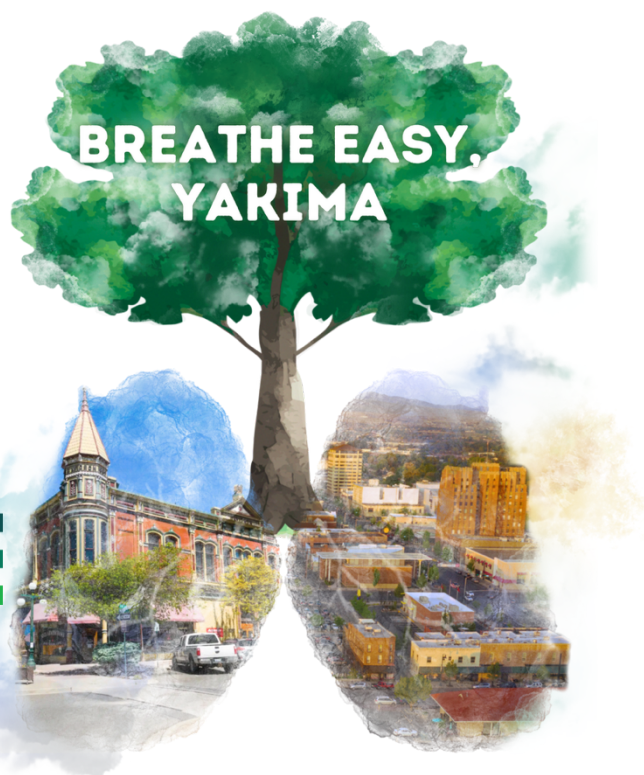


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CLIMATE COMMITMENT ACT



Breathe Easy, Yakima: An Integrated Pathway to Clean Air



Prepared by **Community System Solutions**

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Breathe Easy, Yakima: An Integrated Pathway to Clean Air

Developed through deep community engagement and supported by Washington's Climate Commitment Act funding, this integrated strategy unifies locally guided solutions to improve air quality and public health in Yakima and Union Gap. By combining wood stove transition, clean transportation adoption, and urban forestry initiatives, it reflects community priorities while providing a coordinated, data-driven framework to deliver measurable emission reductions, targeted benefits for overburdened communities, and long-term, climate-resilient outcomes.

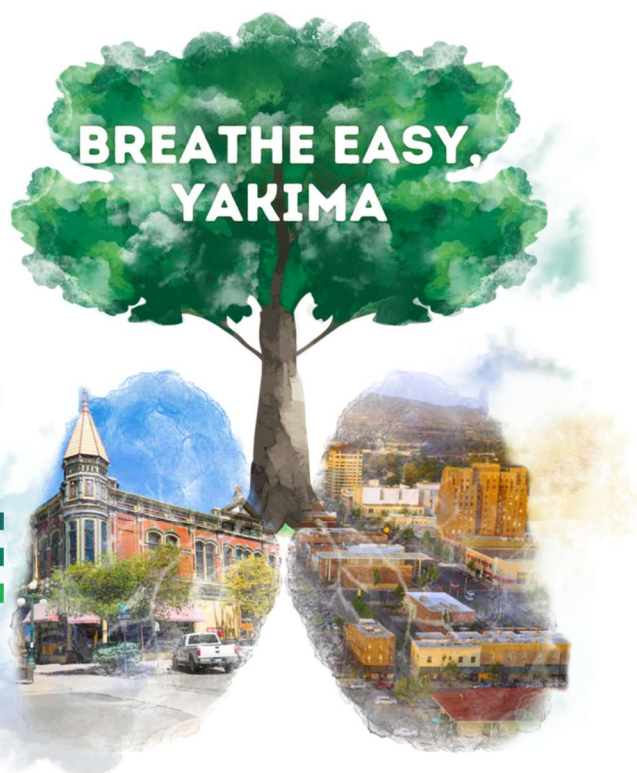
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Breathe Easy, Yakima is funded by the Washington Department of Ecology, supported with funding from Washington's Climate Commitment Act (CCA). The CCA supports Washington's climate action efforts by putting cap-and-invest dollars to work reducing climate pollution, creating jobs, and improving public health. Information about the CCA is available at www.climate.wa.gov

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Driving Change for Healthier Communities: A Clean Transportation Strategy

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Driving Change for Healthier Communities: A Clean Transportation Strategy

Breathe Easy, Yakima

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Driving Change for Healthier Communities: A Clean Transportation Strategy

BREATHE EASY, YAKIMA

Providing Solutions to Reduce Criteria Air Pollutants and Improve Community Health through Clean Transportation

Location: East Yakima, Washington and Union Gap, Washington

Overview

Program Goal: Driving Change for Healthier Communities is a strategy designed to expand clean transportation in East Yakima and Union Gap, Washington, to support the community's transition to zero-emission transportation.

Local community members expressed strong support for clean transportation solutions and electric vehicle (EV) options. This strategy includes overarching clean transportation EV projects and actions that meet community members stated goals to reduce air pollution through EV adoption:

- Construct Direct Current Fast Charging (DCFC) stations along high traffic corridors
- Encourage shared-ride service drivers to use electric vehicles
- Encourage the transition of privately owned vehicle fleets to EV
- Identify additional community zero-emission mobility projects

The proposed elements address air quality issues by reducing emissions from internal combustion engine vehicles. This strategy advances environmental justice by addressing the disproportionate environmental and health impacts faced by overburdened communities, and by prioritizing equitable access to clean transportation.

East Yakima and Union Gap's geographic location—along major interregional corridors and within a growing tourism, commercial, and agricultural logistics base—makes the area an ideal candidate to launch a clean transportation program designed to transition commercial and service fleets from internal combustion engine vehicles to EVs. This strategy presents a scalable model for EV adoption in small metropolitan areas.

Washington has set ambitious goals for energy efficiency and decarbonization. Transitioning to zero-emission vehicles is a key step toward these goals. Implementation of this strategy will serve private EV fleets, commercial EVs, privately owned EVs used for transportation network companies (TNCs) such as Uber and Lyft, and drivers traveling along the community's busiest vehicle corridors.

Problem: East Yakima and Union Gap face elevated air pollution levels. Transportation is Washington State’s leading source of greenhouse gas emissions and a major contributor to local air pollution. Gas- and diesel-powered vehicles and equipment—especially older models—emit harmful pollutants like PM_{2.5}, ozone precursors, and nitrogen oxides (NO_x), degrading air quality and endangering health, especially in high-traffic areas and work zones. Transportation contributes about 22% of total air pollution and 39% of greenhouse gas emissions throughout the state, according to studies through the Washington Department of Ecology.

The community identified areas of air quality concern, detailed in the Incorporation of Community Input section below. This data is reflected in Figure 1, which shows the distribution of community-reported poor air quality, with denser clusters of reports highlighted in yellow and lower density of reports shown in purple.

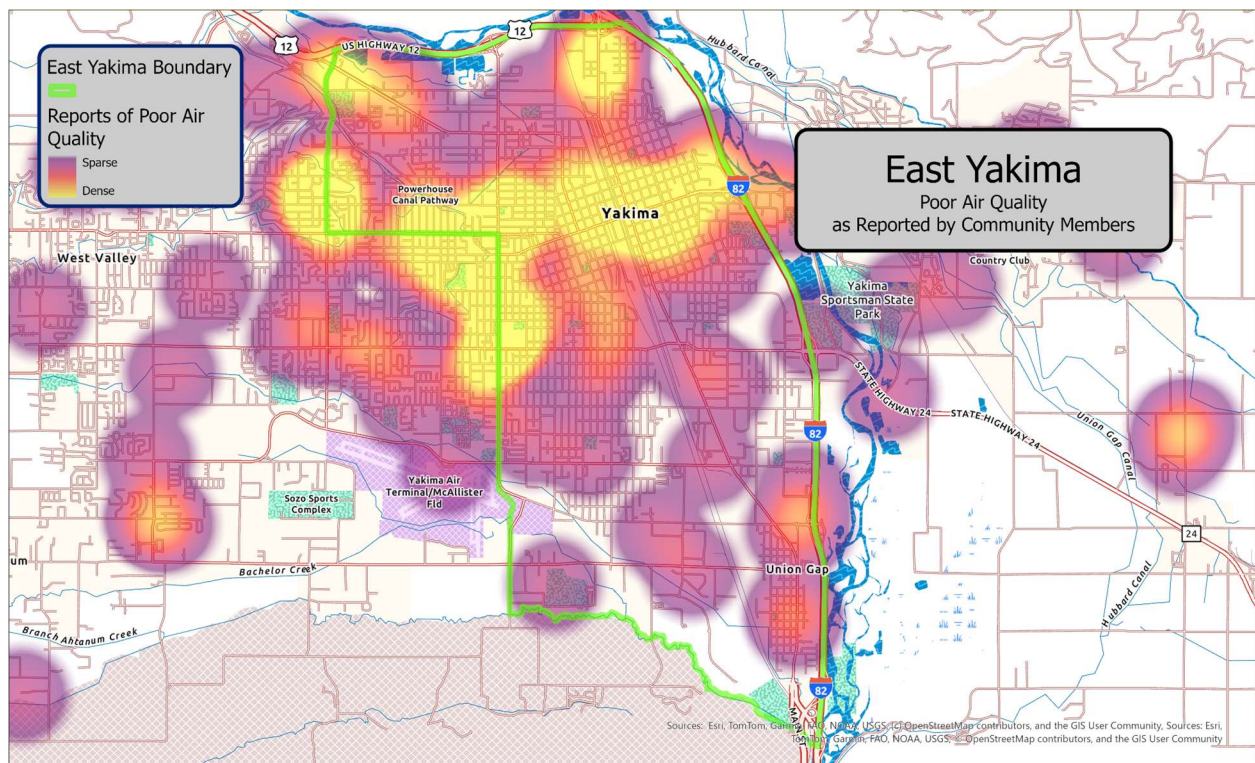


Figure 1. East Yakima | Poor Air Quality as Reported by Community Members. Map Created by Community System Solutions – 2025. A dynamic version of this map is available at <https://arcg.is/1b1G5O1>

As described in the Incorporation of Community Input section, the community expressed strong support for clean transportation solutions, and EV options. While specific EV projects were not identified by participants, CSS's corridor analysis revealed that the areas residents identified as having the poorest air quality overlap with the community's busiest travel routes.

CSS analyzed daily vehicle-trip data to identify high-traffic corridors, those areas where most residents travel within the community each day. These findings are illustrated in Figure 2, highlighting heavy traffic along Yakima Avenue near Valley Mall. (Data Source: “Fall 2023 Number of Modeled Trips” Washington Department of Transportation.)

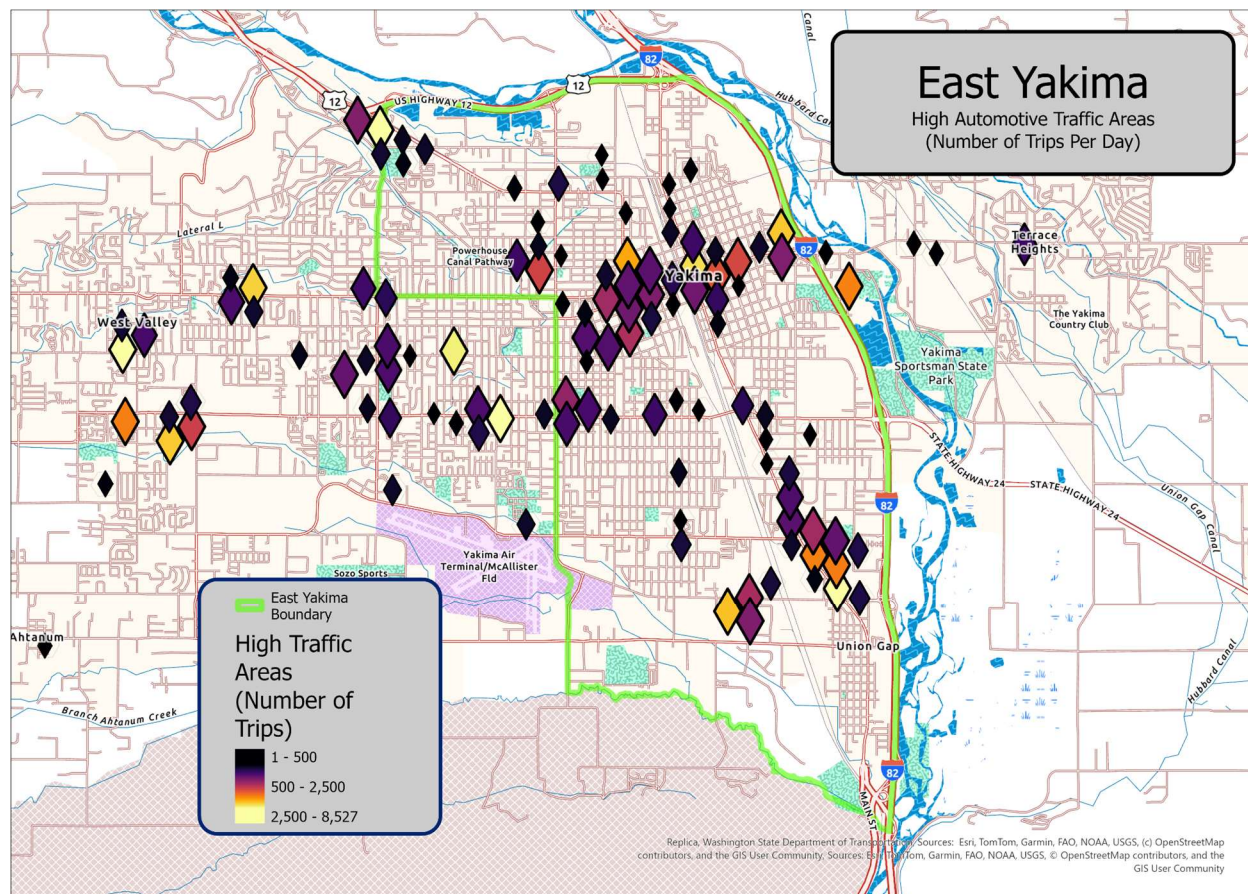


Figure 2. East Yakima | High Automotive Traffic Areas. Data sourced from the Washington State Department of Transportation – 2023. Map created by Community System Solutions – 2025. A dynamic version of this map is available at <https://arcg.is/1b1G5O1>

To help identify the most effective projects for this strategy, CSS consulted with Washington’s EV experts to discuss possible strategies for expanding local EV adoption and model multiple implementation scenarios based on community-identified needs and corridor data.

CSS reviewed existing EV charger demand studies to identify current station locations and areas with insufficient access. These gaps are shown below in Figure 3. (Data sources: Electric Vehicle Charging Stations, ArcGIS online and Transportation Electrification Strategy, Washington Department of Transportation.)

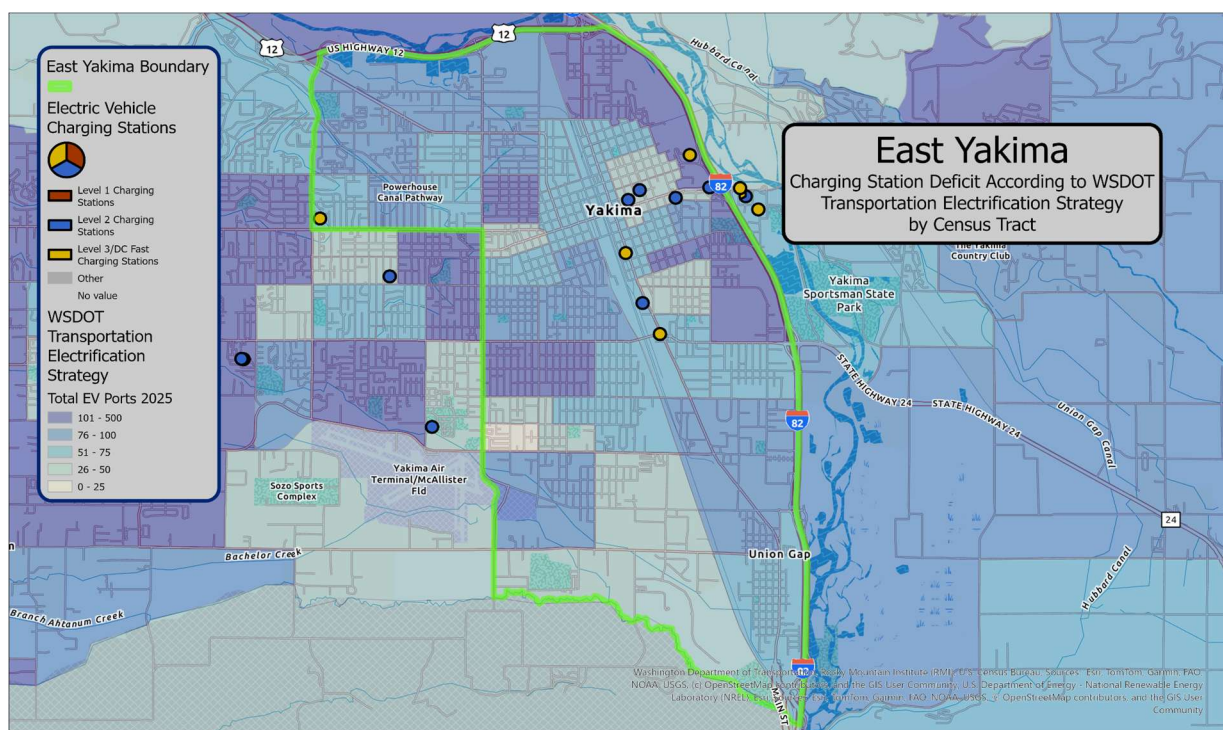


Figure 3. East Yakima | Charging Station Deficit According to WSDOT Transportation Electrification Strategy by Census Tract. Existing chargers are plotted on the map, with census tracts indicating WSDOT's target for total EV Chargers by 2025. Data sourced - WSDOT. Map created by Community System Solutions – 2025. A dynamic version of this map is available at <https://arcg.is/1b1G5O1>

The data shows a significant charger deficit across East Yakima, where most census tracts have a goal of exceeding 50 chargers by 2025.

By layering community air-quality reports, traffic volumes, and charger-deficit data, CSS identified the specific corridors where clean transportation and new charging infrastructure would deliver the greatest air-quality benefit to an underserved community.

These combined results are depicted in Figure 4, which shows areas with high levels of reported air quality concern, high daily vehicle traffic, and identified need for EV chargers. The proposed locations of these chargers are from Interstate 82 to downtown Yakima along E. Yakima Ave. and from Highway 12 through downtown Yakima to Union Gap along First Street.

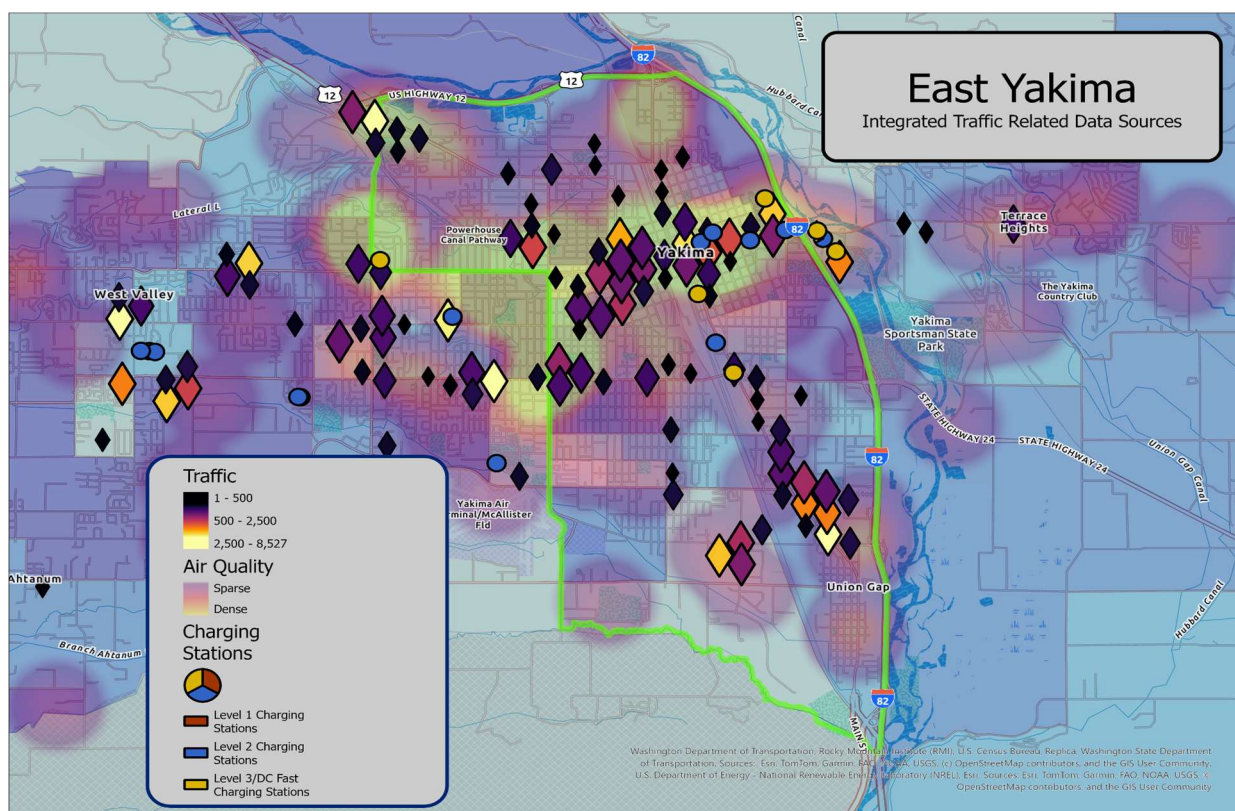


Figure 4. East Yakima Integrated | Traffic Related Data Sources. EV chargers, WSDOT's Electrification Strategy goals, daily modeled trips, and community reported poor air quality all integrate to show target areas of most need. Map created by Community System Solutions – 2025. A dynamic version of this map is available at <https://arcg.is/1b1G5O1>

Solutions: This strategy builds directly on what we heard from the community—strong support for clean transportation—combined with CSS’ corridor analysis, showing that the areas residents identified as having the poorest air quality overlap with the busiest travel routes.

Using community feedback, gathered data, expert input, and CSS’ experience designing EV projects for municipal areas across California, the team proposes a combination of targeted strategies to accelerate the transition from internal combustion engine to EV in East Yakima and Union Gap.

- 1) **Install DC fast chargers** in high-traffic corridors. These chargers will serve ride-share vehicles, privately owned fleets, and other EV drivers.
- 2) **Encourage ride-share driver adoption of EVs** by supporting incentives, outreach, and partnerships with local ride-share operators such as Uber and Lyft.
- 3) **Encourage the transition of privately owned vehicle fleets** from internal combustion engine vehicles to EVs. These vehicles frequently travel high-traffic corridors, and by transitioning fleets to EVs, corridor air quality will improve.

In addition to the above solutions, we propose:

- Conducting further engagement to identify additional transportation project types.
- Identifying future zero-emission mobility options, supported by continued engagement and technical analysis.

Key Project Components

The strategy combines technical solutions with inclusive community engagement to ensure that clean transportation options reach those who need them most. The following components outline how the program will be implemented:

1) Community Education and Engagement

Outreach will focus on inclusive participation through community listening sessions, collaboration with local nonprofits, and transparent communication tools such as ArcGIS Hubs. Public engagement will include bilingual (English and Spanish) materials, interpreters at meetings, and hybrid options (in-person and virtual) options to ensure full accessibility.

The key elements of the Electric Vehicle (EV) Community Education and Engagement Program should include:

- A. Identify Program Goals and Target Audience
 - a. Identify key audiences: general public, underserved communities, fleet managers, youth, etc.
 - b. Define specific goals: awareness, adoption, behavior change, equity.
- B. Create Accessible Educational Materials
 - a. How EVs work
 - b. Benefits (cost savings, environment)
 - c. Charging infrastructure
 - d. Incentives/rebates
- C. Offer Hands-On Experiences
 - a. Ride and Drives: Let people test EVs themselves.
 - b. Charging Station Demos: Show how home and public charging works.
 - c. Pop-up Events: Appear at farmers markets, schools, local festivals.
- D. Expand Community Partnerships
 - a. Local governments
 - b. Environmental organizations
 - c. Schools and universities
 - d. Utilities
 - e. Car dealerships
- E. Ensure Equity and Inclusion
 - a. Tailor outreach to underserved or frontline communities.
 - b. Provide materials in multiple languages.

- c. Address specific barriers (cost, housing, access to chargers).
 - d. Highlight used EV options and financing support.
- F. Provide Incentive Awareness and Support
 - a. Federal/state/local rebates
 - b. Utility discounts
 - c. Tax credits
 - d. Offer tools or counselors to help people apply.
- G. Share Local Success Stories
 - a. Share relatable stories from real EV drivers in the community.
 - b. Videos, testimonials, Q&A panels.
- H. Hosts Workshops and Training
 - a. Topics: EV basics, maintenance, charging at home or workplace, etc.
 - b. Audience-specific: landlords, fleet operators, students.

2) EV Infrastructure Deployment

Install DC fast charging (DCFC) stations at strategic, high-traffic sites in East Yakima and Union Gap. Installation sites will prioritize proximity to community-identified air-quality concern zones. Targeting areas where people run errands allows them to spend time charging while they do other things. This provides a key result: decreasing emissions in high traffic areas.

Construct two or three DCFC charging hubs with capacity for four 4 EVs each along heavily traffic corridors, such as 1st Street and Yakima Avenue. Both streets are very high traffic areas in overburdened communities. Installing EV chargers along heavily trafficked corridors—like major arterial roads—offers critical advantages for drivers, infrastructure planners, and the environment.

- Bridges Gaps: Fills in infrastructure "dead zones" where charging options are limited.
- Supports Tourism and Commerce: Makes regions more accessible to EV drivers.
- Psychological Reassurance: Visible, frequent chargers build driver confidence—even if they don't need to stop.
- Promotes Adoption: Key for hesitant buyers who worry about charging availability.
- Meets Demand Where It's Highest: Heavy corridors naturally have more EV users.
- Efficient Utilization: Chargers are more likely to be used regularly, improving ROI for infrastructure investments.
- Reliable Charging for Delivery Vans, Trucks, and ride shares: Many of these vehicles travel the same high-traffic routes daily.
- Accessible to All Travelers: People without home charging can depend on corridor stations for reliable access.

- Drivers Spend While Charging: Chargers placed near restaurants, shops, or rest stops bring foot traffic and spending.

Each DCFC site should include:

- 150kW per port, with each stall equipped for both CCS (Combined Charging System) and Tesla (NACS) connectors, the two primary fast-charging standards in the United States.
- Real-time stall availability signage.
- Web and mobile app payment integration.
- Credit card and contactless payment options.
- 24/7 monitoring, including CCTV coverage.

Site Readiness and Improvements: Selected sites should be upgraded as needed to accommodate the charging facilities, including paving, drainage, striping, lighting, and utility tie-ins. Site design will ensure accessibility, visibility, and compliance with all applicable safety and permitting standards.

Maintenance and Operation: Sites should be professionally managed to ensure long-term performance and reliability. Regular maintenance, software updates, and equipment servicing will be performed to maintain 99% aggregate charger uptime.

The diagram in Figure 5 illustrates the difference between AC and DC Fast Charging, showing how DCFC technology dramatically reduces charging time, supporting higher fleet utilization and driver convenience.

The DC Difference

DC Fast Charging can fully charge an EV battery in a fraction of the time it takes AC charging. (Note this is a simplified example that ignores battery de-rating effects.)

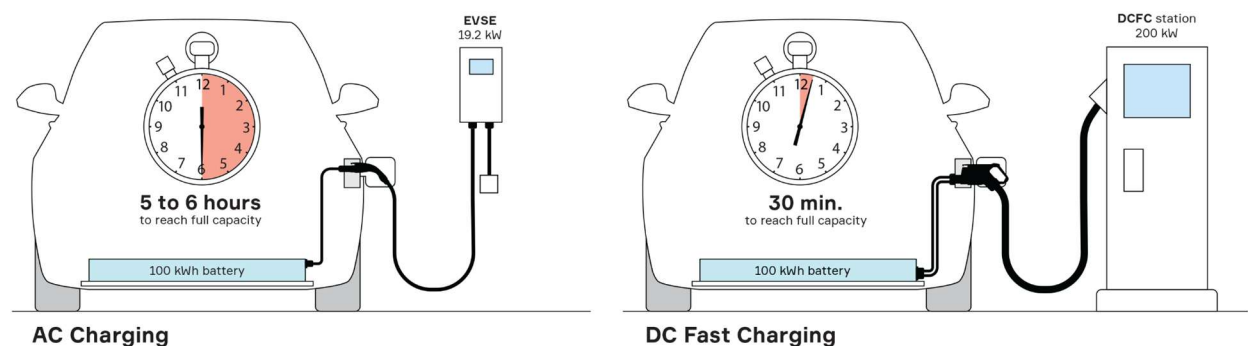


Figure 5. DCFC can charge an electric vehicle battery in a fraction of the time required by standard AC charging. This diagram shows a 100kWh battery reaching full capacity in approximately 30 minutes using a 200 kW DCFC station, compared to 5-6 hours with AC charging.

3) Fleet Transition Support

Partner with private fleet operators to facilitate the replacement of internal combustion engine vehicles with electric models. Provide technical assistance, procurement guidance, and incentives where available to support this transition. Promote these projects to serve as models for other private businesses who are considering EV transition.

EV fleet transition for businesses with a strong local customer base have a lot to gain by switching from internal combustion engines:

1. Major Cost Savings

- **Lower Fuel Costs:** Electricity is cheaper than gas—especially for short, local routes.
- **Reduced Maintenance:** EVs have fewer moving parts, meaning lower repair and upkeep costs over time.
- **Incentives & Tax Credits:** Federal, state, and utility incentives can significantly cut upfront costs.

2. Perfect Fit for Local Travel

- **Short Routes = Ideal Use Case:** Local deliveries, service calls, or client visits rarely exceed the daily range of most EVs.
- **No Need for Extensive Charging Infrastructure:** Vehicles can charge overnight at the business or during off-peak hours.

3. Increases Operational Efficiency

- **Telematics & Route Optimization:** Many EVs come with built-in tracking and smart routing tools.
- **Predictable Charging Patterns:** EVs can be topped off consistently, reducing unexpected downtime.

4. Builds a Sustainable Brand Image

- **Visible Commitment to Clean Energy:** Driving EVs around town puts your green values on display.
- **Customer Trust:** Eco-conscious customers prefer businesses that follow through on sustainability.
- **Marketing Edge:** An EV fleet can be a unique selling point in ads, social media, and community outreach.



Figure 6. EV cargo van that can be used by a wide variety of businesses.

5) Funding and Incentive Procurement

Identify, pursue and coordinate available funding and incentive programs that support both vehicle procurement and EV charging infrastructure installation.

Target programs for incentives and infrastructure could include the following:

- The Zero-Emission Vehicle Infrastructure Partnerships (ZEVIP) grant, which provides funding for the installation of new electric vehicle charging equipment and hydrogen fueling infrastructure along priority corridors. Funding may be used for site design, equipment purchases, electrical upgrades, installation, signage, operations, and maintenance.
- The Washington Zero-Emission Vehicle Incentive Program (WAZIP) was launched in 2025 to help more businesses switch to commercial medium- and heavy-duty zero-emission vehicles and equipment. Funded by the Climate Commitment Act, managed by the Washington State Department of Transportation, and administered by CALSTART—the program provides point-of-sale discounts to make cleaner vehicles more affordable.
- The Zero-emissions Access Program (ZAP) grant, which provides funding for zero-emission car share pilot programs in underserved and low- to moderate-income communities.

Each of these grant programs is supported by state funding from Washington's Climate Commitment Act (CCA).

6) Ride-Share Electrification Campaign

Implement a marketing and outreach campaign to encourage ride-share drivers, like those working for Uber, Lyft, or local platforms, to purchase and operate EVs. Leverage local incentives, education, and partnership opportunities with ride-share companies to accelerate adoption. Rideshare drivers have a lot to gain by switching to an electric vehicle:

1. Massive Fuel Savings

- EVs cost far less to "fill up" than gas-powered vehicles.
- Rideshare drivers log tons of miles—so the savings add up fast, often thousands per year.

2. Lower Maintenance Costs

- No oil changes, no engine problems, no transmission issues.
- Fewer moving parts = less downtime and fewer repair bills.

3. Better for City Driving

- EVs thrive in stop-and-go traffic: regenerative braking saves energy and brake wear.
- Instant torque makes city driving smoother and more responsive.



Figure 7. A ride-share driver charging their car at a fast-charging station.

7) Local Workforce Development

Explore opportunities to create local jobs through the retrofitting of internal combustion engine vans, installation of EV components, and long-term maintenance of new systems.

Criteria Air Pollution Reductions

Criteria Air Pollutants to Be Reduced

The strategy targets reduction in the following criteria air pollutants:

- Particulate matter (PM_{2.5} or PM₁₀)
- Ozone
- Carbon monoxide
- Nitrogen dioxide
- Sulfur dioxide

Methods for Reducing Criteria Air Pollutants

The goal of this strategy is to expand the use of electric vehicles in East Yakima and Union Gap. As more drivers transition to EVs for short-distance travel, total vehicle miles traveled (VMT) by internal combustion engine vehicles will decrease, directly reducing tailpipe emissions of PM_{2.5}, NO₂, ozone precursors, and CO.

Implementation of this strategy will establish a robust charging network throughout East Yakima and Union Gap, with assist ride-share drivers and non-residential fleets.

Estimated Impacts

Reduced air pollutants in traffic-heavy areas will provide substantial public health benefits, particularly for children, seniors, and residents with respiratory conditions. Co-benefits include improved transportation access, enhanced local air quality, and stronger community engagement around clean mobility and environmental health.

Benefit vs. Cost: High Impact / High Upfront Cost

Impact: This strategy will deliver measurable, significant long-term reductions in emissions, localized air quality gains in both transportation and industrial activity zones, and improved health for community members along the vehicle transportation routes.

Cost: The strategy requires upfront investment in DCFCs but offers long-term savings in fuel and maintenance costs. Implementation can occur in phases to distribute expenses over multiple years.

Geographic Air Pollutants Reduction Area

The target area for this strategy includes the overburdened communities of East Yakima and Union Gap, which experience disproportionately high levels of transportation-

related air pollution. These areas were identified by the Washington State Department of Ecology as having elevated concentrations of particulate matter (PM_{2.5}) and other criteria air pollutants, largely due to heavy traffic volumes. As shown in Figure 8, the highest concentrations of community-reported poor air quality overlap with major vehicle corridors, where most commercial activity is located. By targeting these high-emission corridors for DCFC installation, this strategy will deliver the greatest air-quality benefits for residents living and working near these transportation hubs.

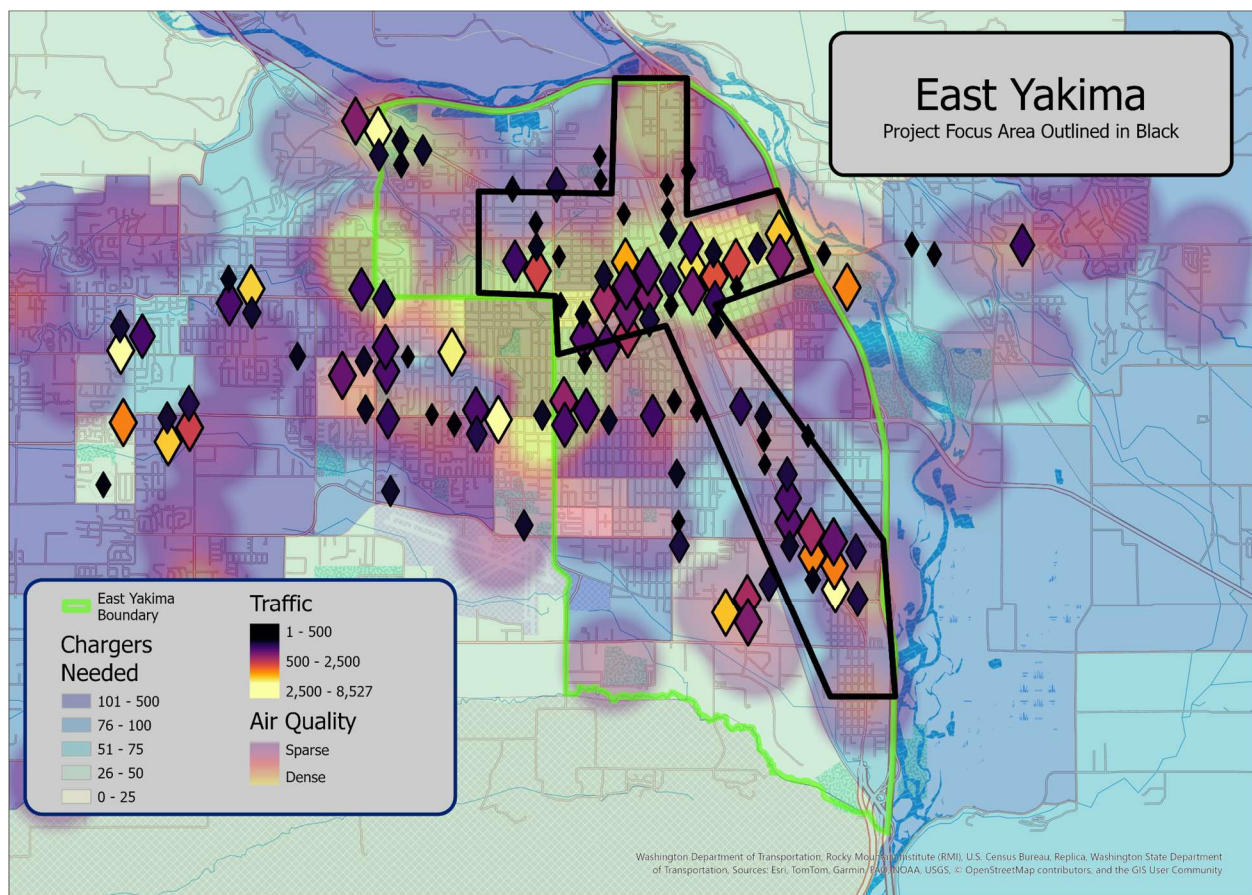


Figure 8. East Yakima | Project Focus Area Outlined in Black. The focus area for potential EV chargers is outlined in black. Map created by Community System Solutions – 2025. A dynamic version of this map is available at <https://arcg.is/1b1G5O1>

Incorporation of Community Input

This strategy is built on direct community feedback gathered through listening sessions, school-based outreach, tabling and canvassing outreach, and city surveys. Engagement efforts prioritized accessibility by offering wheelchair-accessible venues and providing simultaneous Zoom participation for those unable to attend in person. To ensure full inclusion, all materials and presentations were offered in both English and Spanish, with interpreters available at every event.

Community System Solutions used a combination of outreach methods to collect meaningful, locally informed data about air quality in East Yakima. Two community surveys were conducted to understand both perceptions and potential solutions. The first survey, completed by 67 respondents, explored how residents view local air quality, which pollution sources they find most concerning, and who in the community is being affected. The second survey, with 21 participants, focused on residents' awareness of and support for proposed air quality improvement projects, while also gathering additional insights on housing and health factors.

During our 19 community events, concerns over vehicle pollution and electrification as a solution were regularly discussed. Both topics were discussed in full at our 4 official community engagement meetings with strong consensus during group discussions.

Community listening sessions, held in Yakima at Eisenhower High School and in Union Gap at Martin Luther King Jr. Elementary, revealed strong concerns about local air pollution, particularly from transportation sources. While some participants expressed a sense of resignation, others shared personal stories—such as a child struggling with asthma—highlighting the real health impacts of poor air quality. During these meetings, when the community expressed concerns over vehicle pollution, one of the regularly discussed solutions was vehicle electrification.

Transportation-related emissions were consistently identified as one of the community's highest concerns throughout the engagement process. Combined, the related categories City Road Automotive/Vehicles (#2), Diesel Tools, Vehicles, and Equipment (#7), and Interstate Automotive/Vehicles (#14) accounted for 61% of responses and demonstrated that residents view mobile-source emissions as a primary local air-quality issue. From the second survey, 85.71% of survey respondents expressed support for Clean Transportation projects.

During project identification activities, community members allocated 26.4% of mock funds to address transportation-related pollution, including emissions from city road traffic, diesel vehicles, and industrial sources.

A second survey asked the community about its support for potential project types and how effective they believed they would be. 85.71% of respondents were supportive of Clean Transportation and Equipment Upgrade Programs, with 52.38% believing they would be Very Effective and an additional 28.57% feeling they would be Somewhat Effective. These findings indicate strong community support for solutions like installation of DCFC infrastructure, which would make electric vehicle adoption more practical for both residents and fleet operators. More electric vehicles will reduce existing levels of transportation-related emissions and improve public health outcomes in East Yakima and Union Gap.

Execution Plan

Project Phases

Community Education and Engagement:

- Host community listening sessions and neighborhood walks to identify areas of need and interest.
- Conduct further engagement to determine other EV transportation projects.
- Ensure Spanish-language access and culturally responsive engagement to meaningfully include the community.
- Partner with local schools at all levels, including Yakima Valley College and environmental club, for student-led research, hands-on learning, and stewardship projects connected to the strategy.

Assessment Phase:

- Conduct electrical capacity review with Pacific Power
- Identify applicable incentive programs (EPA, CEF, WA EVSE, VW Settlement)



Figure 9. Fleet of electric trucks stationed at their charging hub.

Design and Procurement:

- Select charger models
- Finalize site design and utility coordination
- Secure permits and environmental reviews (SEPA/NEPA if applicable)

Implementation:

- Construct and commission DCFC chargers

Monitoring and Expansion:

- Track EV Charger utilization
- Plan for future scale-up based on data and community feedback

Preliminary Site Details

Site should have the following attributes:

- Zoned for commercial or transportation use
- Electrically proximate to Pacific Power distribution
- Easy ingress and egress for vehicles
- Digital signage and queuing design to ensure smooth traffic flow, with enforced 45-minute charging limits per session

Environmental Review & Permits

It is recommended that an experienced EV station installation company lead all CEQA/SEPA and NEPA compliance where applicable. Coordination with permitting authorities, local planning departments, and utilities will be managed by the installation firm with support from local stakeholders.

Installation

To maximize the reliability, safety, and long-term impact of public investments, all installations should be performed by certified EV charger installers.

Given the scope and high-voltage requirements of DCFC systems, installation of the stations by trained qualified labor is critical to both project delivery and public confidence in Washington's zero-emission infrastructure.

Maintenance

A professional EV station management firm should oversee all aspects of maintenance throughout the term of operation for the charging facilities. Responsibilities include:

- Upkeep of pavement, signage, striping, fencing, lighting, charging equipment, and any additional improvements to the premises.
- Installation and monitoring of CCTV or comparable video surveillance systems for safety and security.
- Implementation of a detailed preventative maintenance schedule to ensure optimal charger performance.
 - Quarterly site visits to inspect and test each charging unit using emulator devices.
 - Cleaning, wiring checks and functionality verification.
 - Documentation of damage or issues with photographs.
 - Ensuring that all repairs are completed by certified technicians.
 - Posting visible "Temporarily Out of Service" signage on any non-operational stations.
 - Safely enclosing exposed wiring or decommissioned units.

Uptime and Reliability

Charger operators should maintain a minimum 97% uptime commitment across all charging stations, using remote monitoring software and proactive service protocols to ensure system reliability and user satisfaction. High reliability and uptime are paramount for many users, especially those who rely on charging access to support income or complete regional trips.

Conclusion

East Yakima and Union Gap are well-positioned to lead Washington's interior region in sustainable mobility infrastructure. Implementing this strategy will:

- Install state-of-the-art fast-charging hubs along heavy traffic corridors
- Encourage replacement of polluting vehicles with clean electric transportation
- Empower local workforce and residents through education and equitable access

Budget

Category	Units	Cost	Total
DCFC Infrastructure - Four Port Stations	4	\$400,000	\$1,600,000
Site Improvements and Permits	4	\$500,000	\$2,000,000
Monitoring and Maintenance (15 years)	4	\$100,000	\$400,000
Training and Community Engagement	4	\$100,000	\$400,000
Total			\$4,400,000

Notes about the budget: The budget shows costs for each project element. The “total” is of all the costs of all elements. It is not meant to be an amount that must be raised in order to undertake elements of this strategy. Since each charger is an individual project, not all charger projects need to be funded or installed at the same time. Also, we have not included incentives in the budget, but there are a variety of incentives these projects could be eligible for as described in the strategy.

Timeline

Month	Milestones/Events
M0-M12	Community Education and Engagement
	Host community listening sessions and neighborhood walks to identify areas of need and interest.
	Conduct further engagement to determine other specific transportation project types.
	Ensure Spanish-language access and culturally responsive engagement to ensure meaningful inclusion of the community.
	Engagement efforts should prioritize accessibility by offering wheelchair-accessible venues and providing simultaneous Zoom participation for those unable to attend in person.
	Partner with local schools at all levels, including Yakima Valley College and environmental club, for student-led research, and education projects.
M0-M3:	Create Digital Tools
	Launch an ArcGIS Hub platform dedicated to the Clean Transportation Strategy.
	Use interactive maps to show Strategy elements so residents can help shape the work.
	Include embedded surveys, event calendars, volunteer sign-ups, and feedback tools so residents can help shape the work.
	Share stories from community members where appropriate.
M0-M3:	Assessment Phase
	Work with property owners to select sites for fast chargers
	Conduct electrical capacity review with Pacific Power.
	Identify applicable incentive programs (EPA, CEF, WA EVSE, VW Settlement).
M3-M6:	Design and Procurement
	Select charger models.
	Finalize site design and utility coordination.
	Secure permits and environmental reviews (SEPA/NEPA if applicable).
M6-M12:	Implementation
	Construct and commission EV chargers.
	Train personnel and launch operations.
	Advertise/Market the EV charger sites
M12+:	Monitoring and Expansion
	Track EV Charger utilization.
	Plan for future scale-up.

Project Partners

Yakima Health District Board of Health, Environmental Health

- Purpose of the Partnership: The Health District has resources to enhance the reach of the educational/marketing campaign.
- Key contact: Jocelyn Castillo, Public Health Tech

Yakima Valley Tourism

- Purpose of the partnership: Yakima Valley Tourism has members whose properties could be host sites for DCFC chargers.
- Key contact: John Cooper, President

Private EV Owners Driving for Uber or Lyft

- Purpose of the partnership: Some of the Private EV owners will own EV cars, and with the installation of DC fast charging, others will purchase electric vehicles.
- Key contacts: EV owners driving for Uber or Lyft

Yakima Chamber of Commerce

- Purpose of the partnership: The Chamber can help identify locations for EV chargers. They also have resources to enhance the reach of the educational/marketing campaign.
- Key contact: Kristi Foster, President/CEO

City of Yakima

- Purpose of the partnership: The City of Yakima can help identify locations for EV chargers. They also have resources to enhance the reach of the educational/marketing campaign.
- Key contact: Patricia Byers, Mayor

City of Union Gap

- Purpose of the partnership: The City of Yakima can help identify locations for EV chargers. They also have resources to enhance the reach of the educational/marketing campaign.
- Key contact: John Hodkinson, Mayor

Yakima Valley College - Environmental Club

- Purpose of the partnership: The Environmental Club can provide resources to enhance the reach of the educational/marketing campaign. The office could also provide student interns to assist with project elements.
- Key contacts: Dan Shapiro and Suki Smaglik

Downtown Association of Yakima

- Purpose of the partnership: The Downtown Association can help identify locations for EV chargers. They also have resources to enhance the reach of the educational/marketing campaign.
- Key contact: Curt Wilson, Executive Director

WA Dept. of Ecology - Central Regional Office

- Purpose of the partnership: The Department of Ecology can provide resources to enhance the reach of the educational/marketing campaign. The office could also provide expertise with all of the project elements.
- Key contact: Will Strand, Section Manager

Yakima Citizens Climate Lobby

- Purpose of the partnership: This partnership aims to build local engagement and awareness. Together, we will share updates, coordinate events, and explore opportunities to create visible, locally supported solutions that advance air quality efforts.
- Key contact: Dr. Sara Cate, Yakima Chapter Director

350 Yakima Climate Action

- Purpose of the partnership: This partnership aims to build local engagement and awareness. Together, we will share updates, coordinate events, and explore opportunities to create visible, locally supported solutions that advance air quality efforts.
- Key contact: Coleen Anderson, Founder

Poder Latinx, Environmental Justice Section

- Purpose of the partnership: This partnership seeks to engage and empower Latinx communities in Yakima to participate with air quality efforts. We will collaborate on outreach, education, and advocacy to promote renewable energy, reduce pollution, and expand equitable access to clean energy solutions. This partnership aims to represent local needs, ensuring that underserved communities benefit from clean energy investments and air quality improvements.
- Key contact: Lucero Mendez, Environmental Organizer

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Cleaner Heat, Healthier Homes: A Wood Stove Transition Strategy

Breathe Easy, Yakima



Prepared by **Community System Solutions**

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Cleaner Heat, Healthier Homes: A Wood Stove Transition Strategy Breathe Easy, Yakima Table of Contents

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Breathe Easy, Yakima is funded by the Washington Department of Ecology, supported with funding from Washington’s Climate Commitment Act (CCA). The CCA supports Washington’s climate action efforts by putting cap-and-invest dollars to work reducing climate pollution, creating jobs, and improving public health. Information about the CCA is available at www.climate.wa.gov

Cleaner Heat, Healthier Homes: A Wood Stove Transition Strategy

BREATHE EASY, YAKIMA

Providing Solutions to Reduce Criteria Air Pollutants and Improve Community Health by Replacing Residential Wood Stoves in East Yakima, Washington.

Location: East Yakima, Washington and Union Gap, Washington

Overview

Program Goal: Cleaner Heat, Healthier Homes is a targeted initiative designed to improve air quality, protect public health, advance environmental justice, and accelerate decarbonization across high-impact communities. Through coordinated outreach, technical assistance, and financial support from multiple sources, the program will replace outdated, high-emission wood-burning stoves with cleaner, safer, and more efficient alternatives, prioritizing households in historically excluded and marginalized communities. This strategy advances environmental justice by addressing the disproportionate environmental and health impacts faced by overburdened communities, ensuring equitable solutions for all.



Figure 1. Example of new EPA-certified wood stove that meets federal emission standards and improves heating efficiency.

The program's primary objective is to reduce emissions of fine particulate matter 2.5 (PM_{2.5}), carbon monoxide, black carbon, and greenhouse gas emissions resulting from the use of outdated, uncertified wood-burning appliances. These pollutants are major contributors to regional wintertime inversions and poor air quality.

By facilitating the transition to EPA-certified wood stoves (shown in Figure 1, left), pellet stoves, electric heat pumps, and other clean alternatives, the program will achieve measurable emissions reductions consistent with Washington State's climate emission targets.

Problem: In East Yakima and Union Gap, residential wood smoke is a leading contributor to wintertime PM_{2.5} exceedances. Older, non-certified wood-burning stoves

emit harmful pollutants such as fine particulate matter (PM_{2.5}), carbon monoxide (CO), and volatile organic compounds (VOCs). These emissions can degrade both indoor and ambient air quality, increasing the risk of respiratory and cardiovascular health issues.

As detailed in the Incorporation of Community Input section below, community members consistently identified poor air quality as a top concern during listening sessions and surveys. Figure 1 shows the distribution of community-reported poor air quality, with denser clusters highlighted in yellow and sparser reports in purple.

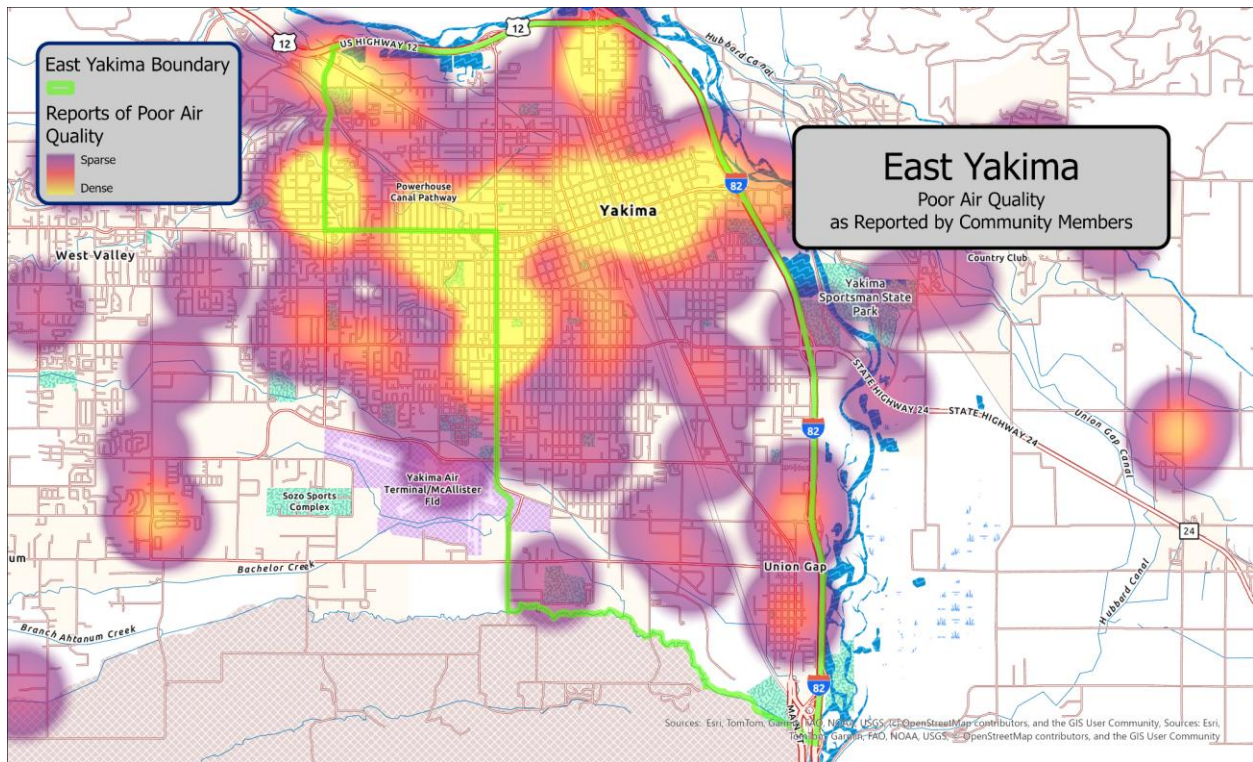


Figure 2. East Yakima | Poor Air Quality Reported by Community Members. Map created by Community System Solutions - 2025. A dynamic version of this map is available at <https://arcg.is/1b1G5O1>

Solution: Replacing outdated stoves with EPA-certified wood stoves, pellet stoves, or electric heating systems can significantly reduce emissions and improve air quality. These upgrades are especially impactful in communities where wood burning is a primary source of home heating.

As shown in Figure 2, many census tracts in East Yakima rely heavily on wood home heating, underscoring the need for targeted replacement and outreach efforts. Building on lessons from previous local change-out programs, this strategy expands those efforts by integrating community-led engagement, modern incentives, and new education and training components to ensure long-term success and equitable access.

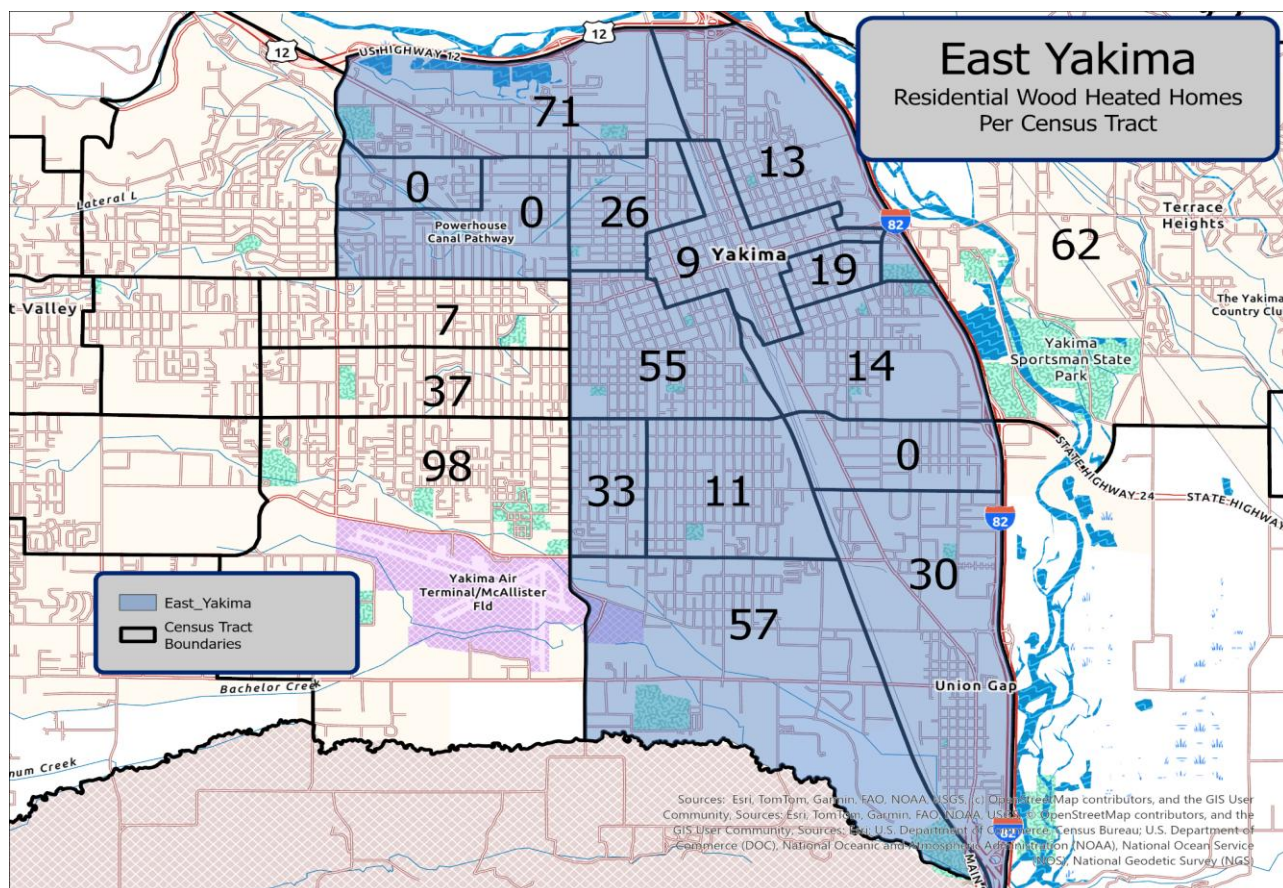


Figure 3. East Yakima | Residential Wood Heated Homes Per Census Tract. Map created by Community System Solutions - 2025. A dynamic version of this map is available at <https://arcg.is/1b1G5O1>

Key Project Components

This strategy combines technical solutions with inclusive community engagements to ensure that cleaner heating systems reach those who need them most. The following components outline how the program will be implemented:

- Community Education and Engagement:** Outreach will focus on inclusive participation through community listening sessions, collaborations with local nonprofits, and transparent communication tools such as ArcGIS Hubs. Public engagement will be held at wheelchair accessible venues, include bilingual (English and Spanish) materials, interpreters at meetings, and hybrid in-person and virtual options to remove participation barriers.
- Financial Incentives:** Rebates or vouchers will help offset the cost of replacing uncertified stoves, with priority given to low-income, medically vulnerable, and historically overburdened communities. Landlords participating in upgrade for rental properties will also be eligible.
- Professional Installation and Training:** Certified installers will ensure that replacement systems are properly installed and compliant with safety standards

Each installation will include hands-on user training for safe and efficient operation. Installers will also complete specialized instruction on installation and maintenance best practices, ensuring consistent quality across all installations.

- **Chimney Replacement (if applicable):** Where structural issues are identified, chimney replacements or repairs will be included to ensure safety and optimal performance of new heating systems.
- **Safe Disposal of Outdated Stoves:** All replaced wood stoves will be safely decommissioned and rendered inoperable to prevent resale or reuse, in accordance with Ecology and local air quality regulations.

Criteria Air Pollution Reductions

Criteria Air Pollutants to Be Reduced

This project targets reductions in the following criteria air pollutants emitted by uncertified residential wood-burning stoves, all of which are regulated under the Clean Air Act and targeted by the Washington Department of Ecology. These include:

- Particulate Matter (PM_{2.5} and PM₁₀) – the primary pollutant driving wintertime air quality exceedances in East Yakima and Union Gap.
- Carbon Monoxide (CO) – produced from incomplete combustion in outdated stoves, contributing to poor indoor and outdoor air quality.
- Nitrogen Dioxide (NO₂) – emitted during wood combustion and linked to respiratory irritation and the formation of ground-level ozone.
- Ozone (O₃) – indirectly reduced through the decrease in volatile organic compounds (VOCs) that contribute to its formation.

Methods for Reducing Criteria Air Pollutants

Cleaner Heat, Healthier Homes will facilitate the voluntary removal and replacement of uncertified, high-emission wood stoves, shown in Figure 4, with cleaner alternatives.

Each replacement directly lowers emissions from residential heating sources.

- EPA-Certified stoves emit up to 90% fewer particulates than uncertified models.
- Electric or gas systems virtually eliminate wood smoke emissions entirely.



Figure 4. Example of an uncertified, outdated wood stove.

To achieve these reductions, the program will:

- Provide financial incentives (historically ranging from \$350–\$1,500 per household, now increased under this strategy to \$1,500–\$3,000 for homeowners, and \$2,000–\$3,000 for landlords) to replace uncertified wood stoves with EPA-certified wood or pellet stoves, ductless mini-split heat pumps or natural gas appliances.
- Prioritize participation from low-income, medically vulnerable, and historically overburdened residents in.
- Ensure all removed stoves are decommissioned and rendered inoperable, preventing resale or reinstallation.

Estimated Impacts

This project is expected to yield significant health and environmental, and economic benefits, including:

- Reduction of fine particle pollution (PM_{2.5}), improves both indoor and outdoor air quality, reducing wintertime exceedances.
- Health co-benefits:
 - Fewer asthma attacks and respiratory flare-ups
 - Reduced cardiovascular stress
 - Lower exposure to air toxics like formaldehyde and benzene
 - Fewer hospital and emergency room visits during winter inversion events
- Improved energy efficiency and long-term cost savings for residents using new heating systems. This is especially true for homes transitioning to electric or air source heat pumps, as natural gas rates continue to rise under carbon pricing.
- Enhanced indoor air quality, particularly for homes near neighbors who still rely on wood heat.

As shown in Figure 5, EPA certified stoves emit far fewer particulates than uncertified models, demonstrating the potential for significant air-quality improvements through replacement programs. Although exact reductions vary by community, statewide data show that similar change-out programs have reduced PM_{2.5} emissions by up to 77 tons per year, based on projected stove lifespans. Thousands of households across Washington have already benefited from this program model. (Source: [Ecology Blog – April 19, 2024](#))

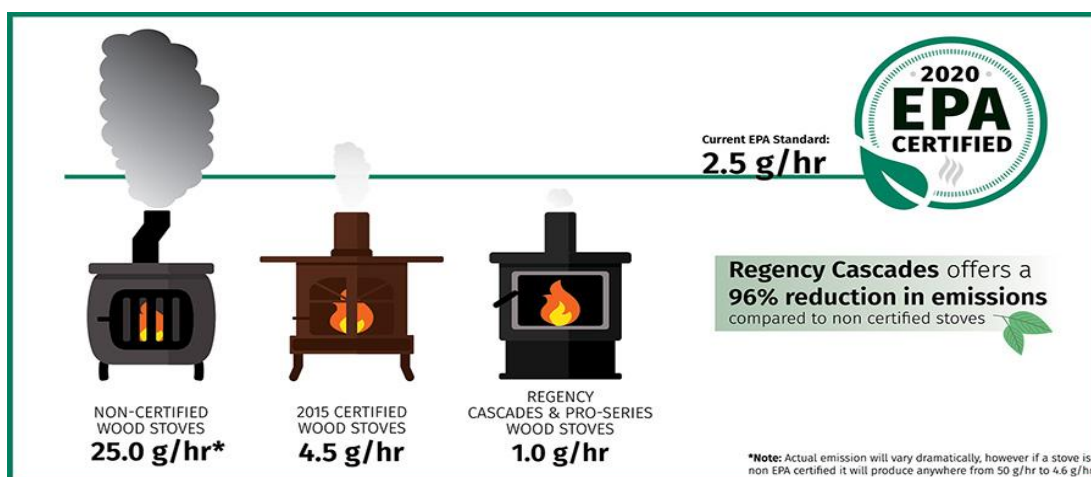


Figure 5. EPA-certified versus uncertified wood stoves: comparison of emissions and performance.

Impact vs Cost: High impact / Moderate cost

Impact: Replacing uncertified wood stoves with clean heating systems offers one of the highest health and air quality returns relative to program cost. The project directly reduces PM_{2.5}, CO, and VOCs, pollutants strongly associated with respiratory illness, asthma and cardiovascular disease. Residents will experience cleaner indoor air, improved neighborhood air quality, and reduced hospital visits during winter inversion events.

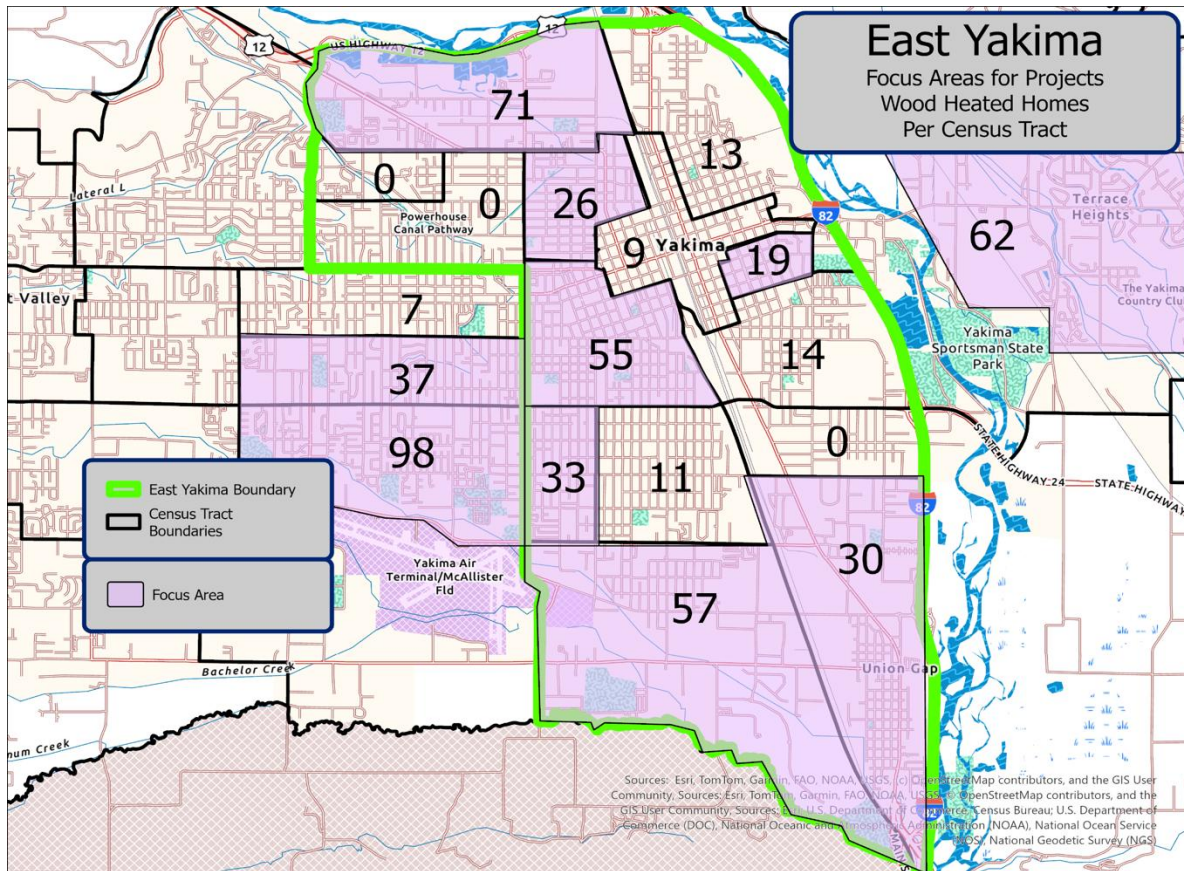
These benefits extend beyond public health. Replacing outdated wood stoves increases home safety, improves heating efficiency, and reduces long-term energy costs, especially for those transitioning to modern systems like heat pumps or EPA-certified pellet stoves. The strategy also builds local workforce capacity by employing trained installers and strengthening partnerships with regional stove retailers.

Cost: The cost per household is moderate, depending on the chosen replacement system. Typical incentives range from \$1,500-\$3,000 for homeowners and \$2,000-\$3,000 for landlords who replace uncertified wood stoves in rental units. Additional funding may be layered from state and utility incentive programs for electric heat pump installations.

Program-wide, investments in clean heat technologies yield lasting returns through lower medical costs, reduced fuel consumption, and decreased emissions over each stove's lifespan, providing measurable economic and environmental value to the East Yakima and Union Gap communities.

Geographic Area of Air Quality Impact

The target areas for this strategy are the overburdened communities of East Yakima and Union Gap, identified by the Washington State Department of Ecology as regions



facing disproportionate air-pollution burdens and vulnerable populations.

Figure 6 illustrates the priority project zones, highlighting census tracts with high concentrations of wood-heated homes and elevated community-reported air-quality concerns. These areas will guide outreach, incentive distribution, and stove replacement efforts to maximize emission reductions and ensure equitable benefits.

Figure 6. East Yakima | Focus Areas for Projects | Wood Heated Homes Per Census Tract. Highlighted areas represent priority zones for program implementation. Map created by Community System Solutions - 2025. A dynamic version of this map is available at <https://arcg.is/1b1G5O1>

Incorporation of Community Input

This strategy is built on direct community feedback gathered through listening sessions, school-based outreach, tabling and canvassing, and citywide surveys. Engagement efforts prioritized accessibility by offering wheelchair-accessible venues and simultaneous Zoom participation for those unable to attend in person. All materials and presentations were available in both English and Spanish, with interpreters at every event to ensure full inclusion.

Community System Solutions used a combination of outreach methods to collect meaningful, locally informed data about air quality in East Yakima. Two community surveys were conducted to understand both perceptions and potential solutions. The first survey, completed by 67 respondents, explored how residents view local air quality, which pollution sources they find most concerning, and who in the community is being affected. The second survey, with 21 participants, focused on residents' awareness of and support for proposed air quality improvement projects, while also gathering additional insights on housing and health factors.

At community meetings held in East Yakima and Union Gap, residents consistently identified residential home heating, specifically wood stove smoke, as a significant air-quality concern, allocating 5.3% of their mock project funds to this issue. Survey data reinforced this finding, with 28% of respondents naming residential heating among their top air-quality priorities and 17.9% indicating that winter—when wood stoves are heavily used—is the season with the poorest air quality, second only to wildfire season.

The second survey showed strong public support for wood stove replacement projects, with 80.9% of respondents in favor. Community members repeatedly raised the topic during meetings, expressing both awareness of the health impacts and the need for broader education and financial incentives. One resident shared that, despite owning a pellet stove, her mother continues to use a traditional wood stove out of habit—highlighting the cultural factors that must be addressed alongside financial barriers.

The replacement of wood stoves is also included in Yakima Regional Clean Air Agency (YRCCA): Wood Stove Change-Out Program, last updated in 2024. Funded through state grants, that program provides financial assistance to homeowners replacing older devices with more efficient, low-emission alternatives. This is supported in the Washington State Department of Ecology's 2023 report, "Improving Air Quality in Overburdened Communities Highly Impacted by Air Pollution", which identifies East Yakima as having elevated wintertime PM_{2.5} levels due to outdated wood stove usage.

Execution Plan

Wood stoves remain one of the most affordable heating options in Yakima County. Replacing them will require a coordinated education campaign, robust financial incentives, and strategic partnerships. This strategy builds on past program successes while incorporating new community-driven recommendations.

- **Community Education and Engagement**

- Host community listening sessions and neighborhood walks to identify areas of need and interest.
- Ensure Spanish-language access and culturally responsive engagement to meaningfully include the community.
- Partner with local schools at all levels, including Yakima Valley College and environmental club, for student-led research, hands-on learning, and stewardship projects connected to the strategy.
- **Incentives:**
 - Incentive vouchers for certified wood stoves for Yakima programs have traditionally been in the \$500-\$1,500 range, with higher amounts for switching to non-wood heating (e.g., mini-split heat pumps). Landlords previously qualified for \$2,000 incentives to change out wood stoves in rentals.
 - This strategy recommends increasing the incentives to reflect current equipment costs: \$1,500-\$3,000 for homeowners and \$2,000-\$3,000 for landlords.
 - Incentives may be combined with state or utility programs offering additional rebates for efficient electric systems such as ductless mini-split heat pumps.
- **Eligibility:**
 - Low-income households
 - Landlords
 - Homes burning one cord or more of wood per heating season
 - Devices used for primary heat and professionally replaced
 - The outdated stove must be functional and surrendered at replacement
- **Stove Types:**
 - Certified wood, pellet, or catalytic/non-catalytic stoves that meet EPA emission standards
 - Uncertified woodstoves cannot be sold, installed, or relocated and must be rendered inoperable if removed.
 - Local retailers will partner with the program to provide certified stoves and participate in incentive coordination.
- **Professional installation**
 - Partner with local certified installers.
 - Provide homeowner training on safe and efficient stove operation.
 - Develop installer training modules covering installation, maintenance and user education requirements.
 - Ensure safe disposal and destruction of all outdated stoves.
- **Priority Groups:**

- Low-income residents, individuals with health conditions, seniors (65+), and households with children under 6.
- **Process:**
 - Applicants submit photos of their existing stoves with program applications.
 - A participating vendor conducts the replacement and installation.

- **Outreach and Education Campaign**

The education and outreach program should ensure solutions reflect local lived experience, environmental justice goals, and community-driven priorities.

Education on clean-burning practices—like proper wood drying and storage—is essential to ensure that even the most advanced, certified wood-burning devices operate efficiently and cleanly. When users understand and apply these practices, they can significantly reduce harmful smoke emissions and improve air quality for their communities.

- Launch social media outreach with regular posts, videos, partnerships with local groups to extend the program's reach.
- Emphasize key educational points:
 - Save Money: Certified stoves heat more efficiently, burning less wood and reducing fuel costs.
 - Improve Health
 - Uncertified wood stoves pollute more, use 30- 60% more fuel, and require more frequent chimney cleaning.
 - Breathing wood smoke during high pollution days can be as harmful as chronic exposure to secondhand cigarette smoke.
 - Wood smoke can:
 1. Reduce lung functionality, especially in children
 2. Worsen conditions such as asthma, emphysema, pneumonia and bronchitis.
 3. Exacerbate heart disease.
 4. Cause irritation of the eyes, lungs, throat, and sinuses; trigger headaches and allergies
 - Long-term exposure may lead to: Chronic bronchitis, COPD, increased cancer risk, and even genetic mutations (based on animal studies).
 - Infants and young children are especially at risk; wood smoke exposure can impair lung development and increase susceptibility to respiratory infections, a leading cause of early childhood illness and mortality.

(Source: Washington State Department of Ecology.)

Budget

25-30 Clean Heat Replacements

Activities Performed	Budget
Program launch and outreach- Staff time	\$ 5,000
Education Campaign	\$ 5,000
Initial applicant intake - Staff time	\$ 5,000
Stove inspections and verifications	\$ 5,000
Installer coordination	\$ 5,000
Rebates	\$ 50,000
New Stoves installation	\$ 10,000
Destruction of outdated stoves	\$ 10,000
PM _{2.5} impact tracking and reporting	\$ 5,000
TOTAL	\$ 100,000

Timeline

Months	Milestones/Events
M1-M36:	Community Education and Engagement
	Host community listening sessions and neighborhood walks to identify areas of need and interest.
	Offer all outreach materials and campaign resources in English and Spanish, with interpreters available for events.
	Engagement efforts offer wheelchair-accessible venues and simultaneous Zoom options for inclusive participation.
	Partner with local schools, including Yakima Valley College and environmental club, for student-led research and education projects.
M1-M3:	Create Digital Tools
	Launch an ArcGIS Hub platform dedicated to the Wood Stove Replacement Strategy.
	Use interactive maps, surveys and event calendars to share community feedback.
	Highlight stories from community members and showcase project impacts.
M1-M2:	Partnership Development
	Confirm partnerships with local stove retailers and certified installers.
	Coordinate with vendors to determine stove availability and installation timelines.
M3-M5:	Program Launch

	Begin outreach and education on air-quality risks from outdated wood stoves.
	Open the application process for interested residents.
	Complete initial installations of certified stoves and share success stories to encourage participation.
M6-M24:	Ongoing Implementation
	Continue outreach and applicant support.
	Verify installations and issue rebates once replacements are complete.
	Maintain coordination with installers and inspectors to ensure quality and compliance.
M25–M36:	Program Completion and Reporting
	Conduct final installations and confirm destruction of surrendered stoves
	Measure PM2.5 reductions and prepare a final air-quality impact report.
	Share results with the community and partners to highlight program benefits.

Project Partners

Yakima Health District Board of Health, Environmental Health

- Purpose of the Partnership: Expand the reach of educational and marketing campaigns.
- Key contact: Jocelyn Castillo, Public Health Tech

Yakima Regional Clean Air Agency

- Purpose of the partnership: Provide technical expertise and outreach support.
- Key contact: Marc Thornsbury, Executive Director

Washington Department of Ecology - Central Regional Office

- Purpose of the partnership: Provide programmatic oversight, technical guidance, and educational resources.
- Key contact: Will Strand, Section Manager

Yakima County, Yakima Health District

- Purpose of the partnership: Support outreach and engagement efforts.
- Key contact: Andre Fresco, Executive Director

Wood Stove Replacement Retailers – Various

- Purpose of the partnership: Supply replacement equipment, provide installation, and train residents on use.
- Key contacts: Wood Stove Retailers

Yakima Citizens Climate Lobby

- Purpose of the partnership: Build local engagement and awareness through coordinated outreach to create visible, locally supported solutions that advance air quality efforts.
- Key contact: Dr. Sara Cate, Yakima Chapter Director

350 Yakima Climate Action

- Purpose of the partnership: Partner on events and communication to promote local air-quality improvements
- Key contact: Coleen Anderson, Founder

Poder Latinx, Environmental Justice Section

- Purpose of the partnership: Engage and empower Latinx communities in Yakima to participate with air quality efforts. We will collaborate on outreach, education, and advocacy to promote renewable energy, reduce pollution, and expand equitable access to clean energy solutions. This partnership aims to represent local needs, ensuring that underserved communities benefit from clean energy investments and air quality improvements.
- Key contact: Lucero Mendez, Environmental Organizer

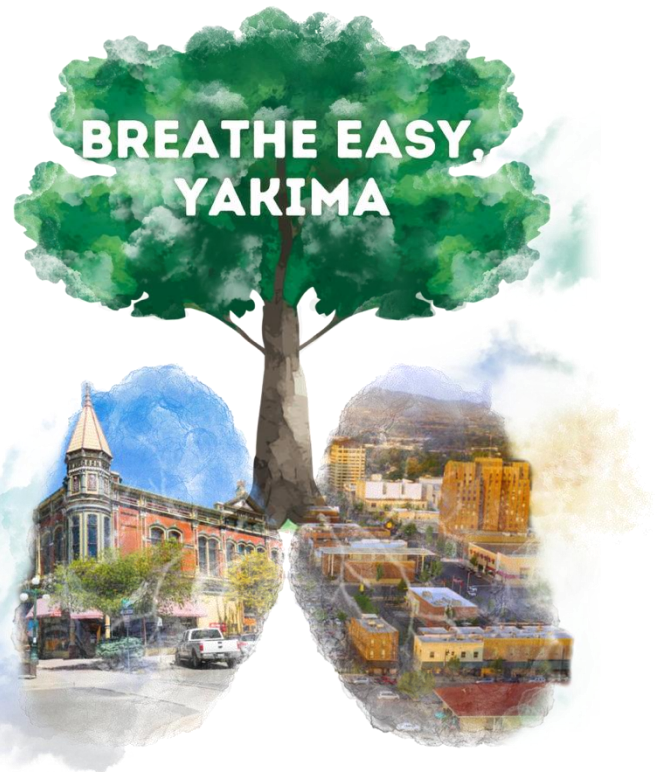
Yakima Valley College - Environmental Club

- Purpose of the partnership: Provide student volunteers and expand educational outreach.
- Key contacts: Dan Shapiro and Suki Smaglik

The partner network will be expanded throughout implementation to strengthen outreach and impact.

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Rooted in Community: An Urban Forest Strategy

Breathe Easy, Yakima



Prepared by **Community System Solutions**

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Rooted in Community: An Urban Forest Strategy

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Rooted in Community: An Urban Forest Strategy

BREATHE EASY, YAKIMA

Providing Solutions to Reduce Criteria Air Pollutants and Improve Community Health through Tree Planting

Location: East Yakima, Washington and Union Gap, Washington

Overview

Program Goal: Rooted in Community: An Urban Forest Strategy seeks to reduce Criteria Air Pollutants and improve public health by increasing tree canopy in underserved neighborhoods most impacted by pollution and extreme heat. This strategy combines community-driven input with environmental data to target priority areas for new urban mini-forests. This strategy advances environmental justice by addressing the disproportionate environmental and health impacts faced by overburdened communities, ensuring equitable solutions for all.

Problem: The urban areas of East Yakima and Union Gap suffer poor air quality from criteria air pollutants such as particulate matter (PM_{2.5} and PM₁₀). As detailed in the Incorporation of Community Input section below, community members consistently identified poor air quality as a top concern during listening sessions and surveys. Figure 1 shows the distribution of community-reported poor air quality, with denser clusters highlighted in yellow and sparser reports in purple. These reporting patterns align with documented canopy deficits in the region.

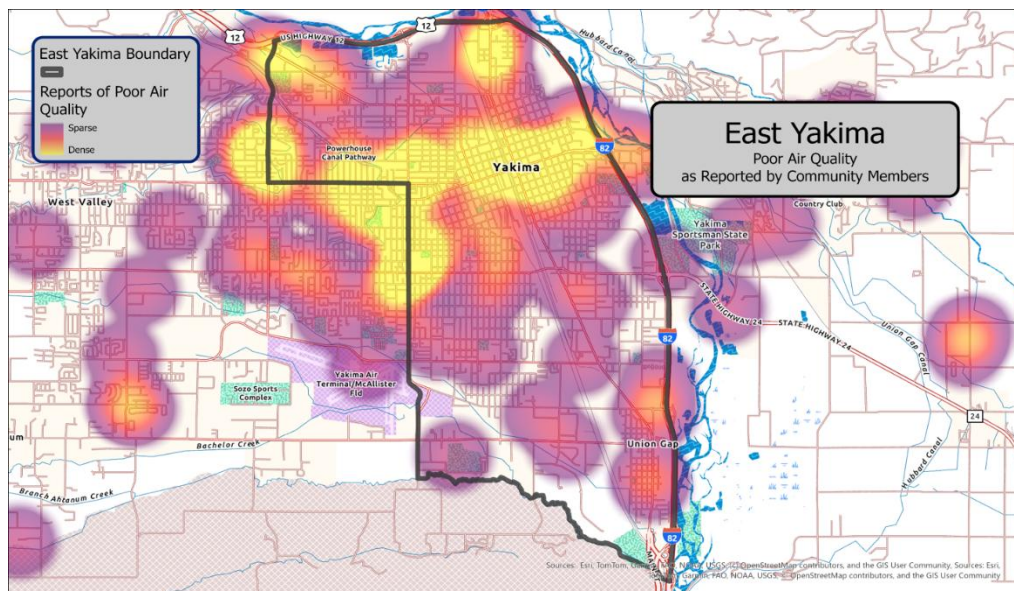


Figure 1. East Yakima | Poor Air Quality Reported by Community Members. Map created by Community System Solutions - 2025. A dynamic version of this map is available at <https://arcg.is/1b1G5O1>

Figure 2 illustrates the limited tree canopy coverage, particularly along the Yakima Avenue corridor and south into Union Gap near Valley Mall. The overlap between clusters of community reports of poor air quality and areas of low canopy underscores where environmental conditions most negatively affect residents.

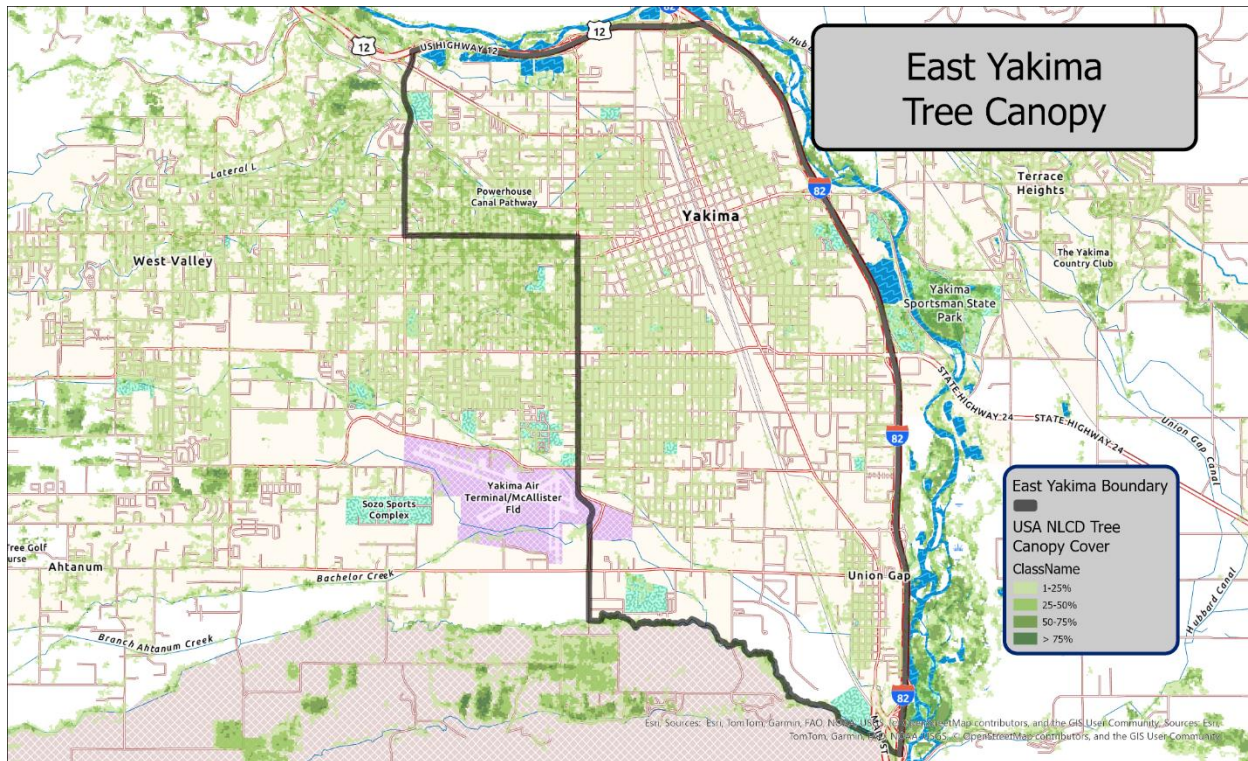


Figure 2. East Yakima | Tree Canopy. Canopy deficit along the Yakima Avenue corridor and south to Union Gap, near Valley Mall. Sourced from the U.S. National Land Cover Database - 2025. A dynamic version of this map is available at <https://arcg.is/1b1G5O1>

Solution: The strategy directly responds to these conditions by establishing dense, biodiverse, and climate-resilient urban mini-forests using the Miyawaki Method, complemented by broader tree planting across parks, schoolyards, vacant lots, and rights-of-way. Tree selection will prioritize native and low-pollen species to maximize air quality benefits while avoiding contributions to PM₁₀ emissions.

As shown below in Figure 3, the Miyawaki Method produces rapid canopy growth within just a few years, far outpacing conventional tree-planting approaches. This accelerated growth delivers measurable benefits more quickly, including reduced particulate pollution, mitigated extreme heat, and natural air filtration in the neighborhoods most impacted by poor air quality.



Figure 3. Demonstration of the Miyawaki Method: the same site at planting (left) and after two years of growth (right).

By prioritizing community-identified areas of concern, the strategy delivers targeted benefits: cleaner air, improved health outcomes, stronger neighborhood resilience, equitable access to green space, and restoration of ecological balance in urban areas.

Beyond these direct impacts, the project will also bring broader co-benefits including improved mental and physical health, increased biodiversity, and stronger connections between residents and their environment. With clear timelines, measurable goals, and dedicated community input, urban mini-forests provide a scalable, equitable solution for building climate resilience and cleaner air across East Yakima and Washington

Criteria Air Pollution Reductions

Criteria Air Pollutants to Be Reduced

The strategy targets reduction in the following criteria air pollutants:

- Particulate Matter (PM_{2.5} and PM₁₀)
- Ozone (O₃)
- Nitrogen Dioxide (NO₂)
- Carbon Monoxide (CO)

Methods for Reducing Criteria Air Pollutants

Urban Forests will reduce pollutants through multiple pathways:

- **Natural air filtration:** Trees trap particulate matter and absorb gaseous pollutants such as nitrogen dioxide and ozone.
- **Cooling urban heat islands:** Trees provide shade and evapotranspiration, lowering surface and air temperatures, which reduces energy demand and related emissions.

Estimated Impacts

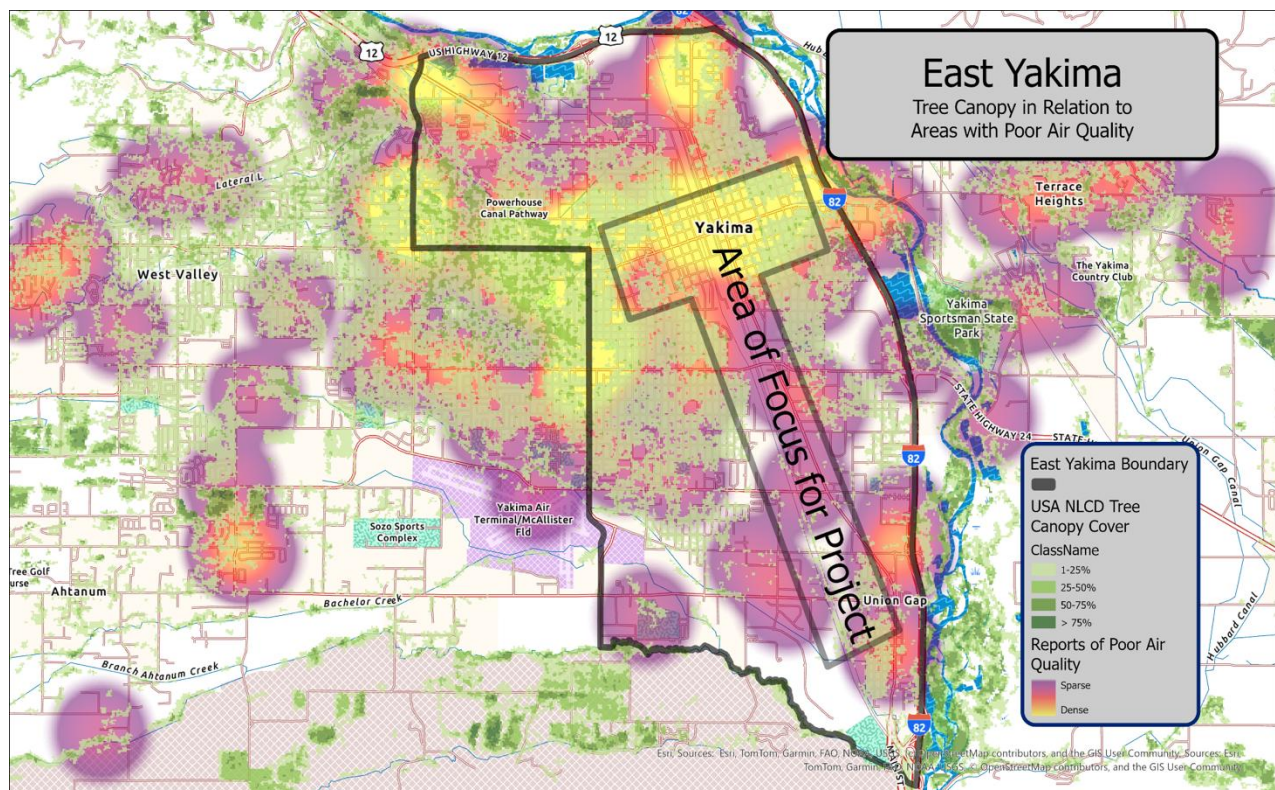
While precise reductions will be measured through ongoing monitoring, anticipated health and community Impacts include:

- Improved respiratory health, particularly for children, seniors, individuals with asthma, and other vulnerable groups.
- Reduced emergency room visits during wildfire smoke events and extreme heat.
- Enhanced mental health and well-being from increased access to green space.
- Co-benefits such as reduced stormwater runoff, increased biodiversity, and hands-on environmental educational opportunities,
- Carbon sequestration: Dense plantings of young trees capture and store carbon dioxide, improving overall air quality.

Geographic Area of Air Quality Impact

The strategy will focus on East Yakima and Union Gap neighborhoods where community reports of poor air quality overlap with areas of limited tree canopy.

Figure 4. East Yakima | Tree Canopy in Relation to Areas with Poor Air Quality. Overlay of community-reported poor air quality (Figure 1) and tree canopy coverage (Figure 2), highlighting priority project zones in East Yakima and Union Gap. Map created by Community System Solutions – 2025. A dynamic version of this map is available at <https://arcg.is/1b1G5O1>



As previously shown above, in Figures 1 and 2, residents identified hotspots of concern that correspond closely with canopy deficits, particularly along the Yakima Avenue corridor and extending south toward Union Gap near Valley Mall. Figure 4 provides an overlay of these

two data sets, combining community-reported air quality concerns with mapped canopy coverage to highlight priority zones for intervention.

These areas will be the focus of urban mini-forest plantings and broader canopy expansion to deliver the greatest health, equity, and environmental benefits.

Incorporation of Community Input

Community feedback directly shaped the selection of this strategy. Through listening sessions, school-based outreach, canvassing, and city surveys, residents described being affected by poor air quality. They highlighted the lack of tree canopy in their neighborhoods as a contributing factor and expressed support for mini-forests as a strategy to improve local conditions.

Engagement prioritized accessibility and inclusion. All outreach materials and presentations were prepared in both English and Spanish, with interpreters present at each event to ensure full inclusion for Spanish-speaking community members. Public meetings were held in wheelchair accessible venues and offered simultaneous Zoom options to support residents with mobility or transportation challenges.

Community System Solutions used a combination of outreach methods to collect meaningful, locally informed data about air quality in East Yakima. Two community surveys were conducted to understand both perceptions and potential solutions. The first survey, completed by 67 respondents, explored how residents view local air quality, which pollution sources they find most concerning, and who in the community is being affected. The second survey, with 21 participants, focused on residents' awareness of and support for proposed air quality improvement projects, while also gathering additional insights on housing and health factors.

At Eisenhower High School in Yakima, participants pointed to the mini-forest at the Yakama Nation Corrections & Rehabilitation Facility, developed by The SUGi Project, as a model that could be replicated locally. At Martin Luther King Jr. Elementary in Union Gap, residents called for similar projects within the city. Across meetings, residents emphasized the urgent need for more trees in areas where extreme heat and poor air quality are most common.

Survey results reinforced these findings:

- 68% of respondents reported experiencing health impacts from air pollution.
- 61.2% of respondents rated their air quality as *moderate*, while 9% rated it as *bad* or *very bad*.
- Only 8% lived in tree-rich rural areas, the majority lacked the natural air-filtration and cooling benefits provided by trees.

These results confirm that most residents experience health impacts from poor air quality and lack the protective benefits of tree canopy, making urban forestry a clear community priority.

Community input guided the selection of urban mini-forests as a near-term strategy, with planting designed around low-pollen species in the neighborhoods most affected. To ensure maximum health benefits, planting will emphasize low-pollen species in neighborhoods residents identified as most affected by poor air quality.

Rooted in Community: An Urban Forest Strategy supports and aligns with the City of Yakima's 2023 Climate Action Plan, specifically Strategy 1: increase tree canopy and climate-adapted plant landscapes, and Strategy 2: utilize city-owned properties to increase canopy for carbon sequestration. By advancing these goals, the strategy reinforces existing city commitments while delivering community-driven air quality and health benefits.

Execution Plan

The execution plan for Rooted in Community: An Urban Forest Strategy is built around eight core components designed to ensure successful implementation, strong community ownership, and long-term sustainability.

1. Community Education and Engagement

- Host community listening sessions and neighborhood walks to identify areas of need and interest.
- Ensure Spanish-language access and culturally responsive engagement to meaningfully include the community.
- Partner with local schools at all levels, including Yakima Valley College for student-led research, hands-on learning, and stewardship.
- Use public forums, community centers, and neighborhood groups to gather input on mini-forest design and location.
- Ensure projects are community-planted, publicly accessible, and reflect cultural and ecological knowledge, including Native perspectives on land stewardship.
- Align educational events and plantings with Earth Day, Arbor Day, and seasonal festivals to build awareness and encourage participation.
- Partner with nonprofits and local leaders whose work aligns with community and environmental priorities.

2. Create Digital Tools

- Launch an ArcGIS Hub platform (an online mapping and engagement tool) dedicated to the strategy.
- Use interactive maps to show planting sites, progress, and canopy coverage.
- Include embedded surveys, event calendars, volunteer sign-ups, and feedback tools ensuring that community directly shapes the work.

- Share community stories and incorporate Indigenous land knowledge and planting traditions.

3. Work with Property Owners and Stakeholders

- Prioritize city- or public-owned parcels such as parks, vacant lots, landfills, school grounds,
- Identify small sites suitable for mini-forests (as little as 3 square meters).
- Collaborate with private landowners, churches, corporate campuses, industrial sites, and local businesses willing to host or co-sponsor mini-forest sites.
- Explore partnerships with the Yakama Nation, conservation groups, and local land trusts for culturally aligned planting zones.

4. Coordinate with the City on Permits and Collaboration

- Work closely with City departments (Parks, Public Works, Planning) to identify sites and navigate permitting.
- Establish a clear process for reviewing city-owned land and coordinating maintenance.
- Align with city plans, including the Climate Action Plan and Parks Master Plan to ensure long-term support and integration.
- Maintain ongoing communication with city staff to build long-term partnerships.

5. Secure Funding and Resources

- Apply for government and other funding focused on climate resilience, green infrastructure, community health, and environmental promotion.
- Partner with schools, Chamber of Commerce, Rotary and Odd Fellows clubs, nonprofits, tribal organizations, and youth corps to mobilize labor and expertise.
- Provide small stipends for local volunteers and youth leaders to support equitable participation.
- Seek in-kind donations of tools, mulch, compost, and tree fencing materials.

6. Design the Urban Forest Plots

- Apply the Miyawaki Method, shown in Figure 5, for high-density, native-species, layered planting.
- Prioritize low-pollen trees to maximize health benefits and avoid contributing to PM₁₀ emissions.
- Incorporate SUGi forest principles emphasizing cultural connection and ceremonial planting.
- Engage ecologists, indigenous plant knowledge keepers, and youth in the site-design process.
- Ensure soil preparation, mulch layering, and site protection are in place prior to planting.

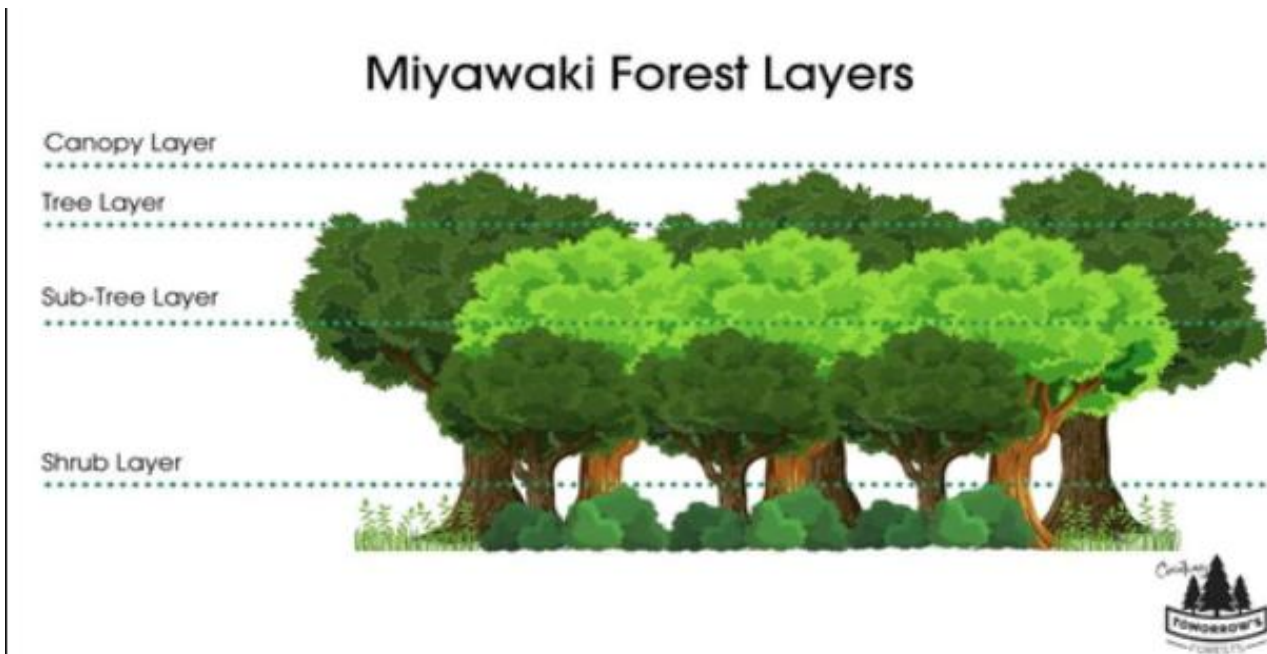


Figure 5. Diagram of Miyawaki Forest layers showing canopy, tree, sub-tree, and shrub levels to replicate the natural structure of a forest. This design maximizes biodiversity, encourages rapid canopy development, and creates long-term, self-sustaining ecosystems in compact urban spaces.

7. Plant the Forests

- Organize seasonal planting events tied to cultural traditions.
- Plant 3-5 native species per square meter for rapid canopy development.
- Prioritize low-pollen species to reduce PM₁₀ emissions.
- Install signage at each site to share the story, species, and partners involved.

8. Maintenance and Stewardship

- Establish a rotating stewardship calendar with neighborhood groups, school clubs, and volunteers for the first 2—3 years.
- Offer workshops on pruning, mulching, and species monitoring.
- Transition to self-sustaining forests after the establishment period.
- Use the ArcGIS Hub to track growth, identify maintenance needs, and report community benefits.

Budget

5-10 Urban Mini-Forest Projects

Item	Estimated Cost
Community Education and Engagement - Staff Time & Services	\$ 20,000
Create Digital Tools - Staff Time	\$ 5,000
Work with Property Owners and Stakeholders - Staff Time	\$ 25,000
Secure Funding and Resources - Staff Time	\$ 15,000
Coordinate with the City on Permitting and Collaboration - Staff Time	\$ 10,000
Design the Urban Forest Plots - Staff Time	\$ 20,000
Permitting and Fees	\$ 15,000
Procurement of Trees, Plants, and Soil Materials	\$ 50,000
Plant the Forests - Staff Time	\$ 10,000
Maintenance and Stewardship - Staff Time	\$ 10,000
Specialized Consulting (Ecologists, Design Experts, Cultural Advisors)	\$ 20,000
Total for 5-10 Urban Mini-Forests	\$ 200,000

Timeline

Months	Key Activities
M1–M12	Community Education and Engagement
	Hold community listening sessions and walks to identify needs and interests.
	Ensure inclusion through Spanish-language access and culturally responsive engagement.
	Prioritize accessibility with wheelchair-accessible venues and simultaneous Zoom options.
	Establish partnerships with local schools and Yakima Valley College's environmental club for student-led research, experiential learning, and planting-related stewardship projects.
	Gather input on mini-forest design and location through public forums, community centers, and neighborhood groups.

	Ensure projects are community-planted, publicly accessible, and integrate cultural and ecological knowledge, including Native land stewardship perspectives.
	Align educational events and plantings with Earth Day, Arbor Day, and seasonal festivals to increase awareness and participation.
	Partner with nonprofits and local leaders whose work aligns with community and environmental priorities in Yakima.
M1–M3	Create Digital Tools
	Launch an ArcGIS Hub platform dedicated to the Urban Forest Strategy.
	Use interactive maps to display planting sites, mini-forest progress, and tree canopy coverage.
	Embed surveys, event calendars, volunteer sign-ups, and feedback tools to enable resident participation.
	Share community stories and integrate Indigenous land knowledge, planting traditions, and cultural heritage practices where appropriate.
M4–M24	Work with Property Owners and Stakeholders
	Prioritize publicly owned parcels by reviewing parks, abandoned and vacant lots, landfills, underutilized school grounds, for potential forest sites.
	Collaborate with private landowners, churches, corporate campuses, industrial sites, and local businesses to host or co-sponsor mini-forest sites.
	Explore partnerships with the Yakama Nation, conservation groups, and local land trusts for culturally aligned planting zones.
M6–M18	Coordinate with the City on Permits and Collaboration
	Work with City departments (Parks and Recreation, Public Works, Planning) to identify planting sites and navigate permitting.
	Establish a process to review city-owned land, secure approvals, and coordinate maintenance responsibilities.
	Align projects with existing City plans, including the Yakima Climate Action Plan and Parks Master Plan, to ensure long-term support and integration.
	Maintain open communication with City staff to build strong, ongoing partnerships that support project success.
M12–M24	Secure Funding and Resources
	Apply for government and private funding focused on climate resilience, green infrastructure, community health, and environmental promotion.
	Partner with schools, Chamber of Commerce, Rotary and Odd Fellows clubs, nonprofits, tribal organizations, and youth corps to mobilize labor and expertise.

	Provide stipends to local volunteers and youth leaders to ensure equitable participation.
	Seek in-kind donations of tools, mulch, compost, and tree fencing materials.
M6–M24	Design the Urban Forest Plots
	Design plots using the Miyawaki Method: high-density, native-species-focused, and ecologically layered plantings. Prioritize low-pollen trees and plants.
	Incorporate SUGi forest principles by emphasizing long-term ecosystem function, cultural connection, and ceremonial planting when appropriate.
	Engage ecologists, Native plant knowledge keepers, and youth in site-design.
	Ensure soil preparation, mulch layering, and site protection are in place before planting.
M18–M36	Plant the Forests
	Coordinate seasonal planting events, including tree procurement and scheduling, to mobilize the community and honor local culture.
	Plant densely (3-5 native species per square meter) to replicate natural forest systems, prioritize low-pollen plants, and accelerate rapid canopy development.
	Install signage at each site to share the story, species list, and community partners.
M18–M36	Maintenance and Stewardship
	Establish a rotating stewardship calendar with neighborhood groups, school clubs, or volunteers for the first 2-3 years.
	Offer workshops on pruning, mulching, and species monitoring.
	Transition sites to self-sustaining systems after the initial maintenance period, requiring minimal intervention.
	Use the ArcGIS Hub to track growth, identify maintenance needs, and report community benefits.

Project Partners

Confirmed Project Partners

Yakima Health District Board of Health, Environmental Health

- Purpose of the Partnership: The Health District has resources to enhance the reach of the educational/marketing campaign.
- Key contact: Jocelyn Castillo, Public Health Tech

WA Dept. of Ecology - Central Regional Office

- Purpose of the partnership: The Department of Ecology can provide resources to enhance the reach of the educational/marketing campaign. The office could also provide expertise with all the project elements.
- Key contact: Will Strand, Section Manager

Yakima Valley College - Environmental Club

- Purpose of the partnership: The Environmental Club can provide resources to enhance the reach of the educational/marketing campaign. The office could also provide student interns to assist with project elements.
- Key contacts: Dan Shapiro and Suki Smaglik

American Forests

- Purpose of the partnership: Partnering as experts in Forestry and Workforce Development. Working with DNR through the *Tree Equity Collaboration*, American Forests focuses on tree equity and urban forests, with a strong emphasis on city-based work. American Forests will be able to help guide our efforts with their expertise in Urban Forestry Planning along with workforce development.
- Key Contact: Drue Epping, Director for Tree Equity in West Coast & Pacific Northwest

Natural Urban Forest

- Purpose of the partnership: Partnering as experts in forestry, and the Miyawaki Method. Natural Urban Forest focuses on urban forests, with an emphasis on community collaboration and education, food sovereignty, needs of community as stewards of the land, and forest sustainability. Led the creation of Toppenish and Ellensburg's mini-forests.
- Key contact: Ethan Bryson, Founder

Yakima Citizens Climate Lobby

- Purpose of the partnership: Partnering for outreach to the Yakima community. Air quality is a major concern for this organization. They are happy to help us in any efforts to improve air quality for Yakima and its residents.
- Key Contact: Dr. Sara Cate, Yakima Chapter Director

Poder Latinx, Environmental Justice Section

- Purpose of the partnership: This partnership seeks to engage and empower Latinx communities in Yakima to participate with air quality efforts. We will collaborate on outreach, education, and advocacy to promote renewable energy, reduce pollution, and expand equitable access to clean energy solutions. This partnership aims to represent local needs, ensuring that underserved communities benefit from clean energy investments, EV infrastructure, and air quality improvements.
- Key Contact: Lucero Mendez, Environmental Organizer

350 Yakima Climate Action

- Purpose of the partnership: This partnership aims to build local engagement and awareness. Together, we will share updates, coordinate events, and explore opportunities to create visible, locally supported solutions that advance air quality efforts.
- Key Contact: Coleen Anderson, Founder

Central Washington University, Sustainability Office

- Purpose of the partnership: The Sustainability Office can provide resources to enhance the reach of the educational/marketing campaign. The office could also provide student interns to assist with project elements
- Key contact: Jeff Bousson, Sustainability Officer

Central Washington University, Environmental and Sustainability Studies

- Purpose of the partnership: The Environmental and Sustainability Studies program can provide resources to enhance the reach of the educational/marketing campaign. The office could also provide student interns to assist with project elements
- Key contact: Susan Kaspari, Director of Environmental Studies

Prospective Project Partners

City of Yakima

- Purpose of the partnership: The City of Yakima can help identify locations for urban forest projects. They also have resources to enhance the reach of the educational/marketing campaign.
- Key contact: Patricia Byers, Mayor

City of Union Gap

- Purpose of the partnership: The City of Union Gap can help identify locations for urban forest projects. They also have resources to enhance the reach of the educational/marketing campaign.
- Key contact: John Hodkinson, Mayor

Yakama Nation

- Purpose of the partnership: The Yakama Nation can offer guidance to help shape a successful Urban Forest project and share resources that will strengthen the reach of our educational and outreach efforts. They can also collaborate with us on forest design, drawing from their experience with the Toppenish Forest project. This partnership is a vital resource for connecting with traditional Native plant knowledge keepers and ensuring site designs reflect the cultural and ecological knowledge of the area, including Native perspectives on land stewardship.
- Key contact: Gerald Lewis, Tribal Chairman

Alliance for the Common Good of Yakima

- Purpose of the partnership: The Alliance can help identify locations for urban forest projects. They also have resources to enhance the reach of the educational/marketing campaign and volunteer participation.
- Key contact: The Rev. David Hacker, President

Yakima Chamber of Commerce

- Purpose of the partnership: The Chamber can help identify locations for urban forest projects. They also have resources to enhance the reach of the educational/marketing campaign.
- Key contact: Kristi Foster, President/CEO

Yakima Friends of Toppenish Creek

- Purpose of partnership: This partnership would focus on strengthening air quality efforts through education, outreach, and collaborative action. We aim to engage FOTC members and Yakima area residents in data-informed solutions that improve air quality.
- Key Contact: Jean Mendoza, Executive Director

Downtown Association of Yakima

- Purpose of the partnership: The Downtown Association can help identify locations for urban forest projects. They also have resources to enhance the reach of the educational/marketing campaign.
- Key contact: Curt Wilson, Executive Director

Odd Fellows Yakima Lodge No. 22

- Purpose of the partnership: The Lodge has members who can help identify locations for urban forest projects. They also have resources to enhance the reach of the educational/marketing campaign.
- Key contact: Jim Boyd, Noble Grand

Comparable Community Projects

Yakama Nation Urban Healing Forest, Toppenish, WA planted October 2020 Overview

The Yakama Nation Healing Forest demonstrates how a barren space can be transformed into a thriving ecosystem, community gathering place, and source of cultural renewal. Using the Miyawaki Method, this forest was created with SUGi and head forester Ethan Bryson with a phased design and planting schedule shown in Figure 6.

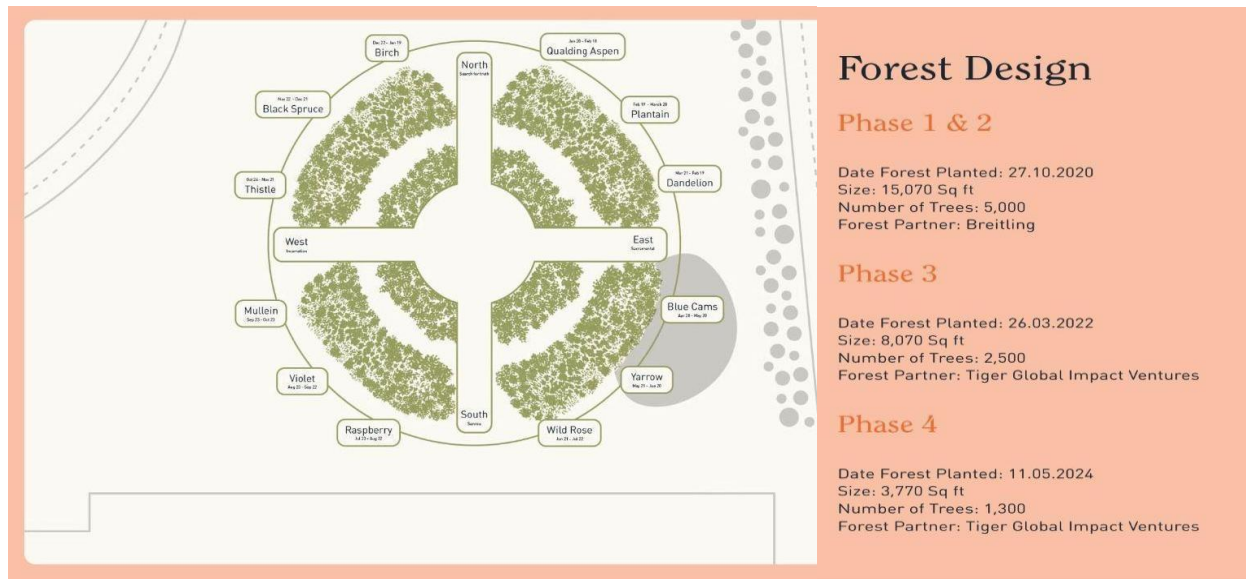


Figure 6. Yakama Nation Urban Healing Forest | Design and phased planting schedule.

Together, these illustrate how rapidly Miyawaki forests can establish and provide visible community and ecological benefits.

Figure 7. The Yakama Nation Urban Healing Forest site in Toppenish, Washington, prior to planting, October 2020.



Key Design Features

- **Forest Structure:** Up to 36 native species planted across four ecological layers
- **Native & Culturally Significant Species:** Black Cottonwood, Scouler Willow, Trembling Aspen, Wild Rose, Buffalo Berry, Native Blackberries, Huckleberry.
- **Traditional Medicinal Plants:** Stinging nettles, tree moss, huckleberry leaves, pine needle tea, yarrow—integrated to honor Indigenous healing traditions (see Figure 8 for newly planted examples).



Figure 8. Yakama Nation Healing Forest | Phase 1 & 2 planting of 5,000 trees across 15,070 sq ft., including traditional medicinal plants.

Outcomes (2024 Report)

- **Survival Rate:** 95%
- **Height Growth:** Tallest trees (cottonwoods & aspens) reach 26–30 feet. Depicted in Figures 9 and 10 below.
- **Biodiversity Return:** Forest now hosts woodpeckers, robins, magpies, quails, and other wildlife; mornings bring a “concert” of birdsong, showing how quickly nature reclaims restored spaces.
- **Community Value:** Known as the Healing Forest, it provides cultural, ecological, and emotional benefits for Yakama people and surrounding communities.



Figure 9. (Left) Yakama Nation Healing Forest | Growth after 3.5 years, shown from above.



Figure 10. (Right) Yakama Nation Healing Forest | Growth after 3.5 years, showing tallest trees reach 26-30 feet.

Lessons for Replication

- **Community Engagement:** Position the forest as a shared community resource - not only ecological but cultural and social.
- **Soil First:** Prioritize soil biota and nutrient retention as the foundation for long-term success.
- **Layered Diversity:** Plant across multiple canopy layers to create resilience and accelerate growth.

- **Cultural Integration:** Include plants with traditional, medicinal, or cultural value.
- **Measure & Share:** Track survival rates, growth, and biodiversity to build evidence for replication.

Ida Nason Aronica Forest, Ellensburg, WA. planted October 2023

Overview

The Ida Nason Aronica Forest was planted in October 2023 as a community-driven effort to create a “living classroom” for students and the broader community. Designed using the Miyawaki Method, shown in Figure 10, the dense forest serves as both an ecological restoration project and an educational space. Students engage with nature directly, learning science, cultural history, and social-emotional skills while fostering a deeper sense of environmental stewardship.



Figure 11. The Miyawaki Method uses dense, layered planting to create a biodiverse urban mini-forest that quickly develops a resilient canopy.

The forest’s design reflects the school’s architectural themes of natural light, circular pathways, and the four seasons. It also honors the memory of Ida Nason Aronica, a respected Indigenous woman who championed the preservation of culture, language, land, and community values in the Kittitas Valley.

Partners

- SUGi Project – provided expertise and global network support for Miyawaki forest design.
- Ethan Bryson, Head Forester – led planting strategy and ecological guidance.
- Ellensburg School District – integrated the project into school grounds and curriculum.

- Local families and volunteers – participated in planting and caring for the forest.

Resources

- Miyawaki Method technical expertise and species selection tailored to Central Washington’s climate.
- Curriculum integration to support STEM education, cultural learning, and environmental awareness.
- Community volunteer efforts and in-kind contributions for planting and irrigation installation.

Opportunities Ahead

- Continued monitoring and documentation of forest growth for use in science classes and citizen science projects.
- Development of a replicable model for other schools and community groups interested in micro-forest projects.
- Potential partnerships with Yakama Nation cultural educators to enhance Indigenous knowledge-sharing.
- Long-term engagement opportunities for students, including forest care days, seasonal celebrations, and environmental art projects.

Sacramento Equitable and Resilient Urban Forests, Sacramento, CA. Ongoing

Overview

Sacramento, long known as the “City of Trees,” has a strong history of urban forestry and continues to expand on its reputation through the Sacramento Urban Forest Plan (SUFP, 2018). The plan sets a vision to increase canopy cover to 35% by 2045, guided by a framework of 55 policies and actions with assigned responsibilities and timelines. Early implementation included a kick-off event along the Northern Parkway trail, where 460 volunteers planted 215 trees across one mile, showcasing strong community engagement. Current initiatives focus on urban forest expansion through the planting of 450 trees in low-canopy neighborhoods using water-wise irrigation systems, as well as maintenance activities such as systemic pruning, removal of hazardous or invasive trees, and storm recovery efforts at the Sacramento Marina and Miller Regional Park.

Additionally, the city is piloting parking lot greening projects, including de-paving and shade installations to reduce heat islands and air pollution, in alignment with Sacramento’s shade ordinance.

Partners

- City of Sacramento Public Works Department
- USDA Forest Service, Urban and Community Forestry Program
- GreenLatinos (grant partner)

- UC Davis researchers (parking lot greening studies)

Resources

- \$1 million grant (Inflation Reduction Act + USDA Forest Service)
SUIFP as the primary planning tool for urban forestry
- Parking Lot Greening Guidebook (to be developed 2026–2027)

Opportunities

- Expand equity-focused tree planting in underserved overburdened communities
- Scale parking lot greening citywide to reduce urban heat and improve air quality
- Build long-term resilience through maintenance of riparian forests
- Use community-based engagement events as a model for mini-urban forest projects elsewhere



Figure 12. Sacramento Equitable and Resilient Urban Forests in practice, adjacent to a major freeway in Sacramento, CA.

Urban Mini-Forest Precedents

[Five Rivers Environmental Education Center, Albany County, NY:](#)

The New York State Department of Environmental Conservation (DEC) and volunteers planted over 500 trees and native plants to create [their first mini-forest](#), on June 7, 2025. The innovative “Miyawaki” forest planting technique promotes fast, strong growth that supports New York’s goals to plant 25 million trees by 2033.

[Danehy Park, Cambridge, MA:](#)

Home to the Northeast's [first Miyawaki forest](#), this project (Figure 9) was a collaboration between [Biodiversity for a Livable Climate](#) and [the SUGi Project](#).



Figure 13. A lush Miyawaki Forest in Danehy Park, near Harvard University in Cambridge, MA.

[Pilgrim Baptist Church, St. Paul, MN:](#)

[A new mini-forest](#) is taking root here, designed to help restore green space and bring renewal to a community that has experienced significant loss.

[Roosevelt Island, NY:](#)

Even in the heart of the city, [a mini-forest has been planted](#), showing how nature can return in the most unexpected places.

[Naperville Central High School, IL:](#)

Students and teachers created a [“tiny forest”](#) focused on biodiversity and hands-on environmental education.

[Griffith Park, Los Angeles, CA:](#)

[This Miyawaki forest](#) demonstrates how the method can thrive in a large urban park, adding biodiversity and resilience to Los Angeles’ landscape.