

APPENDIX I: Environmental Justice Report

City of Lynden Comprehensive Plan Update 2025

Environmental Justice Report

City of Lynden Comprehensive Plan

Prepared For:

City of Lynden

Prepared By:

SCJ Alliance
Rachelle Bradley, AICP
108 N Washington, Suite 300
Spokane, WA 99201
509.835.3770

Peak Sustainability Group
PO Box 2006
Bellingham, WA 98227
360.595.5075

2025 Comprehensive Plan Update



Environmental Justice Report

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City of Lynden
300 4th Street
Lynden, WA 98264

Reviewing Agency

Jurisdiction: Washington State Department of
Commerce
Growth Management Services
1011 Plum St SE, Olympia, WA 98504

Project Representative

Prepared by: SCJ Alliance
108 N Washington, Suite 300
Spokane, WA 99201
509.835.3770
scjalliance.com

Contact: Rachelle Bradley, AICP
Project Manager

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Executive Summary

House Bill (HB) 1181 mandates that cities and counties include a Climate Change and Resiliency Element in their comprehensive plans. This Environmental Justice (EJ) Report is a required step in the formation of the Element and a component of the 2025 City Comprehensive Plan update.

HB 1181 reasons that Washington State is experiencing worsening environmental conditions, prompting a focus on climate change and environmental justice. The state legislature has provided tools and funding to ensure equitable climate policy including grant funds of up to \$500,000 to assist the City of Lynden.

At the core, the focus of environmental justice is asking “Why is so much pollution found in disadvantaged communities?” To explore this issue, the State-wide legislation directs cities to pay special attention to “vulnerable populations” and “overburdened communities”.

Vulnerable populations are groups that are more likely to be at higher risk for poor health outcomes in response to environmental harms, due to adverse socioeconomic factors such as unemployment, high housing and transportation costs relative to income, limited access to nutritious food and adequate health care, linguistic isolation, and other factors that negatively affect health outcomes and increase vulnerability to the effects of environmental harms, and sensitivity factors such as low birth weight and higher rates of hospitalization.

Overburdened communities are geographic areas where vulnerable populations face multiple environmental harms and health impacts. In general, these groups are more likely to be exposed to climate risks and hazards or suffer from poor health without the means or security to recover and rebuild.

This report relies heavily on the Washington State Department of Health’s Environmental Health Disparities mapping tool. The map combines multiple indicators of environmental threats, such as proximity to heavy traffic roadways and toxic releases from facilities with indicators of vulnerability, like socioeconomic status and health outcomes into one final rank. Based on this information, the report concludes that environmental exposures in Lynden are minimal. However, socioeconomic factors pose risks to vulnerable populations. Socioeconomic indicators may point to the fact that portions of the Lynden community may be less resilient to severe environmental conditions and natural disasters. Historically it also indicates that these groups are often not part of public policy discussions although these decisions may affect them. As such

it is wise for the City to consider resiliency plans that are beneficial to these groups and implement improvements to the policy making process to include those who have not been able to participate in the past.

This report goes on to outline the regulatory framework supporting a healthy environment for everyone through climate planning and environmental justice in the City of Lynden. It identifies vulnerabilities, exposures, and risks using the Environmental Justice screen and audits the 2016 City and County Comprehensive Plans for environmental justice best practices. Key findings from the report include:

- Older populations are particularly vulnerable to flood risk.
- Low-income earners, people of color, and those without a high school diploma are concentrated in areas with lower life expectancy.
- A significant portion of the population faces language barriers, which can hinder access to information and services.
- Heart disease and cancer rates in Lynden are significantly higher than the state average.
- Ozone emissions pose the primary environmental threat to residents.
- Several Risk Management Plan facilities (facilities that handle or store hazardous chemicals) in proximity to Lynden are potential environmental risks.

Introduction

An Environmental Justice (EJ) report is a comprehensive document that assesses the environmental impact of a project, activity, or policy. The EJ report includes a detailed methodology outlining the data collection and analysis. The report then presents an assessment of the potential environmental effects, considering socioeconomic indicators and vulnerable populations. Finally, the report offers recommendations to address key findings through the development of the new Climate Change and Resiliency Element of the 2025 Comprehensive Plan update.

Purpose of the Report

This report explores Environmental Justice (EJ), a concept ensuring everyone has equal access to a healthy environment. As defined by the Environmental Protection Agency, EJ means "fair treatment and meaningful involvement" in environmental decisions, regardless of background.¹ Some examples in communities around the US of environmental justice concerns are a disproportionate placement of hazardous waste sites in minority communities, limited access to clean drinking water in low-income areas, high exposure to pesticides for farmworkers, or climate change disproportionately impacting vulnerable communities. This report recognizes the importance of EJ in addressing these inequities. The report includes the following sections: methodology, assessment, findings, and recommendations as the City completes their Climate and Health and Wellness elements in their comprehensive plan.

The purpose of the report is to be an informative baseline document that inventories environmental justice indicators for Lynden. This report can inform future planning or policy decisions proposed in the Comprehensive Plan update. It is not a policy or recommendation document.

Climate Planning in Washington

Since the City of Lynden's last Comprehensive Plan update, the Washington State Legislature has passed several bills prioritizing environmental justice and providing funding to achieve environmental goals. This report highlights Washington State's commitment to environmental justice through recent legislation and the changes that impact the City of Lynden's comprehensive planning process.

¹ "Learn About Environmental Justice." *EPA*, Environmental Protection Agency, 11 June 2024, www.epa.gov/environmentaljustice/learn-about-environmental-justice.

In particular, RCW 70A.02 (2021) established the Office of Equity & Environmental Justice within the Washington Department of Ecology. This office works to identify and remove barriers faced by at-risk communities regarding environmental issues.

Additionally, HB 1181 (2023) amended the Growth Management Act to require municipalities to incorporate climate change planning into their comprehensive plans.

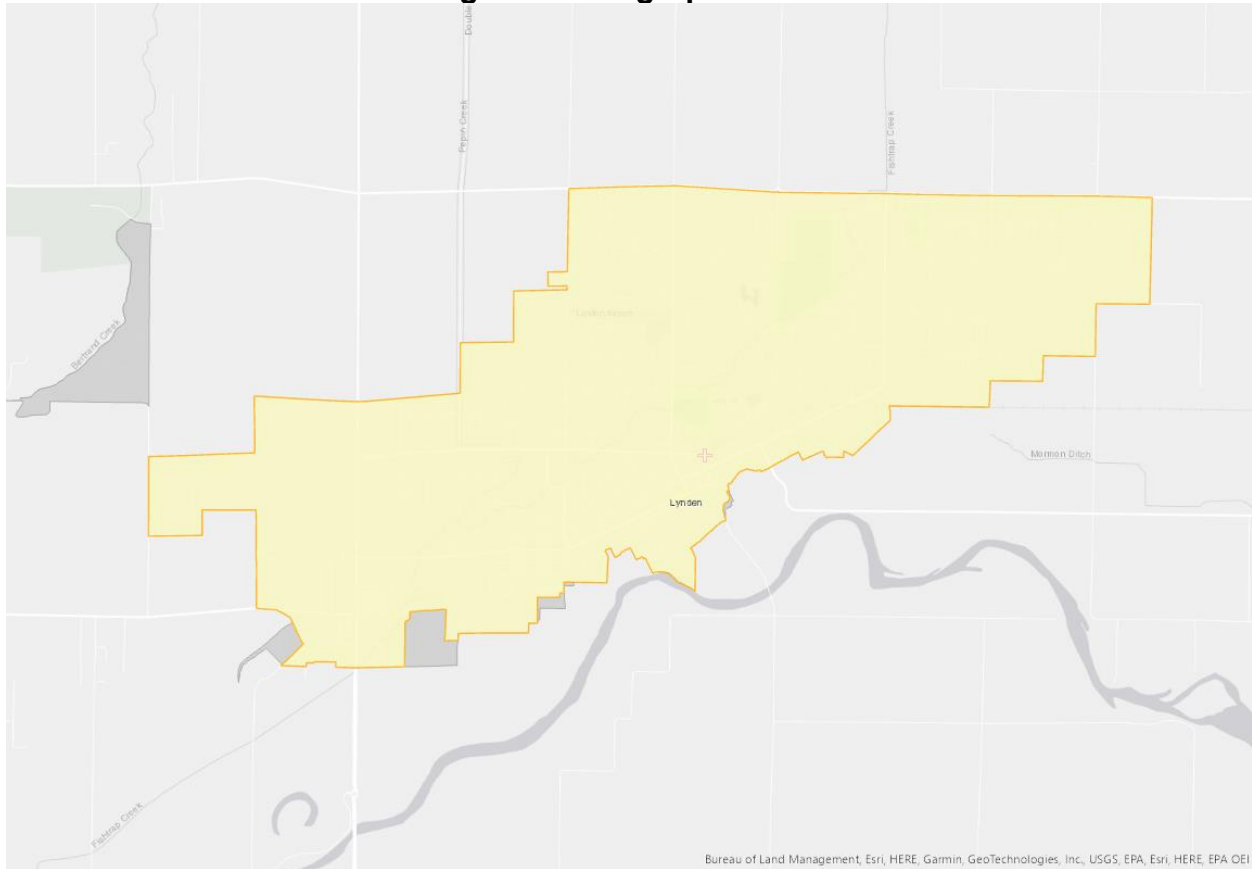
Key elements of HB 1181 include:

- Emphasis on environmental justice to prevent worsening environmental disparities for disadvantaged communities.
- Multimodal transportation planning.
- Greenhouse gas emission reduction plans for major counties and municipalities.
- Strategies to reduce vehicle miles traveled without increasing emissions elsewhere.
- Protection and restoration of environmentally sensitive areas.

Scope and Limitations

The geographic area covered in this report is the City of Lynden, including city limits and the city's Urban Growth Area (UGA). Some of the data collected uses geographically smaller units known as Block Groups. A census block group is the smallest geographic unit used by the U.S. Census Bureau for data collection. It's typically a small area within a census tract, containing a population of around 1,200 to 2,800 people. Block groups can extend beyond city boundaries; when this scenario applies, the report will identify both city and block group geographies.

Figure 1. Geographic Area



Source: EPA's Environmental Justice Screening and Mapping Tool (Version 2.3), September 2024

The data in this report uses both current and historical data as recent as the American Community Survey 5-year estimates from 2018-2022.

This report is limited by the data sources collected to complete the environmental justice assessment. Each data source has its own identified limitations, which correlate with this report's limitations. The report is not an exhaustive assessment of every environmental hazard and socioeconomic indicator, but relies upon readily available and thoroughly researched data. Details about the data sources are included in the Methodology section. Additionally, this report is intended to be informative and factual, not opinion based. The findings in this report are expected to support the development of the City's Climate Change and Resiliency Element, as well as inform the outreach process for the City of Lynden's 2025 Comprehensive Plan update. The report addresses state requirements as required by HB 1181.

Methodology

This report used a mixed-methods approach to collect data and analyze it using synthesis and interpretation. The data is primarily quantitative, but the analysis considers qualitative markers as well. Outreach was not conducted as part of this report's development, but previous efforts were considered for context and direction setting.

Data Collection

For this report, three data sources were collected to provide a comprehensive assessment of the City of Lynden through national, state, and regional comparisons.

The Environmental Protection Agency developed an *Environmental Justice Screening and Mapping Tool* to better implement Executive Order 12898. This report analysis uses Version 2.3 of the tool published in September 2024. The EJ screening tool is a nationally consistent dataset and approach for combining environmental and socioeconomic indicators. These indicators include environmental burdens, socioeconomic factors, environmental indexes, supplemental indexes, climate change, health disparities, and critical service gaps. The methodology uses state and national percentiles on a 0 to 100 scale with anything less than 50 considered less significant. National percentiles capture a comparative picture of a geographic area to the rest of the United States, whereas state percentiles are comparative to only that state. Additional information on the technical framework and approach to the website is available on the EJ Screening Website.²

The White House's Council on Environmental Quality published a *Climate & Economic Justice Screening Tool* that identifies overburdened and underserved Census tracts in the United States. These tracts are considered disadvantaged. The tool also considers Federally Recognized Tribes, including Alaska Native Villages, disadvantaged communities. While the tool does not consider Census tracts within Lynden to be disadvantaged, climate-relevant data was assessed for this report. The report includes data from Version 1.0 of the tool as of September 2024.

The Washington State Department of Health (DOH) created an interactive mapping tool showing environmental and health risks by census tract to identify disparities and improve equity. Census tracts are larger than a census block group, and typically contain 4,000 to 12,000 people. Known as *the Environmental Health Disparities Map*, this tool identifies both environmental threats and vulnerable populations, totaling 19

² EJScreen Technical Information and Data Downloads, EPA, <https://www.epa.gov/ejscreen/technical-information-and-data-downloads>

indicators. The tool then provides a risk analysis, combining the two datasets to identify the communities experiencing a disproportionate share of environmental health burdens. The full methodology is provided on the Department of Health's website.³ This report uses the cumulative impact analysis provided in the September 2024 version of this tool.

A report was prepared for Whatcom County Health and Community Services to assess vulnerabilities to smoke and heat. Published in June 2024, the report is titled "Whatcom County Building Resilience Against Smoke and Heat Climate Vulnerability Assessment" (BRASH). While the document assesses the entirety of Whatcom County rather than individual cities, it provides a regional comparison of vulnerable populations and climate considerations. The report was used as a data comparison throughout the assessment and analysis for local accuracy.

Data Analysis

The mapping tools provide complete datasets with analysis. The analysis approach in this report is to synthesize the different findings in the data sources and draw specific conclusions about the conditions of environmental justice and climate change in Lynden. It is a background document to provide an understanding and path forward to implementing HB 1181 requirements.

Community Engagement & Outreach

Lynden's 2016 Comprehensive Plan update incorporated public participation during its development. This included opportunities for public comment, city notifications, and involvement from the Planning Commission. As a result, the plan met the minimum legal requirements for public outreach and participation⁴. However, the plan lacked a separate public participation plan outlining the strategies used to achieve "meaningful involvement" from diverse community members in decisions affecting health and the environment. The plan did reiterate the Growth Management Act's Goal 11⁵, emphasizing citizen participation and community coordination. The City of Lynden is

³ Washington Environmental Health Disparities Map, DOH, <https://doh.wa.gov/data-and-statistical-reports/washington-tracking-network-wtn/washington-environmental-health-disparities-map>

⁴ RCW 36.70a.140: *Comprehensive Plans-Ensure Public Participation.*, apps.leg.wa.gov/rcw/default.aspx?cite=36.70A.140.

⁵ *City of Lynden Comprehensive Plan*, 2016, www.Lyndenwa.org/DocumentCenter/View/280/2016-Lynden-Comprehensive-Plan-Update-PDF.

committed to ongoing communication efforts, using various methods, to ensure inclusivity in future policy-making processes.

A Public Participation Plan (PPP) was adopted for the 2025 Comprehensive Plan update process that includes outreach topics on climate change and resiliency. The goals of the PPP are:

1. Outline a path to ensure broad and accessible participation. This includes identifying key interest groups, soliciting input from the public and the business community, and ensuring no single group or interest dominates the process.
2. Identify vulnerable populations and overburdened communities within the City and, if identified, conduct outreach to solicit feedback from these groups. Vulnerable populations are groups that are more likely to be at higher risk for poor health outcomes in response to environmental harms, due to adverse socioeconomic factors such as unemployment, high housing and transportation costs relative to income, limited access to nutritious food and adequate health care, linguistic isolation, and other factors that negatively affect health outcomes and increase vulnerability to the effects of environmental harms, and sensitively factors such as low birth weight and higher rates of hospitalization. Overburdened communities are geographic areas where vulnerable populations face combined, multiple environmental harms and health impacts.
3. Maintain effective communication and coordination with Whatcom County and surrounding jurisdictions and invite tribal participation throughout the update process.
4. Distribute information and post notices efficiently, including notifying the public of all meetings, hearings, workshops, and legislative actions.
5. Ensure that elected officials and staff throughout the organization are fully aware of and understand community and stakeholder concerns.

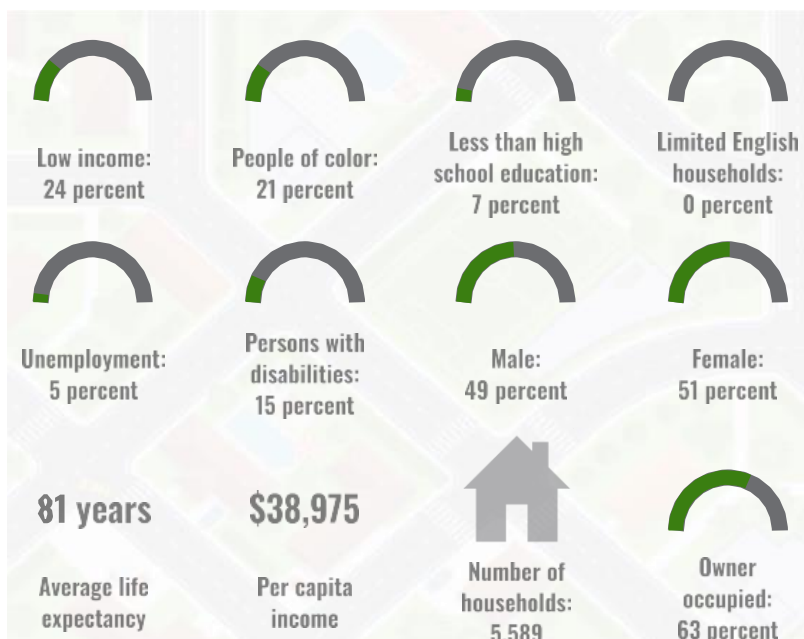
To implement the PPP several outreach techniques and strategies have been identified, including public meetings, notifications, website, social media, elected official coordination meetings, advisory groups, email distribution, stakeholder outreach, news releases, and others.

This report identifies the vulnerable and sensitive populations to include as part of the outreach process, meeting Goal #2 of the PPP. Partnerships with community-based organizations and established community groups will ensure adequate representation in the public participation process.

Environmental Justice Assessment

An environmental justice assessment is a comprehensive evaluation of how environmental hazards disproportionately affect vulnerable populations. It involves identifying vulnerable groups based on factors like socioeconomic status, race, ethnicity, and health conditions. Additionally, the assessment examines various environmental hazards, including pollution, toxic substances, and natural disasters. The assessment also includes a cumulative impact analysis to show the combined effects of these hazards on vulnerable communities.

Figure 2. Community Information



Source: EJScreen Report for the City of Lynden, WA, generated July 2024

Environmental Burdens

Communities that are disproportionately impacted by environmental hazards are considered *environmentally burdened*. This section examines several pressing environmental issues, including elevated levels of ozone and particulate matter in the air, as well as the proximity of Lynden residents to hazards. Environmental burdens can pose significant risks to the health and well-being of vulnerable populations.

Multiple data sources were consulted for this section, with the primary sources being the EJScreen using state percentiles and the WA DOH Environmental Health Disparities tool. These sources are the most comprehensive of datasets available informed by multiple sources. State percentiles were found to be the most representative for Lynden and more comparable at a local level, so the following maps represent state percentiles only. This also allows comparable verification of data using the Washington-based Health Disparities map for a robust image of environmental hazards.

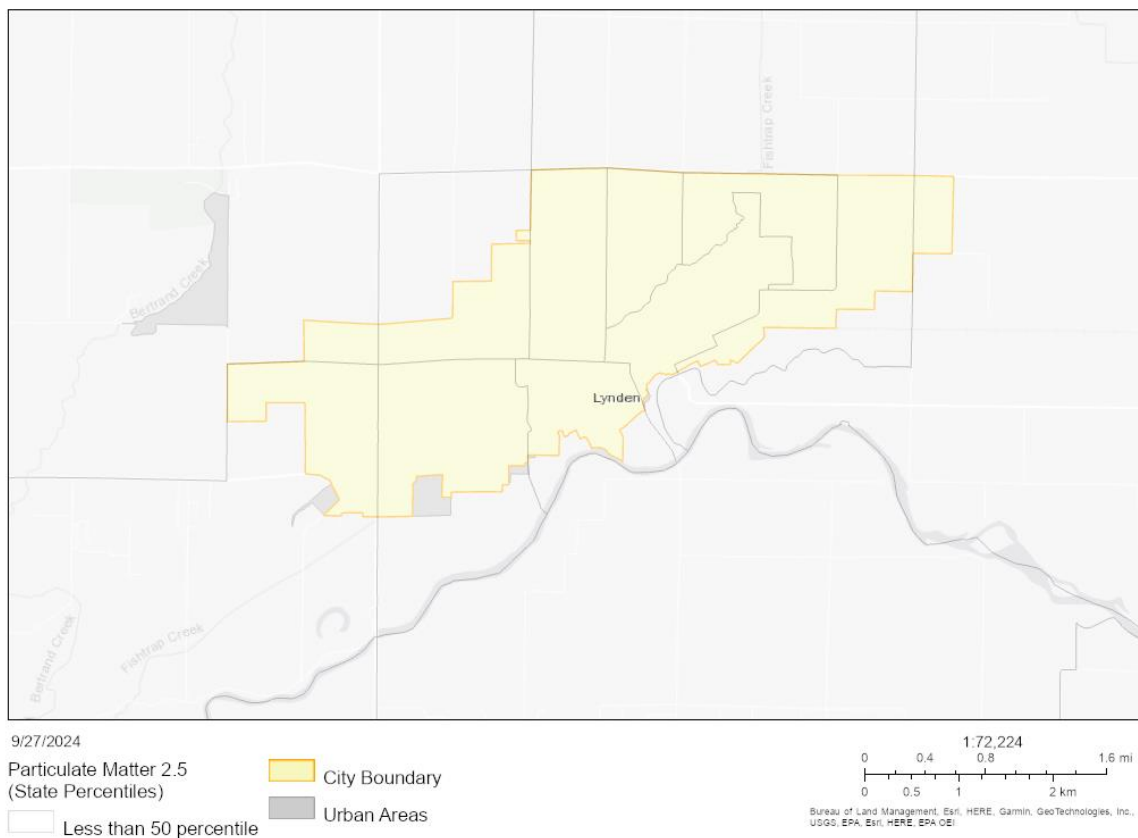
Particulate Matter 2.5

Particulate Matter (PM) 2.5 refers to tiny particles in the air that are smaller than 2.5 micrometers in diameter. These particles can penetrate deep into the lungs, potentially

causing health problems. EJScreen provides PM 2.5 data based on annual average concentrations in micrograms per cubic meter. This data is compiled by the 2020 Census tract and then reassigned to individual block groups.

PM 2.5 levels in EJScreen indicate potential exposure to harmful particles but do not directly measure health risks. The tool highlights areas with higher PM 2.5 levels compared to national or state averages. A higher percentile indicates a higher level of PM 2.5 exposure. For PM 2.5, EJScreen does not indicate whether an area meets national air quality standards. For air toxics risk measures, the diesel PM indicator is used further on.

Figure 3. Particulate Matter 2.5



Source: EJScreen Report for the City of Lynden, EPA, generated September 2024

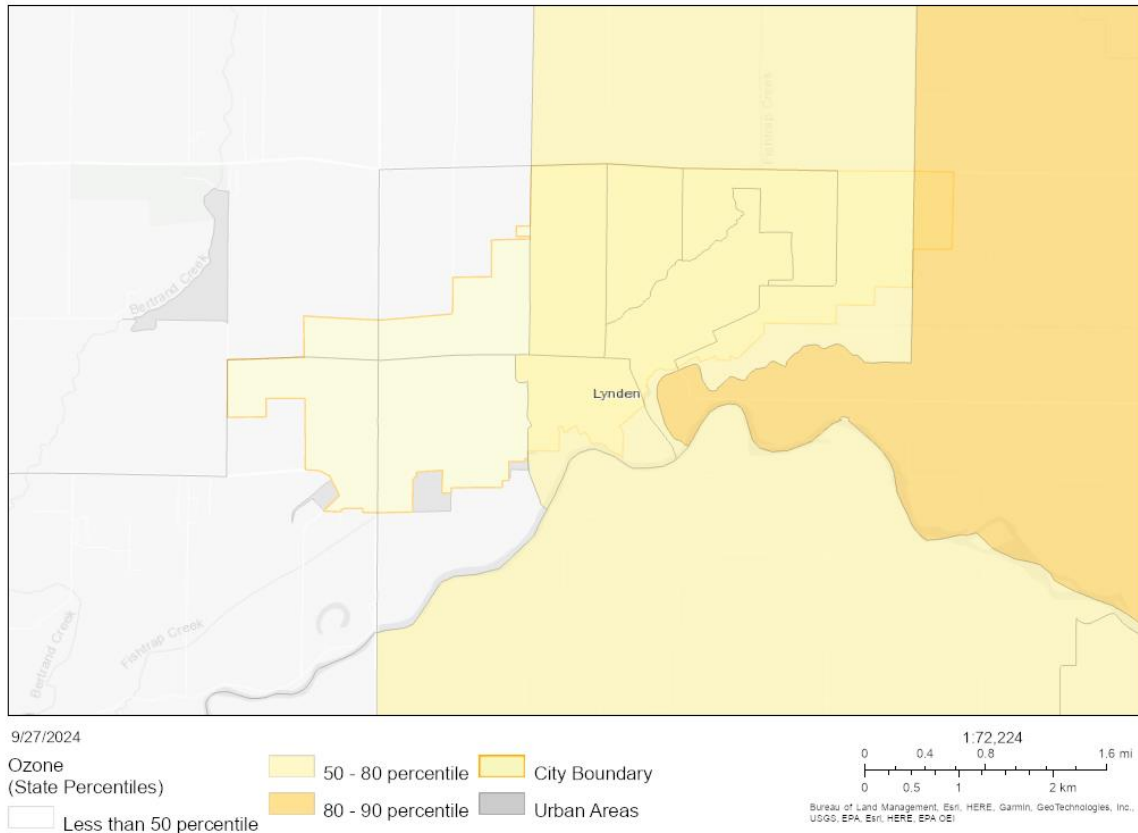
Lynden is in the range of “less than 50 percentile” across all block groups for PM 2.5 concentrations. The WA Environmental Health Disparities map tool ranks this indicator as 2 or less, indicating low exposure risk in the city limits and Urban Growth Area.

Ozone

The ozone indicator reflects the annual mean of the 10 highest MDA8 O3 concentrations, a metric that better aligns with the National Ambient Air Quality

Standard (NAAQS) for ozone. This change provides a more accurate representation of peak ozone concentrations and potential exposure risks. EJScreen uses data provided by EPA's OAQPS, which is compiled by the 2020 Census tract and then assigned to individual block groups. The ozone indicator values range from 6.95112 to 77.5368, with a median of 40.489515.

Figure 4. Ozone



Source: EJScreen Report for the City of Lynden, EPA, generated September 2024

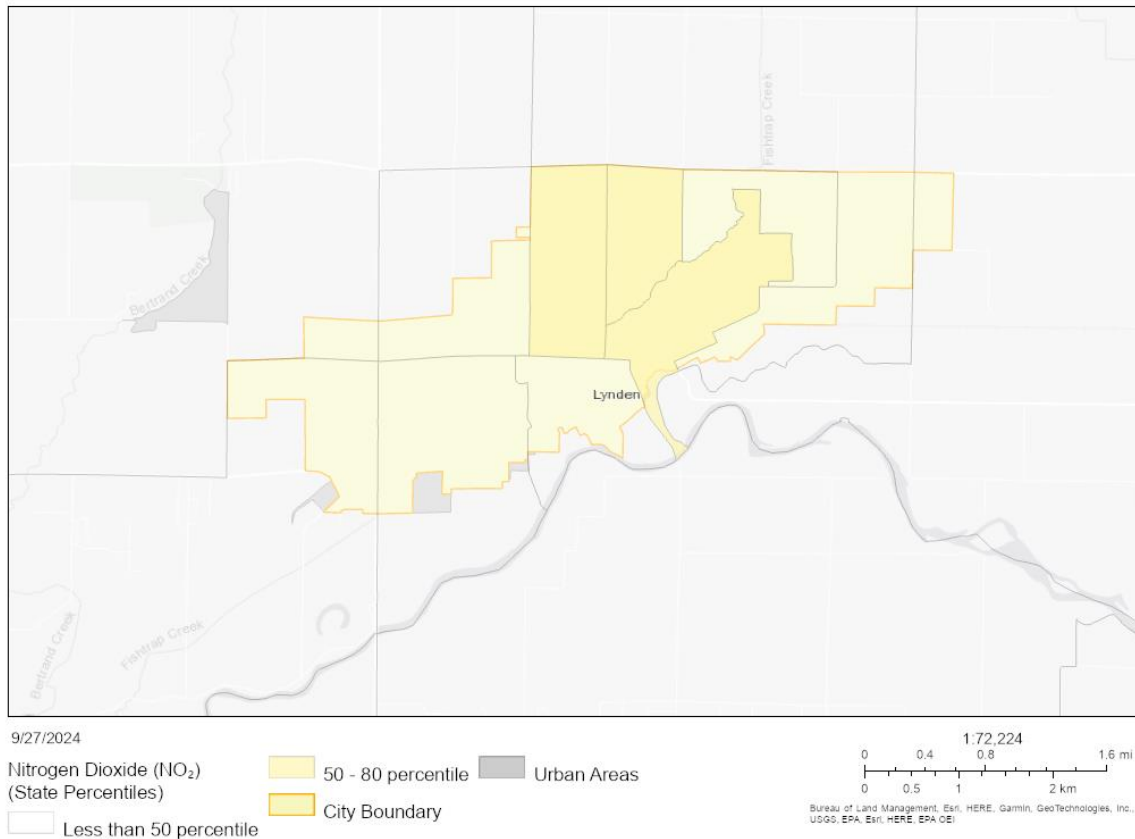
The west half of Lynden is considered to be in the less than 50 percentile for ozone concentrations and the east is in the 50-80 percentile. Higher concentrations of ozone in the 80-90 percentile are present just outside of city limits but it is hard to identify a point source. The concentrations are likely higher for city residents living near the area. The WA Environmental Health Disparities map tool ranks this indicator as 3 or less, indicating low exposure risk in the city limits and Urban Growth Area. EJScreen state percentile data indicates low to moderate risk.

Nitrogen Dioxide (NO₂)

The NO₂ indicator calculates average annual nitrogen dioxide levels at the block group level. Exposure to high levels of NO₂ can irritate airways, aggravate respiratory diseases like asthma, and contribute to the development of asthma. Breathing air with high NO₂ concentrations can lead to respiratory symptoms, hospitalizations, and increased susceptibility to infections. The health-based National Ambient Air Quality Standards for NO₂ are 100 ppb for 1-hour exposures and 53 ppb annually. As of 2020-

2022, all block groups in the U.S. are below these standards. The NO₂ indicator provides a screening-level assessment of exposure to nitrogen dioxide.

Figure 5. Nitrogen Dioxide



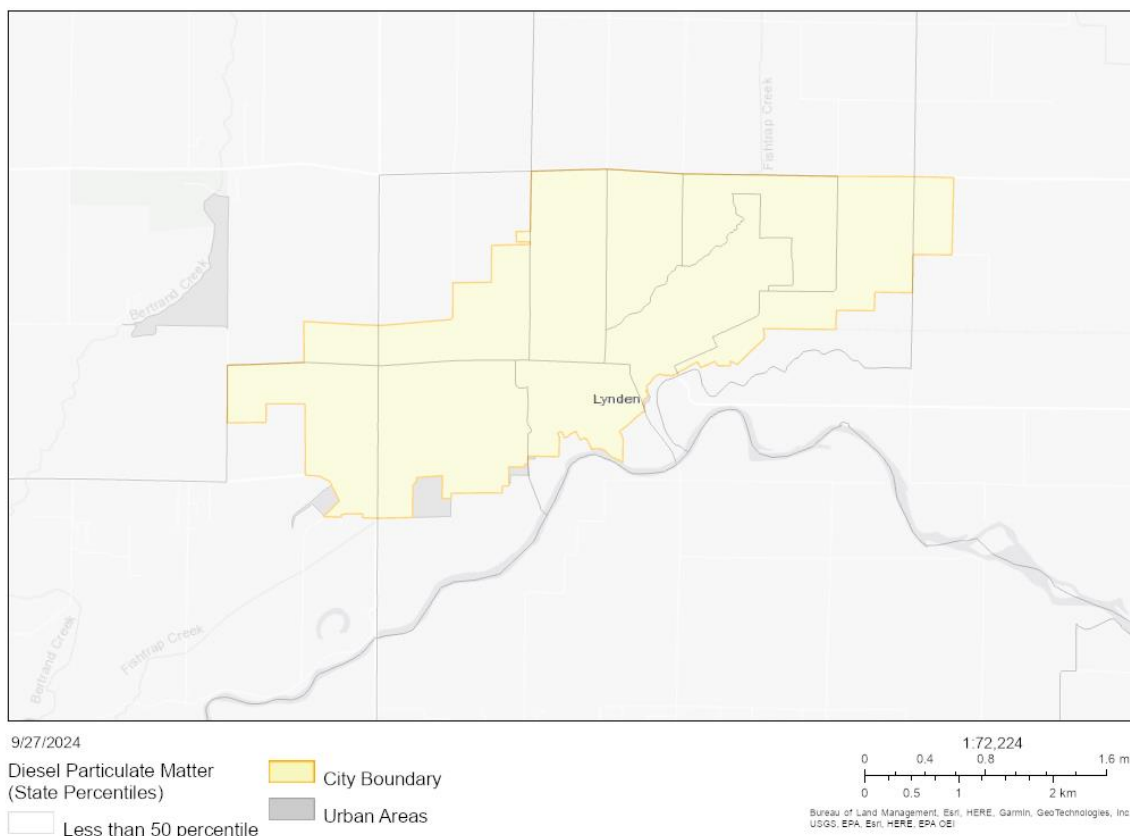
Source: EJScreen Report for the City of Lynden, EPA, generated September 2024

Central and north central Lynden are mapped in the 50-80 percentile for nitrogen dioxide concentrations suggesting low-moderate risk. West and east Lynden are in the less than 50 percentile indicating low risk.

Diesel Particulate Matter

The Diesel PM indicator provides information on the estimated concentration of diesel particulate matter (PM) in the air. Diesel PM comes from EPA's AirToxScreen, a comprehensive evaluation of air toxics in the United States. The AirToxScreen aims to identify air toxics of concern and prioritize areas for further study. The data provided by AirToxScreen offers broad estimates of health risks and does not represent definitive risks to specific individuals or locations.

Figure 6. Diesel Particulate Matter



Source: EJScreen Report for the City of Lynden, EPA, generated September 2024

Lynden is considered to be in the less than 50 percentile across all block groups for diesel particulate matter concentrations. The WA Environmental Health Disparities map tool ranks this indicator as 3 or less, indicating low exposure risk in the city limits and Urban Growth Area.

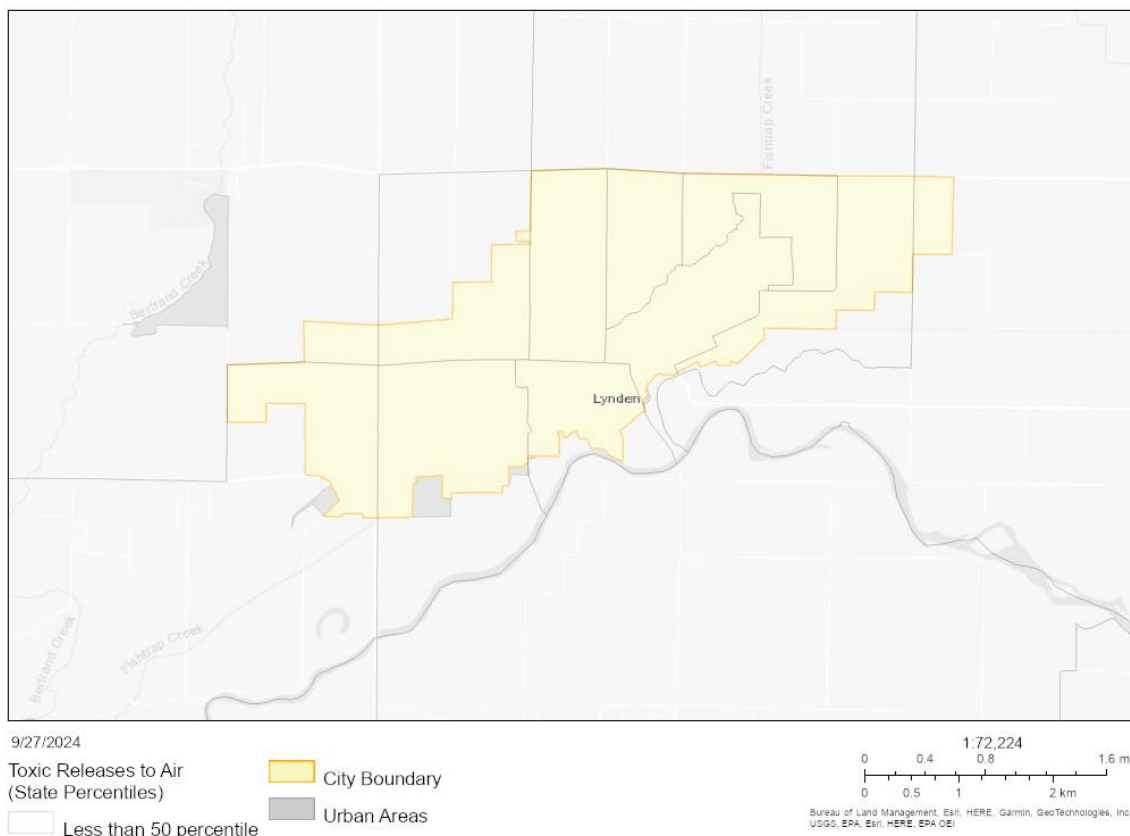
Toxic Releases to Air

The Toxic Releases to Air indicator quantifies the potential human health impacts of certain chemicals released into the air by facilities. This indicator combines chemical release data from the Toxics Release Inventory (TRI) with the Risk-Screening Environmental Indicators (RSEI) model to estimate average annual chemical concentrations in air, weighted by their relative toxicity.

The RSEI model simulates the fate of chemicals in the air, considering factors like release points and chemical properties. This allows for the estimation of chemical concentrations in the air, which are then weighted based on their toxicity. The resulting toxicity-weighted concentrations are aggregated at the block group level and other geographic areas. Statistical percentiles are calculated to make the indicator values

more comparable. A higher percentile indicates a higher level of potential exposure to toxic chemicals released into the air.

Figure 7. Toxic Releases to Air



Source: EJScreen Report for the City of Lynden, EPA, generated September 2024

Lynden is mapped in the less than 50 percentile in the city and UGA for toxic releases to air showing a low risk. The WA Environmental Health Disparities map tool ranks this indicator as 3 or less, indicating low exposure risk in the city limits and Urban Growth Area.

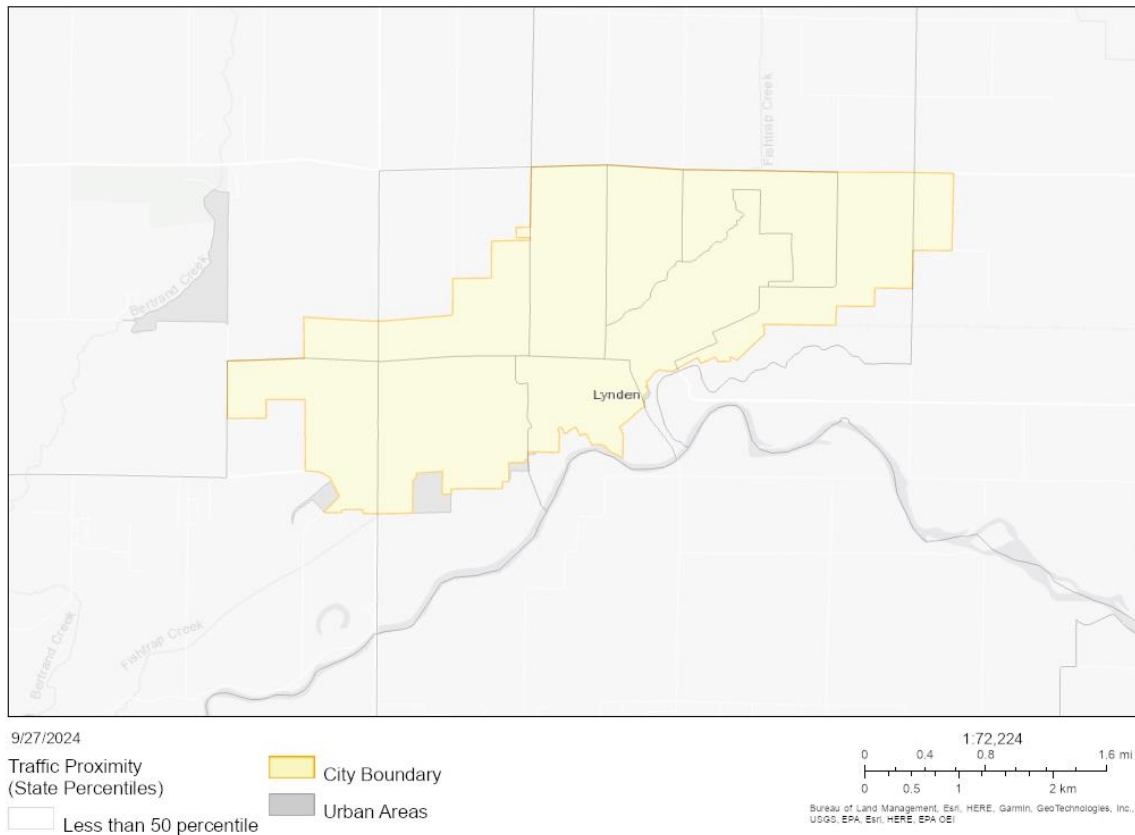
Traffic Proximity

The Traffic Proximity indicator assesses the potential negative health impacts associated with living near high-traffic roads. While proximity to roads offers benefits like access to jobs and services, very close proximity to high traffic volumes can pose health risks.

EJScreen calculates this indicator by considering the annual average daily traffic (AADT) on major roads within 10 kilometers of a residential area. The closer the road and the higher the traffic volume, the greater the weight it receives in the calculation.

This reflects the increased potential for exposure to pollutants like air pollution, which has been linked to asthma, heart disease, and other health problems.

Figure 8. Traffic Proximity



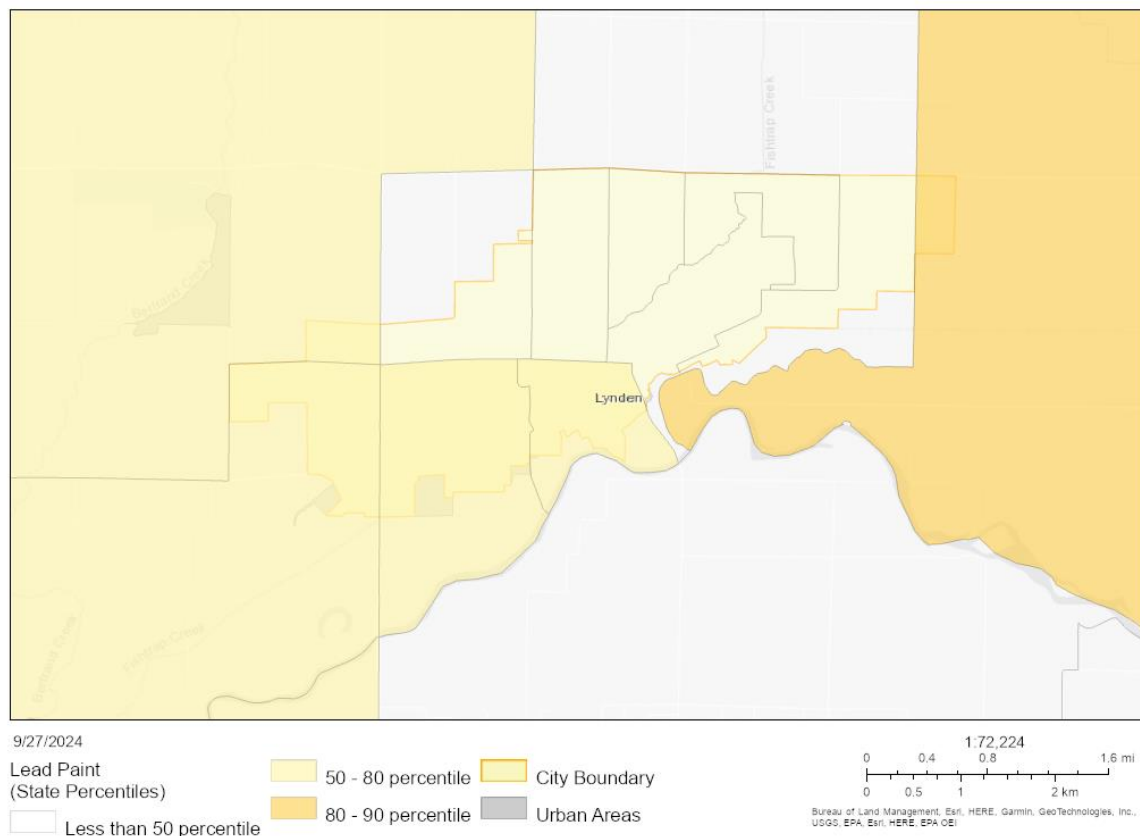
Source: EJScreen Report for the City of Lynden, EPA, generated September 2024

Lynden is mapped in the less than 50 percentile in the city and UGA for traffic proximity shows low risk. The WA Environmental Health Disparities map tool ranks this indicator as 4 (West Lynden) or less, indicating low exposure risk in the city limits and Urban Growth Area.

Lead Paint

The Lead Paint indicator estimates the potential for lead exposure in residential areas based on the age of housing units. Since lead-based paint was widely used before 1978, older homes are more likely to contain lead paint and lead-containing dust, which can pose a significant health risk, especially to children. EJScreen calculates this indicator by determining the percentage of occupied housing units built before 1960. A higher percentage indicates a greater likelihood of lead paint exposure.

Figure 9. Lead Paint



Source: EJScreen Report for the City of Lynden, EPA, generated September 2024

West and southwest Lynden are mapped in the 50-80 percentile for lead paint exposure suggesting low-moderate risk. North and east Lynden are in the less than 50 percentile indicating low risk. Outside of city limits the farm area southeast shows 80-90 percentile, showing moderate exposure to lead paint.

Superfund, RMP Facility, and Hazardous Waste Proximities

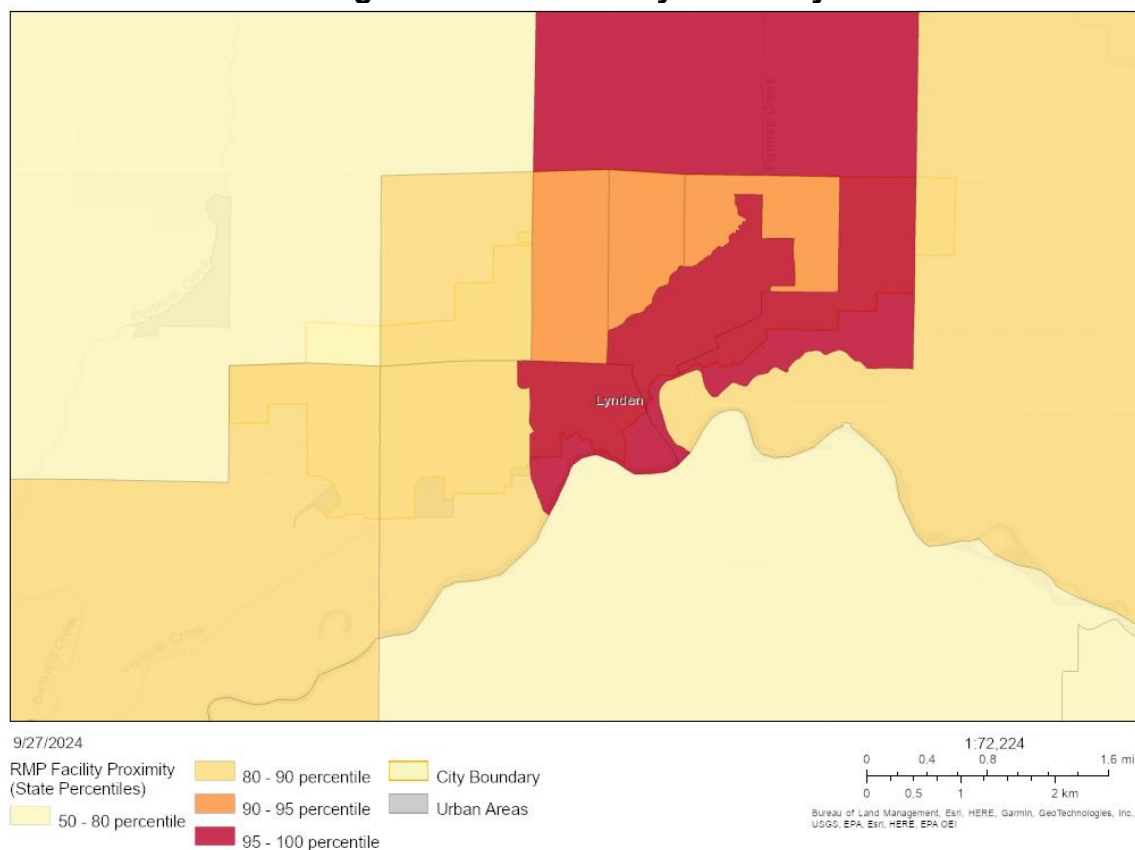
Superfund Proximity

The Superfund Proximity indicator measures the proximity of residential areas to hazardous waste sites listed on the National Priorities List (NPL) or Superfund Alternative Sites (SAAs). This indicator calculates the total count of such sites within a 10-kilometer radius of each block group, weighted by distance. Data for the Superfund Proximity indicator is sourced from the EPA's Superfund Public Map Service and Superfund Enterprise Management System. The indicator considers both proposed and final NPL sites, as well as SAA sites. Proximity scores are calculated using inverse distance weighting, giving more weight to sites that are closer to residential areas. There are no superfund sites located near Lynden so a map is not provided.

RMP Facility Proximity

The RMP Facility Proximity indicator measures the proximity of residential areas to Risk Management Plan (RMP) facilities, which are facilities that handle or store hazardous chemicals. This indicator calculates the total number of active RMP facilities within a 10-kilometer radius of each block group, weighted by distance. Data for the RMP Facility Proximity indicator is sourced from EPA's Facility Registry Service (FRS). Only active RMP facilities are included in the calculation. Proximity scores are calculated using inverse distance weighting, giving more weight to facilities that are closer to residential areas. A higher percentile indicates a greater number of RMP facilities within a 10-kilometer radius of the block group.

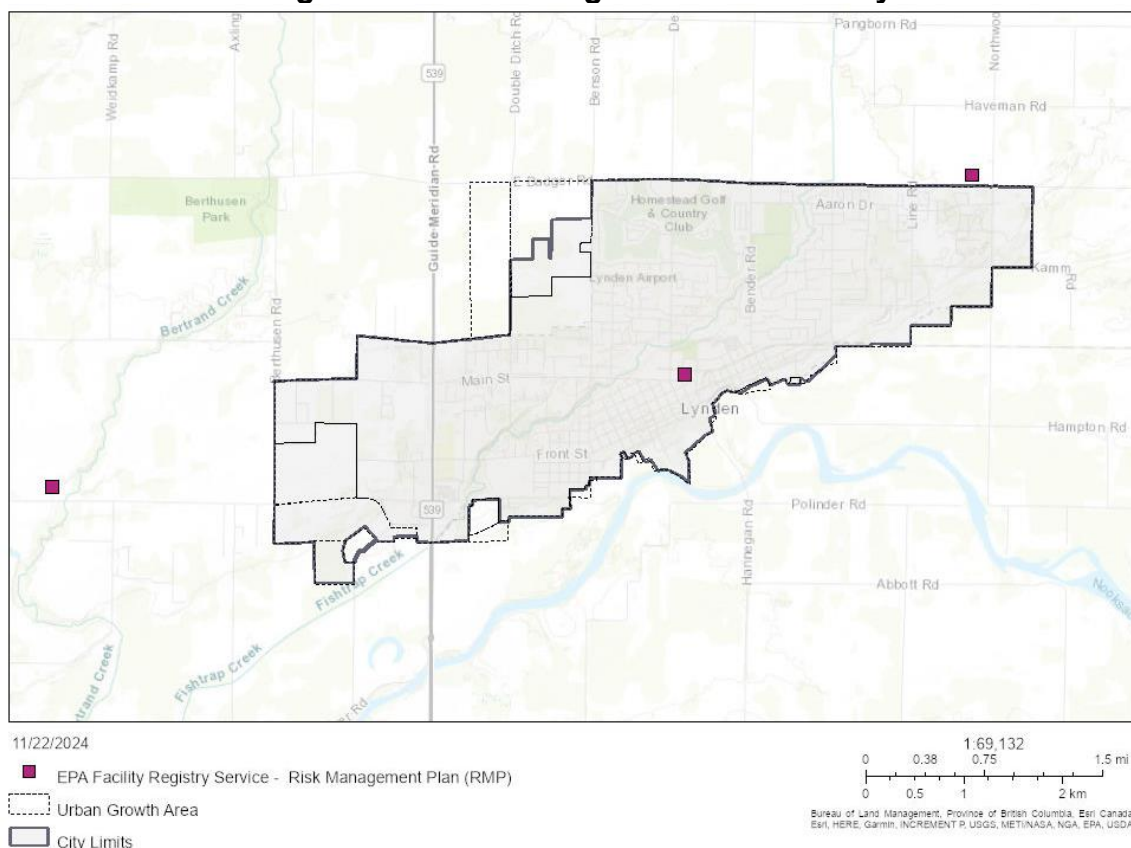
Figure 10. RMP Facility Proximity



Source: EJScreen Report for the City of Lynden, EPA, generated September 2024

There are several Risk Management Plan facilities in and around the City of Lynden including Americold Cold Storage, Malberry Packing, Rader Farms, Enfield Farms, and Pacific NW Packers. These facilities are required to develop and maintain a management plan due to the use of regulated substances and/or chemical hazards. As a result of these nearby facilities, mapping data indicates a large portion of Lynden is in the 95-100 percentile (red) and 90-95 percentile (orange) showing high exposure risk.

Figure 11. Risk Management Plan Facility Sites



Source: EPA, Whatcom County Council of Governments, Whatcom County

The WA Environmental Health Disparities map tool ranks this indicator as 8-9 supporting RMP proximity as a high risk to residents. The successful implementation of RMPs will reduce or eliminate the risk of chemical exposure to residents. However, the use of chemicals always poses a potential health risk.

Hazardous Waste Proximity

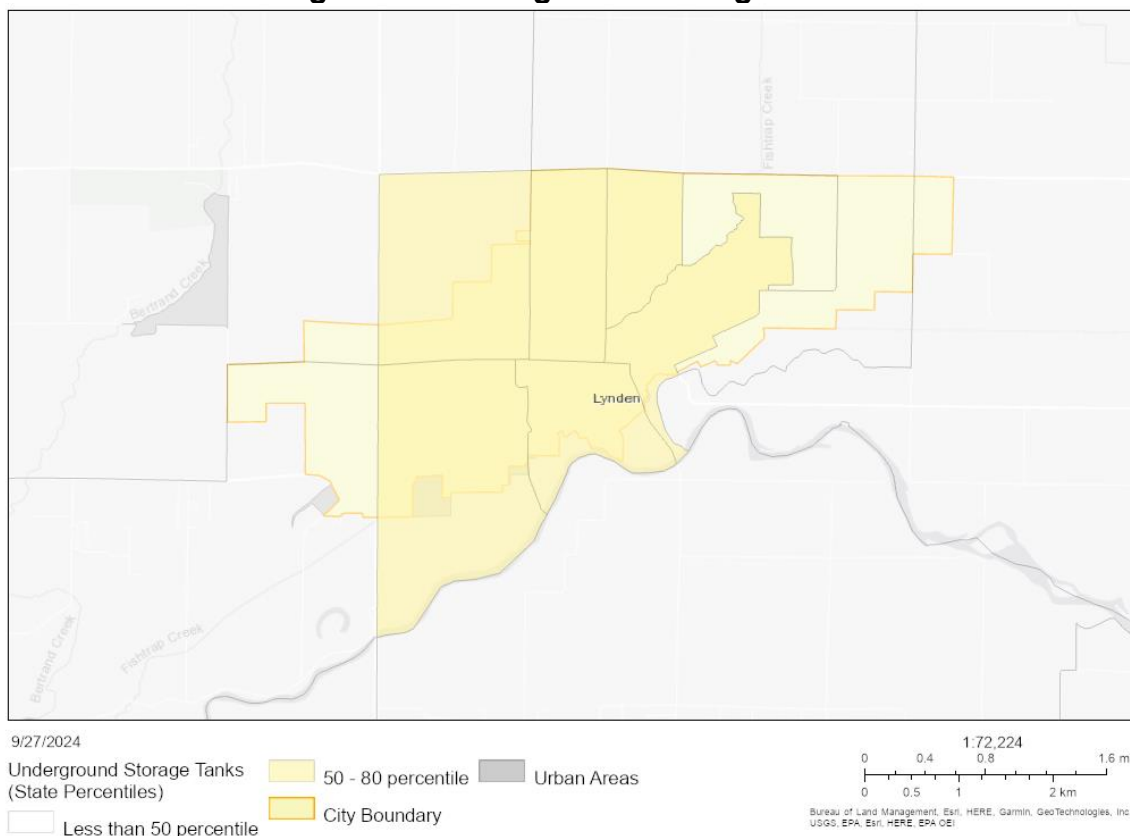
The Hazardous Waste Proximity indicator assesses the proximity of residential areas to hazardous waste facilities. It calculates the number of such facilities within a 10-kilometer radius, weighted by distance. Data is sourced from the RCRA Info Search and BR Search websites. Proximity scores are calculated using inverse distance weighting, and percentiles are used to make the data more comparable. A higher percentile indicates a greater number of hazardous waste facilities nearby. This indicator helps identify areas with higher potential exposure to hazardous substances. There are no hazardous waste facilities near Lynden, so a map is not provided.

Underground Storage Tanks

The UST indicator assesses the potential risk of being affected by a Leaking Underground Storage Tank (LUST) within a block group. It combines the count of

LUSTs and USTs within a 1,500-foot buffer, weighted by the average ratio of USTs to LUSTs. In the majority of cases, leaks from USTs do not pose an immediate threat to public health; however, millions of gallons of petroleum products are stored in USTs in the US, and leaks have the capacity to contaminate soil and groundwater.

Figure 12. Underground Storage Tanks



Source: EJScreen Report for the City of Lynden, EPA, generated September 2024

There are underground storage tanks located in or surrounding Lynden, which maps this risk in the 50-80 percentile. The likelihood of the USTs leaking within the 1,500-foot buffer is minimal to residents, which makes this risk moderate to residents.

Wastewater Discharge & Drinking Water Non-Compliance

Wastewater Discharge

The Wastewater Discharge indicator assesses the potential health risks associated with exposure to toxic chemicals released into water by facilities. It combines data on chemical releases with the RSEI model to estimate average annual chemical concentrations in water, weighted by their relative toxicity. The indicator considers the quantities of chemicals discharged, models their fate in water, determines

concentrations, and weights them by toxicity. Results are aggregated for downstream stream segments within 10 kilometers of block groups, weighted by population. Proximity scores are calculated based on distance, with higher weights for closer proximity. The City of Lynden is considered less than 50 percentile and so a map is not provided.

Drinking Water Non-Compliance

The Drinking Water Non-Compliance indicator identifies populations served by community water systems with compliance challenges. A higher score indicates more difficulties meeting National Primary Drinking Water Regulations. The indicator distills violation types into a single value, but it's important to note that it doesn't directly measure drinking water quality. Raw values range from 0 to 899, and percentiles are used for comparison. A higher percentile suggests more compliance challenges within the block group. The City of Lynden is in drinking water compliance and a map is not provided.

Environmental Summary

Overall, the City of Lynden has minimal environmental burdens within the city limits and Urban Growth Area. There are only two environmental burdens that exceed the 50 percentile citywide: RMP Facility Proximity (91) and Underground Storage Tanks (72). Just outside of the city limits, there are several environmental burdens in the southeast Census Tract known as “10200” where agricultural land is located. This area has a moderate risk of ozone and lead paint exposure, which is noteworthy because Lynden residents may work in this area or vice versa.

Table 1. Environmental Burdens Summary

Environmental Burden Indicators	Value	State Average	State Percentile	USA Average	National Percentile
Particulate Matter 2.5	6.98	9.51	8	8.45	18
Ozone	32.5	32.7	67	41	9
Nitrogen Dioxide	6.1	6.3	46	7.8	34
Diesel Particulate Matter	0.126	0.256	26	0.191	38
Toxic Releases to Air (toxicity-weighted concentration)	150	1,800	30	4,600	28
Traffic Proximity (daily traffic count/distance to road)	93,000	1,200,000	13	1,700,000	16
Lead Paint (% Pre-1960 Housing)	0.12	0.23	47	0.3	38
Superfund Proximity (site count/km distance)	0	0.53	0	0.39	0
RMP Facility Proximity (facility count/km distance)	1.7	0.51	94	0.57	91
Hazardous Waste Proximity (facility count/km distance)	0.48	2.9	25	3.5	33
Underground Storage Tanks (count/km ²)	3.5	6.1	62	3.6	72
Wastewater Discharge (toxicity-weighted concentration/m distance)	0	300	0	700000	0

Drinking Water Non-Compliance	0	1	0	2.2	0
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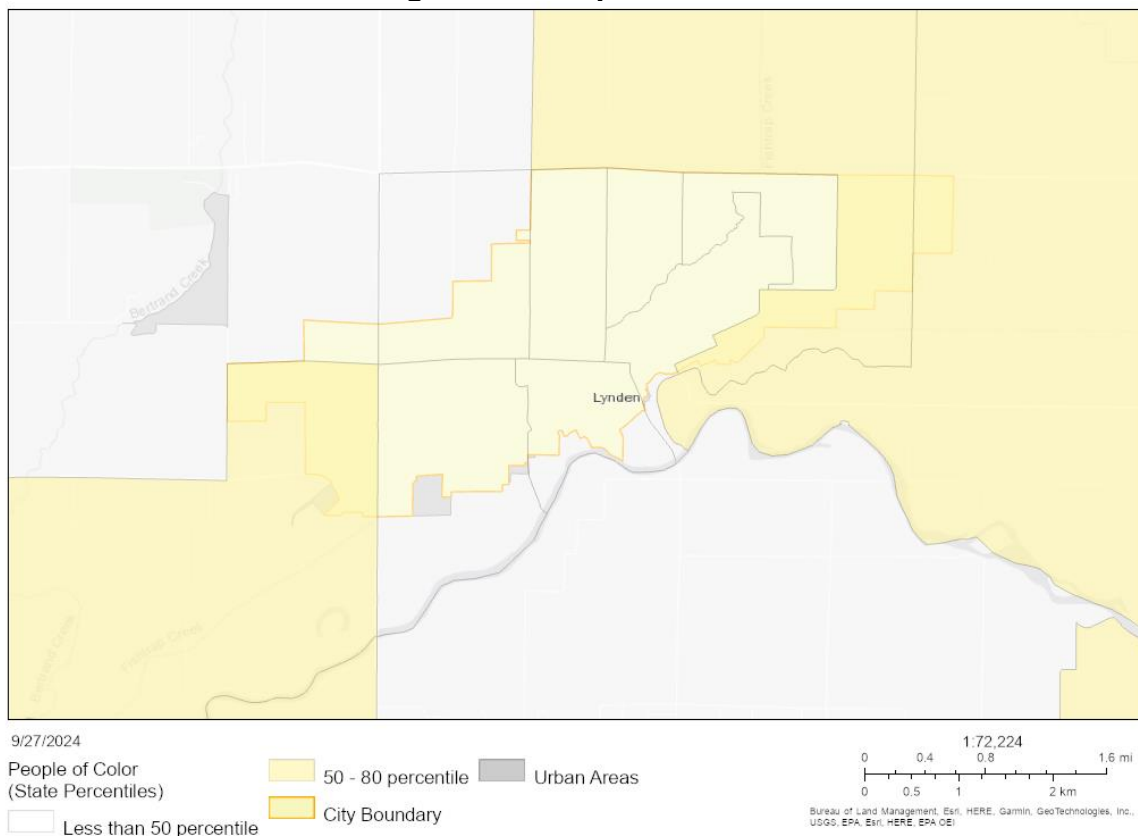
Socioeconomic Indicators

The socioeconomic indicators section of this environmental justice report identifies the distribution of vulnerable populations in Lynden and surrounding areas. This section includes data on the location of people of color, low-income earners, individuals with limited English proficiency, and others. There is also a demographic index conducted by EJScreen that statistically combines two demographic variables. By identifying these vulnerable populations, we can better understand the potential for environmental disparities and develop targeted strategies to address environmental justice concerns.

People of Color

The Percent People of Color indicator measures the percentage of individuals within a block group who identify as a race other than white alone or as Hispanic or Latino. This includes individuals who are multiracial or Hispanic, regardless of their race. Data for the Percent People of Color indicator is obtained from the U.S. Census Bureau.

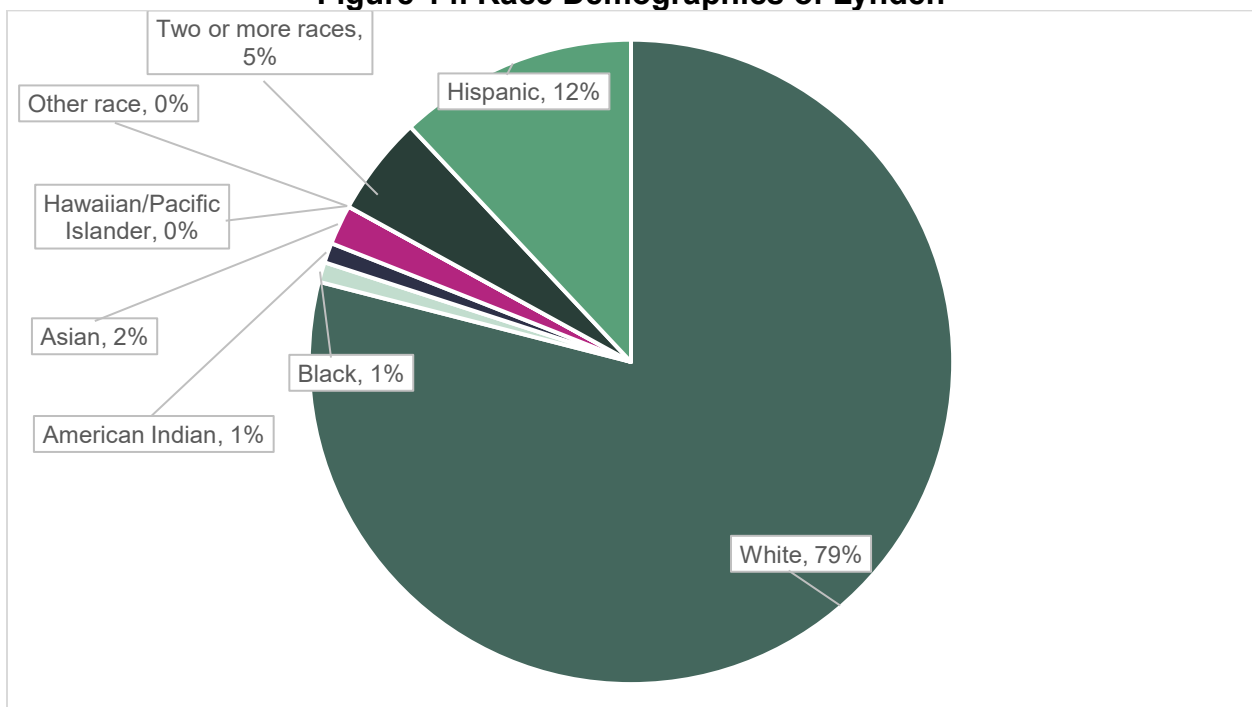
Figure 13. People of Color



Source: EJScreen Report for the City of Lynden, EPA, generated September 2024

In Lynden, the majority of people of color are located in far west and east neighborhoods within city limits. In particular, Hispanics make up the largest portion of people of color at 12%, which is typical for agriculture-based communities in Washington. Although Lynden is in the 50-80 percentile or less compared to the state for people of color, there are people of color present in Lynden that need to be accounted for in the analysis and policy development. The WA Environmental Health Disparities map tool similarly ranks central Lynden as a 3 and the surrounding tracts as a 4, showing about a 10% presence of Hispanics in each of these tracts. The neighboring southeast tracts outside of the UGA are ranked as a 5 with a 16% Hispanic presence.

Figure 14. Race Demographics of Lynden

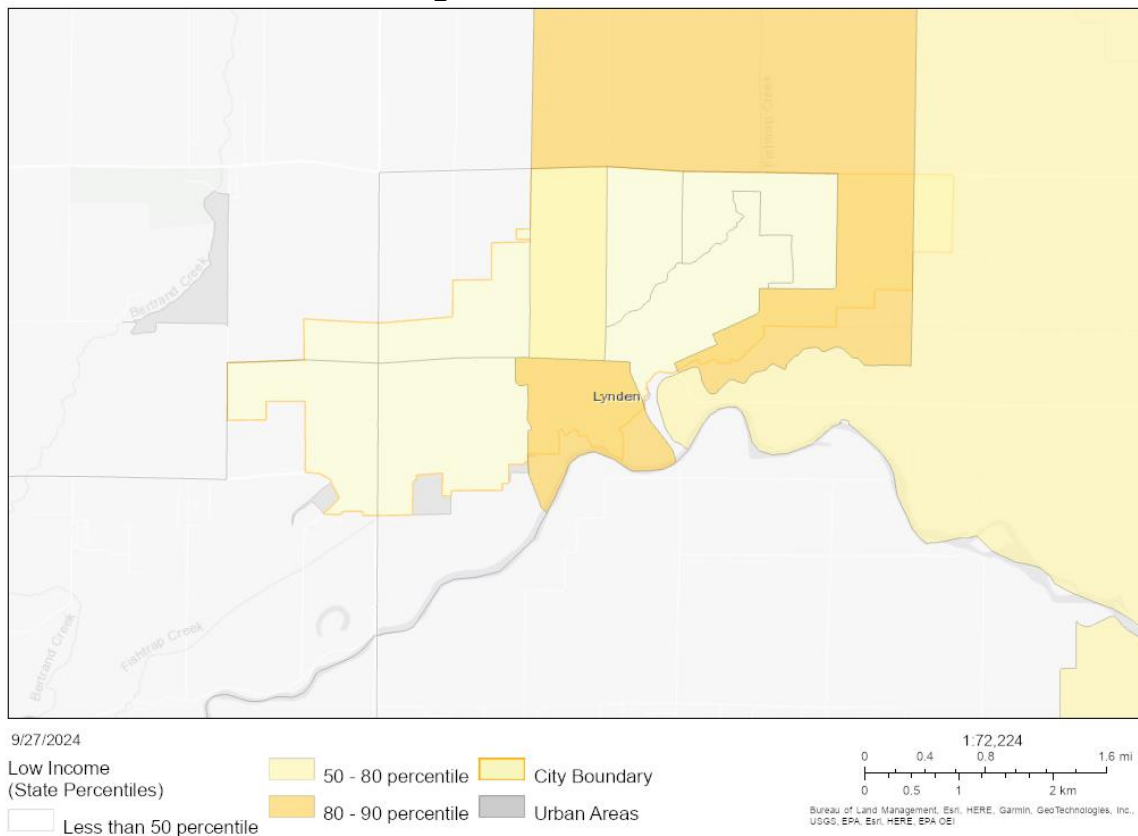


Source: EJSscreen Report for the City of Lynden, EPA, generated July 2024

Low Income

The Percent Low-Income indicator measures the percentage of individuals within a block group who live in households with income equal to or below twice the federal poverty level. This indicator helps identify areas with a higher concentration of low-income residents. The poverty level is determined annually by the U.S. Census Bureau and varies based on family size and composition. EJSscreen uses twice the poverty level to capture low-income households, especially in high-cost areas. This approach recognizes that the effects of income on health and other factors extend beyond the official poverty threshold.

Figure 15. Low Income



Source: EJScreen Report for the City of Lynden, EPA, generated September 2024

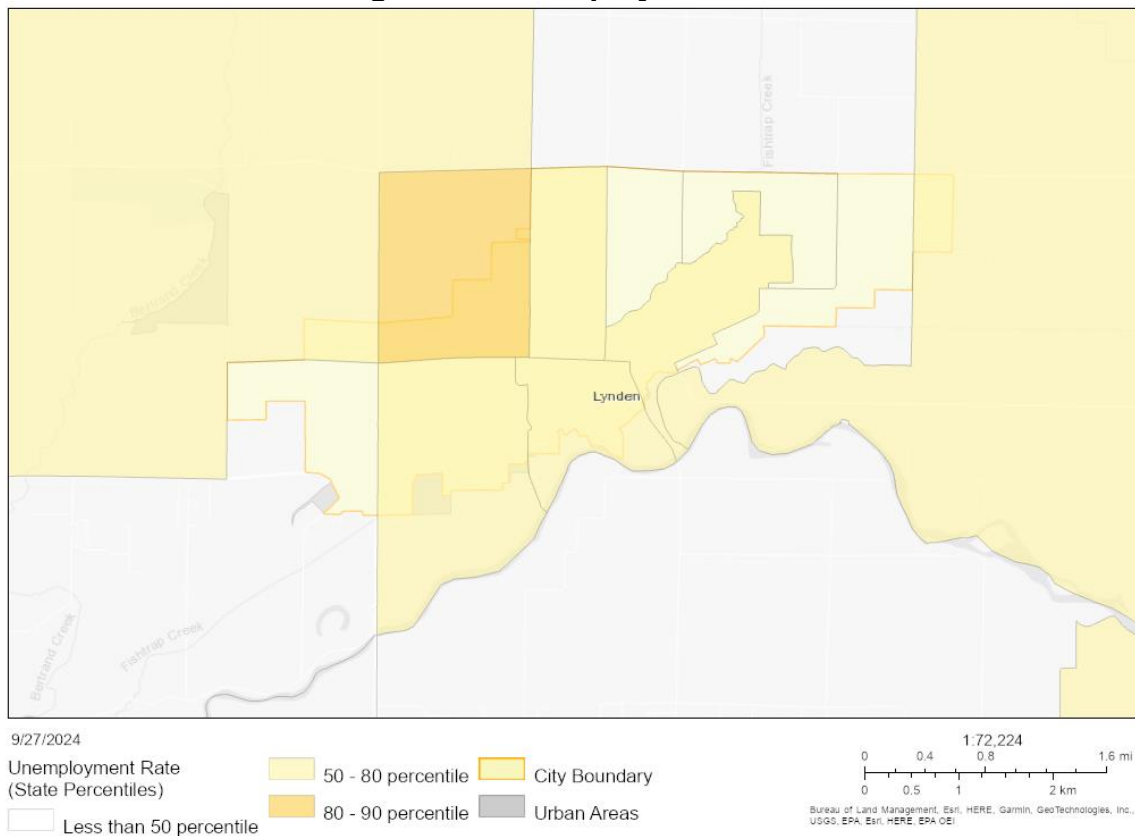
Based on the mapping data, low-income residents in Lynden are primarily located in south central and northeast Lynden (dark yellow) in the 80-90 percentile. These areas are where low-income populations are located within Lynden, particularly those living below the federal poverty level. The WA Environmental Health Disparities tool ranks East Lynden at 6, indicating a strong presence of low-income residents. There is a correlation between the areas with higher concentrations of lower-income populations and people of color. This can be attributed to factors such as historical segregation, systemic discrimination in housing and employment, and the concentration of lower-paying jobs.

Unemployment Rate

The Unemployment indicator measures the percentage of individuals within a block group who are unemployed. Unemployment is defined as individuals who are actively seeking employment, are available for work, and have not been employed during the reference period. Data for the Unemployment indicator is obtained from the American Community Survey (ACS). The ACS determines unemployment status based on several criteria, including age, labor force participation, and employment status. Individuals

must be 16 or older, actively seeking work, available for employment, and not currently employed to be classified as unemployed.

Figure 16. Unemployment Rate



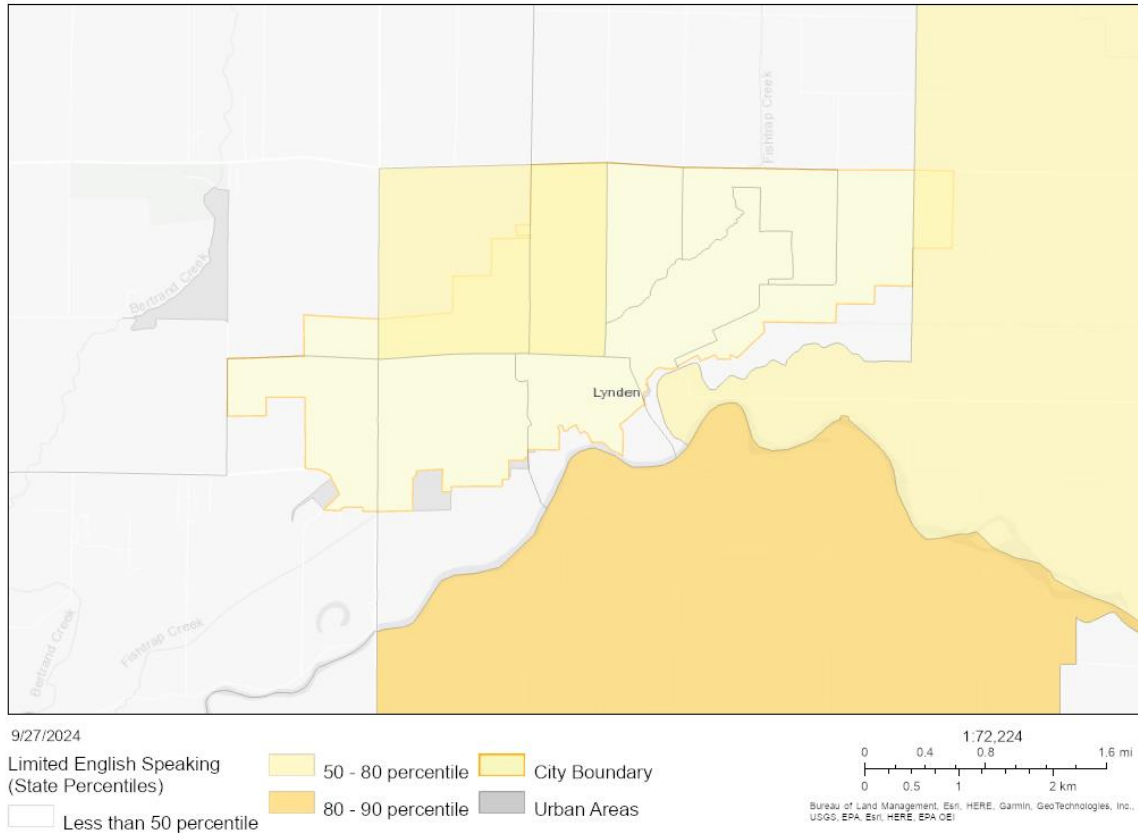
Source: EJScreen Report for the City of Lynden, EPA, generated September 2024

Unemployed populations by unemployment rate are primarily located in northwest Lynden (80-90 percentile) with the remaining portions of Lynden in the 50-80 percentile. This means that there are slightly more people unemployed in Lynden than the state’s median unemployment rate. A contributing factor to this can be the combination of retirees living in the area and seasonal agricultural workers. A few apartment communities are located in northwest Lynden and a retirement home, which likely contributes to the higher unemployment concentration there. The WA Environmental Health Disparities map ranks the percent unemployed at 4 or lower, supporting some unemployed living in Lynden but not significantly more than typical for Washington.

Language and Limited English Proficiency

The Percent Limited English Speaking Households indicator measures the percentage of households within a block group where all members aged 14 or older have difficulty speaking English. This includes households where members speak only English with difficulty or speak a non-English language and have limited English proficiency.

Figure 17. Limited English Speaking



Source: EJScreen Report for the City of Lynden, EPA, generated September 2024

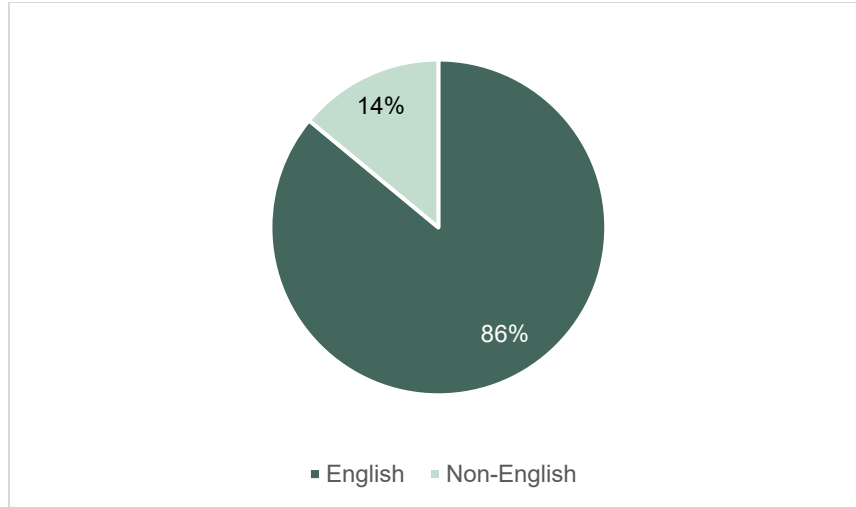
A larger population of limited English speakers in Lynden are located in northwest Lynden according to EJScreen. Interestingly, the WA Environmental Health Disparities tool considers east Lynden (Census Tract 010303) as the highest with a rank of 7 out of 10. There is a prevalence of limited English speakers in Lynden, which includes both Spanish and other Indo-European language speakers. Overall, about 14% of the Lynden population does not speak English as their primary language at home.

Table 2. Limited English Speaking

Limited English Speaking	Percent
Speak Spanish	50%
Speak Other Indo-European Languages	50%
Speak Asian-Pacific Island Languages	0%
Speak Other Languages	0%

Source: EJScreen Report for the City of Lynden, EPA, generated July 2024

Figure 18. Languages Spoken at Home

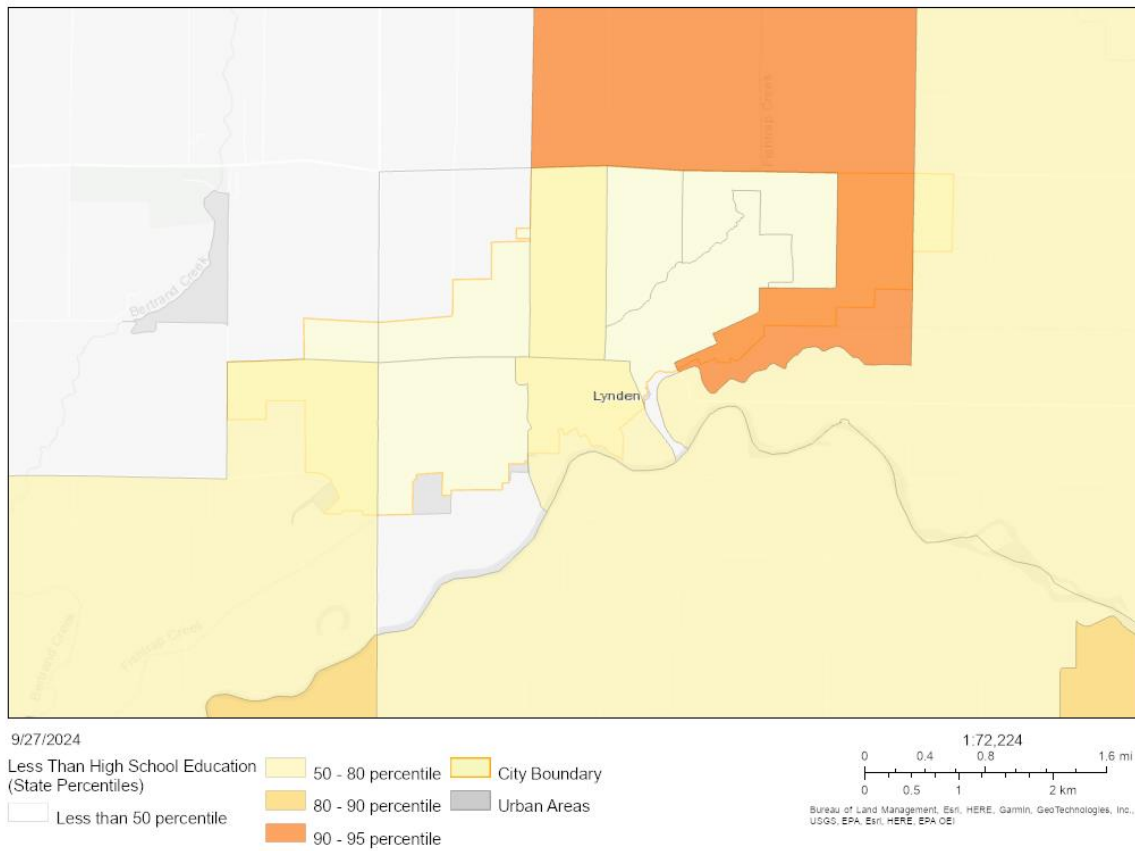


Source: EJScreen Report for the City of Lynden, EPA, generated July 2024

Educational Attainment

The Percent Less Than High School Education indicator measures the percentage of individuals aged 25 or older within a block group who have not completed high school. This indicator helps identify areas with lower educational attainment. Data is obtained from the ACS, and raw values range from 0% to 100%. Percentile rankings are used for comparison, with a higher percentile indicating a higher percentage of individuals with less than a high school education.

Figure 19. Educational Attainment



Source: EJScreen Report for the City of Lynden, EPA, generated September 2024

There is a high number of residents without high school diplomas located in northeast Lynden (Census Tract 010303). This is also where the majority of low-income earners and people of color reside. The WA Environmental Health Disparities tool ranks East Lynden at 8, central Lynden at 6, and West Lynden at 5, which is consistent with the EJScreen mapping. There are a significant number of residents in Lynden without high school diplomas, especially in northeast Lynden.

Age

Populations under the age of five and over the age of 64 are considered vulnerable for several reasons including health risks, dependency, economic vulnerability, and social isolation. These populations tend to have susceptible immune systems, higher dependence on others, and limited social activity options. About three-quarters of Lynden’s population (72%) is outside of the sensitive groups age range.

Table 3. Age of Residents

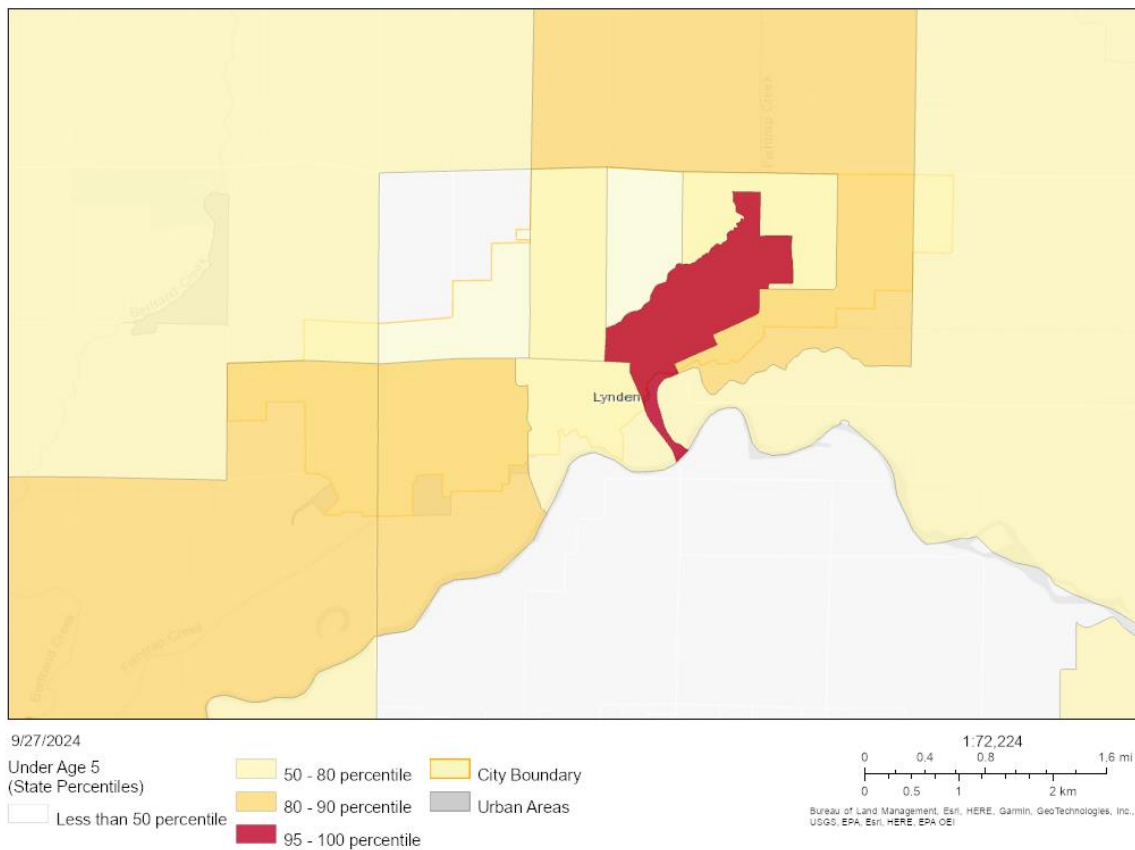
Age Cohorts	Percent
Ages 1 to 4	9%
Ages 1 to 18	26%

Ages 18 and up	74%
Ages 65 and up	19%

Source: EJScreen Report for the City of Lynden, EPA, generated July 2024

The Percent Individuals Under Age 5 indicator measures the percentage of young children (under five years old) within a block group. This indicator helps identify areas with a higher concentration of young children. Data is obtained from the ACS, and raw values range from 0% to 50%. Percentile rankings are used for comparison, with a higher percentile indicating a higher percentage of young children.

Figure 20. Under Age 5

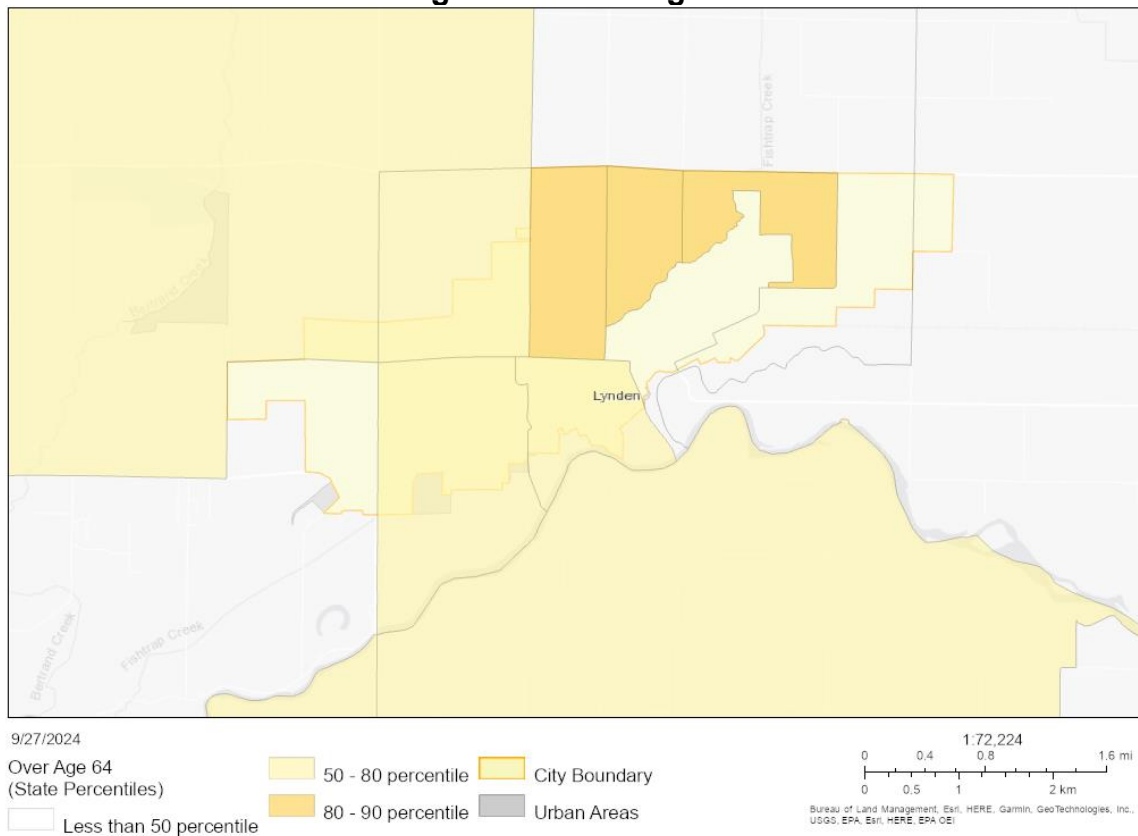


Source: EJScreen Report for the City of Lynden, EPA, generated September 2024

A significant portion of children under the age of 5 live clustered around the elementary, middle, and high schools. There are also children under the age of 5 living throughout the city but they are concentrated in central Lynden (red).

The Percent Individuals Over Age 64 indicator measures the percentage of individuals within a block group who are older than 64 years old. This indicator can help identify areas with a higher concentration of older adults. Data is obtained from the ACS, and raw values range from 0% to 100%. Percentile rankings are used for comparison, with a higher percentile indicating a higher percentage of individuals over the age of 64.

Figure 21. Over Age 64



Source: EJScreen Report for the City of Lynden, EPA, generated September 2024

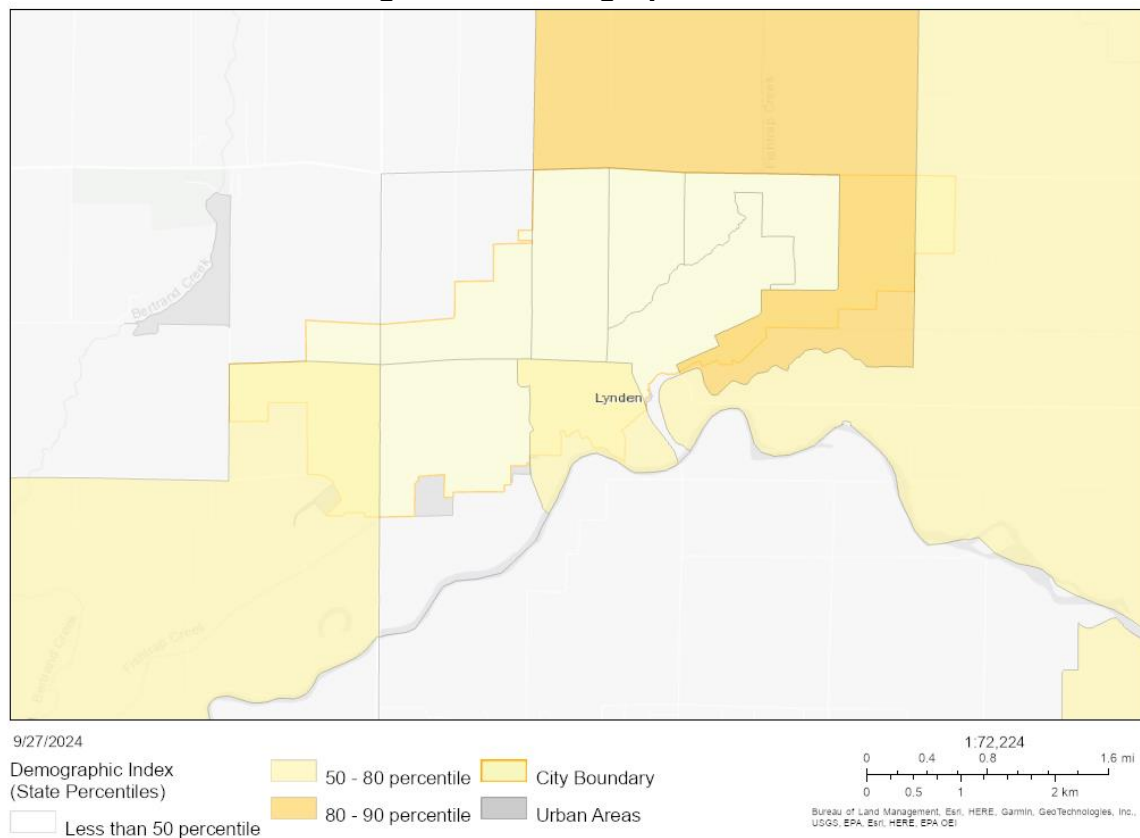
The majority of residents over the age of 64 in Lynden are located in north Lynden near the golf course and Meadow Greens neighborhood. Interestingly, there is no correlation between the unemployment rate and older populations, indicating that retirees are not the main contributor to the unemployment rate finding.

Demographic Index

The Demographic Index in EJScreen is a composite indicator that assesses community vulnerability based on income level and race/ethnicity. These factors were identified in Executive Order 12898 as key demographic groups often disproportionately affected by environmental hazards.

The index is calculated by combining information on the percentage of low-income individuals and the percentage of people of color within a given area. Data for these indicators is obtained from the American Community Survey (ACS). This combination index provides a comprehensive view of community-level vulnerability and can be a valuable tool for decision-makers when addressing environmental justice concerns.

Figure 22. Demographic Index



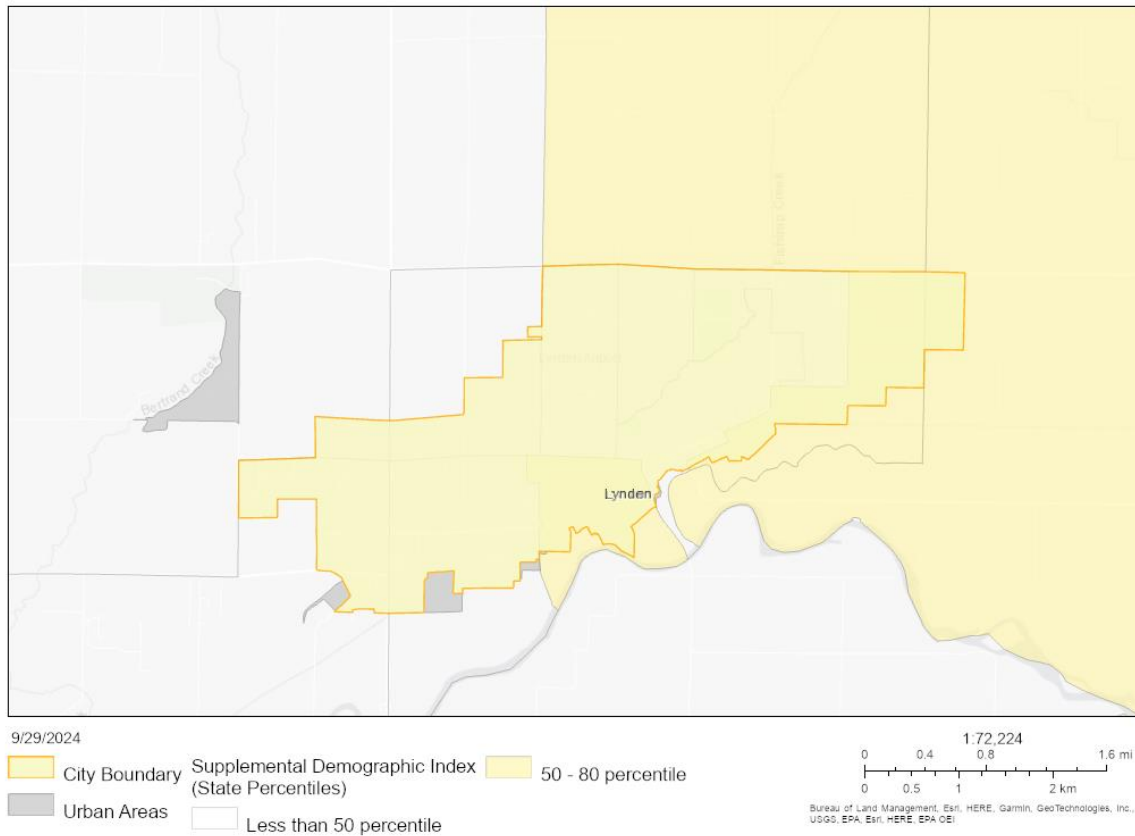
Source: EJScreen Report for the City of Lynden, EPA, generated September 2024

As previously mentioned, there is a correlation between low-income earners and people of color being located in far east Lynden. This is primarily represented in Census Tract 10303, which includes an estimated 3,200 people and extends up to the Canadian border. Only a portion of this tract is within the city’s limits. The demographic index also reveals vulnerable populations are located in southcentral Lynden near the city’s Wastewater Treatment Plant.

Supplemental Index

The Supplemental Demographic Index in EJScreen is a composite indicator that assesses community vulnerability based on five socioeconomic factors: low life expectancy, percent low income, percent persons with disabilities, percent limited English speaking, and percent less than high school education. This index uses a similar methodology to the original Demographic Index but replaces the two-factor approach with a five-factor approach. By considering a wider range of socioeconomic factors, the Supplemental Demographic Index offers a more comprehensive perspective on community-level vulnerability.

Figure 23. Supplemental Index



Source: EJScreen Report for the City of Lynden, EPA, generated September 2024

The Supplemental Index shows that throughout Lynden there are populations that are considered equally vulnerable. The findings of the supplemental index reveal the same areas of Lynden in the demographic index are vulnerable.

Socioeconomic Summary

There are two areas of Lynden where vulnerable populations primarily reside. The first is southcentral Lynden which is south of Main Street, north of the Nooksack River, east of British Columbia Avenue, and west of 1st St. The second is south of Badger Road, east of Line Road to south of Bradley Road, southeast of Grover St to the river (see Demographic Index map). There are also sensitive populations, under the age of 5, in central Lynden.

Table 4. Socioeconomic Summary

Socioeconomic Indicators	Value	State Average	Percentile in State	USA Average	Percentile in USA
Demographic Index USA	0.9	N/A	N/A	1.34	37
Supplemental Demographic Index USA	1.33	N/A	N/A	1.64	36
Demographic Index State	1.21	1.47	44	N/A	N/A

Supplemental Demographic Index State	1.23	1.37	47	N/A	N/A
People of Color	21%	33%	35	40%	39
Low Income	24%	23%	59	30%	45
Unemployment Rate	5%	5%	59	6%	58
Limited English Speaking Households	0%	4%	0	5%	57
Less than High School Education	7%	8%	59	11%	47
Under Age 5	9%	5%	82	5%	81
Over Age 64	19%	17%	65	18%	62

Climate Change

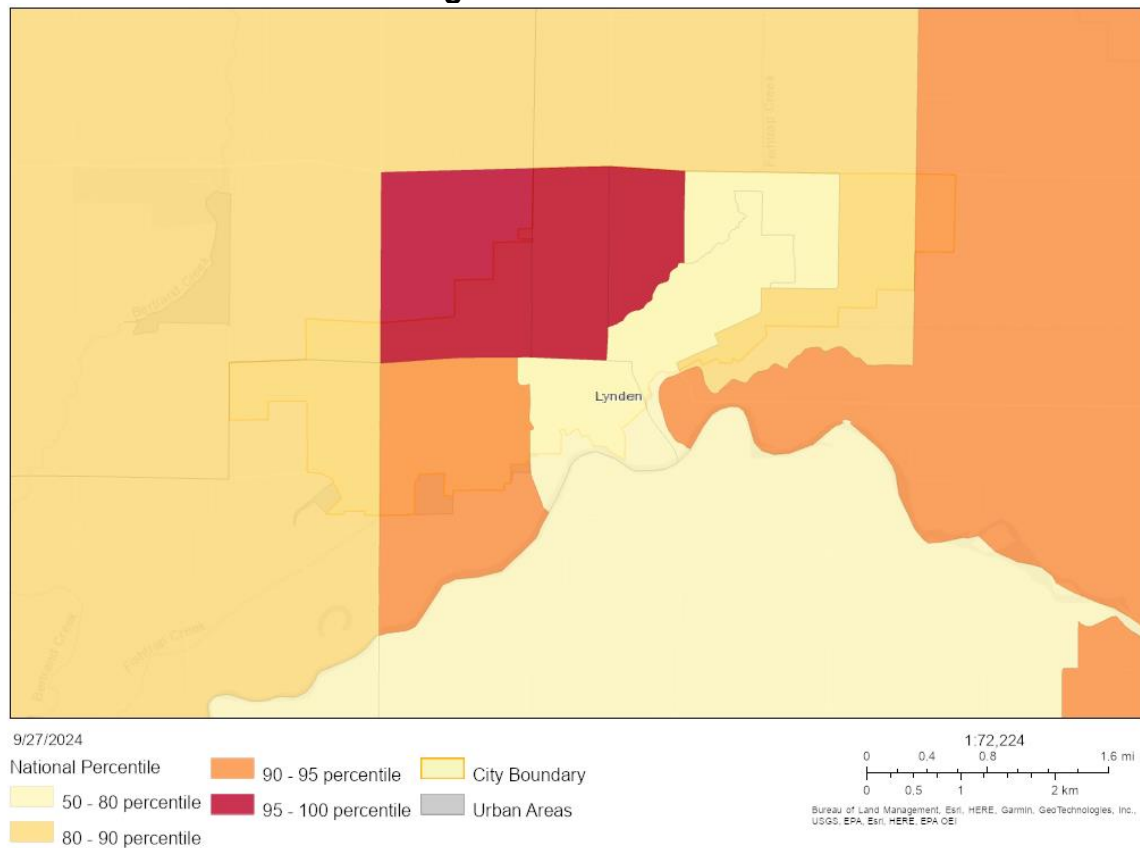
In addition to environmental hazards, climate change impacts are considered. Typically, the impacts of climate change are not evenly distributed; marginalized communities, often those with lower incomes and higher concentrations of people of color, are disproportionately vulnerable. This section looks at high-risk areas of flooding, wildfire, and extreme heat. Sea-level rise is excluded because Lynden is about 10 miles inland and outside of Whatcom County’s sea-level rise projections⁶.

Flood Risk

For the EJScreen tool, the flood risk mapping was modeled by a climate risk firm, First Street. The model is a nationwide flood model that shows the probable risk of flooding at any location at a 3-meter resolution. This data is only available at the national percentile level.

⁶ Compound Flood Vulnerability Assessment, Whatcom County, 2023.
<https://www.whatcomcounty.us/4244/Climate-Change-Risks>

Figure 24. Flood Risk



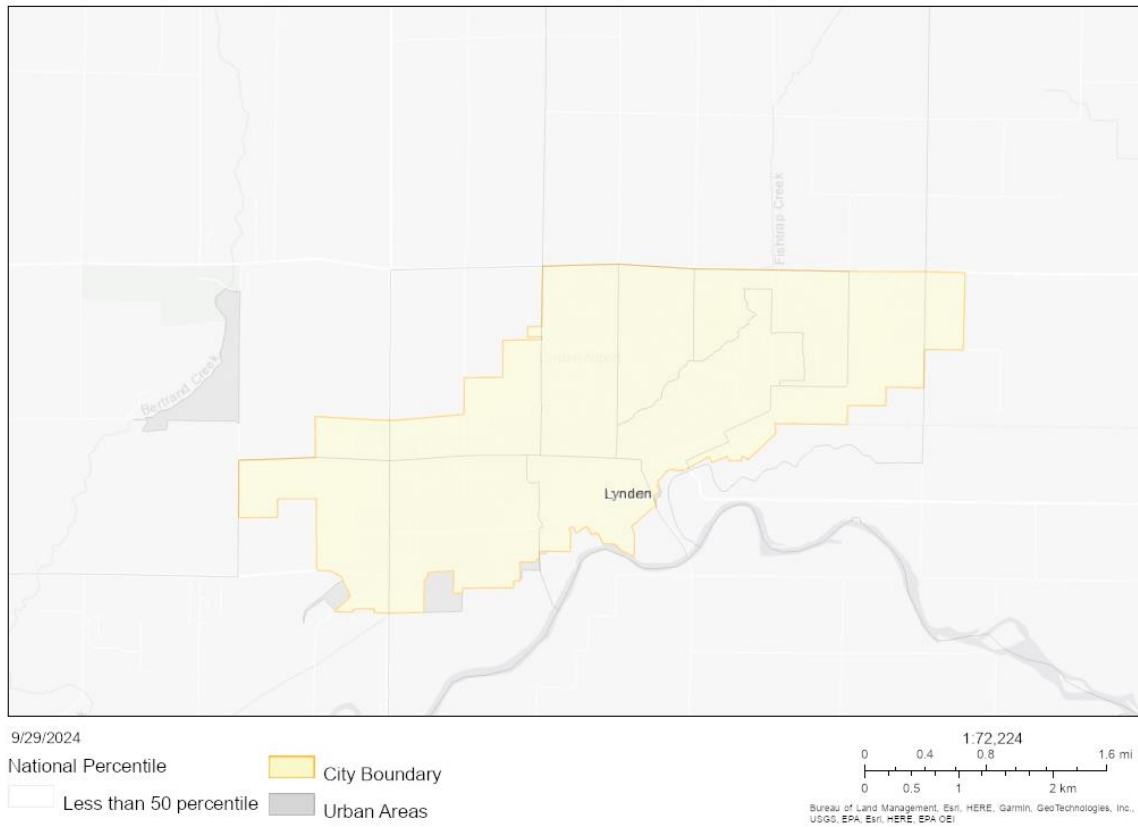
Source: EJScreen Report for the City of Lynden, EPA, generated September 2024

The area at most risk of flooding in Lynden is the north and northwest due to Pepin and Fishtrap creeks and the areas of high ground water in between the creeks. There is also a risk of flooding adjacent to the Nooksack River particularly in southwest and southeast Lynden. Based on draft Whatcom County riverine flood modeling, the Nooksack will be impacted by sea-level rise from climate change. These areas are also where vulnerable and sensitive populations have been identified.

Wildfire Risk

First Street also modeled wildfire risk for EJScreen derived from a series of inputs associated with fire fuels, weather, human influence, and fire movement. Bringing all these inputs together, at a national scale, in a high-resolution, climate-adjusted model at 30 meters.

Figure 25. Wildfire Risk



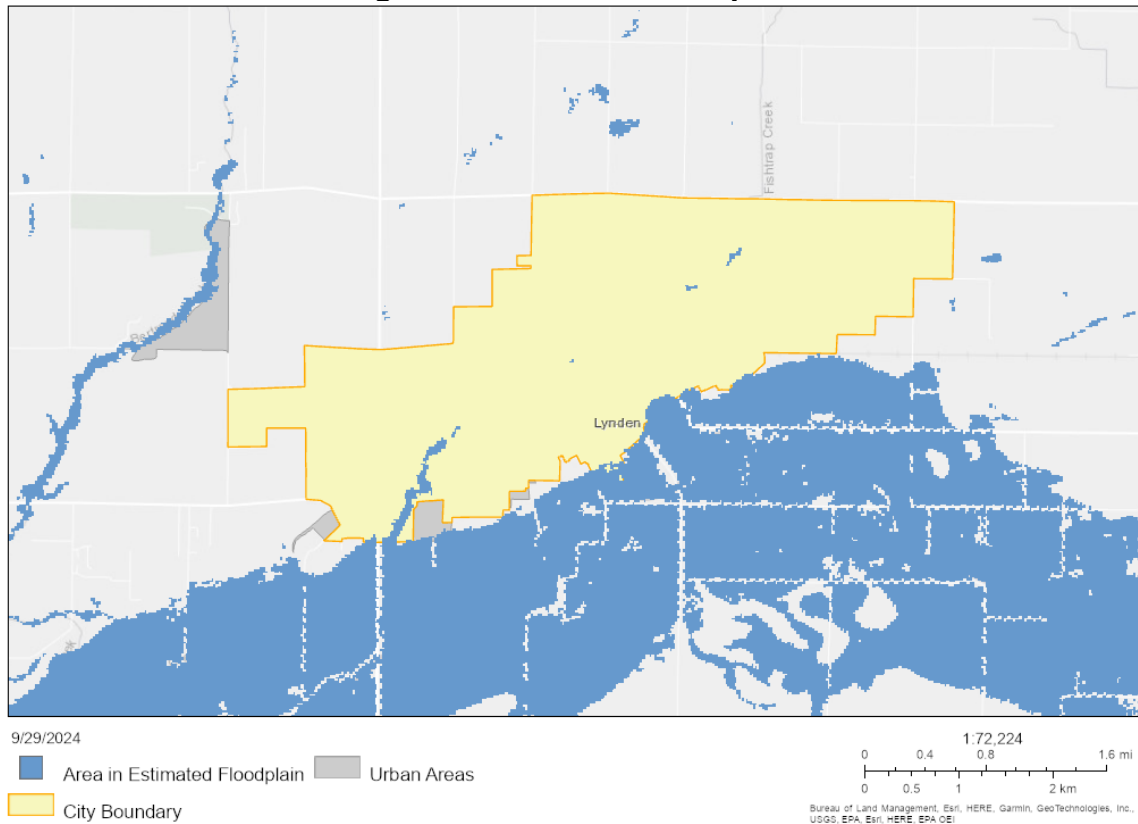
Source: EJScreen Report for the City of Lynden, EPA, generated September 2024

Lynden and the surrounding area is considered to be a low-risk wildfire area, especially with the wetter conditions from the river, creeks, and wetlands. Whatcom County is considered to have a moderate risk of wildfire over the next 30 years, but that risk is specific to east Whatcom County where public and national lands are located.

100 Year Floodplain

100-Year Floodplain data considers the likelihood of where areas are likely to flood every 100 years, on average. The flood risk data considers climate change increasing the frequency and severity of these flood events. However, the floodplains are still a baseline for where flooding is likely to occur. The floodplain corresponds with the Nooksack River and its tributaries in Lynden.

Figure 26. 100 Year Floodplain

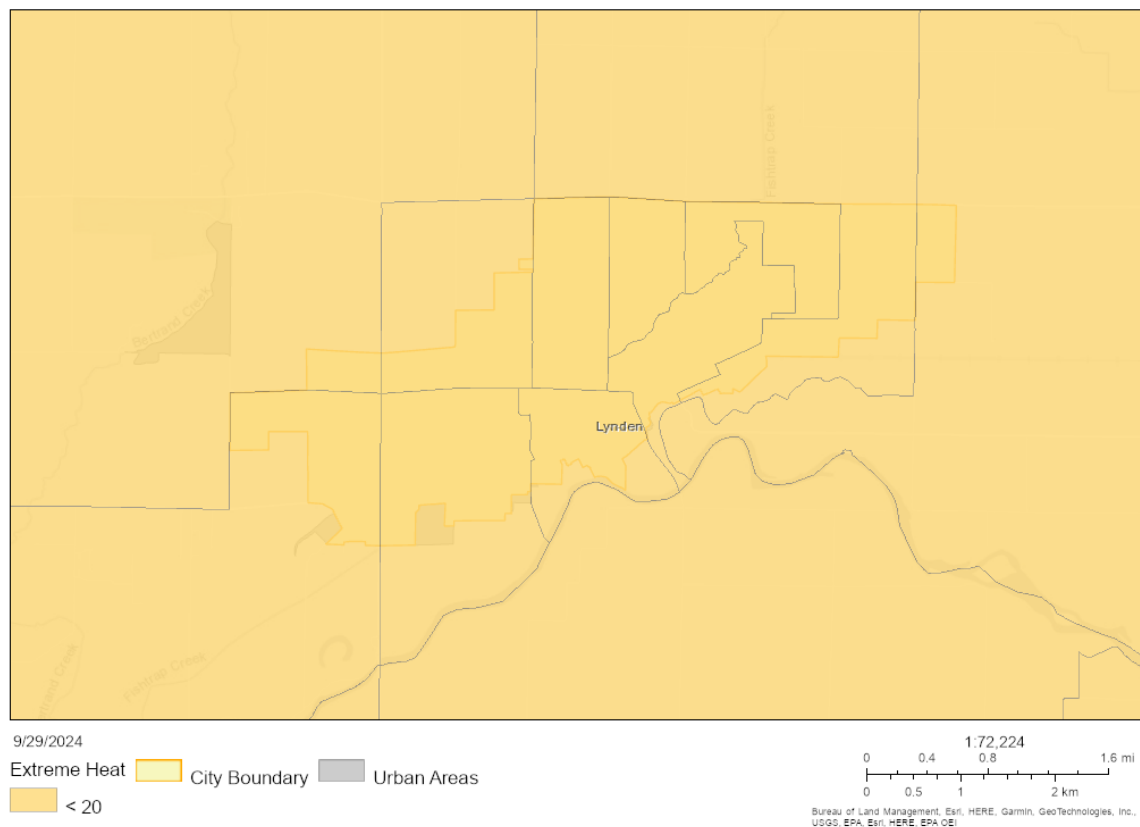


Source: EJScreen Report for the City of Lynden, EPA, generated September 2024

Extreme Heat

Lynden's resilience planning must address extreme heat, a growing threat in Washington. Heat waves are becoming more intense, frequent, and prolonged. Extreme heat maps days that are above the typical "maximum" for a community, in Lynden this is above 90 degrees. The map shows historical data from 01/01/2019 to 12/31/2023. Lynden experienced over 20 days above 90 degrees.

Figure 27. Extreme Heat



Source: EJScreen Report for the City of Lynden, EPA, generated September 2024

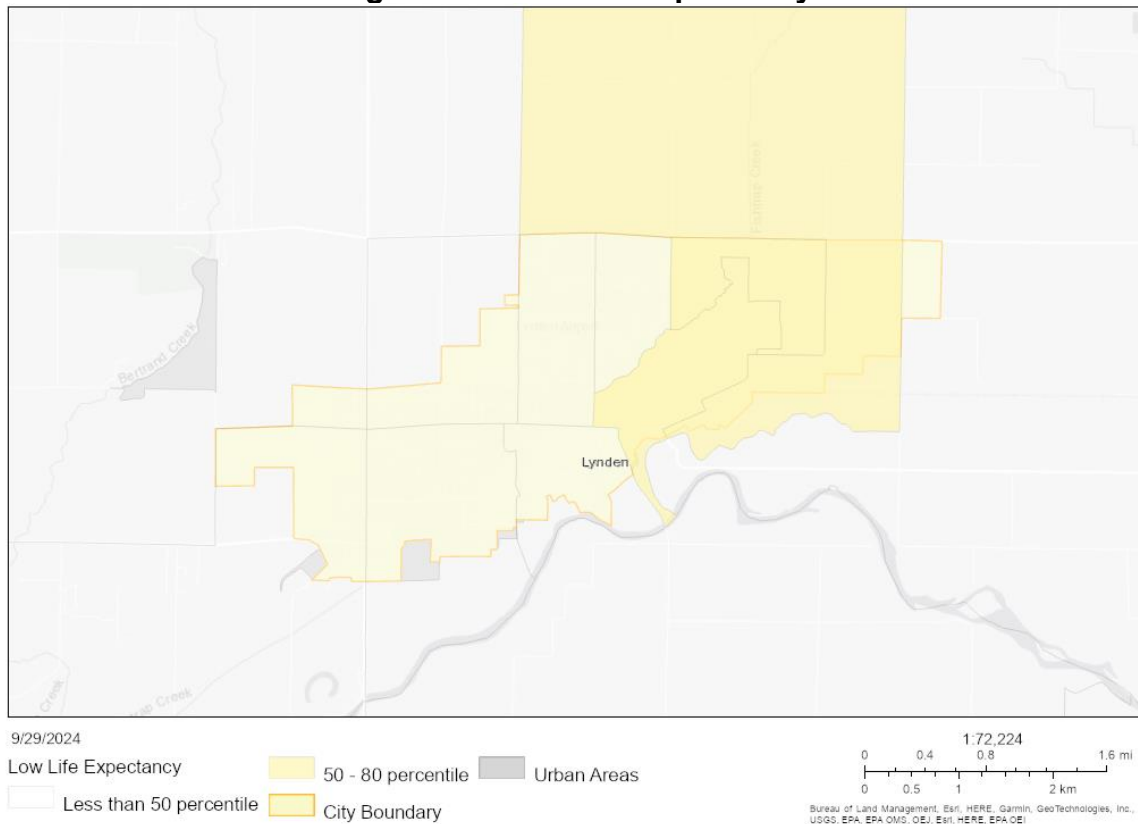
Health Disparities

Health disparities are an important tracking tool for assessing the potential impacts of environmental exposures on populations. Health indicators include low life expectancy, persons with disabilities, and diseases. These indicators are often closely linked to social and economic disparities.

Low Life Expectancy

The Low Life Expectancy indicator measures the percentage of individuals within a block group who are expected to live a shorter life than the maximum life expectancy. This indicator helps identify areas with lower life expectancy, which may be associated with various factors such as health disparities, socioeconomic conditions, and access to healthcare. The data is derived from the U.S. Small-area Life Expectancy Estimates Project (USALEEP) project, and a higher percentage indicates a lower life expectancy within the block group.

Figure 28. Low Life Expectancy



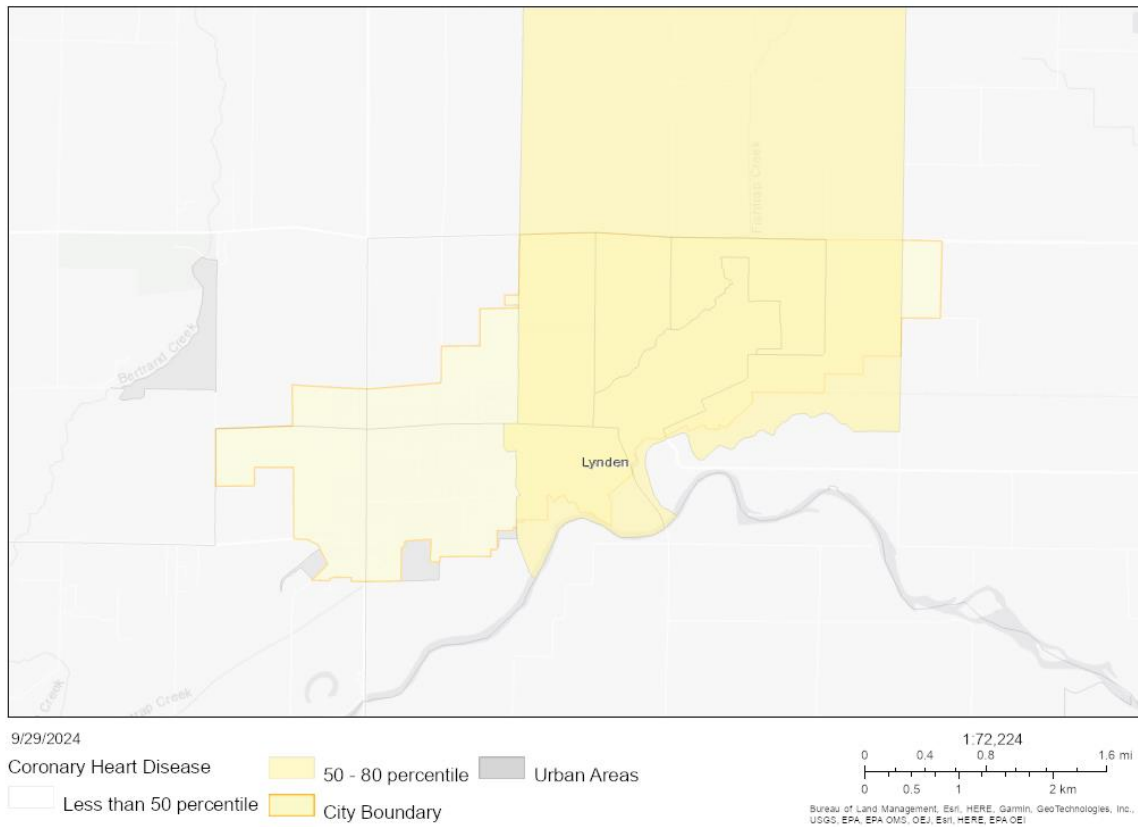
Source: EJScreen Report for the City of Lynden, EPA, generated September 2024

Low life expectancy is higher in east Lynden, particularly where lower-income earners and people of color reside. This also correlates with WA Environmental Health Disparities data, which indicates a high percentage of low birth weight for the same geographic region. Low life expectancy and low birth weight can often be attributed to socioeconomic and environmental burdens.

Heart Disease

This shows heart disease prevalence among adults aged 18 years or older. The term "heart disease" refers to several types of heart conditions and can be attributed to poor diet, lack of physical activity, smoking, and stress. This data is sourced from the Centers for Disease Control (CDC).

Figure 29. Heart Disease



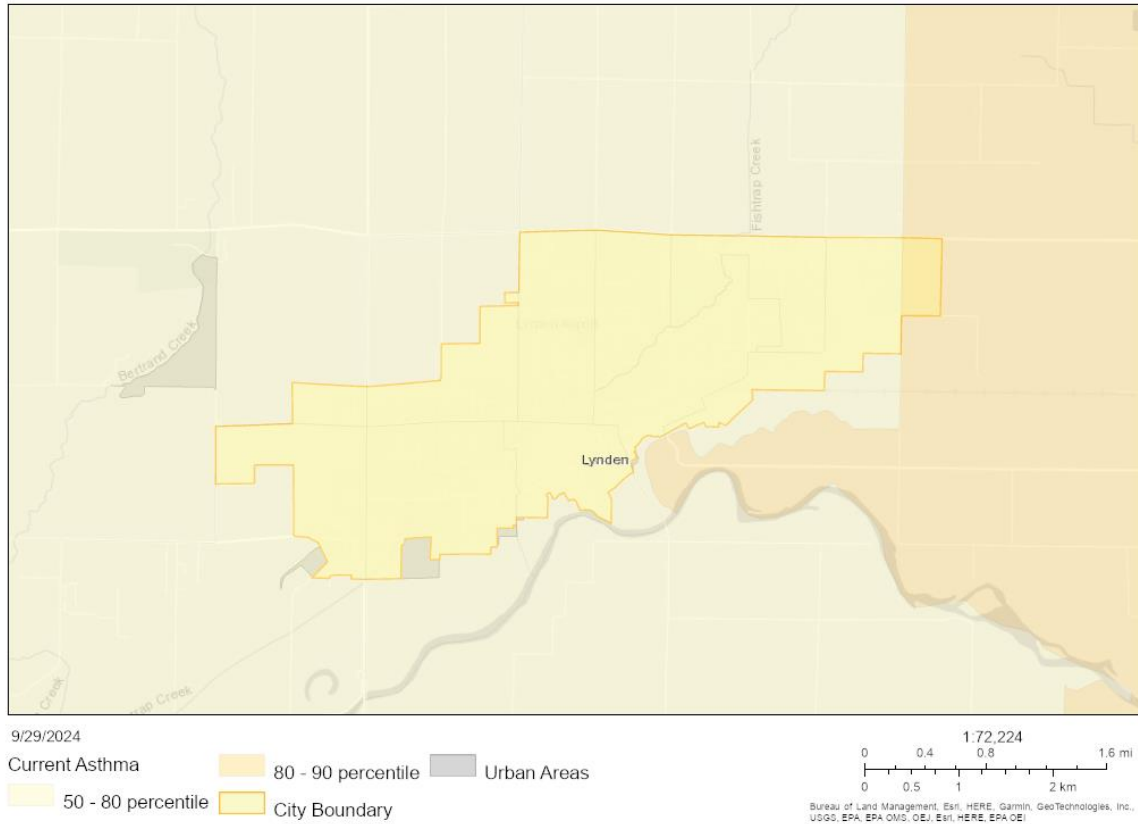
Source: EJScreen Report for the City of Lynden, EPA, generated September 2024

There is a slightly higher prevalence of those with heart disease (50-80 percentile) located in central and east Lynden (dark yellow).

Asthma

Asthma prevalence among adults aged 18 or older. Asthma can significantly impact quality of life, leading to missed school days, reduced productivity, and even hospitalization. Those with asthma are more sensitive to climate change impacts like wildfire smoke and pollution.

Figure 30. Asthma



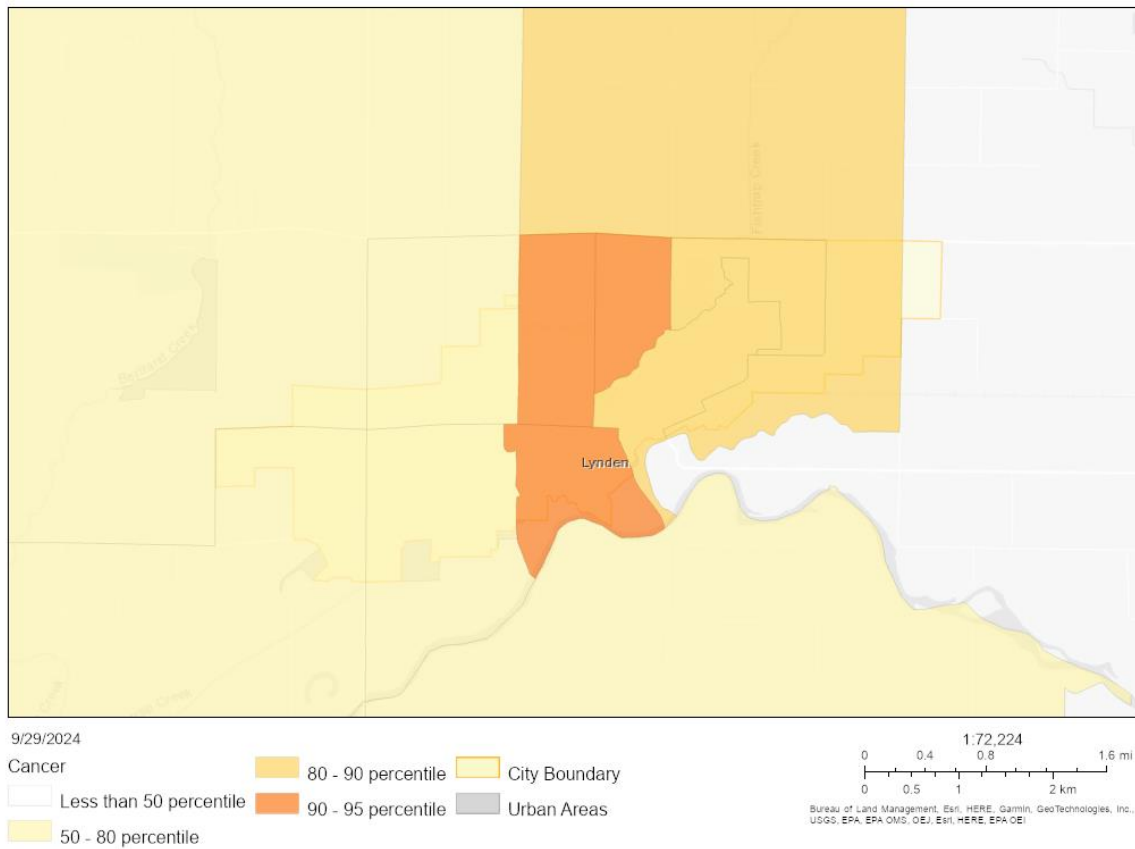
Source: EJScreen Report for the City of Lynden, EPA, generated September 2024

Throughout Lynden, the prevalence of asthma is in the 50-80 percentile, meaning there is slightly higher rates of asthma in Lynden than the national average.

Cancer

The cancer indicator tracks the prevalence among adults aged 18 or older and excludes skin cancer. Many risk factors for cancer are closely linked to social and economic disparities. These include factors like exposure to environmental pollutants, unhealthy diets, smoking, and lack of physical activity, which are often more prevalent in marginalized communities.

Figure 31. Cancer



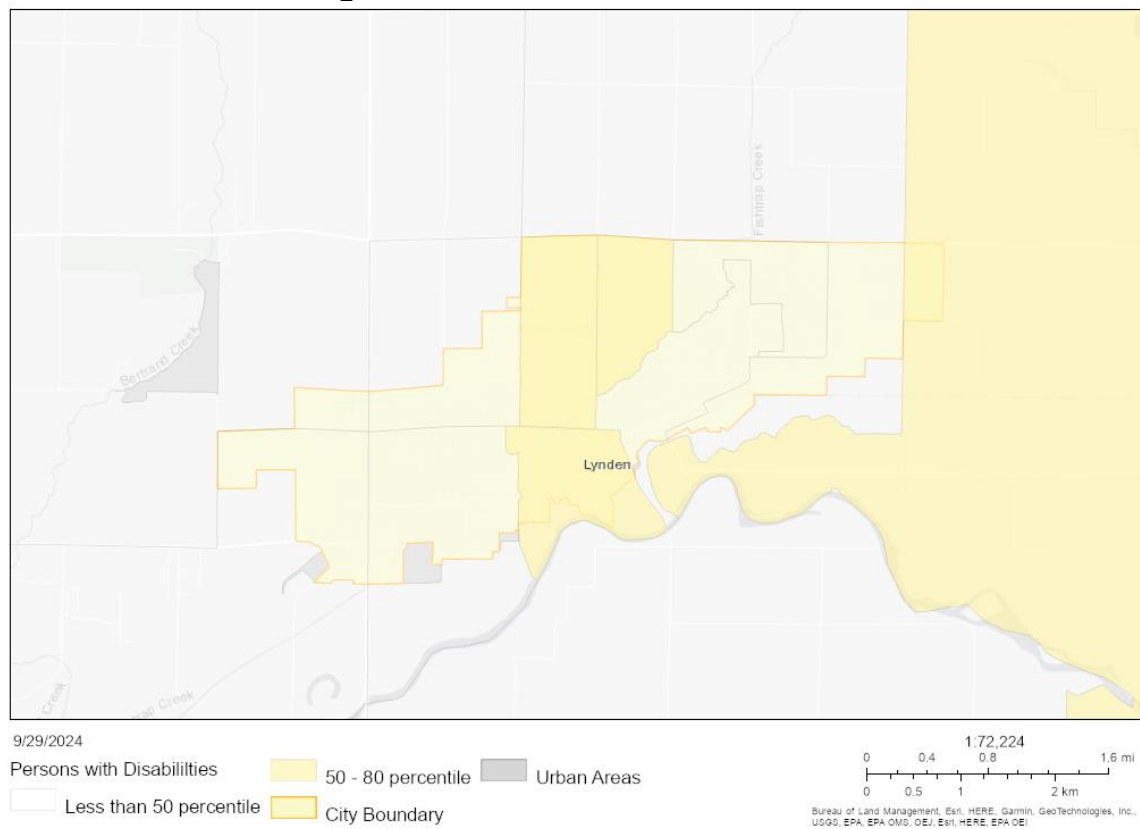
Source: EJScreen Report for the City of Lynden, EPA, generated September 2024

There is a high prevalence of residents diagnosed with cancer in central Lynden (dark orange) compared to the national average in the 90-95 percentile. There is a high percentage of those with cancer in Lynden. Some of these areas correlate with the areas with higher concentrations of those over the age of 64, but the areas are not the same or directly correlated.

Persons with Disabilities

People with disabilities often face a higher risk of chronic health conditions, such as heart disease, diabetes, and respiratory diseases. These conditions can significantly impact their quality of life and life expectancy. This indicator shows the percentage of all persons with disabilities based on 2022 ACS data.

Figure 32. Persons with Disabilities



Source: EJScreen Report for the City of Lynden, EPA, generated September 2024

There is a moderate prevalence of persons with disabilities living in central Lynden (dark yellow) compared to the national average in the 50-80 percentile.

Identification of Vulnerable Populations

HB 1181 defines vulnerable populations as “groups that are more likely to be at higher risk for poor health outcomes in response to environmental harms, due to: adverse socioeconomic factors such as unemployment, high housing and transportation costs relative to income, limited access to nutritious food and adequate health care, linguistic isolation, and other factors that negatively affect health outcomes and increase vulnerability to the effects of environmental harms; and, sensitivity factors, such as low birth weight and higher rates of hospitalization. Vulnerable populations include, but are not limited to: racial and ethnic minorities, low-income populations, and populations disproportionately impacted by environmental harms. Based on the previous indicators the following vulnerable populations have been identified in Lynden:

- People of color, particularly Hispanic populations
- Sensitive ages, particularly those under the age of five and over the age of 64
- Agricultural workers

- Residents in block groups 103031, 103033, and 103021
- Low-income earners

Critical Service Gaps

Other indicators tracked by EJScreen include critical service gaps for broadband, lack of health insurance, housing burden, transportation access, and food deserts. In Lynden, there are gaps in broadband service which can limit access to resources and information. There is a higher amount of those without health insurance (70th state percentile). A transportation access burden was also determined to be present. Altogether, these factors reveal there are additional gaps that contribute to the disparities vulnerable populations are experiencing in the city.

Cumulative Impact Analysis

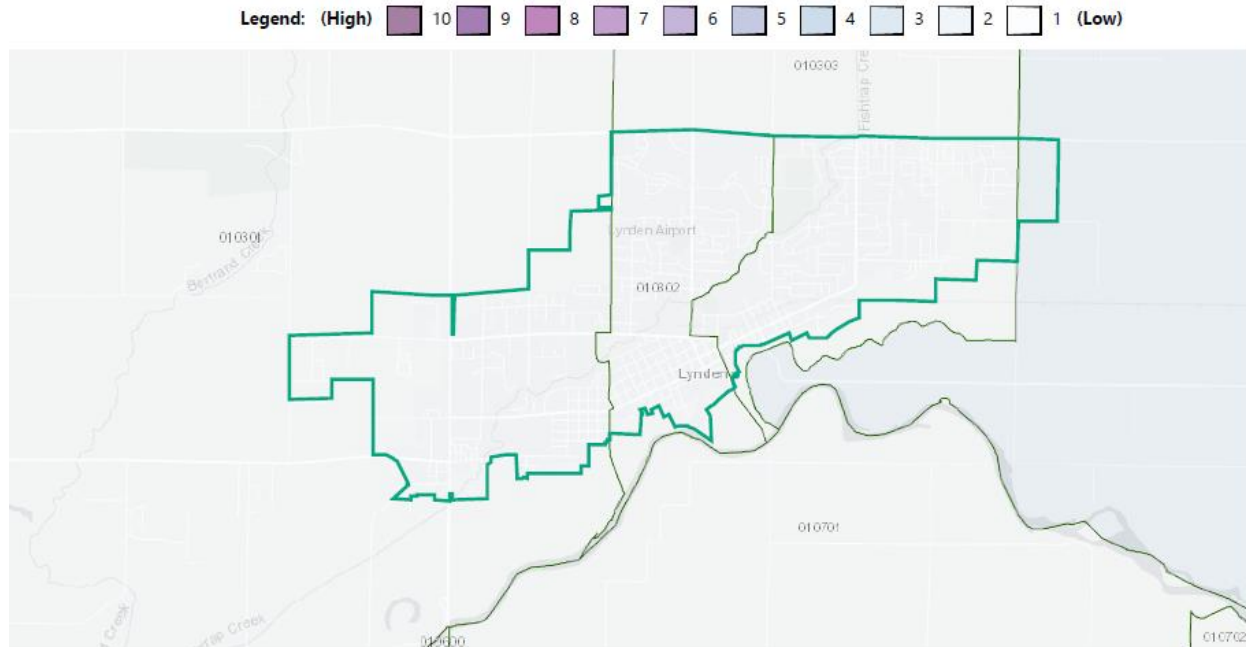
The Washington State Department of Health assesses every Washington community's overall health by determining their environmental risk factor indicators. These indicators of community health risk are identified by four primary characteristics, shown below. These indicators describe environmental quality, social and economic characteristics, and individual health factors, all of which interact in different ways and provide insights into broader community health.

Environmental Exposures	Environmental Effects	Sensitive Populations	Socioeconomic Factors
<ul style="list-style-type: none"> • Diesel emissions • Ozone • Particulate matter 2.5 (PM 2.5) • Toxic releases from facilities • Traffic density 	<ul style="list-style-type: none"> • Lead risk and exposure • Proximity to hazardous waste and facilities • Proximity to superfund sites • Proximity to facilities with highly toxic substances • Wastewater discharge 	<ul style="list-style-type: none"> • Cardiovascular disease • Low birth weight • Under the age of 5 • Over the age of 64 	<ul style="list-style-type: none"> • Low educational attainment • Housing burden • Transportation expense • Linguistic isolation • Poverty • Race • Unemployment

Environmental Exposures

Environmental exposures across Lynden are lower for residents compared to other Washington jurisdictions. Most of the environmental exposures in the area are outside of city limits due to agricultural uses. There is a potential for environmental exposures due to ozone emissions and underground storage tanks both in the 60th state percentile. Exposures can transcend geographic boundaries so there is a potential risk to city residents and a higher risk for vulnerable populations.

Figure 33. Environmental Exposures Aggregated

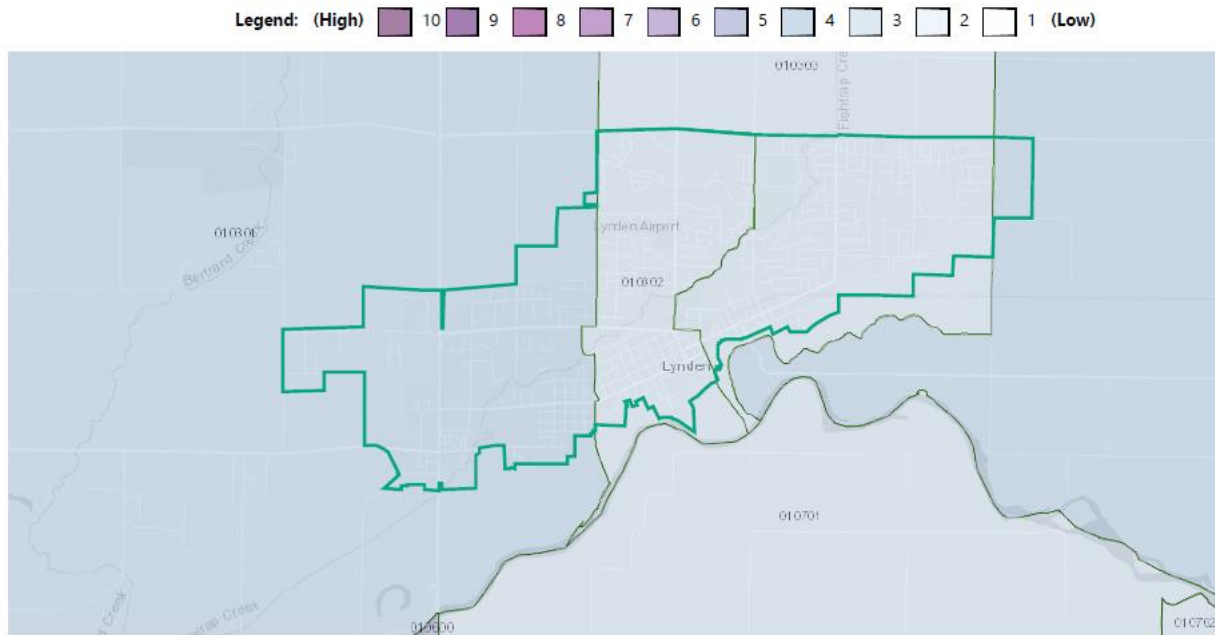


Source: WA Environmental Health Disparities Map, DOH, generated September 2024

Environmental Effects

Environmental effects are cumulatively moderate in Lynden, particularly due to the presence of multiple RMP facilities near Lynden. Potential effects from RMP facilities include chemical exposure, health complications, and pollution if released. Lynden has a high concentration of RMP facilities compared to other Washington state jurisdictions, but lower levels of lead paint, superfund sites, wastewater hazards, and hazardous waste. Residents in West Lynden are susceptible to environmental effects altogether and those located near RMP facilities are even more vulnerable.

Figure 34. Environmental Effects Aggregated

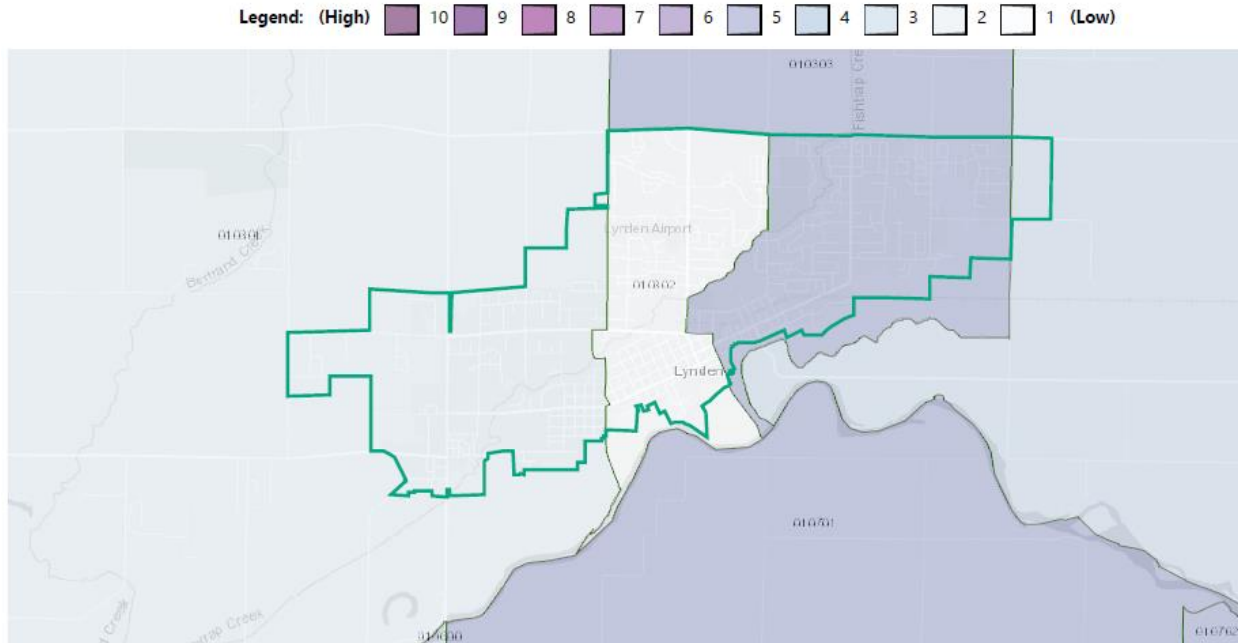


Source: WA Environmental Health Disparities Map, DOH, generated September 2024

Sensitive Populations

There is a moderate presence of sensitive populations in Lynden, particularly in east Lynden (5 ranking). Central and West Lynden are low (2 or less ranking). This means that, overall, these populations are not geographically located where there is currently a high prevalence of environmental exposures and effects within city limits. Sensitive populations with a significant presence in Lynden are those under the age of 5 and those over the age of 64, both of which are above the 60th state percentile. These age groups are more susceptible to health disparities due to climate change and environmental burdens because they are reliant on others and have developing/weakening immune systems, and exposure likelihood. Children also spend more time indoors and closer to the ground, which can increase their exposure to indoor air pollutants and lead-based paint. Older adults may be less physically active, which can increase their exposure to indoor air pollutants and reduce their overall resilience to environmental hazards.

Figure 35. Sensitive Populations Aggregated



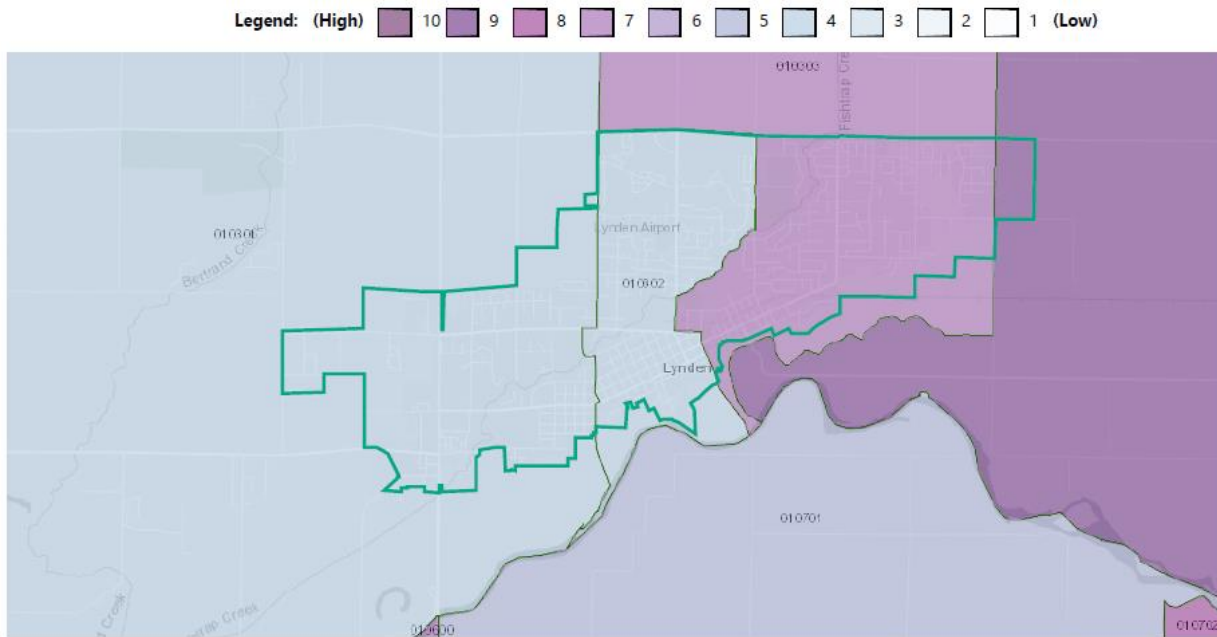
Source: WA Environmental Health Disparities Map, DOH, generated September 2024

Socioeconomic Factors

There is a relatively high concentration of vulnerable populations in terms of income, education, and language barriers in Lynden. These concentrations are the highest in east Lynden. While there may not be a direct overlap between the vulnerable populations and environmental hazards, these populations may still be indirectly exposed through factors like air pollution or water contamination that can travel across geographic boundaries.

Vulnerable populations need to be considered when developing policies and development regulations, especially when siting new uses. These populations primarily include those with less than a high school education, low-income earners, and employed.

Figure 36. Socioeconomic Factors Aggregated

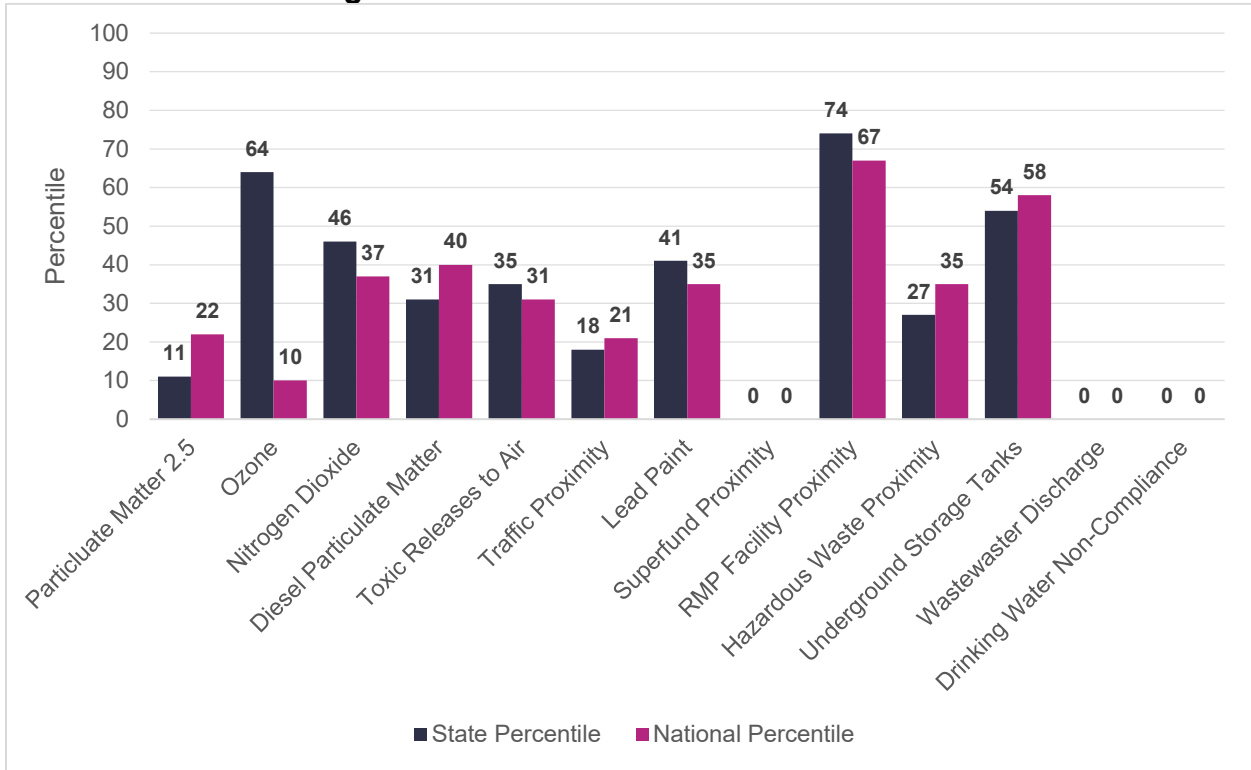


Source: WA Environmental Health Disparities Map, DOH, generated September 2024

Environmental Justice Indexes

The EJScreen tool includes environmental justice and supplemental indexes. These indexes are a combination of environmental and socioeconomic information. There are 13 EJ indexes reflecting the 13 environmental indicators. The indexes for a selected area are compared to those for all other locations in the state or nation.

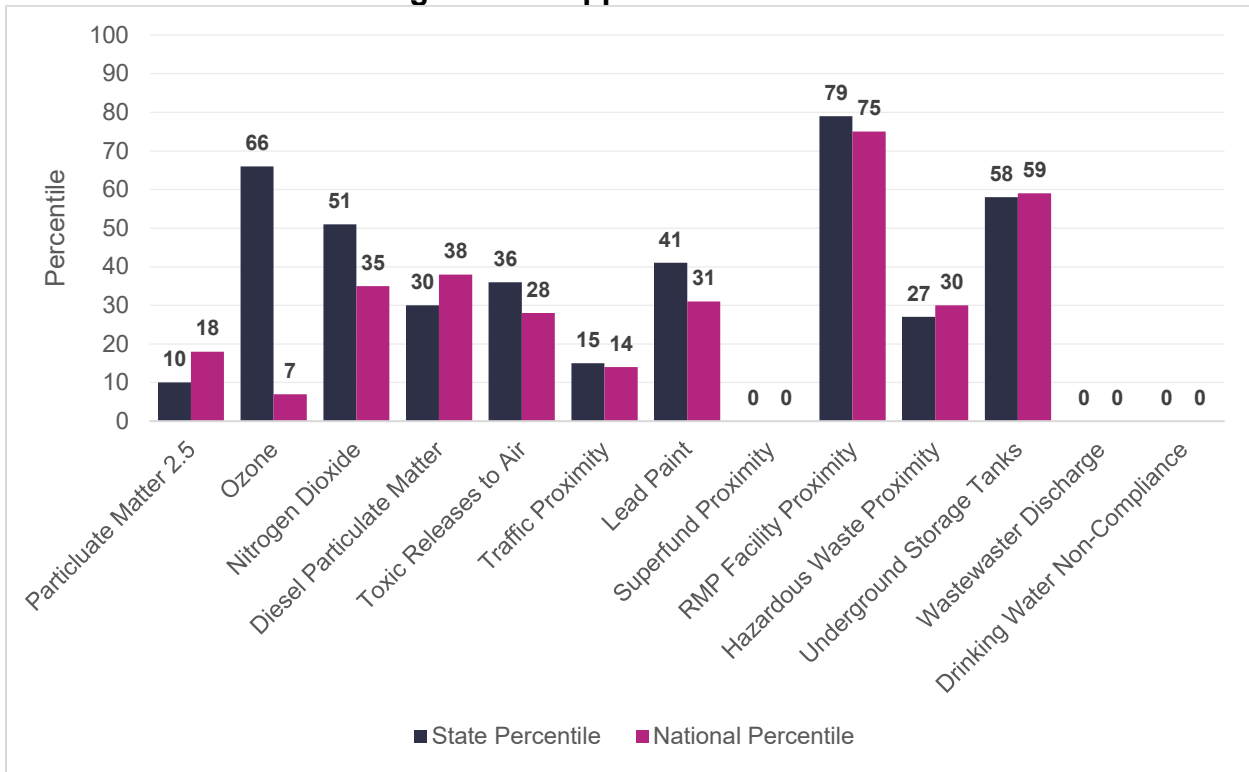
Figure 37. Environmental Justice Indexes



Source: EJSscreen Report for the City of Lynden, EPA, generated July 2024

The EJ indexes screen potential EJ concerns. This screening combines data on low-income and people of color populations with a single environmental indicator. Potential environmental justice concerns in Lynden are ozone emissions, underground storage tanks, and proximity to multiple RMP facilities.

Figure 38. Supplemental Indexes



Source: EJScreen Report for the City of Lynden, EPA, generated July 2024

The supplemental indexes offer a different perspective on community-level vulnerability. They combine data on the percentage low income, percentage linguistically isolated, percentage less than high school education, percentage unemployed, and low life expectancy with a single environmental indicator. The findings are the same for the supplemental indexes as the EJ indexes.

Findings and Recommendations

Key Findings

After compiling and reviewing the indicator data the following were determined to be key findings that will inform recommendations:

- There are minimal environmental burdens on Lynden residents compared to other areas in Washington state.
- Environmental exposures are largely located outside of city limits, especially near/on farmlands.
- Ozone emissions are the primary contributor to environmental exposures.
- Risk Management Plan facilities pose the biggest potential environmental threat to residents in Lynden.

- Health disparities are widespread in Lynden with multiple sensitive populations at a high risk of being impacted by climate change.
- Heart disease and cancer are at much higher rates than the rest of Washington.
- Older populations are living in areas highly susceptible to flood risk
- Asthma is common in Lynden
- Low-income earners, people of color, and those without a high school diploma are concentrated in areas of low life expectancy.
- Every 3 out of 20 residents do not speak English as their primary language.

Recommendations

The following recommendations are intended for the City of Lynden to work toward incorporating into future planning processes. The Climate Change and Health and Wellness elements of the comprehensive plan update are recommended places to prioritize these recommendations.

1. Enact policies that maintain significant buffers between RMP facilities and residential areas.
2. Prioritize the development of active transportation facilities, such as bike lanes and pedestrian paths, in areas with higher concentrations of vulnerable populations.
3. Consider adopting a target for reducing energy consumption to address climate change and its disproportionate impact on vulnerable communities.
4. Implement stricter regulations or limitations on underground storage tanks and encourage the use of alternative disposal methods. Provide educational resources for property owners who want to remove tanks and streamline the permit process for removal to encourage improvements.
5. Reduce lead exposure by implementing programs that promote safe waste disposal practices and provide resources for low-income populations to paint their homes.
6. Invest in energy efficiency initiatives and promote the adoption of clean energy sources to reduce pollution and improve air quality.
7. Improve air quality by adopting restrictions on wood-burning during periods of poor air quality, require the use of EPA-approved fireplaces, or provide programs to upgrade wood-burning stoves with filters.
8. Ensure that informational and program materials are available in Spanish and other Indo-European languages to reach diverse populations.

Conclusion

Lynden has lower levels of some environmental burdens when compared to other areas in Washington state. However, the data analysis reveals opportunities to create a healthier environment for all City residents by considering significant environmental and health disparities within the community. To address the environmental justice concerns identified in this report, Lynden policy makers should review the recommendations provided, consider the findings in this report during the Comprehensive Plan update process and future planning processes, and reassess conditions in five to ten years.

Additionally, as a helpful metric, the City should develop an equity criterion matrix tool to assess the potential environmental and health impacts of proposed projects on vulnerable populations, which is described in Appendix A from the WA Department of Commerce Climate Planning guidance.

Appendix A

Equity Criterion Matrix

Based on the WA Department of Commerce Intermediate Planning Guidance: Evaluating Climate Measures for Justice, the following questions should be considered when developing and implementing climate policies:

Equity and Co-Governance

- **Community Involvement:** Are frontline communities of color and low-income communities actively involved in identifying their needs and developing solutions?
- **Meaningful Participation:** Do these communities have the ability to meaningfully shape decision-making processes throughout the implementation of climate policies?

Targeted Benefits

- **Rights-Based Approach:** Do the policies explicitly recognize and protect the fundamental rights of all individuals to healthy environments and communities?
- **Prioritizing Vulnerable Communities:** Do the strategies prioritize those most disadvantaged by climate change, including those facing the highest cumulative impacts and risks?

Just Responsibility

- **Limiting Harm:** Are the measures designed to directly address the root causes of climate change and avoid unintended negative consequences?
- **Accountability:** Are those responsible for the greatest harm held accountable and required to contribute to mitigation and adaptation efforts?

Wealth Building

- **Local Economic Development:** Are the policies designed to invest in and support local livelihoods, particularly in communities with the greatest barriers to meeting their needs?
- **Sustainable Resource Management:** Are the policies promoting sustainable resource use and cooperative work to build resilient local economies?
- **Fair Labor Practices:** Are the policies advocating for fair wages and working conditions, including living wage labor for local communities?

By addressing these questions and incorporating the principles of equity, justice, and sustainability, Lynden can ensure that their climate planning efforts are effective and benefit all members of its communities.