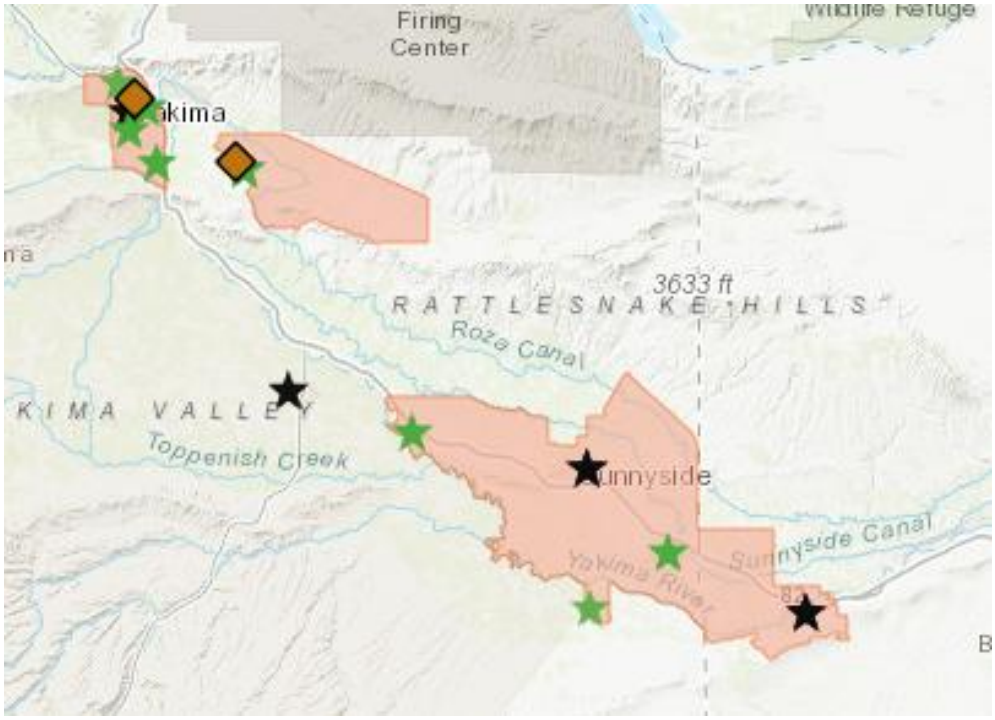
Comments on Draft WAC 173-448

Friends of Toppenish Creek, February 2026

Suppose you are a total stranger to Washington State and someone asks you to compare the environmental risks for people who live in the Moxee Valley overburdened community (OBC) to the environmental risks for people who live in the Lower Yakima Valley (LYV) overburdened community, based solely on data presented in Ecology's 2025 Report: Overburdened Communities Highly Impacted by Air Pollution.



You might compile a table for comparison something like this:

	Moxee Valley OBC	Lower Yakima Valley OBC
Land Area	38 sq. mi.	157 sq. mi.
Population	9,556	56,628
Non English at Home	34%	64%
Below Federal Poverty	8%	15%
Pollutant of Concern	Short-term PM 2.5, Cumulative	Short-term PM 2.5, Long-term PM 2.5, Cumulative
98th percentile for PM 2.5 in 2024	26.1 µg/m^3	23.7 µg/m^3 in Prosser 25.2 µg/m^3 in Sunnyside
Mean Concentration PM 2.5 in 2024	5.49 µg/m^3	5.42 µg/m^3 in Prosser 6.79 µg/m^3 in Sunnyside
MT CO_2e in 2023	130,923 MT CO_2 e	62,347 MT CO_2e

You might note that people in the Moxee Valley appear to be more mainstream than those who live in the LYV. You might note a higher 98th percentile for PM 2.5 in the Moxee Valley. You might note a mean concentration for PM 2.5 in the Moxee Valley that lies between concentrations for two monitors in the LYV. You might observe that greenhouse gas emissions in the Moxee Valley are more than twice emissions in the LYV.

You might conclude that the Moxee Valley and the Lower Yakima Valley have approximately equal risks and outcomes – and you would be wrong.

The data that Ecology provides in the agency's 2025 report ignores emissions from 40 concentrated animal feeding operations (CAFOs) in the LYV and 1 CAFO in the Moxee Valley. Why does Ecology ignore these emissions? Because they are not reported. Apparently, in Ecology's point of view, if emissions are not reported then they don't count.

If you were an independent observer who actually visited the Moxee Valley and the LYV you would smell the difference. The smell of cow shit permeates the air in the City of Sunnyside. It is often strong enough to cause headaches. People from the community have told Ecology at every public meeting over many years that odor is a problem.

Where does the odor come from? Odor comes from ammonia, hydrogen sulfide, and volatile organic compounds (VOCs) from dairy cows. Does Ecology or the Clean Air Agency measure these pollutants? No.

But there are ways to estimate those pollutants. In 2010 scientists from WA State University sampled air emissions from barns at a LYV dairy and estimated emissions per dairy cow.[1] Here are those numbers:

Ammonia = 56.5 g/day/cow average

Hydrogen Sulfide = 1.12 g/day/cow average

Volatile Organic Compounds = 116.19 g/day/cow average

If there are 90,000 milk cows in the LYV then LYV dairies emit around:

Ammonia = ((56.5 g/day/cow) x (365 days/ year) x (90,000 cows)) / (1,000,000 g per metric ton) = **1,856 MT per year**

Hydrogen Sulfide = ((1.12 g/cow/day) x (365 days/year) x (90,000 cows))/(1,000,000 g/metric ton) = **37 MT per year**

[1] EMISSIONS DATA FROM TWO DAIRY FREESTALL BARNS IN WASHINGTON, available at ASAE_Journal | US EPA ARCHIVE DOCUMENT

Volatile Organic Compounds = ((116.19 g/cow/day) x (365 days/year) x (90,000 cows)) / (1,000,000 g/metric ton) = **3,817 MT per year** Some are carcinogens.

"Cumulative air emission" means something different in the LYV than it does in Moxee.

Moving along to **Greenhouse Gas:**

90,000 milk cows in the LYV produce over 300 kg of methane/year/ cow.[2]

This equates to 27,000 MT of methane per year in the LYV. This is why investors are prepared to finance one of the largest manure digesters in the nation in Sunnyside.[3]

Multiply 27,000 MT by 28 to calculate CO_2 equivalents.

27,000 x 28 = **756,000 MT CO_2 equivalents per year from enteric fermentation and manure management in the LYV**

This puts the LYV on par with the South Seattle OBC (755,589 MT CO_2e), and second only to the South and East Tacoma OBC (920,753 MT CO_2e) for greenhouse gas emissions.[4] This is not what is stated in the 2025 Report but this is reality.

Ecology appears to justify this mischaracterization by stating that the agency only counted greenhouse gas emissions from mandatory reporting. But . . . Is this what the law requires?

RCW 70A.65.020 states:

> *(1) To ensure that the program created in RCW 70A.65.060 through 70A.65.210 achieves reductions in criteria pollutants as well as greenhouse gas emissions in overburdened communities highly impacted by air pollution, the department must:*
>
> *(c)(i) Within the identified overburdened communities, analyze and determine which sources are the greatest contributors of criteria pollutants and develop a high priority list of significant emitters.*

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[2] The Environmental Protection Agency Models for Washington State available at State Inventory and Projection Tool | US EPA provide estimates of methane emissions from dairy cows.

[3] Pacific AG Presentation to the Port of Sunnyside. PowerPoint Presentation

[4] 2025 Report: Overburdened Communities Highly Impacted by Air Pollution. Pages 90-91. 2025 Report: Overburdened Communities Highly Impacted by Air Pollution

This section requires identification of the greatest contributors. There is no mention of limiting the assessment to registered and reporting sources.

RCW 70A.65.020 states:

> *(2)(a) Beginning in 2023, and every two years thereafter, the department must conduct a review to determine levels of criteria pollutants, as well as greenhouse gas emissions, in the overburdened communities identified under subsection (1) of this section. . . . .*
>
> *(b) Once this review determines the levels of criteria pollutants in an identified overburdened community, then the department, in consultation with local air pollution control authorities, must . . . .*
>
> *(ii) Identify the stationary and mobile sources that are the greatest contributors of those emissions that are either increasing or not decreasing;*

Nothing about limitation to reported emissions. The law simply requires identification of the "greatest contributors" to both criteria pollutants and greenhouse gases.

RCW 70A.65.020 states:

> *(c) Actions imposed under this section may not impose requirements on a permitted stationary source that are disproportionate to the permitted stationary source's contribution to air pollution compared to other permitted stationary sources <u>and other sources</u> of criteria pollutants in the overburdened community.*

Emphasis added. The legislature felt it was necessary to enumerate the sources of pollution, to clarify that the law applies to both permitted sources <u>and</u> other sources.

It appears that Ecology may have narrowed the scope of implementation for RCW 70A.65 beyond what the legislature intended.

FOTC acknowledges the difficulty our statement of concern creates for Ecology. FOTC believes that the Yakima Regional Clean Air Agency has not cooperated with Ecology regarding rulemaking as required by RCW 70A.65.020 (2)(b). Without cooperation from the YRCAA Ecology will be left alone with the task of identifying sources. Ecology may have to deal with push back from the powerful dairy lobby and potentially with resistance from the YRCAA. FOTC states with certainty that we have asked the YRCAA Board of Directors to discuss WAC 173-448 in an open public meeting and the YRCAA has not done so.

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To further demonstrate the major impact that CAFO dairies have on LYV air quality, consider this comparison of monitoring data from the LYV air monitors in Sunnyside and Prosser. The two cities are about 15 miles apart.

	Prosser	Sunnyside
Population	6,540	16,317
White Alone	58.1%	34.1%
HS Education or Higher	89.1%	56.6%
Persons in Poverty	16.8%	18.5%
Median HH Income	$76,985	$60,923
Language besides English	42.3%	68%

The major environmental difference between the two cities is that Sunnyside is surrounded by approximately 38 CAFO dairies. For Prosser the nearest dairies is 10 miles to the west, across the county line.

How does air quality compare between monitors in Sunnyside and Prosser? Air quality is significantly worse in Sunnyside as shown below. This difference is due to emissions from dairies.

24-hour PM2.5 (98th percentile) summary statistics and 2024 design values (µg/m^3) in overburdened communities highly impacted by air pollution, 2022-2024. From Table 6, page 67 of the 2025 Report.

	24 hr. 98th percentile 2022	24 hr. 98th percentile 2023	24 hr. 98th percentile 2024	2024 Design Value
Prosser	21.7 (21.7)	20.1 (16.8)	23.7 (23.1)	22 (21)
Sunnyside	34.4 (32.3)	29.5 (20.1)	25.2 (24.6)	30 (26)

Annual mean PM2.5 concentrations and 2024 design values (µg/m^3) in overburdened communities highly impacted by air pollution, 2022–2024. From Table 7, page 70 of the 2025 Report.

	2022	2023	2024	2024 Design Value
Prosser	9.20 (9.20)	7.32 (6.13)	5.42 (4.70)	7.3 (6.7)
Sunnyside	11.18 (7.09)	9.05 (7.25)	6.79 (6.16)	9.0 (6.8)

* * * * * * * * *

The term "Cumulative Impacts" is defined in RCW 70A.02.010 as:

> *(3) "Cumulative environmental health impact" means the combined, multiple environmental impacts and health impacts on a vulnerable population or overburdened community.*

FOTC believes this means that Ecology should include all adverse impacts when evaluating the status of an OBC. This is not easy. FOTC has been led to believe that PM 2.5 levels might be used as a substitute for "cumulative impacts" due to the fact that several hazardous air pollutants are precursors for various forms of PM 2.5.

Such a simplification may overlook important factors:

- Every community meeting to address health and environmental issues in the LYV elicits concerns about pesticides. Yet we never see or hear of assessments or measures to address pesticide dangers.
    - Some years ago physicians at Seattle Children's Hospital noted that most of the cases of gastroschisis[5] they treated came from the Yakima Valley. A UW research team followed up and determined that, "Maternal exposure to surface water atrazine is associated with fetal gastroschisis, particularly in spring conceptions."[6]
    - Between January 2010 and December 2017, 47 babies were confirmed with anencephaly in Yakima, Benton and Franklin counties. This resulted in a rate of anencephaly that was higher than average. The Department of Health investigated to understand why. Results of that investigation were inconclusive. [7]
    - UW studies have documented elevated levels of certain dangerous pesticides in the homes of LYV farm workers. [8] "Concentrations of organophosphate pesticides in house dust were elevated for farmworkers across all seasons."

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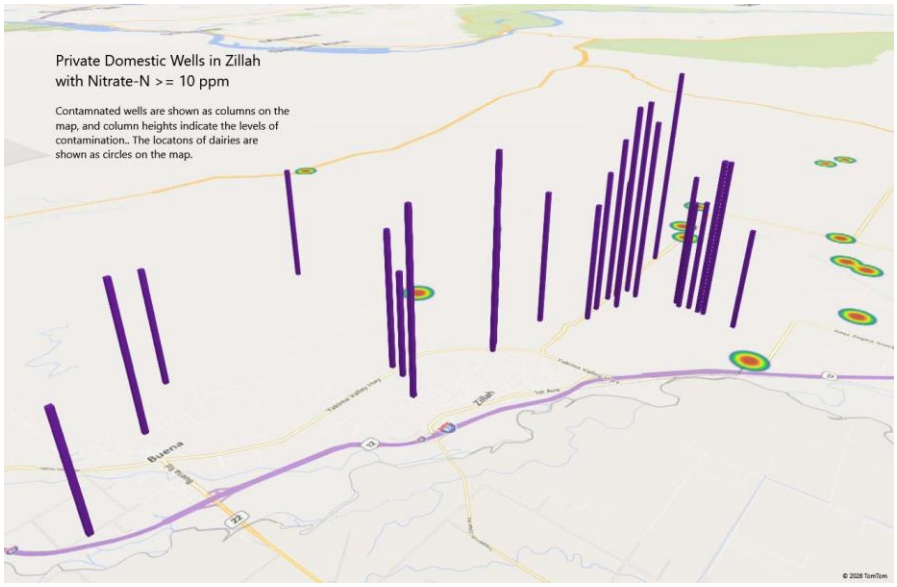
[5] Gastroschisis is a congenital birth defect characterized by a hole in the abdominal wall, allowing the intestines and sometimes other organs to protrude outside the body, typically to the right of the umbilical cord

[6] Waller SA, Paul K, Peterson SE, Hitti JE. Agricultural-related chemical exposures, season of conception, and risk of gastroschisis in Washington State. Am J Obstet Gynecol. 2010;202(3):241.e1-241.e6. doi: 10.1016/j.ajog.2010.01.023 Agricultural-related chemical exposures, season of conception, and risk of gastroschisis in Washington State - PubMed

[7] Anencephaly Investigation. Anencephaly Investigation | Washington State Department of Health

[8] Investigating Seasonal and Occupational Trends of Five Organophosphate Pesticides in House Dust in the Lower Yakima Valley, WA. Investigating Seasonal and Occupational Trends of Five Organophosphate Pesticides in Housedust in the Lower Yakima Valley, WA

- Ammonia levels in the LYV have a serious impact on PM 2.5 and human health.
    - FOTC research found ammonia levels in the Sunnyside/Grandview area that were 63 times higher than levels in Yakima's west valley.[9]
    - UW studies of asthmatic children in the LYV found reduced respiratory function on days with elevated ammonia levels. [10]
    - Ecology's 2015 Yakima Air Winter Nitrate Study (YAWNS) found that ammonium and nitrogen oxides combine in the LYV to produce high levels of PM 2.5. Ammonia levels are so high that the only way to reduce these particles is to reduce NOx.[11]
- Over 20% of domestic wells in the LYV deliver water that has nitrate-n levels above the safe drinking water standard of 10 mg/L. Some wells pump water with levels as high as 90 mg/L in which case even reverse osmosis is ineffective at remediating the contamination. Please note that many of the contaminated wells are outside the current boundaries of the LYV OBC. This provides another valid reason for expanding those boundaries to include the entire LYV GWMA target area. Below is a map showing contaminated wells in the Zillah area – outside the OBC



[9] Study Finds Elevated Ammonia Levels at Lower Yakima Valley Site Near Large CAFO Dairies. EPA Air Attachment 19 Ammonia Levels in Yakima County FOTC.pdf

[10] University of Washington Studies of Asthmatic Children in the Lower Yakima Valley. https://www.friendsoftoppenishcreek.org/cabinet/data/EPA%20Air%20Attachment%2015%20U%20of%20W%20Studies%20of%20Asthmatic%20Children%20in%20the%20Lower%20Yakima%20Valley.pdf

[11] Yakima Air Winter Nitrate Study. 20140225YakimaAirWinterNitrate.pdf

Nitrate-N Contamination in Private Domestic Wells in Zillah, WA

Address of Test Site	City	Zip	Date of Test	Nitrate-N (ppm)*
[redacted]	Zillah	98953	1/1/2019	**21.2**
	Zillah	98953	9/21/2024	**20.3**
	Zillah	98953	2/17/2025	**20.0**
	Zillah	98953	1/21/2025	**18.8**
	Zillah	98953	9/14/2024	**16.9**
	Zillah	98953	12/31/2024	**16.9**
	Zillah	98953	9/21/2024	**15.7**
	Zillah	98953	7/11/2024	**15.6**
	Zillah	98953	9/28/2024	**15.6**
	Zillah	98953		**14.4**
	Zillah	98953	7/11/2024	**13.5**
	Zillah	98953	9/21/2024	**13.3**
	Zillah	98953	1/21/2025	**13.3**
	Zillah	98953	1/21/2025	**13.1**
	Zillah	98953	1/22/2025	**12.1**
	Zillah	98953	1/3/2025	**11.9**
	Zillah	98953	10/23/2024	**11.8**
	Zillah	98953	9/28/2024	**11.4**
	Zillah	98953	7/11/2024	**11.2**
	Zillah	98953	1/21/2025	**10.7**
	Zillah	98953	10/23/2024	**10.1**
	Zillah	98953	2/17/2025	**10.0**
	Zillah	98953	1/12/2002	**10.0**
	Zillah	98953	7/11/2024	**18.4**
	Zillah	98953	7/11/2024	**12.5**

* Test were conducted by various governmental and non-governmental organizations using laboratories accredited by the Washington Department of Ecology.

- The 2017 Tri-Cities Ozone Precursor Study[12] has documented the impact of VOC emissions from LYV dairies on the formation of ozone in the Tri-Cities area. See Figure 7.10 on page 76 of that study.

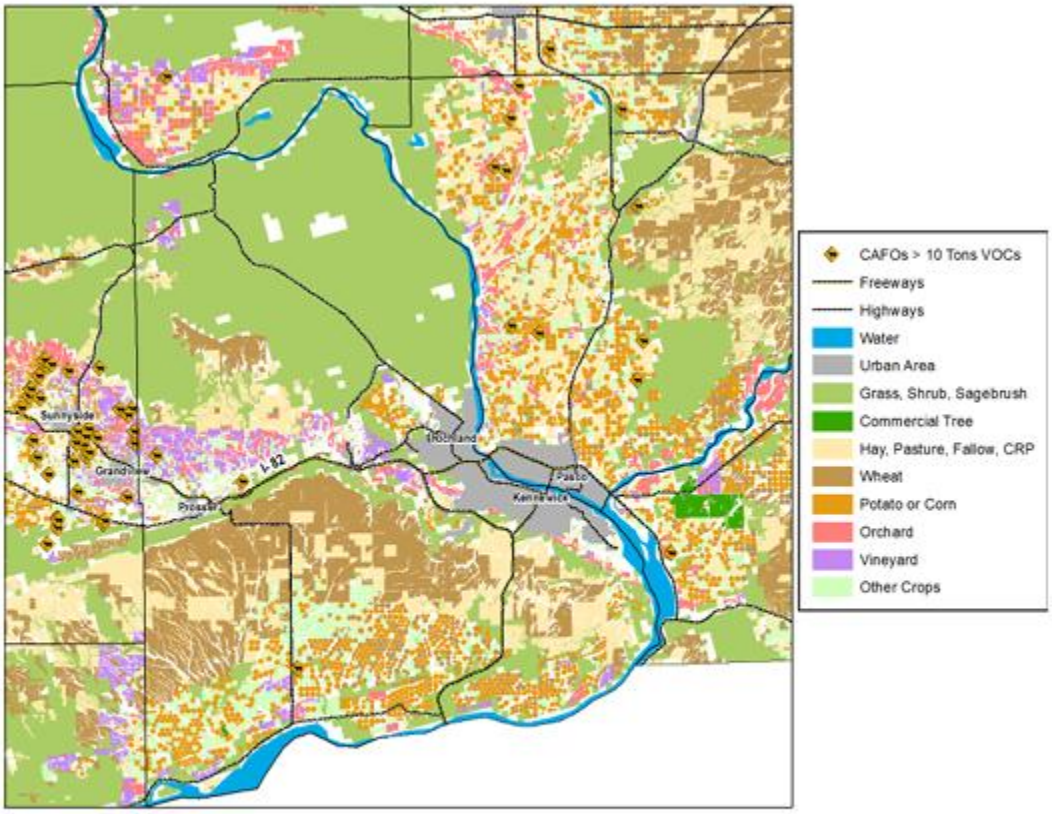


Figure 7.10. Land use map of the area surrounding the Tri-Cities showing crop type. Center pivot irrigation for potato and hay crops is extensive to the immediate north of Pasco. Vineyards and fruit crops are common to the west of Richland.

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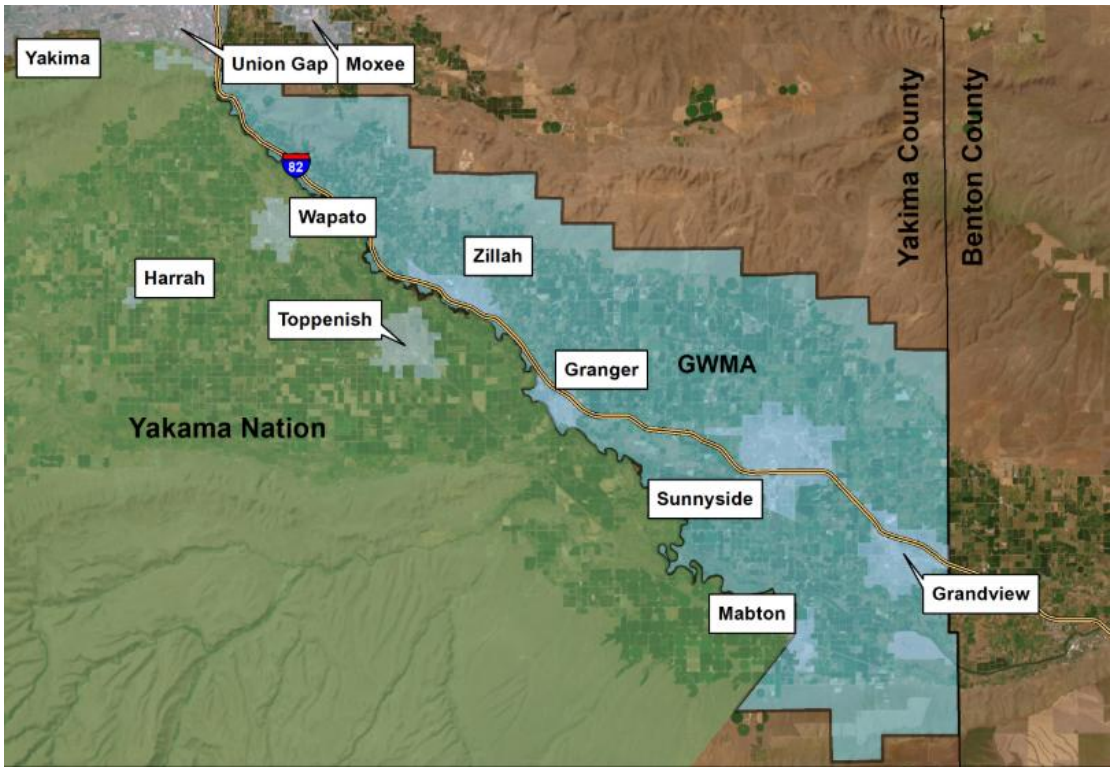
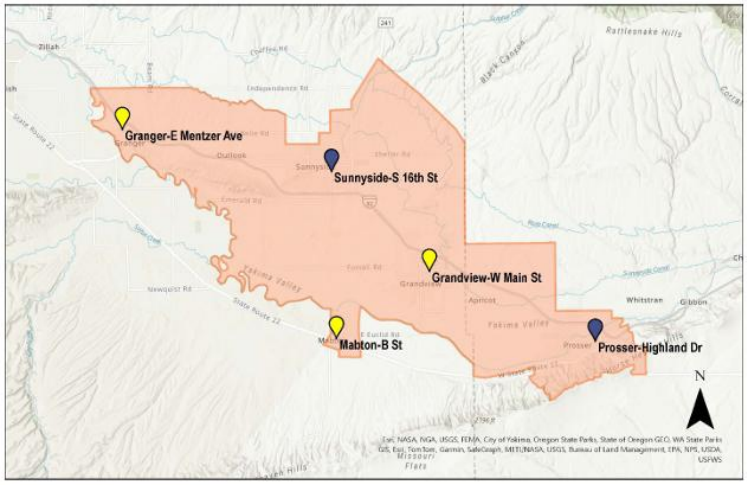
We had expected that Ecology would include the entire Lower Yakima Valley Groundwater Management Area when Ecology designated Lower Yakima Valley as an Overburdened and Underserved Community in 2023. The reason being - this entire area suffers from serious drinking water pollution that impacts the overburdened and underserved population. Poverty levels are high throughout this area. But Ecology did not do that. Instead Ecology shrank the OBC to 157 square miles, while the GWMA covers 273 square miles.

[12] The Tri-Cities Ozone Precursor Study (T-COPS). 20171212TriCitiesOzonePrecursorStudy.pdf

Lower Yakima Valley Groundwater Management Area



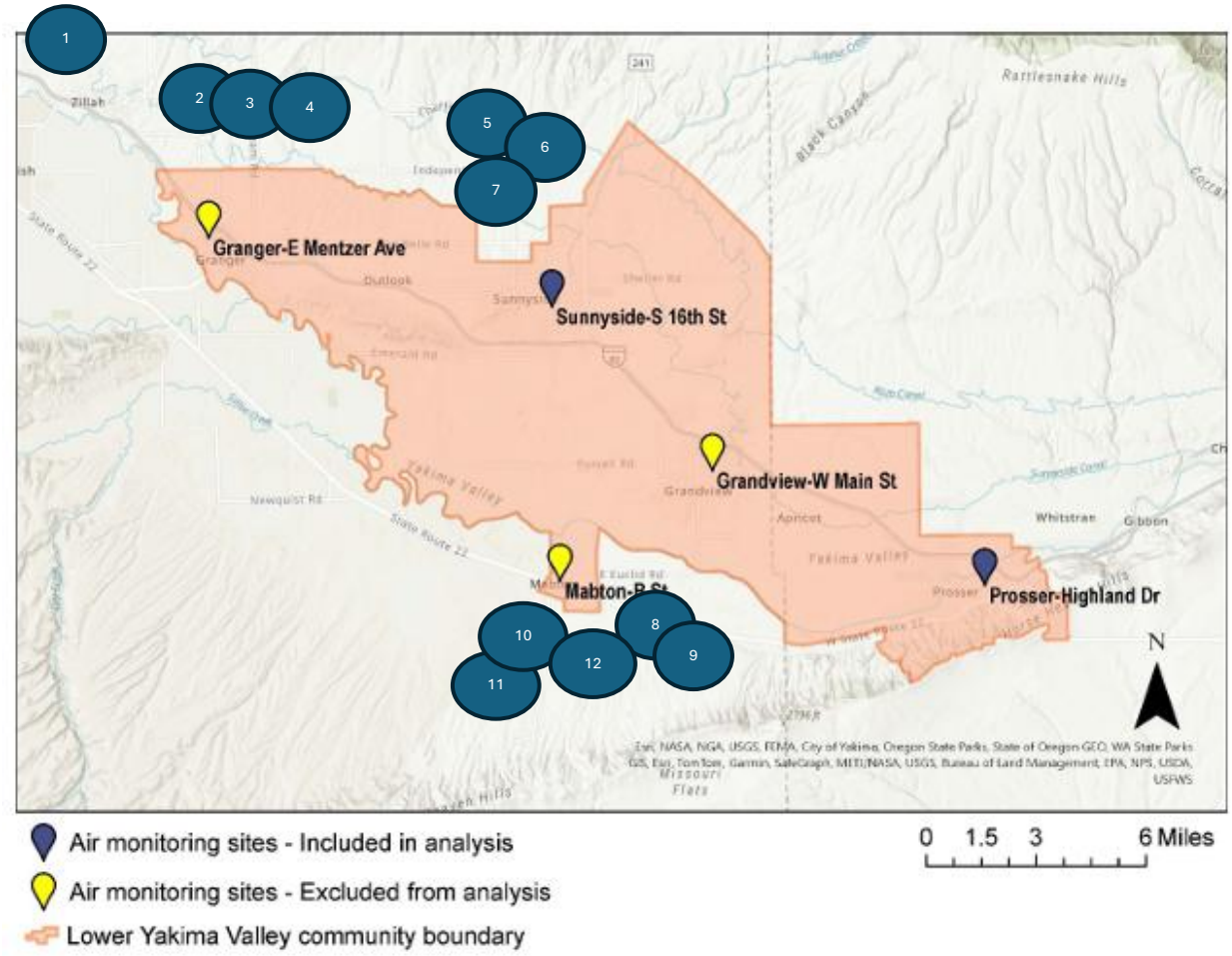
LYV Overburdened Community



When writing rules to implement the HEAL Act and the Climate Commitment Act, why has Ecology not addressed the health and safety of people who live in Wapato and Toppenish? These cities are located on the Yakama Reservation but the Yakama Nation has no authority there. Why did Ecology leave out the people who live in Zillah and Buena?

One reason for the unusual LYV OBC boundaries may be the fact that Ecology and the legislature frequently try to protect the multi-million dollar dairy industry.[13] One impact from shrinking the boundaries of the LYV OBC is that many large, concentrated animal feeding operations are now outside the OBC. As a result these CAFOs are not considered sources of air pollution for purposes of the HEAL Act implementation pursuant to RCW 70A.65.020 (1) (c) (i).

See the map of the Lower Yakima Valley Overburdened and Underserved Community below where we have added blue circles to mark large CAFOs located outside the OBC boundaries.



[13] Washington State gives dairies special favors. Dairy Washington State gives the dairy industry special favors.pdf

Key

1	Highview Dairy	1,700 to 2,699 Milk Cows	
2	Liberty/Bosma Dairy		Now Out of Business
3	Cow Palace		Now Out of Business
4	George DeRuyter/D&J	4,400 to 6,398 Milk Cows	
5	Sunnyside Dairy	5,700 to 6,839 Milk Cows	
6	Western Valley Farms	2,700 to 3,699 Milk Cows	
7	Smeenk Brothers #2	7,00 to 1,699 Milk Cows	
8	Veldhuis Dairy	3,700 to 4,699 Milk Cows	
9	Lash Legacy		Now Out of Business
10	Sunny Dene Dairy	2,700 to 3,699 Milk Cows	
11	Hidden Valley Dairy	1,700 to 2,699 Milk Cows	
12	Fryslan Calf Ranch	10,000 Hutches + Older Calves	

RCW 70A.65.020 says:

"(1) To ensure that the program created in RCW 70A.65.060 through 70A.65.210 achieves reductions in criteria pollutants as well as greenhouse gas emissions in overburdened communities highly impacted by air pollution, the department must:

(c)(i) Within the identified overburdened communities, analyze and determine which sources are the greatest contributors of criteria pollutants and develop a high priority list of significant emitters."

There are between 23,300 and 32,431 milk cows housed on LYV CAFOs that are not included in mandated evaluation of sources of air pollution because the law only addresses sources within the overburdened communities.

The milk cows in these 12 CAFOs produce:

- Between 480.5 and 668.8 metric tons of ammonia every year
- Between 9.5 and 13.3 metric tons of hydrogen sulfide every year
- Between 988.1 and 1,375.4 metric tons of VOCs every year
- Between 6,990 and 9,729 metric tons of methane every year.

When we convert methane emissions into CO_2 equivalents, the dairies meet levels that would require reporting of greenhouse gas emissions if dairies were required to report.

* * * * * * * * * * *

The Friends of Toppenish Creek respectfully request changes to the proposed WAC 173-448 prior to adoption. We ask for:

- Enlargement of the borders for the LYV OBC to include the entire LYV Groundwater Management Area.
- Designation of concentrated animal feeding operations as significant sources of air pollution in OBCs.
- Addition of hydrogen sulfide to the list of precursors for criteria pollutants since hydrogen sulfide is a precursor to sulfur dioxide.
- Measurement of levels of ammonia, hydrogen sulfide, volatile organic compounds and methane in the LYV OBC.
- Addition of options for Ecology if any clean air agency does not cooperate in implementation of RCW 70A.65.020.

Sincerely,

Executive Director, Friends of Toppenish Creek

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