND = no data. NA = not applicable. To convert from lb/ton to kg/Mg, multiply by 0.5.

[b] Condensable PM is that PM collected using an EPA Method 202, Method 5 (analysis of "back-half" or impingers), or equivalent sampling train.

[c] Filterable PM is that PM collected on or before the filter of an EPA Method 5 (or equivalent) sampling train.

[d] Particle size data from Reference 23 were used in conjunction with the filterable PM emission factors shown.

[e] Total PM is the sum of filterable PM, condensable inorganic PM, and condensable organic PM.

[f] Total PM-10 is the sum of filterable PM-10, condensable inorganic PM, and condensable organic PM.

[g] Batch mix dryer fired with natural gas, propane, fuel oil, waste oil, and coal. The data indicate that fuel type does not significantly effect PM emissions.

[h] Reference 5.

[j] Although no data are available for uncontrolled condensable PM, values are assumed to be equal to the controlled value measured.

[k] Reference 1, Table 4-19. Average of data from 16 facilities. Range: 0.047 to 0.40 lb/ton. Median: 0.049 lb/ton. Standard deviation: 0.11 lb/ton.

[m] Reference 1, Table 4-19. Average of data from 35 facilities. Range: 0.00073 to 0.12 lb/ton. Median: 0.0042 lb/ton. Standard deviation: 0.024 lb/ton.

[n] Reference 1, Table 4-19. Average of data from 24 facilities. Range: 0.000012 to 0.018 lb/ton. Median: 0.0026 lb/ton. Standard deviation: 0.0042 lb/ton.

[p] Reference 1, Table 4-19. Average of data from 89 facilities. Range: 0.0023 to 0.18 lb/ton. Median: 0.012 lb/ton. Standard deviation: 0.033 lb/ton.

Table 11.1-2. SUMMARY OF PARTICLE SIZE DISTRIBUTION FOR BATCH MIX DRYERS, HOT SCREENS, AND MIXERS[a]

EMISSION FACTOR RATING: E

Particle Size, μm[b]	Cumulative Mass Less Than or Equal to Stated Size (%)[c]		Emission Factors, lb/ton	
	Uncontrolled[d]	Fabric Filter	Uncontrolled[d]	Fabric Filter
1.0	ND	30[e]	ND	0.0075[e]
2.5	0.83	33[e]	0.27	0.0083[e]
5.0	3.5	36[e]	1.1	0.0090[e]
10.0	14	39[f]	4.5	0.0098[f]
15.0	23	47[e]	7.4	0.012[e]

[a] Emission factor units are lb/ton of HMA provided. Rounded to two significant figures. SCC 3-05-002-45, -46, -47. ND = no data available. To convert from lb/ton to kg/Mg, multiply by 0.5.

[b] Aerodynamic diameter.

[c] Applies only to the mass of filterable PM.

[d] References 23, Table 3-36. The emission factors are calculated using the particle size data from this reference in conjunction with the filterable PM emission factor shown in Table 11.1-1.

[e] References 23, Page J-61. The emission factors are calculated using the particle size data from this reference in conjunction with the filterable PM emission factor shown in Table 11.1-1.

[f] References 23-24. The emission factors are calculated using the particle size data from these references in conjunction with the filterable PM emission factor shown in Table 11.1-1.

Table 11.1-3. PARTICULATE MATTER EMISSION FACTORS FOR DRUM MIX HOT MIX ASPHALT PLANTS[a]

Process	Filterable PM				Condensable PM[b]				Total PM			
	PM[c]	EMISSION FACTOR RATING	PM-10[d]	EMISSION FACTOR RATING	Inorganic	EMISSION FACTOR RATING	Organic	EMISSION FACTOR RATING	PM[e]	EMISSION FACTOR RATING	PM-10[f]	EMISSION FACTOR RATING
Dryer[g] (SCC 3-05-002-05,-55 to -63)												
Uncontrolled	28[h]	D	6.4	D	0.0074[j]	E	0.058[k]	E	28	D	6.5	D
Venturi or wet scrubber	0.026[m]	A	ND	NA	0.0074[n]	A	0.012[p]	A	0.045	A	ND	NA
Fabric filter	0.014[q]	A	0.0039	C	0.0074[n]	A	0.012[p]	A	0.033	A	0.023	C

[a] Factors are lb/ton of product. SCC = Source Classification Code. ND = no data. NA = not applicable. To convert from lb/ton to kg/Mg, multiply by 0.5.

[b] Condensable PM is that PM collected using an EPA Method 202, Method 5 (analysis of "back-half" or impingers), or equivalent sampling train.

[c] Filterable PM is that PM collected on or before the filter of an EPA Method 5 (or equivalent) sampling train.

[d] Particle size data from Reference 23 were used in conjunction with the filterable PM emission factors shown.

[e] Total PM is the sum of filterable PM, condensable inorganic PM, and condensable organic PM.

[f] Total PM-10 is the sum of filterable PM-10, condensable inorganic PM, and condensable organic PM.

[g] Drum mix dryer fired with natural gas, propane, fuel oil, and waste oil. The data indicate that fuel type does not significantly effect PM emissions.

[h] References 31, 36-38, 340.

[j] Because no data are available for uncontrolled condensable inorganic PM, the emission factor is assumed to be equal to the maximum controlled condensable inorganic PM emission factor.

[k] References 36-37.

[m] Reference 1, Table 4-14. Average of data from 36 facilities. Range: 0.0036 to 0.097 lb/ton. Median: 0.020 lb/ton. Standard deviation: 0.022 lb/ton.

[n] Reference 1, Table 4-14. Average of data from 30 facilities. Range: 0.0012 to 0.027 lb/ton. Median: 0.0051 lb/ton. Standard deviation: 0.0063 lb/ton.

[p] Reference 1, Table 4-14. Average of data from 41 facilities. Range: 0.00035 to 0.074 lb/ton. Median: 0.0046 lb/ton. Standard deviation: 0.016 lb/ton.

[q] Reference 1, Table 4-14. Average of data from 155 facilities. Range: 0.00089 to 0.14 lb/ton. Median: 0.010 lb/ton. Standard deviation: 0.017 lb/ton.

Table 11.1-4. SUMMARY OF PARTICLE SIZE DISTRIBUTION FOR DRUM MIX DRYERS[a]

EMISSION FACTOR RATING: E

Particle Size, μm[b]	Cumulative Mass Less Than or Equal to Stated Size (%)[c]		Emission Factors, lb/ton	
	Uncontrolled[d]	Fabric Filter	Uncontrolled[d]	Fabric Filter
1.0	ND	15[e]	ND	0.0021[e]
2.5	5.5	21[f]	1.5	0.0029[f]
10.0	23	30[g]	6.4	0.0042[g]
15.0	27	35[d]	7.6	0.0049[d]

[a] Emission factor units are lb/ton of HMA produced. Rounded to two significant figures. SCC 3-05-002-05, and 3-05-002-55 to -63. ND = no data available. To convert from lb/ton to kg/Mg, multiply by 0.5.

[b] Aerodynamic diameter.

[c] Applies only to the mass of filterable PM.

[d] Reference 23, Table 3-35. The emission factors are calculated using the particle size data from this reference in conjunction with the filterable PM emission factor shown in Table 11.1-3.

[e] References 214, 229. The emission factors are calculated using the particle size data from these references in conjunction with the filterable PM emission factor shown in Table 11.1-3.

[f] References 23, 214, 229. The emission factors are calculated using the particle size data from these references in conjunction with the filterable PM emission factor shown in Table 11.1-3.

[g] Reference 23, 25, 229. The emission factors are calculated using the particle size data from these references in conjunction with the filterable PM emission factor shown in Table 11.1-3. EMISSION FACTOR RATING: D.

Table 11.1-5. EMISSION FACTORS FOR CO, CO_2, NO_x, AND SO_2 FROM BATCH MIX HOT MIX ASPHALT PLANTS[a]

Process	CO[b]	EMISSION FACTOR RATING	CO_2[c]	EMISSION FACTOR RATING	NO_x	EMISSION FACTOR RATING	SO_2[c]	EMISSION FACTOR RATING
Natural gas-fired dryer, hot screens, and mixer (SCC 3-05-002-45)	0.40	C	37[d]	A	0.025[e]	D	0.0046[f]	E
No. 2 fuel oil-fired dryer, hot screens, and mixer (SCC 3-05-002-46)	0.40	C	37[d]	A	0.12[g]	E	0.088[h]	E
Waste oil-fired dryer, hot screens, and mixer (SCC 3-05-002-47)	0.40	C	37[d]	A	0.12[g]	E	0.088[h]	E
Coal-fired dryer, hot screens, and mixer[j] (SCC 3-05-002-98)	ND	NA	37[d]	A	ND	NA	0.043[k]	E

[a] Emission factor units are lb per ton of HMA produced. SCC = Source Classification Code. ND = no data available. NA = not applicable. To convert from lb/ton to kg/Mg, multiply by 0.5.

[b] References 24, 34, 46-47, 49, 161, 204, 215-217, 282, 370, 378, 381. The CO emission factors represent normal plant operations without scrutiny of the burner design, operation, and maintenance. Information is available that indicates that attention to burner design, periodic evaluation of burner operation, and appropriate maintenance can reduce CO emissions. Data for dryers firing natural gas, No. 2 fuel oil, and No. 6 fuel oil were combined to develop a single emission factor because the magnitude of emissions was similar for dryers fired with these fuels.

[c] Emissions of CO_2 and SO_2 can also be estimated based on fuel usage and the fuel combustion emission factors (for the appropriate fuel) presented in AP-42 Chapter 1. The CO_2 emission factors are an average of all available data, regardless of the dryer fuel (emissions were similar from dryers firing any of the various fuels). Based on data for drum mix facilities, 50 percent of the fuel-bound sulfur, up to a maximum (as SO_2) of 0.1 lb/ton of product, is expected to be retained in the product, with the remainder emitted as SO_2.

[d] Reference 1, Table 4-20. Average of data from 115 facilities. Range: 6.9 to 160 lb/ton. Median: 32 lb/ton. Standard deviation: 22 lb/ton.

[e] References 24, 34, 46-47.

[f] References 46-47.

[g] References 49, 226.

[h] References 49, 226, 228, 385.

[j] Dryer fired with coal and supplemental natural gas or fuel oil.

[k] Reference 126.

Table 11.1-6. EMISSION FACTORS FOR TOC, METHANE, AND VOC FROM BATCH MIX HOT MIX ASPHALT PLANTS[a]

Process	TOC[b]	EMISSION FACTOR RATING	CH_4[c]	EMISSION FACTOR RATING	VOC[d]	EMISSION FACTOR RATING
Natural gas-fired dryer, hot screens, and mixer (SCC 3-05-002-45)	0.015[e]	D	0.0074	D	0.0082	D
No. 2 fuel oil-fired dryer, hot screens, and mixer (SCC 3-05-002-46)	0.015[e]	D	0.0074	D	0.0082	D
No. 6 fuel oil-fired dryer, hot screens, and mixer (SCC 3-05-002-47)	0.043[f]	E	0.0074	D	0.036	E

[a] Emission factor units are lb per ton of HMA produced. SCC = Source Classification Code. ND = no data available. NA = not applicable. To convert from lb/ton to kg/Mg, multiply by 0.5.

[b] TOC equals total hydrocarbons as propane, as measured with an EPA Method 25A or equivalent sampling train plus formaldehyde.

[c] References 24, 46-47, 49. Factor includes data from natural gas- and No. 6 fuel oil-fired dryers. Methane measured with an EPA Method 18 or equivalent sampling train.

[d] The VOC emission factors are equal to the TOC factors minus the methane emission factors; differences in values reported are due to rounding.

[e] References 24, 46-47, 155.

[f] Reference 49.

Table 11.1-7. EMISSION FACTORS FOR CO, CO_2, NO_x, AND SO_2 FROM DRUM MIX HOT MIX ASPHALT PLANTS[a]

Process	CO[b]	EMISSION FACTOR RATING	CO_2[c]	EMISSION FACTOR RATING	NO_x	EMISSION FACTOR RATING	SO_2[c]	EMISSION FACTOR RATING
Natural gas-fired dryer (SCC 3-05-002-55,-56,-57)	0.13	B	33[d]	A	0.026[e]	D	0.0034[f]	D
No. 2 fuel oil-fired dryer (SCC 3-05-002-58,-59,-60)	0.13	B	33[d]	A	0.055[g]	C	0.011[h]	E
Waste oil-fired dryer (SCC 3-05-002-61,-62,-63)	0.13	B	33[d]	A	0.055[g]	C	0.058[j]	B
Coal-fired dryer[k] (SCC 3-05-002-98)	ND	NA	33[d]	A	ND	NA	0.19[m]	E

[a] Emission factor units are lb per ton of HMA produced. SCC = Source Classification Code. ND = no data available. NA = not applicable. To convert from lb/ton to kg/Mg, multiply by 0.5.

[b] References 25, 44, 48, 50, 149, 154, 197, 214, 229, 254, 339-342, 344, 346, 347, 390. The CO emission factors represent normal plant operations without scrutiny of the burner design, operation, and maintenance. Information is available that indicates that attention to burner design, periodic evaluation of burner operation, and appropriate maintenance can reduce CO emissions. Data for dryers firing natural gas, No. 2 fuel oil, and No. 6 fuel oil were combined to develop a single emission factor because the magnitude of emissions was similar for dryers fired with these fuels.

[c] Emissions of CO_2 and SO_2 can also be estimated based on fuel usage and the fuel combustion emission factors (for the appropriate fuel) presented in AP-42 Chapter 1. The CO_2 emission factors are an average of all available data, regardless of the dryer fuel (emissions were similar from dryers firing any of the various fuels). Fifty percent of the fuel-bound sulfur, up to a maximum (as SO_2) of 0.1 lb/ton of product, is expected to be retained in the product, with the remainder emitted as SO_2.

[d] Reference 1, Table 4-15. Average of data from 180 facilities. Range: 2.6 to 96 lb/ton. Median: 31 lb/ton. Standard deviation: 13 lb/ton.

[e] References 44-45, 48, 209, 341, 342.

[f] References 44-45, 48.

[g] References 25, 50, 153, 214, 229, 344, 346, 347, 352-354.

[h] References 50, 119, 255, 340

[j] References 25, 299, 300, 339, 345, 351, 371-377, 379, 380, 386-388.

[k] Dryer fired with coal and supplemental natural gas or fuel oil.

[m] References 88, 108, 189-190.

Table 11.1-8. EMISSION FACTORS FOR TOC, METHANE, VOC, AND HCl FROM DRUM MIX HOT MIX ASPHALT PLANTS[a]

Process	TOC[b]	EMISSION FACTOR RATING	CH_4[c]	EMISSION FACTOR RATING	VOC[d]	EMISSION FACTOR RATING	HCl[e]	EMISSION FACTOR RATING
Natural gas-fired dryer (SCC 3-05-002-55, -56,-57)	0.044[f]	B	0.012	C	0.032	C	ND	NA
No. 2 fuel oil-fired dryer (SCC 3-05-002-58, -59,-60)	0.044[f]	B	0.012	C	0.032	C	ND	NA
Waste oil-fired dryer (SCC 3-05-002-61, -62,-63)	0.044[f]	E	0.012	C	0.032	E	0.00021	D

[a] Emission factor units are lb per ton of HMA produced. SCC = Source Classification Code. ND = no data available. NA = not applicable. To convert from lb/ton to kg/Mg, multiply by 0.5.

[b] TOC equals total hydrocarbons as propane as measured with an EPA Method 25A or equivalent sampling train plus formaldehyde.

[c] References 25, 44-45, 48, 50, 339-340, 355. Factor includes data from natural gas-, No. 2 fuel oil, and waste oil-fired dryers. Methane measured with an EPA Method 18 or equivalent sampling train.

[d] The VOC emission factors are equal to the TOC factors minus the sum of the methane emission factors and the emission factors for compounds with negligible photochemical reactivity shown in Table 11.1-10; differences in values reported are due to rounding.

[e] References 348, 374, 376, 379, 380.

[f] References 25, 44-45, 48, 50, 149, 153-154, 209-212, 214, 241, 242, 339-340, 355.

Table 11.1-9. EMISSION FACTORS FOR ORGANIC POLLUTANT EMISSIONS FROM BATCH MIX HOT MIX ASPHALT PLANTS[a]

Process	Pollutant		Emission Factor, lb/ton	Emission Factor Rating	Ref. Nos.
	CASRN	Name			
Natural gas- or No. 2 fuel oil-fired dryer, hot screens, and mixer with fabric filter (SCC 3-05-002-45,-46)	Non-PAH Hazardous Air Pollutants[b]				
	75-07-0	Acetaldehyde	0.00032	E	24,34
	71-43-2	Benzene	0.00028	D	24,34,46, 382
	100-41-4	Ethylbenzene	0.0022	D	24,46,47,49
	50-00-0	Formaldehyde	0.00074	D	24,34,46,47,49,226,382
	106-51-4	Quinone	0.00027	E	24
	108-88-3	Toluene	0.0010	D	24,34,46,47
	1330-20-7	Xylene	0.0027	D	24,46,47,49
		Total non-PAH HAPs	0.0075		
	PAH HAPs				
	91-57-6	2-Methylnaphthalene[c]	7.1×10^{-5}	D	24,47,49
	83-32-9	Acenaphthene[c]	9.0×10^{-7}	D	34,46,226
	208-96-8	Acenaphthylene[c]	5.8×10^{-7}	D	34,46,226
	120-12-7	Anthracene[c]	2.1×10^{-7}	D	34,46,226
	56-55-3	Benzo(a)anthracene[c]	4.6×10^{-9}	E	46,226
	50-32-8	Benzo(a)pyrene[c]	3.1×10^{-10}	E	226
	205-99-2	Benzo(b)fluoranthene[c]	9.4×10^{-9}	D	34,46,226
	191-24-2	Benzo(g,h,i)perylene[c]	5.0×10^{-10}	E	226
	207-08-9	Benzo(k)fluoranthene[c]	1.3×10^{-8}	E	34,226
	218-01-9	Chrysene[c]	3.8×10^{-9}	E	46,226
	53-70-3	Dibenz(a,h)anthracene[c]	9.5×10^{-11}	E	226
	206-44-0	Fluoranthene[c]	1.6×10^{-7}	D	34,46,47,226
	86-73-7	Fluorene[c]	1.6×10^{-6}	D	34,46,47,226
	193-39-5	Indeno(1,2,3-cd)pyrene[c]	3.0×10^{-10}	E	226
	91-20-3	Naphthalene	3.6×10^{-5}	D	34,46,47,49,226
	85-01-8	Phenanthrene[c]	2.6×10^{-6}	D	34,46,47,226
	129-00-0	Pyrene[c]	6.2×10^{-8}	D	34,46,226
		Total PAH HAPs	0.00011		
	Total HAPs		0.0076		
	Non-HAP organic compounds				
	100-52-7	Benzaldehyde	0.00013	E	24
	78-84-2	Butyraldehyde/ isobutyraldehyde	3.0×10^{-5}	E	24
	4170-30-3	Crotonaldehyde	2.9×10^{-5}	E	24
	66-25-1	Hexanal	2.4×10^{-5}	E	24
		Total non-HAPs	0.00019		

Table 11.1-9 (cont.)

Process	Pollutant		Emission Factor, lb/ton	Emission Factor Rating	Ref. Nos.
	CASRN	Name			
Waste oil-, drain oil-, or No. 6 fuel oil-fired dryer, hot screens, and mixer with fabric filter (SCC 3-05-002-47)	Non-PAH Hazardous Air Pollutants[b]				
	75-07-0	Acetaldehyde	0.00032	E	24,34
	71-43-2	Benzene	0.00028	D	24,34,46, 382
	100-41-4	Ethylbenzene	0.0022	D	24,46,47,49
	50-00-0	Formaldehyde	0.00074	D	24,34,46,47,49,226, 382
	106-51-4	Quinone	0.00027	E	24
	108-88-3	Toluene	0.0010	D	24,34,46,47
	1330-20-7	Xylene	0.0027	D	24,46,47,49
		Total non-PAH HAPs	0.0075		
	PAH HAPs[b]				
	91-57-6	2-Methylnaphthalene[c]	7.1×10^{-5}	D	24,47,49
	83-32-9	Acenaphthene[c]	9.0×10^{-7}	D	34,46,226
	208-96-8	Acenaphthylene[c]	5.8×10^{-7}	D	34,46,226
	120-12-7	Anthracene[c]	2.1×10^{-7}	D	34,46,226
	56-55-3	Benzo(a)anthracene[c]	4.6×10^{-9}	E	46,226
	50-32-8	Benzo(a)pyrene[c]	3.1×10^{-10}	E	226
	205-99-2	Benzo(b)fluoranthene[c]	9.4×10^{-9}	D	34,46,226
	191-24-2	Benzo(g,h,i)perylene[c]	5.0×10^{-10}	E	226
	207-08-9	Benzo(k)fluoranthene[c]	1.3×10^{-8}	E	34,226
	218-01-9	Chrysene[c]	3.8×10^{-9}	E	46,226
	53-70-3	Dibenz(a,h)anthracene[c]	9.5×10^{-11}	E	226
	206-44-0	Fluoranthene[c]	2.4×10^{-5}	E	49
	86-73-7	Fluorene[c]	1.6×10^{-6}	D	34,46,47,226
	193-39-5	Indeno(1,2,3-cd)pyrene[c]	3.0×10^{-10}	E	226
	91-20-3	Naphthalene	3.6×10^{-5}	D	34,46,47,49, 226
	85-01-8	Phenanthrene[c]	3.7×10^{-5}	E	49
	129-00-0	Pyrene[c]	5.5×10^{-5}	E	49
		Total PAH HAPs	0.00023		
	Total HAPs		0.0077		
	Non-HAP organic compounds				
	100-52-7	Benzaldehyde	0.00013	E	24
	78-84-2	Butyraldehyde/ isobutyraldehyde	3.0×10^{-5}	E	24
	4170-30-3	Crotonaldehyde	2.9×10^{-5}	E	24
	66-25-1	Hexanal	2.4×10^{-5}	E	24
		Total non-HAPs	0.00019		

[a] Emission factor units are lb/ton of hot mix asphalt produced. Factors represent uncontrolled emissions, unless noted. CASRN = Chemical Abstracts Service Registry Number. SCC = Source Classification Code. To convert from lb/ton to kg/Mg, multiply by 0.5.

[b] Hazardous air pollutants (HAP) as defined in the 1990 Clean Air Act Amendments (CAAA).

[c] Compound is classified as polycyclic organic matter, as defined in the 1990 CAAA.

Table 11.1-10. EMISSION FACTORS FOR ORGANIC POLLUTANT EMISSIONS FROM DRUM MIX HOT MIX ASPHALT PLANTS[a]

Process	Pollutant		Emission Factor, lb/ton	Emission Factor Rating	Ref. No.
	CASRN	Name			
Natural gas-fired dryer with fabric filter[b] (SCC 3-05-002-55, -56,-57)	Non-PAH hazardous air pollutants[c]				
	71-43-2	Benzene[d]	0.00039	A	25,44,45,50, 341, 342, 344-351, 373, 376, 377, 383, 384
	100-41-4	Ethylbenzene	0.00024	D	25,44,45
	50-00-0	Formaldehyde[e]	0.0031	A	25,35,44,45,50, 339-344, 347-349, 371-373, 384, 388
	110-54-3	Hexane	0.00092	E	339-340
	540-84-1	Isooctane (2,2,4-trimethylpentane)	4.0×10^{-5}	E	339-340
	71-55-6	Methyl chloroform[f]	4.8×10^{-5}	E	35
	108-88-3	Toluene	0.00015	D	35,44,45
	1330-20-7	Xylene	0.00020	D	25,44,45
		Total non-PAH HAPs	0.0051		
	PAH HAPs				
	91-57-6	2-Methylnaphthalene[g]	7.4×10^{-5}	D	44,45,48
	83-32-9	Acenaphthene[g]	1.4×10^{-6}	E	48
	208-96-8	Acenaphthylene[g]	8.6×10^{-6}	D	35,45,48
	120-12-7	Anthracene[g]	2.2×10^{-7}	E	35,48
	56-55-3	Benzo(a)anthracene[g]	2.1×10^{-7}	E	48
	50-32-8	Benzo(a)pyrene[g]	9.8×10^{-9}	E	48
	205-99-2	Benzo(b)fluoranthene[g]	1.0×10^{-7}	E	35,48
	192-97-2	Benzo(e)pyrene[g]	1.1×10^{-7}	E	48
	191-24-2	Benzo(g,h,i)perylene[g]	4.0×10^{-8}	E	48
	207-08-9	Benzo(k)fluoranthene[g]	4.1×10^{-8}	E	35,48
	218-01-9	Chrysene[g]	1.8×10^{-7}	E	35,48
	206-44-0	Fluoranthene[g]	6.1×10^{-7}	D	35,45,48
	86-73-7	Fluorene[g]	3.8×10^{-6}	D	35,45,48,163
	193-39-5	Indeno(1,2,3-cd)pyrene[g]	7.0×10^{-9}	E	48
	91-20-3	Naphthalene[g]	9.0×10^{-5}	D	35,44,45,48,163
	198-55-0	Perylene[g]	8.8×10^{-9}	E	48
	85-01-8	Phenanthrene[g]	7.6×10^{-6}	D	35,44,45,48,163
	129-00-0	Pyrene[g]	5.4×10^{-7}	D	45,48
		Total PAH HAPs	0.00019		

Table 11.1-10 (cont.)

Process	Pollutant		Emission Factor, lb/ton	Emission Factor Rating	Ref. No.
	CASRN	Name			
Natural gas-fired dryer with fabric filter[b] (SCC 3-05-002-55, -56,-57) (cont.)	Total HAPs		0.0053		
	Non-HAP organic compounds				
	106-97-8	Butane	0.00067	E	339
	74-85-1	Ethylene	0.0070	E	339-340
	142-82-5	Heptane	0.0094	E	339-340
	763-29-1	2-Methyl-1-pentene	0.0040	E	339,340
	513-35-9	2-Methyl-2-butene	0.00058	E	339,340
	96-14-0	3-Methylpentane	0.00019	D	339,340
	109-67-1	1-Pentene	0.0022	E	339-340
	109-66-0	n-Pentane	0.00021	E	339-340
		Total non-HAP organics	0.024		
No. 2 fuel oil-fired dryer with fabric filter (SCC 3-05-002-58, -59,-60)	Non-PAH HAPs[c]				
	71-43-2	Benzene[d]	0.00039	A	25,44,45,50, 341, 342, 344-351, 373, 376, 377, 383, 384
	100-41-4	Ethylbenzene	0.00024	D	25,44,45
	50-00-0	Formaldehyde[e]	0.0031	A	25,35,44,45,50, 339-344, 347-349, 371-373, 384, 388
	110-54-3	Hexane	0.00092	E	339-340
	540-84-1	Isooctane (2,2,4-trimethylpentane)	4.0×10^{-5}	E	339-340
	71-55-6	Methyl chloroform[f]	4.8×10^{-5}	E	35
	108-88-3	Toluene	0.0029	E	25, 50, 339-340
	1330-20-7	Xylene	0.00020	D	25,44,45
		Total non-PAH HAPs	0.0078		
	PAH HAPs				
	91-57-6	2-Methylnaphthalene[g]	0.00017	E	50
	83-32-9	Acenaphthene[g]	1.4×10^{-6}	E	48
	208-96-8	Acenaphthylene[g]	2.2×10^{-5}	E	50
	120-12-7	Anthracene[g]	3.1×10^{-6}	E	50,162
	56-55-3	Benzo(a)anthracene[g]	2.1×10^{-7}	E	48
	50-32-8	Benzo(a)pyrene[g]	9.8×10^{-9}	E	48
	205-99-2	Benzo(b)fluoranthene[g]	1.0×10^{-7}	E	35,48
	192-97-2	Benzo(e)pyrene[g]	1.1×10^{-7}	E	48

Table 11.1-10 (cont.)

Process	Pollutant		Emission Factor, lb/ton	Emission Factor Rating	Ref. No.
	CASRN	Name			
No. 2 fuel oil-fired dryer with fabric filter (SCC 3-05-002-58, -59,-60) (cont.)	191-24-2	Benzo(g,h,i)perylene[g]	4.0×10^{-8}	E	48
	207-08-9	Benzo(k)fluoranthene[g]	4.1×10^{-8}	E	35,48
	218-01-9	Chrysene[g]	1.8×10^{-7}	E	35,48
	206-44-0	Fluoranthene[g]	6.1×10^{-7}	D	35,45,48
	86-73-7	Fluorene[g]	1.1×10^{-5}	E	50,164
	193-39-5	Indeno(1,2,3-cd)pyrene[g]	7.0×10^{-9}	E	48
	91-20-3	Naphthalene[g]	0.00065	D	25,50,162,164
	198-55-0	Perylene[g]	8.8×10^{-9}	E	48
	85-01-8	Phenanthrene[g]	2.3×10^{-5}	D	50,162,164
	129-00-0	Pyrene[g]	3.0×10^{-6}	E	50
		Total PAH HAPs	0.00088		
		Total HAPs	0.0087		
	Non-HAP organic compounds				
	106-97-8	Butane	0.00067	E	339
	74-85-1	Ethylene	0.0070	E	339-340
	142-82-5	Heptane	0.0094	E	339-340
	763-29-1	2-Methyl-1-pentene	0.0040	E	339,340
	513-35-9	2-Methyl-2-butene	0.00058	E	339,340
	96-14-0	3-Methylpentane	0.00019	D	339,340
	109-67-1	1-Pentene	0.0022	E	339-340
	109-66-0	n-Pentane	0.00021	E	339-340
		Total non-HAP organics	0.024		

Table 11.1-10 (cont.)

Process	Pollutant		Emission Factor, lb/ton	Emission Factor Rating	Ref. No.
	CASRN	Name			
Fuel oil- or waste oil-fired dryer with fabric filter (SCC 3-05-002-58, -59,-60,-61,-62, -63)	Dioxins				
	1746-01-6	2,3,7,8-TCDD[g]	$2.1x10^{-13}$	E	339
		Total TCDD[g]	$9.3x10^{-13}$	E	339
	40321-76-4	1,2,3,7,8-PeCDD[g]	$3.1x10^{-13}$	E	339
		Total PeCDD[g]	$2.2x10^{-11}$	E	339-340
	39227-28-6	1,2,3,4,7,8-HxCDD[g]	$4.2x10^{-13}$	E	339
	57653-85-7	1,2,3,6,7,8-HxCDD[g]	$1.3x10^{-12}$	E	339
	19408-24-3	1,2,3,7,8,9-HxCDD[g]	$9.8x10^{-13}$	E	339
		Total HxCDD[g]	$1.2x10^{-11}$	E	339-340
	35822-46-9	1,2,3,4,6,7,8-HpCDD[g]	$4.8x10^{-12}$	E	339
		Total HpCDD[g]	$1.9x10^{-11}$	E	339-340
	3268-87-9	Octa CDD[g]	$2.5x10^{-11}$	E	339
		Total PCDD[g]	$7.9x10^{-11}$	E	339-340
	Furans				
	51207-31-9	2,3,7,8-TCDF[g]	$9.7x10^{-13}$	E	339
		Total TCDF[g]	$3.7x10^{-12}$	E	339-340
		1,2,3,7,8-PeCDF[g]	$4.3x10^{-12}$	E	339-340
		2,3,4,7,8-PeCDF[g]	$8.4x10^{-13}$	E	339
		Total PeCDF[g]	$8.4x10^{-11}$	E	339-340
		1,2,3,4,7,8-HxCDF[g]	$4.0x10^{-12}$	E	339
		1,2,3,6,7,8-HxCDF[g]	$1.2x10^{-12}$	E	339
		2,3,4,6,7,8-HxCDF[g]	$1.9x10^{-12}$	E	339
		1,2,3,7,8,9-HxCDF[g]	$8.4x10^{-12}$	E	340
		Total HxCDF[g]	$1.3x10^{-11}$	E	339-340
		1,2,3,4,6,7,8-HpCDF[g]	$6.5x10^{-12}$	E	339
		1,2,3,4,7,8,9-HpCDF[g]	$2.7x10^{-12}$	E	339
		Total HpCDF[g]	$1.0x10^{-11}$	E	339-340
	39001-02-0	Octa CDF[g]	$4.8x10^{-12}$	E	339
		Total PCDF[g]	$4.0x10^{-11}$	E	339-340
		Total PCDD/PCDF[g]	$1.2x10^{-10}$	E	339-340

Table 11.1-10 (cont.)

Process	Pollutant		Emission Factor, lb/ton	Emission Factor Rating	Ref. No.
	CASRN	Name			
Fuel oil- or waste oil-fired dryer (uncontrolled) (SCC 3-05-002-58, -59,-60,-61,-62, -63)	Hazardous air pollutants[c]				
	Dioxins				
		Total HxCDD[g]	5.4×10^{-12}	E	340
	35822-46-9	1,2,3,4,6,7,8-HpCDD[g]	3.4×10^{-11}	E	340
		Total HpCDD[g]	7.1×10^{-11}	E	340
	3268-87-9	Octa CDD[g]	2.7×10^{-9}	E	340
		Total PCDD[g]	2.8×10^{-9}	E	340
	Furans				
		Total TCDF[g]	3.3×10^{-11}	E	340
		Total PeCDF[g]	7.4×10^{-11}	E	340
		1,2,3,4,7,8-HxCDF[g]	5.4×10^{-12}	E	340
		2,3,4,6,7,8-HxCDF[g]	1.6×10^{-12}	E	340
		Total HxCDF[g]	8.1×10^{-12}	E	340
Fuel oil- or waste oil-fired dryer (uncontrolled) (SCC 3-05-002-58, -59,-60,-61,-62, -63) (cont.)		1,2,3,4,6,7,8-HpCDF[g]	1.1×10^{-11}	E	340
		Total HpCDF[g]	3.8×10^{-11}	E	340
		Total PCDF[g]	1.5×10^{-10}	E	340
		Total PCDD/PCDF[g]	3.0×10^{-9}	E	340

Table 11.1-10 (cont.)

Process	Pollutant		Emission Factor, lb/ton	Emission Factor Rating	Ref. No.
	CASRN	Name			
Waste oil-fired dryer with fabric filter (SCC 3-05-002-61, -62,-63)	Non-PAH HAPs[c]				
	75-07-0	Acetaldehyde	0.0013	E	25
	107-02-8	Acrolein	2.6×10^{-5}	E	25
	71-43-2	Benzene[d]	0.00039	A	25,44,45,50,341,342, 344-351, 373, 376, 377, 383, 384
	100-41-4	Ethylbenzene	0.00024	D	25,44,45
	50-00-0	Formaldehyde[e]	0.0031	A	25,35,44,45,50,339-344,347-349,371-373, 384, 388
	110-54-3	Hexane	0.00092	E	339-340
	540-84-1	Isooctane (2,2,4-trimethylpentane)	4.0×10^{-5}	E	339-340
	78-93-3	Methyl Ethyl Ketone	2.0×10^{-5}	E	25
	123-38-6	Propionaldehyde	0.00013	E	25
	106-51-4	Quinone	0.00016	E	25
	71-55-6	Methyl chloroform[f]	4.8×10^{-5}	E	35
	108-88-3	Toluene	0.0029	E	25, 50, 339-340
	1330-20-7	Xylene	0.00020	D	25,44,45
		Total non-PAH HAPs	0.0095		
	PAH HAPs				
	91-57-6	2-Methylnaphthalene[g]	0.00017	E	50
	83-32-9	Acenaphthene[g]	1.4×10^{-6}	E	48
	208-96-8	Acenaphthylene[g]	2.2×10^{-5}	E	50
	120-12-7	Anthracene[g]	3.1×10^{-6}	E	50,162
	56-55-3	Benzo(a)anthracene[g]	2.1×10^{-7}	E	48
	50-32-8	Benzo(a)pyrene[g]	9.8×10^{-9}	E	48
	205-99-2	Benzo(b)fluoranthene[g]	1.0×10^{-7}	E	35,48
	192-97-2	Benzo(e)pyrene[g]	1.1×10^{-7}	E	48
	191-24-2	Benzo(g,h,i)perylene[g]	4.0×10^{-8}	E	48

Table 11.1-10 (cont.)

Process	Pollutant		Emission Factor, lb/ton	Emission Factor Rating	Ref. No.
	CASRN	Name			
Waste oil-fired dryer with fabric filter (SCC 3-05-002-61, -62,-63) (cont.)	207-08-9	Benzo(k)fluoranthene[g]	$4.1x10^{-8}$	E	35,48
	218-01-9	Chrysene[g]	$1.8x10^{-7}$	E	35,48
	206-44-0	Fluoranthene[g]	$6.1x10^{-7}$	D	35,45,48
	86-73-7	Fluorene[g]	$1.1x10^{-5}$	E	50,164
	193-39-5	Indeno(1,2,3-cd)pyrene[g]	$7.0x10^{-9}$	E	48
	91-20-3	Naphthalene[g]	0.00065	D	25,50,162,164
	198-55-0	Perylene[g]	$8.8x10^{-9}$	E	48
	85-01-8	Phenanthrene[g]	$2.3x10^{-5}$	D	50,162,164
	129-00-0	Pyrene[g]	$3.0x10^{-6}$	E	50
		Total PAH HAPs	0.00088		
		Total HAPs	0.010		
	Non-HAP organic compounds				
	67-64-1	Acetone[f]	0.00083	E	25
	100-52-7	Benzaldehyde	0.00011	E	25
	106-97-8	Butane	0.00067	E	339
	78-84-2	Butyraldehyde	0.00016	E	25
	4170-30-3	Crotonaldehyde	$8.6x10^{-5}$	E	25
	74-85-1	Ethylene	0.0070	E	339, 340
	142-82-5	Heptane	0.0094	E	339, 340
	66-25-1	Hexanal	0.00011	E	25
	590-86-3	Isovaleraldehyde	$3.2x10^{-5}$	E	25
	763-29-1	2-Methyl-1-pentene	0.0040	E	339, 340
	513-35-9	2-Methyl-2-butene	0.00058	E	339, 340
	96-14-0	3-Methylpentane	0.00019	D	339, 340
	109-67-1	1-Pentene	0.0022	E	339, 340
	109-66-0	n-Pentane	0.00021	E	339, 340
	110-62-3	Valeraldehyde	$6.7x10^{-5}$	E	25
		Total non-HAP organics	0.026		

[a] Emission factor units are lb/ton of hot mix asphalt produced. Table includes data from both parallel flow and counterflow drum mix dryers. Organic compound emissions from counterflow systems are expected to be less than from parallel flow systems, but the available data are insufficient to quantify

accurately the difference in these emissions. CASRN = Chemical Abstracts Service Registry Number. SCC = Source Classification Code. To convert from lb/ton to kg/Mg, multiply by 0.5.

[b] Tests included dryers that were processing reclaimed asphalt pavement. Because of limited data, the effect of RAP processing on emissions could not be determined.

[c] Hazardous air pollutants (HAP) as defined in the 1990 Clean Air Act Amendments (CAAA).

[d] Based on data from 19 tests. Range: 0.000063 to 0.0012 lb/ton; median: 0.00030; Standard deviation: 0.00031.

[e] Based on data from 21 tests. Range: 0.0030 to 0.014 lb/ton; median: 0.0020; Standard deviation: 0.0036.

[f] Compound has negligible photochemical reactivity.

[g] Compound is classified as polycyclic organic matter, as defined in the 1990 CAAA. Total PCDD is the sum of the total tetra through octa dioxins; total PCDF is sum of the total tetra through octa furans; and total PCDD/PCDF is the sum of total PCDD and total PCDF.

Table 11.1-11. EMISSION FACTORS FOR METAL EMISSIONS FROM BATCH MIX HOT MIX ASPHALT PLANTS[a]

Process	Pollutant	Emission Factor, lb/ton	Emission Factor Rating	Reference Numbers
Dryer, hot screens, and mixer[b] (SCC 3-05-002-45,-46,-47)	Arsenic[c]	4.6×10^{-7}	D	34, 40, 226
	Barium	1.5×10^{-6}	E	24
	Beryllium[c]	1.5×10^{-7}	E	34, 226
	Cadmium[c]	6.1×10^{-7}	D	24, 34, 226
	Chromium[c]	5.7×10^{-7}	D	24, 34, 226
	Hexavalent chromium[c]	4.8×10^{-8}	E	34, 226
	Copper	2.8×10^{-6}	D	24, 34, 226
	Lead[c]	8.9×10^{-7}	D	24, 34, 226
	Manganese[c]	6.9×10^{-6}	D	24, 34, 226
	Mercury[c]	4.1×10^{-7}	E	34, 226
	Nickel[c]	3.0×10^{-6}	D	24, 34, 226
	Selenium[c]	4.9×10^{-7}	E	34, 226
	Zinc	6.8×10^{-6}	D	24, 34, 226

[a] Emission factor units are lb/ton of HMA produced. Emissions controlled by a fabric filter. SCC = Source Classification Code. To convert from lb/ton to kg/Mg, multiply by 0.5.

[b] Natural gas-, propane-, No. 2 fuel oil-, or waste oil-/drain oil-/No. 6 fuel oil-fired dryer. For waste oil-/drain oil-/No. 6 fuel oil-fired dryer, use a lead emission factor of 1.0×10^{-5} lb/ton (References 177 and 321, Emission factor rating: E) in lieu of the emission factor shown.

[c] Arsenic, beryllium, cadmium, chromium, hexavalent chromium, lead, manganese, mercury, nickel, and selenium are HAPs as defined in the 1990 CAAA.

Table 11.1-12. EMISSION FACTORS FOR METAL EMISSIONS FROM DRUM MIX HOT MIX ASPHALT PLANTS[a]

Process	Pollutant	Emission Factor, lb/ton	Emission Factor Rating	Reference Numbers
Fuel oil-fired dryer, uncontrolled (SCC 3-05-002-58, -59,-60)	Arsenic[b]	1.3×10^{-6}	E	340
	Barium	0.00025	E	340
	Beryllium[b]	0.0	E	340
	Cadmium[b]	4.2×10^{-6}	E	340
	Chromium[b]	2.4×10^{-5}	E	340
	Cobalt[b]	1.5×10^{-5}	E	340
	Copper	0.00017	E	340
	Lead[b]	0.00054	E	340
	Manganese[b]	0.00065	E	340
	Nickel[b]	0.0013	E	340
	Phosphorus[b]	0.0012	E	340
	Selenium[b]	2.4×10^{-6}	E	340
	Thallium	2.2×10^{-6}	E	340
	Zinc	0.00018	E	340
Natural gas- or propane-fired dryer, with fabric filter (SCC 3-05-002-55, -56,-57))	Antimony	1.8×10^{-7}	E	339
	Arsenic[b]	5.6×10^{-7}	D	25, 35, 339-340
	Barium	5.8×10^{-6}	E	25, 339-340
	Beryllium[b]	0.0	E	339-340
	Cadmium[b]	4.1×10^{-7}	D	25, 35, 162, 301, 339-340
	Chromium[b]	5.5×10^{-6}	C	25, 162-164, 301, 339-340
	Cobalt[b]	2.6×10^{-8}	E	339-340
	Copper	3.1×10^{-6}	D	25, 162-164, 339-340
	Hexavalent chromium[b]	4.5×10^{-7}	E	163
	Lead[b]	6.2×10^{-7}	E	35
	Manganese[b]	7.7×10^{-6}	D	25, 162-164, 339-340
	Mercury[b]	2.4×10^{-7}	E	35, 163
	Nickel[b]	6.3×10^{-5}	D	25, 163-164, 339-340
	Phosphorus[b]	2.8×10^{-5}	E	25, 339-340
	Silver	4.8×10^{-7}	E	25, 339-340
	Selenium[b]	3.5×10^{-7}	E	339-340
	Thallium	4.1×10^{-9}	E	339-340
	Zinc	6.1×10^{-5}	C	25, 35, 162-164, 339-340

Table 11.1-12 (cont.)

Process	Pollutant	Emission Factor, lb/ton	Emission Factor Rating	Reference Numbers
No. 2 fuel oil-fired dryer or waste oil/drain oil/No. 6 fuel oil-fired dryer, with fabric filter (SCC 3-05-002-58, -59,-60,-61,-62,-63)	Antimony	1.8×10^{-7}	E	339
	Arsenic[b]	5.6×10^{-7}	D	25, 35, 339-340
	Barium	5.8×10^{-6}	E	25, 339-340
	Beryllium[b]	0.0	E	339-340
	Cadmium[b]	4.1×10^{-7}	D	25, 35, 162, 301, 339-340
	Chromium[b]	5.5×10^{-6}	C	25, 162-164, 301, 339-340
	Cobalt[b]	2.6×10^{-8}	E	339-340
	Copper	3.1×10^{-6}	D	25, 162-164, 339-340
	Hexavalent chromium[b]	4.5×10^{-7}	E	163
	Lead[b]	1.5×10^{-5}	C	25, 162, 164, 178-179, 183, 301, 315, 339-340
	Manganese[b]	7.7×10^{-6}	D	25, 162-164, 339-340
	Mercury[b]	2.6×10^{-6}	D	162, 164, 339-340
	Nickel[b]	6.3×10^{-5}	D	25, 163-164, 339-340
	Phosphorus[b]	2.8×10^{-5}	E	25, 339-340
	Silver	4.8×10^{-7}	E	25, 339-340
	Selenium[b]	3.5×10^{-7}	E	339-340
	Thallium	4.1×10^{-9}	E	339-340
	Zinc	6.1×10^{-5}	C	25, 35, 162-164, 339-340

[a] Emission factor units are lb/ton of HMA produced. SCC = Source Classification Code. To convert from lb/ton to kg/Mg, multiply by 0.5. Emission factors apply to facilities processing virgin aggregate or a combination of virgin aggregate and RAP.

[b] Arsenic, beryllium, cadmium, chromium, hexavalent chromium, cobalt, lead, manganese, mercury, nickel, and selenium compounds are HAPs as defined in the 1990 CAAA. Elemental phosphorus also is a listed HAP, but the phosphorus measured by Method 29 is not elemental phosphorus.

Table 11.1-13. EMISSION FACTORS FOR HOT MIX ASPHALT HOT OIL SYSTEMS[a]

Process	Pollutant		Emission factor	Emission factor units	EMISSION FACTOR RATING	Reference
	CASRN	Name				
Hot oil system fired with natural gas (SCC 3-05-002-06)	630-08-0	Carbon monoxide	8.9×10^{-6}	lb/ft^3	C	395
	124-38-9	Carbon dioxide	0.20	lb/ft^3	C	395
	50-00-0	Formaldehyde	2.6×10^{-8}	lb/ft^3	C	395
Hot oil system fired with No. 2 fuel oil (SCC 3-05-002-08)	630-08-0	Carbon monoxide	0.0012	lb/gal	C	395
	124-38-9	Carbon dioxide	28	lb/gal	C	395
	50-00-0	Formaldehyde	3.5×10^{-6}	lb/gal	C	395
	83-32-9	Acenaphthene[b]	5.3×10^{-7}	lb/gal	E	35
	208-96-8	Acenaphthylene[b]	2.0×10^{-7}	lb/gal	E	35
	120-12-7	Anthracene[b]	1.8×10^{-7}	lb/gal	E	35
	205-99-2	Benzo(b)fluoranthene[b]	1.0×10^{-7}	lb/gal	E	35
	206-44-0	Fluoranthene[b]	4.4×10^{-8}	lb/gal	E	35
	86-73-7	Fluorene[b]	3.2×10^{-8}	lb/gal	E	35
	91-20-3	Naphthalene[b]	1.7×10^{-5}	lb/gal	E	35
	85-01-8	Phenanthrene[b]	4.9×10^{-6}	lb/gal	E	35
	129-00-0	Pyrene[b]	3.2×10^{-8}	lb/gal	E	35
	Dioxins					
	19408-74-3	1,2,3,7,8,9-HxCDD[b]	7.6×10^{-13}	lb/gal	E	35
	39227-28-6	1,2,3,4,7,8-HxCDD[b]	6.9×10^{-13}	lb/gal	E	35
		HxCDD[b]	6.2×10^{-12}	lb/gal	E	35
	35822-46-9	1,2,3,4,6,7,8-HpCDD[b]	1.5×10^{-11}	lb/gal	E	35
		HpCDD[b]	2.0×10^{-11}	lb/gal	E	35
	3268-87-9	OCDD[b]	1.6×10^{-10}	lb/gal	E	35
		Total PCDD	2.0×10^{-10}	lb/gal	E	35
	Furans					
		TCDF[b]	3.3×10^{-12}	lb/gal	E	35
		PeCDF[b]	4.8×10^{-13}	lb/gal	E	35
		HxCDF[b]	2.0×10^{-12}	lb/gal	E	35
		HpCDF[b]	9.7×10^{-12}	lb/gal	E	35
	67562-39-4	1,2,3,4,6,7,8-HpCDF[b]	3.5×10^{-12}	lb/gal	E	35
	39001-02-0	OCDF[b]	1.2×10^{-11}	lb/gal	E	35
		Total PCDF	3.1×10^{-11}	lb/gal	E	35
		Total PCDD/PCDF	2.3×10^{-10}	lb/gal	E	35

[a] Emission factor units are lb/gal of fuel consumed. To convert from pounds per standard cubic foot (lb/ft$^{3)}$ to kilograms per standard cubic meter (kg/m$^{3)}$, multiply by 16. To convert from lb/gal to kilograms per liter (kg/l), multiply by 0.12. CASRN = Chemical Abstracts Service Registry Number. SCC = Source Classification Code.

[b] Compound is classified as polycyclic organic matter, as defined in the 1990 Clean Air Act Amendments (CAAA). Total PCDD is the sum of the total tetra through octa dioxins; total PCDF is sum of the total tetra through octa furans; and total PCDD/PCDF is the sum of total PCDD and total PCDF.

Table 11.1-14. PREDICTIVE EMISSION FACTOR EQUATIONS FOR LOAD-OUT AND SILO FILLING OPERATIONS[a]

EMISSION FACTOR RATING: C

Source	Pollutant	Equation
Drum mix or batch mix plant load-out (SCC 3-05-002-14)	Total PM[b]	$EF = 0.000181 + 0.00141(-V)e^{((0.0251)(T + 460) - 20.43)}$
	Organic PM[c]	$EF = 0.00141(-V)e^{((0.0251)(T + 460) - 20.43)}$
	TOC[d]	$EF = 0.0172(-V)e^{((0.0251)(T + 460) - 20.43)}$
	CO	$EF = 0.00558(-V)e^{((0.0251)(T + 460) - 20.43)}$
Silo filling (SCC 3-05-002-13)	Total PM[b]	$EF = 0.000332 + 0.00105(-V)e^{((0.0251)(T + 460) - 20.43)}$
	Organic PM[c]	$EF = 0.00105(-V)e^{((0.0251)(T + 460) - 20.43)}$
	TOC[d]	$EF = 0.0504(-V)e^{((0.0251)(T + 460) - 20.43)}$
	CO	$EF = 0.00488(-V)e^{((0.0251)(T + 460) - 20.43)}$

[a] Emission factor units are lb/ton of HMA produced. SCC = Source Classification Code. To convert from lb/ton to kg/Mg, multiply by 0.5. EF = emission factor; V = asphalt volatility, as determined by ASTM Method D2872-88 "Effects of Heat and Air on a Moving Film of Asphalt (Rolling Thin Film Oven Test - RTFOT)," where a 0.5 percent loss-on-heating is expressed as "-0.5." Regional- or site-specific data for asphalt volatility should be used, whenever possible; otherwise, a default value of -0.5 should be used for V in these equations. T = HMA mix temperature in °F. Site-specific temperature data should be used, whenever possible; otherwise a default temperature of 325°F can be used. Reference 1, Tables 4-27 through 4-31, 4-34 through 4-36, and 4-38 through 4-41.

[b] Total PM, as measured by EPA Method 315 (EPA Method 5 plus the extractable organic particulate from the impingers). Total PM is assumed to be predominantly PM-2.5 since emissions consist of condensed vapors.

[c] Extractable organic PM, as measured by EPA Method 315 (methylene chloride extract of EPA Method 5 particulate plus methylene chloride extract of impinger particulate).

[d] TOC as propane, as measured with an EPA Method 25A sampling train or equivalent sampling train.

Table 11.1-15. SPECIATION PROFILES FOR LOAD-OUT, SILO FILLING, AND ASPHALT STORAGE EMISSIONS–ORGANIC PARTICULATE-BASED COMPOUNDS

EMISSION FACTOR RATING: C

Pollutant	CASRN[a]	Speciation Profile for Load-out and Yard Emissions[b] Compound/Organic PM[c]	Speciation Profile for Silo Filling and Asphalt Storage Tank Emissions Compound/Organic PM[c]
PAH HAPs			
Acenaphthene	83-32-9	0.26%	0.47%
Acenaphthylene	208-96-8	0.028%	0.014%
Anthracene	120-1207	0.070%	0.13%
Benzo(a)anthracene	56-55-3	0.019%	0.056%
Benzo(b)fluoranthene	205-99-2	0.0076%	ND[d]
Benzo(k)fluoranthene	207-08-9	0.0022%	ND[d]
Benzo(g,h,i)perylene	191-24-2	0.0019%	ND[d]
Benzo(a)pyrene	50-32-8	0.0023%	ND[d]
Benzo(e)pyrene	192-97-2	0.0078%	0.0095%
Chrysene	218-01-9	0.103%	0.21%
Dibenz(a,h)anthracene	53-70-3	0.00037%	ND[d]
Fluoranthene	206-44-0	0.050%	0.15%
Fluorene	86-73-7	0.77%	1.01%
Indeno(1,2,3-cd)pyrene	193-39-5	0.00047%	ND[d]
2-Methylnaphthalene	91-57-6	2.38%	5.27%
Naphthalene	91-20-3	1.25%	1.82%
Perylene	198-55-0	0.022%	0.030%
Phenanthrene	85-01-8	0.81%	1.80%
Pyrene	129-00-0	0.15%	0.44%
Total PAH HAPs		5.93%	11.40%
Other semi-volatile HAPs			
Phenol		1.18%	ND[d]

[a] Chemical Abstract Service Registry Number.
[b] Emissions from loaded trucks during the period between load-out and the time the truck departs the plant.
[c] Emission factor for compound is determined by multiplying the percentage presented for the compound by the emission factor for extractable organic particulate (organic PM) as determined from Table 11.1-14.
[d] ND = Measured data below detection limits.

Table 11.1-16. SPECIATION PROFILES FOR LOAD-OUT, SILO FILLING, AND ASPHALT STORAGE EMISSIONS–ORGANIC VOLATILE-BASED COMPOUNDS

EMISSION FACTOR RATING: C

Pollutant	CASRN	Speciation Profile for Load-Out and Yard Emissions Compound/TOC[a]	Speciation Profile for Silo Filling and Asphalt Storage Tank Emissions Compound/TOC (%)[a]
VOC[b]		94%[b]	100%
<u>Non-VOC/non-HAPs</u>			
Methane	74-82-8	6.5%	0.26%
Acetone	67-64-1	0.046%	0.055%
Ethylene	74-85-1	0.71%	1.1%
Total non-VOC/non-HAPS		7.3%	1.4%
<u>Volatile organic HAPS</u>			
Benzene	71-43-2	0.052%	0.032%
Bromomethane	74-83-9	0.0096%	0.0049%
2-Butanone	78-93-3	0.049%	0.039%
Carbon Disulfide	75-15-0	0.013%	0.016%
Chloroethane	75-00-3	0.00021%	0.0040%
Chloromethane	74-87-3	0.015%	0.023%
Cumene	92-82-8	0.11%	ND[c]
Ethylbenzene	100-41-4	0.28%	0.038%
Formaldehyde	50-00-0	0.088%	0.69%
n-Hexane	100-54-3	0.15%	0.10%
Isooctane	540-84-1	0.0018%	0.00031%
Methylene Chloride	75-09-2	0.0%[d]	0.00027%
MTBE	596899	0.0%[d]	ND[c]
Styrene	100-42-5	0.0073%	0.0054%
Tetrachloroethene	127-18-4	0.0077%	ND[c]
Toluene	100-88-3	0.21%	0.062%
1,1,1-Trichloroethane	71-55-6	0.0%[d]	ND[c]
Trichloroethene	79-01-6	0.0%[d]	ND[c]
Trichlorofluoromethane	75-69-4	0.0013%	ND[c]
m-/p-Xylene	1330-20-7	0.41%	0.2%
o-Xylene	95-47-6	0.08%	0.057%
Total volatile organic HAPs		1.5%	1.3%

Table 11.1-16 (cont.)

[a] Emission factor for compound is determined by multiplying the percentage presented for the compound by the emission factor for total organic compounds (TOC) as determined from Table 11.1-14.

[b] The VOC percentages are equal to 100 percent of TOC minus the methane, acetone, methylene chloride, and 1,1,1-trichloroethane percentages.

[c] ND = Measured data below detection limits. Additional compounds that were not detected are: acrylonitrile, allyl chloride, bromodichloromethane, bromoform, 1,3-butadiene, carbon tetrachloride, chlorobenzene, chloroform, dibromochloromethane, 1,2-dibromoethane, 1,1-dichloroethane, 1,2-dichloroethane, 1,1-dichloroethene, cis-1,2-dichloroethene, trans-1,2-dichloroethene, 1,2-dichloropropane, cis-1,3-dichloropropene, trans-1,3-dichloropropene, 1,2-epoxybutane, ethyl acrylate, 2-hexanone, iodomethane, methyl methacrylate, 1,1,2,2-tetrachloroethane, 1,1,2-trichloroethane, vinyl acetate, vinyl bromide, and vinyl chloride

[d] Values presented as 0.0% had background concentrations higher than the capture efficiency-corrected measured concentration.

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Attachment C: OSHA Asphalt (Bitumen) Fumes

UNITED STATES
DEPARTMENT OF LABOR

Occupational Safety and Health Administration

Asphalt (Bitumen) Fumes

Hazard Recognition

Exposure to asphalt fumes can cause serious injury and permanent damage. Workers that may be exposed to asphalt fumes need to be aware of the potential hazards in their work environment. The following references aid in recognizing asphalt fume hazards in the workplace.

- Criteria for a Recommended Standard: Occupational Exposure to Asphalt Fumes. U.S. Department of Health and Human Services (DHHS), National Institute for Occupational Safety and Health (NIOSH) Publication No. 78-106, (September 1977). Provides links to documents containing information on occupational exposure to asphalt fumes.
- TOXNET for Polycyclic Aromatic Hydrocarbons. The National Library of Medicine Hazardous Substance Database.
- Report on Carcinogens (ROC). U.S. Department of Health and Human Services (DHHS), National Toxicology Program (NTP). Identifies and discusses agents, substances, mixtures, or exposure circumstances that may pose a health hazard due to their carcinogenicity. *The listing of substances in the RoC only indicates a potential hazard and does not establish the exposure conditions that would pose cancer risks to individuals.*
    - Polycyclic Aromatic Hydrocarbons (PAHs). NTP classification: *Reasonably Anticipated to be human carcinogens*
- International Agency for Research on Cancer (IARC) Monographs on the Evaluation of Carcinogenic Risks for Humans. World Health Organization (WHO).
- ToxFAQs for Polycyclic Aromatic Hydrocarbons (PAHs). Agency for Toxic Substances and Disease Registry (ATSDR), (September 1996). Answers the most frequently asked health questions about polycyclic aromatic hydrocarbons (PAHs), a component of concern in asphalt.
- Health Effects of Occupational Exposure to Asphalt. U.S. Department of Health and Human Services (DHHS), National Institute for Occupational Safety and Health (NIOSH) Publication No. 2001-110, (2001). Reviews current scientific data on health effects related to occupational exposures to asphalt, describes further research needs in this area, and suggests measures to minimize worker exposures while studies continue.
    - Asphalt Modifiers and Additives.

- Asphalt Emissions including Fumes. National Institute for Occupational Safety and Health (NIOSH) Workplace Safety and Health Topic. Links to resources that provide safety and health information relevant to asphalt fumes.
- Crumb-Rubber Modified Asphalt Paving: Occupational Exposure and Acute Health Effects. National Institute for Occupational Safety and Health (NIOSH) Health Hazard Evaluation (HHE) Report No. HETA-2001-0536-2864, (2001). The study protocol included the following objectives: develop and field test new methods to assess asphalt fume exposures, characterize and compare occupational exposures to crumb-rubber modified (CRM) asphalt and conventional (CONV) asphalt and evaluate potential health effects associated with CRM asphalt and CONV asphalt. Seven site evaluations were completed between 1994 and 1997. These have been reported separately in individual HHE Reports. The numerous paving jobs were evaluated for exposure concentrations and worker health symptoms, comparing CRM asphalt paving with CONV paving.
- NIOSHTIC-2. National Institute for Occupational Safety and Health (NIOSH). NIOSHTIC-2 is a searchable bibliographic database of occupational safety and health publications, documents, grant reports, and journal articles supported in whole or in part by NIOSH. Contains a list of references pertaining to asphalt fumes.
- Mineral Products Industry. Environmental Protection Agency (EPA), Compilation of Air Pollutant Emission factors AP-42, 5th ed., Volume I, Chapter 11. Contains information and process overviews of hot mix asphalt and roofing material plants and the emissions and controls associated with these processes.
- Jane Y. C. Ma, et al. "Inhalation Exposure of Rats to Asphalt Fumes Generated at Paving Temperatures Alters Pulmonary Xenobiotic Metabolism Pathways without Lung Injury." Environmental Health Perspectives (EHP) 111.9 (July 2003).
- For additional information, see OSHA's Safety and Health Topics Page on:
    - Coal Tar Pitch Volatiles
    - Solvents

Attachment D: Oregon Travel Impacts Statewide Estimates 1992 – 2018p

Attachment D

South Coast Travel Impacts and Visitor Volume

Travel Indicators

Visitor Spending Impacts

Amount of Visitor Spending that supports 1 Job	$75,302
Employee Earnings generated by $100 Visitor Spending	$34
Local & State Tax Revenues generated by $100 Visitor Spending	$3.54

Visitor Volume

Additional visitor spending if each resident household encouraged one additional overnight visitor (in thousands)	$7,325
Additional employment if each resident household encouraged one additional overnight visitor	97

Visitor Shares

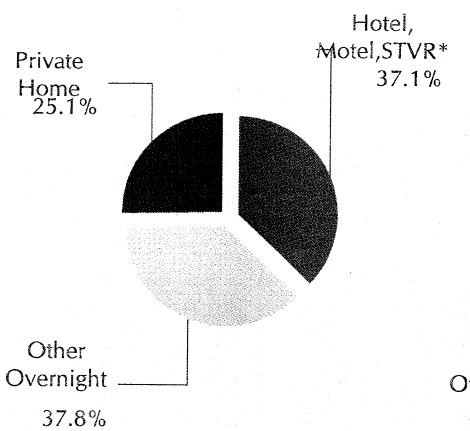
Travel Share of Total Employment (2017)*	12.8 %
Overnight Visitor Share of Resident Population (2017p)**	13.1 %

*Source: Bureau of Economic Analysis and Bureau of Labor Statistics. Estimates by Dean Runyan Associates.
**Annual Overnight Visitor Days divided by (Resident Population) *365.

Visitors who stay in private homes typically comprise the largest share of overnight visitor volume. Visitors who stay overnight in commercial lodging typically have the greatest economic impact. There is substantial variation among destinations, however. Most rural and suburban areas have high shares of private home visitation. Urban areas tend to have greater shares of hotel/motel stays.

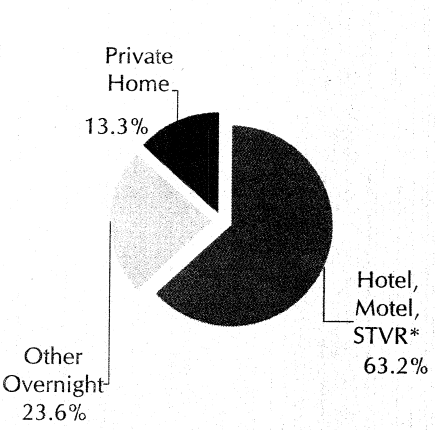
Overnight Visitor Spending and Volume

Person Nights



as a percent of total

Spending



as a percent of total

	Person Trips (Thousands)	Person Nights (Thousands)	Visitor Spending ($Millions)
Hotel, Motel, STVR*	727	1,555	176
Private Home	306	1,054	37
Other Overnight	427	1,583	66
All Overnight	1,461	4,193	278

Note: Person Trips and Person Nights are in Thousands. Visitor Spending is in $Millions. Details may not round to total due to rounding

South Coast
Direct Travel Impacts, 2010-2018p

							Avg. Annual Chg.	
Spending ($M)	**2010**	**2012**	**2014**	**2016**	**2017**	**2018**	**17-18**	**10-18**
Total (Current $)	322	348	376	396	404	413	2.4%	3.2%
Other	9	9	8	7	7	8	7.7%	-2.1%
Visitor	313	339	368	389	396	406	2.4%	3.3%
Non-transportation	269	286	316	347	352	357	1.5%	3.6%
Transportation	44	53	52	42	45	49	8.9%	1.2%
Earnings ($M)								
Earnings (Current $)	92	98	109	126	131	139	6.3%	5.3%
Employment (Jobs)								
Employment	4,680	4,770	4,810	5,290	5,330	5,440	1.9%	1.9%
Tax Revenue ($M)								
Total (Current $)	10	11	12	13	14	14	2.8%	4.9%
Local	2	2	2	2	2	2	2.0%	3.5%
State	8	9	10	11	12	12	2.9%	5.2%

Other spending includes resident air travel, travel arrangement and reservation services, and convention and trade show organizers. **Non-transportation visitor spending** includes accommodations, food services, retail, food stores, and arts, entertainment & recreation. **Visitor transportation spending** includes private auto, auto rental, other local ground transportation and one-way airfares.
Earnings include wages & salaries, earned benefits and proprietor income.
Employment includes all full- and part-time employment of payroll employees and proprietors.
Local tax revenue includes lodging taxes, auto rental taxes and airport passenger facility charges paid by visitors.
State tax revenue includes lodging, and motor fuel tax payments of visitors, and the income tax payments attributable to the travel industry income of businesses and employees.
Federal tax revenue includes motor fuel excise taxes and airline ticket taxes paid by visitors, and the payroll and income taxes attributable to the travel industry income of employees and businesses.

South Coast

Travel Impacts, 2006-2018p

Total Direct Travel Spending ($Million)

	2006	2008	2010	2012	2014	2016	2017	2018
Destination Spending	317.5	337.1	312.7	339.1	368.1	389.2	396.4	405.7
Other Travel*	10.2	11.3	9.1	9.2	8.1	6.7	7.2	7.7
Total	**327.8**	**348.5**	**321.9**	**348.3**	**376.2**	**395.9**	**403.6**	**413.5**

Visitor Spending By Commodity Purchased ($Million)

	2006	2008	2010	2012	2014	2016	2017	2018
Accommodations	65.3	67.6	63.0	68.4	74.1	86.7	90.5	89.0
Food Service	78.7	84.4	83.0	89.2	102.1	113.7	116.0	120.5
Food Stores	33.3	36.8	34.6	37.4	41.3	43.0	42.4	43.1
Local Tran. & Gas	41.5	51.3	41.3	49.7	48.7	38.5	41.6	45.8
Arts, Ent. & Rec.	51.4	51.1	47.7	49.6	54.1	57.4	57.3	58.3
Retail Sales	42.8	41.5	40.2	41.9	44.7	46.3	45.7	46.2
Visitor Air Tran.	4.6	4.4	2.9	2.9	3.0	3.6	3.1	2.8
Total	**317.5**	**337.1**	**312.7**	**339.1**	**368.1**	**389.2**	**396.4**	**405.7**

Industry Earnings Generated by Travel Spending ($Million)

	2006	2008	2010	2012	2014	2016	2017	2018
Accom. & Food Serv.	61.1	66.5	62.2	67.6	75.3	88.8	92.6	99.8
Arts, Ent. & Rec.	14.5	16.7	14.7	14.8	15.4	16.6	17.0	17.0
Retail**	10.4	11.0	10.3	11.0	12.1	13.3	13.6	13.8
Ground Tran.	1.2	1.3	1.2	1.3	1.5	1.7	1.8	1.9
Visitor Air Tran.	1.6	1.6	1.7	2.1	2.8	3.6	3.9	4.7
Other Travel*	1.7	1.8	2.0	1.6	1.4	1.5	1.8	1.7
Total	**90.6**	**98.9**	**92.1**	**98.3**	**108.5**	**125.5**	**130.6**	**138.8**

Industry Employment Generated by Travel Spending (Jobs)

	2006	2008	2010	2012	2014	2016	2017	2018
Accom. & Food Serv.	3,130	3,210	2,830	2,940	2,990	3,340	3,420	3,460
Arts, Ent. & Rec.	1,200	1,290	1,230	1,210	1,170	1,240	1,190	1,260
Retail**	520	530	490	490	530	560	570	560
Ground Tran.	40	40	40	40	50	50	50	50
Visitor Air Tran.	40	40	30	40	50	60	60	60
Other Travel*	60	60	60	40	40	50	50	50
Total	**4,980**	**5,180**	**4,680**	**4,770**	**4,810**	**5,290**	**5,330**	**5,440**

Tax Receipts Generated by Travel Spending ($Million)

	2006	2008	2010	2012	2014	2016	2017	2018
Local Tax Receipts	1.9	1.9	1.7	1.6	1.8	2.0	2.1	2.2
State Tax Receipts	8.2	8.7	8.1	9.2	9.8	11.2	11.8	12.2
Total	**10.1**	**10.6**	**9.7**	**10.8**	**11.5**	**13.2**	**14.0**	**14.3**

Details may not add to total due to rounding. * Other Travel includes ground transportation and air travel impacts for travel to other Oregon visitor destinations and travel arrangement services.** Retail includes gasoline. Federal tax receipts not included.

South Coast Visitor Spending and Visitor Volume

Visitor Spending by Type of Traveler Accommodation ($Million), 2018p

	2008	2010	2012	2014	2017	2018
Total Destination Spending	**337**	**313**	**339**	**368**	**396**	**406**
All Overnight	233	214	231	250	273	278
Hotel, Motel, STVR*	142	128	140	155	174	176
Private Home	34	33	35	35	36	37
Other Overnight	57	53	56	60	63	66
Day Travel	105	99	108	118	124	128
Day Travel	105	99	108	118	124	128

Average Expenditures for Overnight Visitors, 2018p

	Travel Party		Person		Party	Length of
	Day	Trip	Day	Trip	Size	Stay (Nights)
Hotel, Motel, STVR*	$276	$590	$113	$242	2.4	2.1
Private Home	$90	$310	$35	$120	2.6	3.5
Other Overnight	$142	$525	$41	$153	3.4	3.7
All Overnight	$184	$514	$66	$190	2.8	2.8

Overnight Visitor Volume, 2016-2018p

	Person-Nights (000)			Party-Nights (000)		
	2016	2017	2018	2016	2017	2018
Hotel, Motel, STVR*	1,571	1,551	1,555	644	635	637
Private Home	1,044	1,038	1,054	408	405	411
Other Overnight	1,577	1,554	1,583	460	453	462
All Overnight	4,192	4,144	4,193	1,511	1,494	1,509

	Person-Trips (000)			Party-Trips (000)		
	2016	2017	2018	2016	2017	2018
Hotel, Motel, STVR*	734	725	727	301	297	298
Private Home	303	302	306	118	117	119
Other Overnight	426	420	427	124	123	125
All Overnight	1,463	1,446	1,461	543	536	541

"Hotel, Motel, STVR" category includes all lodging where a lodging tax is collected except campgrounds. "Other Overnight" category includes campgrounds and vacation homes.

Southern Oregon Travel Impacts and Visitor Volume

Travel Indicators

Visitor Spending Impacts

Amount of Visitor Spending that supports 1 Job	$81,716
Employee Earnings generated by $100 Visitor Spending	$32
Local & State Tax Revenues generated by $100 Visitor Spending	$4.74

Visitor Volume

Additional visitor spending if each resident household encouraged one additional overnight visitor (in thousands)	$40,594
Additional employment if each resident household encouraged one additional overnight visitor	497

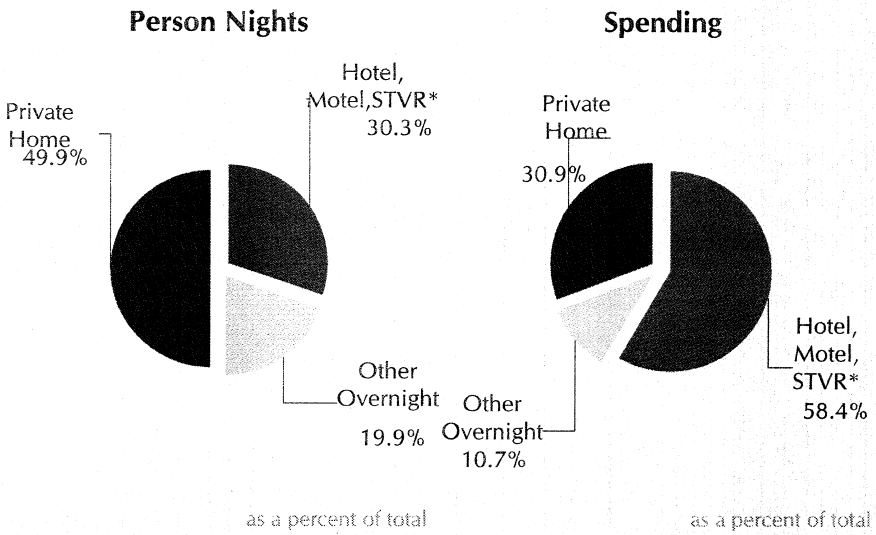
Visitor Shares

Travel Share of Total Employment (2017)*	5.0 %
Overnight Visitor Share of Resident Population (2017p)**	6.7 %

*Source: Bureau of Economic Analysis and Bureau of Labor Statistics. Estimates by Dean Runyan Associates.
**Annual Overnight Visitor Days divided by (Resident Population) *365.

Visitors who stay in private homes typically comprise the largest share of overnight visitor volume. Visitors who stay overnight in commercial lodging typically have the greatest economic impact. There is substantial variation among destinations, however. Most rural and suburban areas have high shares of private home visitation. Urban areas tend to have greater shares of hotel/motel stays.

Overnight Visitor Spending and Volume



	Person Trips (Thousands)	Person Nights (Thousands)	Visitor Spending ($Millions)
Hotel, Motel, STVR*	1,610	3,575	458
Private Home	1,650	5,889	242
Other Overnight	618	2,347	84
All Overnight	3,878	11,811	785

Note: Person Trips and Person Nights are in Thousands. Visitor Spending is in $Millions. Details may not round to total due to rounding

Southern Oregon
Direct Travel Impacts, 2010-2018p

							Avg. Annual Chg.	
Spending ($M)	**2010**	**2012**	**2014**	**2016**	**2017**	**2018**	**17-18**	**10-18**
Total (Current $)	864	924	956	1,002	1,055	1,097	4.0%	3.0%
Other	89	91	90	84	94	105	12.1%	2.1%
Visitor	775	833	866	917	961	992	3.2%	3.1%
Non-transportation	614	653	693	762	790	801	1.4%	3.4%
Transportation	160	181	173	155	171	191	11.6%	2.2%
Earnings ($M)								
Earnings (Current $)	212	227	251	284	306	326	6.5%	5.5%
Employment (Jobs)								
Employment	10,040	10,430	10,980	11,670	12,080	12,350	2.2%	2.6%
Tax Revenue ($M)								
Total (Current $)	31	34	37	42	46	47	2.9%	5.4%
Local	9	10	11	13	14	15	3.7%	5.9%
State	21	25	26	29	31	32	2.5%	5.2%

Other spending includes resident air travel, travel arrangement and reservation services, and convention and trade show organizers. **Non-transportation visitor spending** includes accommodations, food services, retail, food stores, and arts, entertainment & recreation. **Visitor transportation spending** includes private auto, auto rental, other local ground transportation and one-way airfares.
Earnings include wages & salaries, earned benefits and proprietor income.
Employment includes all full- and part-time employment of payroll employees and proprietors.
Local tax revenue includes lodging taxes, auto rental taxes and airport passenger facility charges paid by visitors.
State tax revenue includes lodging, and motor fuel tax payments of visitors, and the income tax payments attributable to the travel industry income of businesses and employees.
Federal tax revenue includes motor fuel excise taxes and airline ticket taxes paid by visitors, and the payroll and income taxes attributable to the travel industry income of employees and businesses.

Southern Oregon

Travel Impacts, 2006-2018p

Total Direct Travel Spending ($Million)

	2006	2008	2010	2012	2014	2016	2017	2018
Destination Spending	761.7	784.6	774.8	833.4	866.2	917.1	961.1	991.8
Other Travel*	85.4	90.3	89.3	90.6	90.1	84.5	93.9	105.2
Total	**847.1**	**875.0**	**864.1**	**924.0**	**956.4**	**1,001.6**	**1,055.0**	**1,097.0**

Visitor Spending By Commodity Purchased ($Million)

	2006	2008	2010	2012	2014	2016	2017	2018
Accommodations	140.5	138.6	137.1	144.7	156.6	183.7	194.3	192.3
Food Service	180.7	185.9	193.9	208.7	225.8	252.4	265.4	274.4
Food Stores	69.5	75.2	74.1	80.6	85.8	89.8	90.0	91.2
Local Tran. & Gas	120.9	145.6	123.4	149.0	138.4	113.5	125.3	139.1
Arts, Ent. & Rec.	110.9	106.6	104.9	109.2	113.0	120.3	122.9	124.9
Retail Sales	108.6	102.3	104.5	109.4	111.5	115.9	117.3	118.0
Visitor Air Tran.	30.6	30.4	36.9	31.7	35.1	41.5	45.9	51.9
Total	**761.7**	**784.6**	**774.8**	**833.4**	**866.2**	**917.1**	**961.1**	**991.8**

Industry Earnings Generated by Travel Spending ($Million)

	2006	2008	2010	2012	2014	2016	2017	2018
Accom. & Food Serv.	135.1	140.8	138.9	150.2	168.4	195.1	212.6	227.6
Arts, Ent. & Rec.	33.6	37.2	34.4	35.3	38.1	41.2	43.1	44.9
Retail**	25.0	25.5	25.2	26.8	28.4	31.3	32.8	34.2
Ground Tran.	3.7	4.0	3.8	4.2	4.3	5.3	5.6	6.0
Visitor Air Tran.	2.0	2.3	2.2	2.4	2.8	3.2	3.9	4.4
Other Travel*	8.5	8.5	7.6	8.2	9.1	7.7	8.4	9.2
Total	**207.8**	**218.3**	**212.2**	**227.1**	**251.2**	**283.8**	**306.3**	**326.3**

Industry Employment Generated by Travel Spending (Jobs)

	2006	2008	2010	2012	2014	2016	2017	2018
Accom. & Food Serv.	6,860	6,900	6,470	6,770	7,200	7,800	8,090	8,270
Arts, Ent. & Rec.	2,240	2,340	2,040	2,070	2,150	2,210	2,300	2,340
Retail**	1,170	1,160	1,110	1,150	1,180	1,240	1,270	1,290
Ground Tran.	140	140	130	140	130	150	150	160
Visitor Air Tran.	50	70	60	60	60	70	70	80
Other Travel*	290	300	240	240	260	210	200	210
Total	**10,760**	**10,910**	**10,040**	**10,430**	**10,980**	**11,670**	**12,080**	**12,350**

Tax Receipts Generated by Travel Spending ($Million)

	2006	2008	2010	2012	2014	2016	2017	2018
Local Tax Receipts	8.7	9.1	9.4	9.8	11.2	13.4	14.2	14.8
State Tax Receipts	21.5	22.2	21.5	24.6	25.7	28.7	31.5	32.3
Total	**30.2**	**31.3**	**30.8**	**34.4**	**36.8**	**42.2**	**45.7**	**47.0**

Details may not add to total due to rounding. * Other Travel includes ground transportation and air travel impacts for travel to other Oregon visitor destinations and travel arrangement services.** Retail includes gasoline. Federal tax receipts not included.

Southern Visitor Spending and Visitor Volume

Visitor Spending by Type of Traveler Accommodation ($Million), 2018p

	2008	2010	2012	2014	2017	2018
Total Destination Spending	**785**	**775**	**833**	**866**	**961**	**992**
All Overnight	619	610	653	679	760	785
Hotel, Motel, STVR*	350	340	366	384	447	458
Private Home	195	200	214	217	232	242
Other Overnight	74	70	73	78	81	84
Day Travel	166	165	180	187	201	207
Day Travel	166	165	180	187	201	207

Average Expenditures for Overnight Visitors, 2018p

	Travel Party		Person		Party	Length of
	Day	Trip	Day	Trip	Size	Stay (Nights)
Hotel, Motel, STVR*	$306	$685	$128	$285	2.4	2.2
Private Home	$103	$373	$41	$147	2.5	3.6
Other Overnight	$121	$459	$36	$136	3.4	3.8
All Overnight	$172	$523	$66	$202	2.6	3.0

Overnight Visitor Volume, 2016-2018p

	Person-Nights (000)			Party-Nights (000)		
	2016	2017	2018	2016	2017	2018
Hotel, Motel, STVR*	3,488	3,599	3,575	1,456	1,504	1,498
Private Home	5,836	5,871	5,889	2,325	2,346	2,365
Other Overnight	2,335	2,309	2,347	692	684	695
All Overnight	11,660	11,778	11,811	4,472	4,534	4,558

	Person-Trips (000)			Party-Trips (000)		
	2016	2017	2018	2016	2017	2018
Hotel, Motel, STVR*	1,571	1,621	1,610	651	672	669
Private Home	1,635	1,645	1,650	641	646	650
Other Overnight	615	608	618	182	180	183
All Overnight	3,821	3,874	3,878	1,474	1,498	1,502

"Hotel, Motel, STVR" category includes all lodging where a lodging tax is collected except campgrounds. "Other Overnight" category includes campgrounds and vacation homes.

Curry County

County Travel Impacts and Visitor Volume

Visitor Spending Impacts

Amount of Visitor Spending that supports 1 Job	$64,106
Employee Earnings generated by $100 Visitor Spending	$40
Local & State Tax Revenues generated by $100 Visitor Spending	$3.42

Visitor Volume

Additional visitor spending if each resident household encouraged one additional overnight visitor (in thousands)	$1,555
Additional employment if each resident household encouraged one additional overnight visitor	24

Visitor Shares

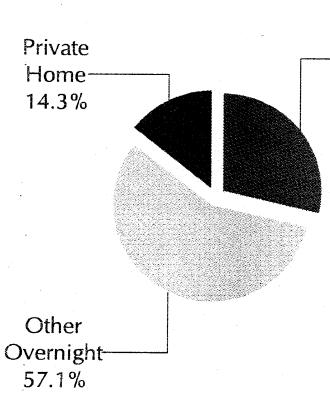
Travel Share of Total Employment (2017)*	19.7%
Overnight Visitor Share of Resident Population (2017)**	19.1%

*Source: Bureau of Economic Analysis and Bureau of Labor Statistics. Estimates by Dean Runyan Associates.
**Annual Overnight Visitor Days divided by (Resident Population) *365.

Visitors who stay in private homes typically comprise the largest share of overnight visitor volume. Visitors who stay overnight in commercial lodging typically have the greatest economic impact. There is substantial variation among destinations, however. Most rural and suburban areas have high shares of private home visitation. Urban areas tend to have greater shares of hotel/motel stays.

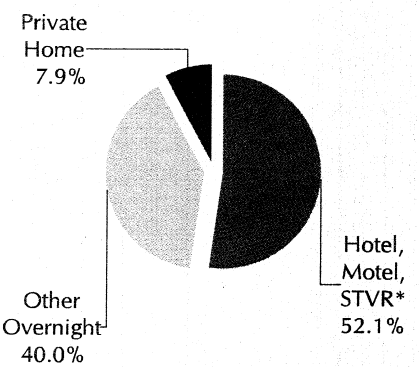
Overnight Visitor Spending and Volume

Person Nights



as a percent of total

Spending



as a percent of total

	Person Trips (Thousands)	Person Nights (Thousands)	Visitor Spending ($Millions)
Hotel, Motel, STVR*	275.7	458.6	50.2
Private Home	89.2	229.3	7.6
Other Overnight	295.8	913.9	38.5
All Overnight	660.7	1,601.8	96.2

Note: Person Trips and Person Nights are in Thousands. Visitor Spending is in $Millions. Details may not round to total due to rounding

Curry

Direct Travel Impacts, 2010-2018p

							Avg. Annual Chg.	
Spending ($M)	**2010**	**2012**	**2014**	**2016**	**2017**	**2018**	**17-18**	**10-18**
Total (Current $)	111.1	117.7	123.6	130.4	132.6	137.7	3.9%	2.7%
Other	3.1	3.8	3.5	2.6	2.9	3.2	11.5%	0.6%
Visitor	108.0	113.9	120.2	127.8	129.7	134.5	3.7%	2.8%
Non-transportation	96.1	99.9	106.9	117.2	118.4	122.0	3.0%	3.0%
Transportation	12.0	14.0	13.2	10.5	11.3	12.5	10.6%	0.5%
Earnings ($M)								
Earnings (Current $)	35.7	37.9	41.9	49.1	51.3	54.3	5.9%	5.4%
Employment (Jobs)								
Employment	1,740	1,740	1,790	2,010	2,040	2,110	3.2%	2.4%
Tax Revenue ($M)								
Total (Current $)	3.2	3.5	3.7	4.2	4.5	4.6	3.0%	4.6%
Local	0.5	0.5	0.5	0.6	0.7	0.7	2.9%	3.2%
State	2.7	3.0	3.1	3.6	3.8	3.9	3.1%	4.9%

Other spending includes resident air travel, travel arrangement and reservation services, and convention and trade show organizers. **Non-transportation visitor spending** includes accommodations, food services, retail, food stores, and arts, entertainment & recreation. **Visitor transportation spending** includes private auto, auto rental, other local ground transportation and one-way airfares.
Earnings include wages & salaries, earned benefits and proprietor income.
Employment includes all full- and part-time employment of payroll employees and proprietors.
Local tax revenue includes lodging taxes, auto rental taxes and airport passenger facility charges paid by visitors.
State tax revenue includes lodging, and motor fuel tax payments of visitors, and the income tax payments attributable to the travel industry income of businesses and employees.
Federal tax revenue includes motor fuel excise taxes and airline ticket taxes paid by visitors, and the payroll and income taxes attributable to the travel industry income of employees and businesses.

Curry County

Travel Impacts, 2006-2018p

Total Direct Travel Spending ($Million)

	2006	2008	2010	2012	2016	2017	2018
Destination Spending	106.7	112.5	108.0	113.9	127.8	129.7	134.5
Other Travel*	3.1	3.7	3.1	3.8	2.6	2.9	3.2
Total	**109.8**	**116.1**	**111.1**	**117.7**	**130.4**	**132.6**	**137.7**

Visitor Spending By Commodity Purchased ($Million)

	2006	2008	2010	2012	2016	2017	2018
Accommodations	22.6	22.9	22.3	23.1	27.8	29.0	29.9
Arts, Ent. & Rec.	15.3	15.3	14.6	14.8	16.7	16.6	17.0
Food Service	27.2	28.8	29.1	30.5	37.6	38.3	40.0
Food Stores	13.7	15.5	14.7	15.8	18.0	17.6	18.0
Local Tran. & Gas	11.8	14.5	12.0	14.0	10.5	11.3	12.5
Retail Sales	16.2	15.5	15.3	15.7	17.1	16.8	17.1
Total	**106.7**	**112.5**	**108.0**	**113.9**	**127.8**	**129.7**	**134.5**

Industry Earnings Generated by Travel Spending ($Million)

	2006	2008	2010	2012	2016	2017	2018
Accom. & Food Serv.	25.2	27.0	26.0	28.8	39.2	41.3	44.1
Arts, Ent. & Rec.	4.9	5.7	5.1	4.3	4.1	4.1	4.1
Ground Tran.	0.4	0.4	0.4	0.4	0.5	0.5	0.5
Other Travel*	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Retail**	4.1	4.3	4.1	4.3	5.1	5.2	5.4
Total	**34.7**	**37.6**	**35.7**	**37.9**	**49.1**	**51.3**	**54.3**

Industry Employment Generated by Travel Spending (Jobs)

	2006	2008	2010	2012	2016	2017	2018
Accom. & Food Serv.	1,200	1,200	1,130	1,190	1,400	1,420	1,450
Arts, Ent. & Rec.	430	450	400	340	380	380	420
Ground Tran.	10	10	10	10	10	10	10
Other Travel*	10	10	10	10	10	10	10
Retail**	200	210	190	190	220	220	220
Total	**1,850**	**1,880**	**1,740**	**1,740**	**2,010**	**2,040**	**2,110**

Tax Receipts Generated by Travel Spending ($Million)

	2006	2008	2010	2012	2016	2017	2018
Local Tax Receipts	0.6	0.6	0.5	0.5	0.6	0.7	0.7
State Tax Receipts	2.7	2.8	2.7	3.0	3.6	3.8	3.9
Total	**3.2**	**3.4**	**3.2**	**3.5**	**4.2**	**4.5**	**4.6**

Details may not add to total due to rounding. * Other Travel includes ground transportation and air travel impacts for travel to other Oregon visitor destinations, travel arrangement services, and convention & trade show organizers.** Retail includes gasoline.

Curry County Visitor Spending and Visitor Volume

Visitor Spending by Type of Traveler Accommodation ($Million), 2006-2018p

	2006	2008	2010	2012	2016	2017	2018
Total Destination Spending	**106.7**	**112.5**	**108.0**	**113.9**	**127.8**	**129.7**	**134.5**
All Overnight	**74.3**	**80.9**	**77.4**	**81.1**	**91.0**	**92.7**	**96.2**
Hotel, Motel, STVR*	39.4	41.7	39.7	41.2	46.9	48.3	50.2
Private Home	6.1	6.3	6.5	7.1	7.2	7.3	7.6
Other Overnight	28.8	32.9	31.2	32.8	36.8	37.1	38.5
Day Travel	**32.4**	**31.6**	**30.7**	**32.8**	**36.8**	**37.0**	**38.3**
Day Travel	32.4	31.6	30.7	32.8	36.8	37.0	38.3

Average Expenditures for Overnight Visitors, 2018p

	Travel Party		Person		Party	Length of
	Day	Trip	Day	Trip	Size	Stay (Nights)
Hotel, Motel, STVR*	$268	$446	$109	$182	2.5	1.7
Private Home	$85	$217	$33	$85	2.6	2.6
Other Overnight	$145	$446	$42	$130	3.4	3.1
All Overnight	$177	$412	$60	$146	3.0	2.3

Overnight Visitor Volume, 2016-2018p

	Person-Nights (000)			Party-Nights (000)		
	2016	2017	2018	2016	2017	2018
Hotel, Motel, STVR*	461	455	459	188	185	187
Private Home	228	225	229	89	88	90
Other Overnight	910	897	914	264	261	265
All Overnight	1,599	1,577	1,602	541	534	542

	Person-Trips (000)			Party-Trips (000)		
	2016	2017	2018	2016	2017	2018
Hotel, Motel, STVR*	277	273	276	113	111	112
Private Home	89	88	89	35	34	35
Other Overnight	295	290	296	86	85	86
All Overnight	660	651	661	234	230	233

"Hotel, Motel" category includes all lodging where a lodging tax is collected except campgrounds.
"Other Overnight" category includes campgrounds and vacation homes.

Becky Crockett

From: John and Nancy Jensen <jnjensen101@gmail.com>
Sent: Wednesday, February 19, 2020 9:07 PM
To: Becky Crockett
Subject: re Asphalt Plant propsal Langlois

Hello,

I just wanted to voice a few concerns I have for this project please. I don't object to them making use of their land but I am very concerned for the close proximity of Salmon Creek which runs right by the proposed site. This is a salmon bearing stream. How could there be a guaranty of no harmful runoff? I am not sure what a settling pond is or it's purpose so I have some research to do. But my other concern is, we have water rights on this creek and we use it to irrigate our certified organic blueberries, plus water our livestock. We are fairly far removed as far as distance goes but the water is not and comes directly through our property and drains in to Flora's Lake I believe. I would just like some reassurance of its safety and not being contaminated! I am also worried about the smell coming from the plant as I know what it's like to get being a truck carrying a load. Just wondering about that too.

Thank you very much,

Nancy Jensen
Langlois, OR 97450
541-253-7881

Becky Crockett

From: Bandon/Port Orford Oregon <bandon@koa.com>
Sent: Thursday, February 20, 2020 6:51 AM
To: Becky Crockett
Subject: Application AD-1926
Attachments: KOA LETTER TO THE COMMISSIONERS Application AD-1926.docx

Good morning Becky,

I have attached my letter speaking for the Bandon/Port Orford KOA.

Thank you in advance for including it in the decision.

Respectfully,

Cathy Davis
Bandon/Port Orford KOA
46612 HWY 101
Langlois, OR 97450
(503) 807 - 2154

FROM: 02/14/2020

Bandon/Port Orford KOA
46612 HWY 101
Langlois, OR 97450

TO:
Curry County Planning Department~~Commission~~ Application
AD-1926~~——~~ pg.1
The Planning Commission
Curry County Annex Office Building
94235 Moore Street
Gold Beach, OR

SUBJECT: Bandon Concrete, LLC

Good Afternoon,

My name is Cathy Davis. I am writing this letter to speak for myself and for my husband Michael. We are the new owners of the Bandon/Port Orford KOA, located at 46612 HWY 101, Langlois, OR 97450. Michael and I signed our closing documents on December 27, 2018. We moved to Langlois in January of 2019. We came with ideas and plans for this beautiful property known as KOA. I would like to take a minute of your time to share a small bit of information about how we came to Langlois, OR.

We sold a 43-unit mobile home park in Clackamas, OR. We decided to invest our funds in another like property. We looked at many mobile home parks from northern Washington to Arizona to Idaho and beyond. We toured apartment complexes in Portland, Vancouver and Gresham and more. And we looked at KOA parks in Arizona, Washington, Nevada and Langlois, OR. We were given many reasons by our realtor as to why each property "Was the One" to fit our needs. We even went so far as to put Earnest money down on a Gresham Apartment Complex. But something just didn't feel right. We kept coming back to the thought of KOA in Langlois and living on the Oregon Coast. It was to be our retirement investment and we could not afford to make a wrong choice. It felt right. It was a big decision but we were confident that our decision was the right one.

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We signed our closing documents on Dec 28th and by the New Year we would be the new owners. We looked forward to celebrating back in Bandon that night with a nice quiet dinner

and to raising a glass to our new adventure. That was the night the tree fell across the highway between Gold Beach and Port Orford. 4 hours later we headed for the room with no celebration dinner in site.... And we were hoping this wasn't the sign of things to come.

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We had about 2 months to get ready for the official opening on March 1st. We had our hands full getting the campsites ready. It was rainy and windy coast weather and we expected nothing less. We had only been here a few short weeks when the wind storm blew the roof off of the KOA office building. We really hadn't planned on that expense ($8000.) but there we were. We scouted out roofing companies and found just the right company. Soon a new roof was on the KOA office. We were not discouraged. We still loved our choice to be at the Bandon/Port Orford KOA in Langlois!

The rains continued and the gushing water ravaged through the park. We started seeing the destruction of several of the RV sites. They were literally destroyed. The only thing we could do was to bring in the excavators and tons of gravel and rebuild those sites. Eleven Thousand dollars later those seven sites were beautiful. This was definitely not on our list of first year improvements but there we were. And another $11,000 capital improvement at the KOA was in place. The sites were some of the best we had and became very popular. We were getting to know our neighboring businesses pretty quickly but not in the way we had planned to get acquainted. Each time we had a set-back we made the improvement knowing it would pay for itself down the road.

The "planned improvement" was Michael's idea to upgrade the power in the pull through sites. We added an 30/50 amp pedestals where there was only 30 amp power and moved the 30 amp pedestals to the beautiful tent sites that could now be rented to tent campers or camp trailers. It was a 2 month - $50,000. job but we were able to get through it with the help of another of our new business friends. Excavating, electrical, digging, all done in time for the busiest season at KOA.

Even with all of the challenges that came our way, we are still thankful that we were led to Langlois, OR to run the KOA Campground. We met people that had come from across the US and across the pond. We met people from the Ukraine, Germany, London and several other

countries. We hadn't expected that but we were thrilled to be a part of their visit to this beautiful state and to hear their stories. In addition, we had calls like the one from a Dad who asked "do you still have the train? My dad took me on it when I was a kid and now I want to ride it with my son". Or the call from the lady who lives in Maine that is planning a family reunion with her son and daughter's families and will get to have 5 days with her grandkids. She

lived in Langlois 30 years ago for a short time and is anxious to show her family around. We have families that have already booked family reunions at Bandon/Port Orford KOA. One family group now has 12 sites booked, each for 6 days to explore the coast.

And ~~S~~so I wonder, ~~am~~would I obligated to call and tell them that Langlois might not be what they remember it to be?

I worry about how much those trucks will affect our guests coming with their travel trailers and 5th wheel trailers and the need for them to come to a near stop in the highway as they enter the campground. I wonder if when they are gathered around the campfire at the end of their day, will they enjoy the smell of the wood burning and the melting marshmallows with their grandkids or will they smell asphalt? I worry about the noise from all the trucks and the dust from the asphalt pits and the known carcinogens in the air that will settle in the pool and the hot tub. And, for the first time I worry if Michael and I made the right choice. We have invested everything in Langlois, OR.

And my heart aches...

In closing I would ask for the conditional use permit for an aggregate stockpile, loading and storage site and the portable asphalt plant to be denied and for the property zoning of Forestry Grazing (FG) to remain in place. Our beautiful Hwy 101 on the Oregon Coast is a travel destination for people from all over the world. We should be very proud to be a part of this. It is our duty to our tourists and our local families to protect and maintain our homeland and not to allow destructive uses that would forever change the landscape here on our Oregon Coast Highway and particularly in Langlois, Oregon.

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Respectfully,

Cathy J. Davis
Bandon/Port Orford KOA
46612 HWY 101
Langlois, OR 97450
(503) 807-2154

Becky Crockett

From: Becky Crockett
Sent: Thursday, February 20, 2020 11:07 AM
To: 'Wolf, Joy J'
Subject: RE: Temporary Asphalt Plant

Thank you for your comments Joy. They will be included in to the record of the hearing.

Becky Crockett
Planning Director
(541) 247-3228
crockettb@co.curry.or.us

From: Wolf, Joy J [mailto:wolf@uwp.edu]
Sent: Thursday, February 20, 2020 11:05 AM
To: Becky Crockett
Subject: Temporary Asphalt Plant

Dear Director Crockett,

I live in Port Orford and would like to express some concern for the asphalt plant that may appear in Langlois.

I hope that the following questions will be answered at the meeting later today. Although a group of my colleagues will attend, I am out of town for another week.

Here are my concerns/questions that might facilitate productive discussion and better understanding:

1. Is this truly a temporary situation? What is the end date (there is none provided). How long will the petroleum be transported into the lovely town of Langlois?
2. It appears there will be no full time jobs created for local residents. Can you or the Commissioners provide an explanation regarding how this would benefit the local residents who need jobs?
3. What type of asphalt plant is planned? How will the petroleum ingredients be transported? I am currently involved with neighbors to work with the US EPA to clean up an old mill site - it will take YEARS and more money than the town could ever spend. This plant would risk the same fate for Langlois. One can easily find documents written from the UW EPA on the risks of an asphalt plant and the consequent fumes that are released into the air that we all depend on.
4. If we allow this plant, it provides a precedent for other unsuspecting communities to face similar "temporary" plants.
5. Once these plants are established, for any length of time, they will not only contaminate the soil, air, and water, but decrease property values as well as potential new residents.

I urge you to please consider my letter at the meeting today.

Thank you,

Dr. Joy Wolf
Director, Sustainable Management Program

Resident of Port Orford, Oregon

Planning Commision
Curry County Oregon
Betty Croockett
Planning Director
(541) 247-3228
crockettb@co.curry.or.us

Rebecca Sanders
Bandon Port Orford KOA
Property Manager
PO Box 613
46612 HWY 101
Langlois, OR 97450

Sir and Madams:

My husband and I moved to the Langlois area with the intention of settling down in Bandon. After we got to the KOA, met Cathy and Michael, saw the beautiful forest and the quiet peaceful environment that it provided we couldn't leave. This place welcomes families, friends and every child between the ages of 1-100. It beckons you to sit outside enjoying the natural clean air, or a nice fire with smores; but if there were to be trucks, distasteful noise and smells you wouldn't. The guests that are coming to stay here want that outdoor clean air "camping in the woods" feeling.

In the application It states that the KOA and other surrounding properties are "Industrial zoned property with old gas station, forest land, vacant land, farm and forest and residences". These descriptions are not correct as the KOA is also only 0.3 miles from the proposed site and is zoned Rural Commercial (RC). This statement is only made once on page one of attachment A. It does not state it on the application form. We are a tourist

and entertainment family friendly facility. Even a temporary "site" would be unhealthy for our guests, much less and open-ended "temporary" facility.

"Asphalt fumes are known toxins". This quote comes from the Calaveras Enterprise article dated March 24, 2016. With very young kids and with older generations having chemicals like arsenic, benzene, formaldehyde and cadmium floating in our air would be devastating to their health. These toxins would stay in the air for long periods of time and would find our pool and spa a great place to collect. Some of these toxins are even referred to as "cancer-causing toxins". Not something you want to tell anyone much less a family coming to stay at the campground, although we would be obligated to inform our guests of such hazards before they arrive due to breathing issues or any other health problems they already have. With our climate we have a heavy wet air that keeps toxins from moving out of the area. This then means that our air quality and the quality of our waterways are not clean fresh and poisonless.

The surrounding water flows will be affected even if the plant and stockpile area are a "safe" distance from them because the damage has been done to the air and the air carries with the wind right into the nearest water flow. This affects the drinking water by contaminating it and the waterways by contaminating the species within it. Our forestry grazing zoned area is not a "fit" for this application. We need to protect the area not destroy it. It seems that this proposal offers more harm than good to our Oregon Coast. There are other areas better suited for an application such as this to be "built" at and on.

Our part of HWY 101 is quite, rural tourist area that draws guests for just that reason, and they keep coming back year after year for that reason as well as others, like fresh air, an uncontaminated pool, and family friendly healthy forest environment. Our guests also bring economic benefits to Langlois and it's proprietors. To proceed with the application stains the economy of this small area, it turns beautiful towns and homes to

unwelcome sites. To bring in more trucks, more traffic and more noise would cause damage to that environment and economy. From accidents on the 101 due to our passing lane area and our campers slowing almost to a stop, but also to the unhealthy air quality, drinking water, fishing of local streams and lakes, and the inability to draw people to the area. The applicant states that "There are no expected impacts on adjacent lands." If this were true then they would know that the impacts to adjacent land are both economic and health for the property owners, the town of Langlois, and the owners of the KOA. Those that raise livestock in the area will also be affected by the quility of the waterway, with unhealthy water means unhealthy stock. This brings the price per pound down and therefore affects their own economy. It may sound like I am going in circles but I can not stress enough the facts of the impacts that will be made here. If my family is concerned and worried about it being safe to stay then it goes to consider the rest of the community is feeling the same way as they have been here longer and know what our area brings to families and business. This is especially true for those that live and work in the area.

It just breaks my heart that this application would even be considered for this area. So many people are affected by the environmental impacts it brings. I implore you to keep our environment free of toxic fumes and toxins in our waterways.

Sincerely,

Rebecca Sanders
Bandon Port Orford KOA Property Manager
PO Box 613
46612 HWY 101
Langlois, OR 97450

The Planning Commission

Curry County Annex Office Building

94235 Moore Street

Gold Beach, OR

SUBJECT: Bandon Concrete, LLC

FROM: 02/14/2020

Bandon/Port Orford KOA

46612 HWY 101

Langlois, OR 97450

Good Afternoon,

My name is Cathy Davis. I am writing this letter to speak for myself and for my husband Michael. We are the new owners of the Bandon/Port Orford KOA, located at 46612 HWY 101, Langlois, OR 97450. Michael and I signed our closing documents on December 27, 2018. We moved to Langlois in January of 2019. We came up with ideas and plans for this beautiful property known as KOA. I would like to take a minute of your time to share a small bit of information about how we came to Langlois, OR.

We sold a 43-unit mobile home park in Clackamas, OR. We decided to invest our funds in another property. We looked at many mobile home parks from northern Washington to Arizona to Idaho and beyond. We toured apartment complexes in Portland, Vancouver and Gresham and more. And we looked at KOA parks in Arizona, Washington, Nevada and Langlois, OR. We were given many reasons by our realtor as to why each property "Was the One" to fit our needs. We even went so far as to put Earnest money down on a Gresham Apartment Complex. But something just didn't feel right. We kept coming back to the thought of KOA in Langlois and living on the Oregon Coast. It was to be our retirement investment and we could not afford to make a wrong choice. It felt right. It was a big decision but we were confident that our decision was the right one.

We signed our closing documents on Dec 28th and by the New Year we would be the new owners. We looked forward to celebrating back in Bandon that night with a nice quiet dinner

and to raise a glass to our new adventure. That was the night the tree fell across the highway between Gold Beach and Port Orford. 4 hours later we headed for the room with no celebration dinner in sight.... And we were hoping this wasn't the sign of things to come.

We had about 2 months to get ready for the official opening on March 1st. We had our hands full getting the campsites ready. It was rainy and windy coast weather and we expected nothing less. We had only been here a few short weeks when the wind storm blew the roof off of the KOA office building. We really hadn't planned on that expense ($8000.) but there we were. We scouted out roofing companies and found just the right company. Soon a new roof was on the KOA office. We were not discouraged. We still loved our choice to be at the Bandon/Port Orford KOA in Langlois!

The rains continued and the gushing water ravaged through the park. We started seeing the destruction of several of the RV sites. They were literally destroyed. The only thing we could do was to bring in the excavators and tons of gravel and rebuild those sites. Eleven Thousand dollars later those seven sites were beautiful. This was definitely not on our list of first year improvements but there we were. And another $11,000 capital improvement at the KOA was in place. The sites were some of the best we had and became very popular. We were getting to know our neighboring businesses pretty quickly but not in the way we had planned to get acquainted. Each time we had a set-back we made the improvement knowing it would pay for itself down the road.

The "planned improvement" was Michael's idea to upgrade the power in the pull through sites. We added an 30/50 amp pedestals where there was only 30 amp power and moved the 30 amp pedestals to the beautiful tent sites that could now be rented to tent campers or camp trailers. It was a 2 month - $50,000. job but we were able to get through it with the help of another of our new business friends. Excavating, electrical, digging, all done in time for the busiest season at KOA.

Even with all of the challenges that came our way, we are still thankful that we were led to Langlois, OR to run the KOA Campground. We met people that had come from across the US and across the pond. We met people from the Ukraine, Germany, London and several other countries. We hadn't expected that but we were thrilled to be a part of their visit to this beautiful state and to hear their stories. In addition, we had calls like the one from a Dad who asked "do you still have the train? My dad took me on it when I was a kid and now I want to ride it with my son". Or the call from the lady who lives in Maine that is planning a family reunion with her son and daughter's families and will get to have 5 days with her grandkids. She

lived in Langlois 30 years ago for a short time and is anxious to show her family around. We have families that have already booked family reunions at Bandon/Port Orford KOA. One family group now has 12 sites booked, each for 6 days to explore the coast.

And so I wonder, would I obligated to call and tell them that Langlois might not be what they remember it to be?

I worry about how much those trucks will affect our guests coming with their travel trailers and 5th wheel trailers and the need for them to come to a near stop in the highway as they enter the campground. I wonder if when they are gathered around the campfire at the end of their day, will they enjoy the smell of the wood burning and the melting marshmallows with their grandkids or will they smell asphalt? I worry about the noise from all the trucks and the dust from the asphalt pits and the known carcinogens in the air that will settle in the pool and the hot tub. And, for the first time I worry if Michael and I made the right choice. We have invested everything in Langlois, OR.

And my heart aches…

In closing I would ask for the conditional use permit for an aggregate stockpile, loading and storage site and the portable asphalt plant to be denied and for the property zoning of Forestry Grazing (FG) to remain in place. Our beautiful Hwy 101 on the Oregon Coast is a travel destination for people from all over the world. We should be very proud to be a part of this. It is our duty to our tourists and our local families to protect and maintain our homeland and not to allow destructive uses that would forever change the landscape here on our Oregon Coast Highway and particularly in Langlois, Oregon.

Respectfully,

Cathy J. Davis

Bandon/Port Orford KOA

46612 HWY 101

Langlois, OR 97450

(503) 807-2154

February 20, 2020

Curry County Planning Commission
c/o Curry County Department of Community Development
94235 Moore Street, Suite 113
Gold Beach, OR 97444

Via Email to Becky Crockett: crockettb@co.curry.or.us

Re: AD-1926, Conditional Use Permit for stockpiling rock and placing a "temporary portable asphalt plant"

Dear Members of the Planning Commission,

Oregon Coast Alliance is an Oregon nonprofit organization whose mission is to protect coastal natural resources and work with coastal residents and visitors to enhance community livability.

We write with great concern on the proposal for rock stockpiling and an asphalt plant proposed for nine acres directly adjacent to Highway 101 south of Langlois.

The property, zoned Forestry Grazing, has not been well stewarded in the recent past to the present; as the staff report states, "The area…currently includes stockpiled rocks and dirt, brush, stumps, wood debris and minor amounts of asphalt /concrete. The site is mostly growing scotch broom and grasses…" (page 2). But that neglect of the land does not mean that it should be further degraded with rock and asphalt stockpiling – and most of all not made subject to an asphalt plant, despite being potentially allowable as a conditional use.

Permanent Concrete/Asphalt Batch Plant

The most disturbing aspect of this application, which is mirrored in the staff report, is that though the asphalt plant is consistently described as "temporary," it in fact is proposed to be permanent. As the staff report states, "The applicant is proposing a portable asphalt plant as a temporary use …The portable asphalt plant use is not a permanent structure. It can be removed from the site when construction and maintenance projects are not longer

utilizing the product. The applicant envisions that the portable asphalt plant will be owned and operated by any company who would like to utilize the site while they are dong [sic] paving jobs." (p. 4).

As the staff report notes, Section 3.052 of the CCZO allows for "Portable asphalt and concrete batch plants as a **temporary** use for a **specific** highway/road construction or maintenance project." (emphasis added). However, this project does not meet the CCZO criteria, as it is proposed to be permanently sited, used intermittently but regularly for an *indefinite* number of paving jobs. The mere fact that the plant is portable is irrelevant to the applicant's proposed use, and also fails to meet the zone requirements. This is also a bad location for such a plant even on a temporary basis, much less a permanent one, with rural neighbors and a KOA campground nearby, sited right on a nationally recognized Scenic Byway.

This project as applied for cannot be approved under the Forestry Grazing criteria of Section 3.052. A County approval must specify (a) which project the asphalt plant will be used for, (b) how much asphalt is to be produced, (c) in what specific time frame, including an end date by which the plant must be dismantled and removed. The Forestry Grazing zone is not meant to be an industrial zone in disguise.

Air Quality Concerns and DEQ Air Quality Permit

Since asphalt plants mix gravel and sand with crude oil derivatives to make paving asphalt, they release many cancer-causing toxic air pollutants, including such drastically dangerous chemicals as arsenic, benzene, formaldehyde and cadmium; and this list does not even include the additional chemicals released when asphalt is loaded onto trucks at the plant site. According to the Environmental Protection Agency, asphalt fumes are known toxins, released from asphalt processing facilities among others.

Asphalt plants of any size must receive a permit from the Department of Environmental Quality for discharge of contaminants into the air. OAR 340-216-8010, Part B, #8 requires an Air Quality permit for "Asphaltic concrete paving plants, both stationary and portable." This proposal concerns a portable plant – but is proposed to be permanently stationed, usable by multiple paving projects for an indeterminate length of time.

This project cannot be approved unless and until the applicant has a DEQ-approved air quality permit in hand. The applicant must convince DEQ that the proposed asphalt plant will not harm neighbors, campers and other visitors – a difficult task, given the proposed permanent use of the facility.

Conclusion

Under Section 7.010, the County has power to grant or deny a conditional use, or to set conditions. ORCA suggests that this is an instance in which the proposal should be denied. This is the only way by which the County can "protect the best interests of the surrounding property, the neighborhood…" as this section of the ordinances requires.

This proposal is not as aboveboard and benign as it seems at first glance: it includes large stockpiles, settling ponds, and a continuously operating (however intermittently) asphalt plant, directly adjacent to Highway 101 – a Federally recognized scenic byway – and in the vicinity of Swanson Creek, a stream known to contain Oregon coast coho spawning and rearing habitat. The application is incomplete, having neither detailed maps showing how these aspects of the operation will protect coast coho habitat in Swanson Creek, nor how the industrial activities fit into the Scenic Byway designation. It does not meet the requirement under Curry County ordinances for a temporary asphalt plant.

ORCA urges the planning commission to deny the proposal applied for in AD-1926.

Sincerely,

/s/ Cameron La Follette

Cameron La Follette
Executive Director

Thank you,

/s/ Cameron La Follette

Cameron La Follette, Executive Director

Becky Crockett

From: Calli Miller <miller.calli16@gmail.com>
Sent: Thursday, February 20, 2020 4:44 PM
To: Becky Crockett
Subject: Langlois Asphalt Plant

We are the neighboring property north of the proposed asphalt plant. We have several concerns regarding smell, noise, pollution, and liability in case of an environmental accident.
Beginning with the smell, we want to be assured that there will be no smell, and that there will be regular inspections carried out by an un-involved third party to insure this.
Secondly, we have noticed an increase in noise pollution with the operation of the gravel pit. We are concerned that this will increase greatly and effect our day to day life.
Finally, we are concerned about the possibility of pollution within this site. We are aware that there is a salmon bearing stream close to the proposed site. Our close family has water rights to this stream and use it to irrigate their certified organic crops. Who would be responsible if the settling pond was to leach into this stream and/or groundwater? On the same note, we use a well and spring for our water, and are concerned about pollution entering into the groundwater. Again, who will be monitoring the pollution levels at this site? Who will be responsible for any environmental impact to ourselves and the land?

Thank you,
Charlie Jensen
Calli Miller