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## Wheels of Change: An Electric Bike Strategy

Breathe Easy, Ellensburg



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# Wheels of Change: An Electric Bike Strategy

BREATHE EASY, ELLENSBURG

## Providing Clean Transportation Solutions to Reduce Criteria Air Pollutants and Improve Community Health through Assembly and Use of Electric Bicycles

Location: Ellensburg, Washington.

### Overview

**Program Goal:** Wheels of Change outlines a plan to improve air quality in Ellensburg by reducing reliance on gas- and diesel-powered vehicles for short trips. The initiative will establish an Electric Bike Program that combines access and training, offering hands-on experience through community workshops, support for mechanical upkeep, and safety education. By introducing e-bikes as a viable and attractive transportation alternative, the program aims to reduce vehicle miles traveled (VMT), particularly for everyday commuting and errands. This strategy advances environmental justice by addressing the disproportionate environmental and health impacts faced by overburdened communities, ensuring equitable solutions for all.

**Problem:** Designated as an overburdened community by the Washington State Department of Ecology, Ellensburg currently experiences elevated levels of air pollution, especially in areas with dense traffic, limited transit options, and heavy car reliance.

Department of Ecology reporting shows elevated concentrations of particulate matter 2.5 (PM<sub>2.5</sub>), a pollutant linked to chronic health concerns. The community also faces high rates of poverty and asthma prevalence, and contains many sensitive receptors such as schools, childcare facilities, healthcare clinics, and the local hospital.

Transportation is the largest source of greenhouse gas emissions in Washington, nearly 40%, with single-occupancy passenger vehicles the primary contributor.

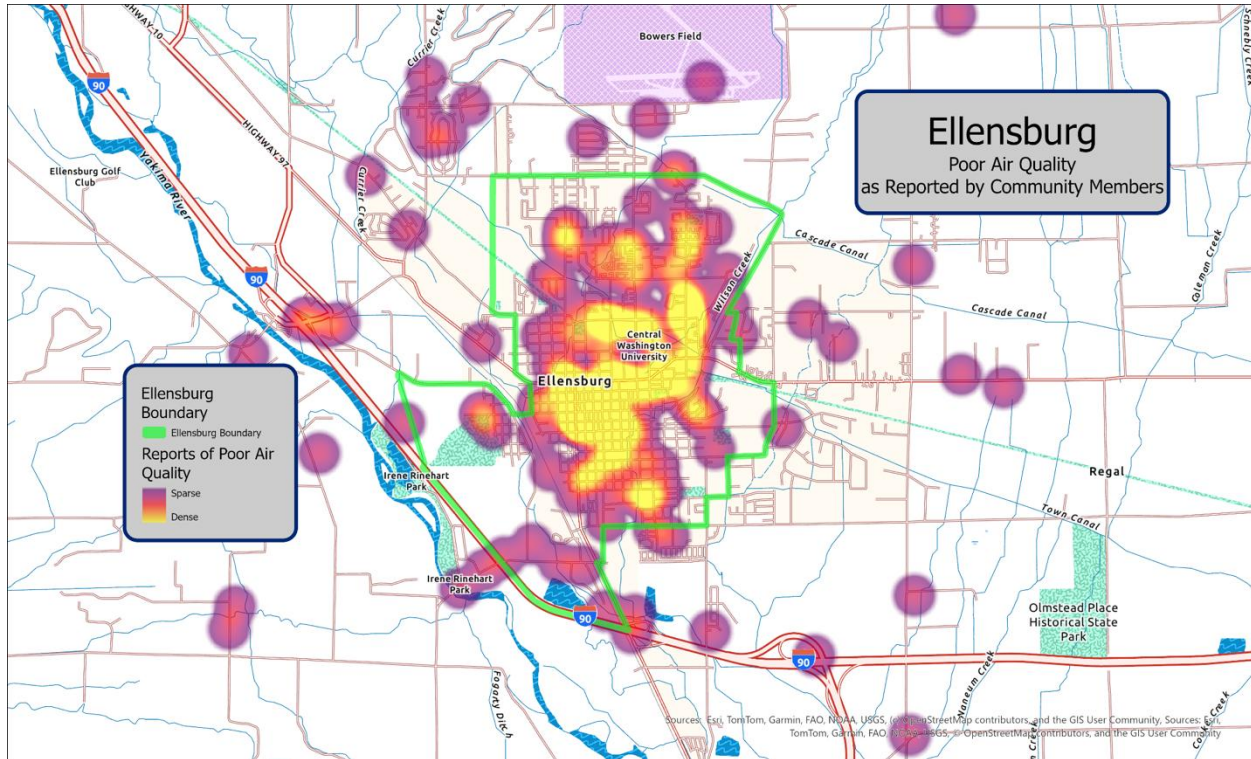
Gas-powered vehicles emit pollutants such as PM<sub>2.5</sub> and nitrogen oxides (NO<sub>x</sub>), which degrade air quality and disproportionately impact low-income and historically marginalized community members.

Reducing commuter emissions and changing commuter behaviors are especially challenging in Ellensburg and at Central Washington University.

Given the rural environment of Kittitas County, local residents and students must often rely on single-occupancy vehicles to commute to campus and downtown due to the absence of local micromobility options.

Community feedback highlights how this reliance affects air quality.

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

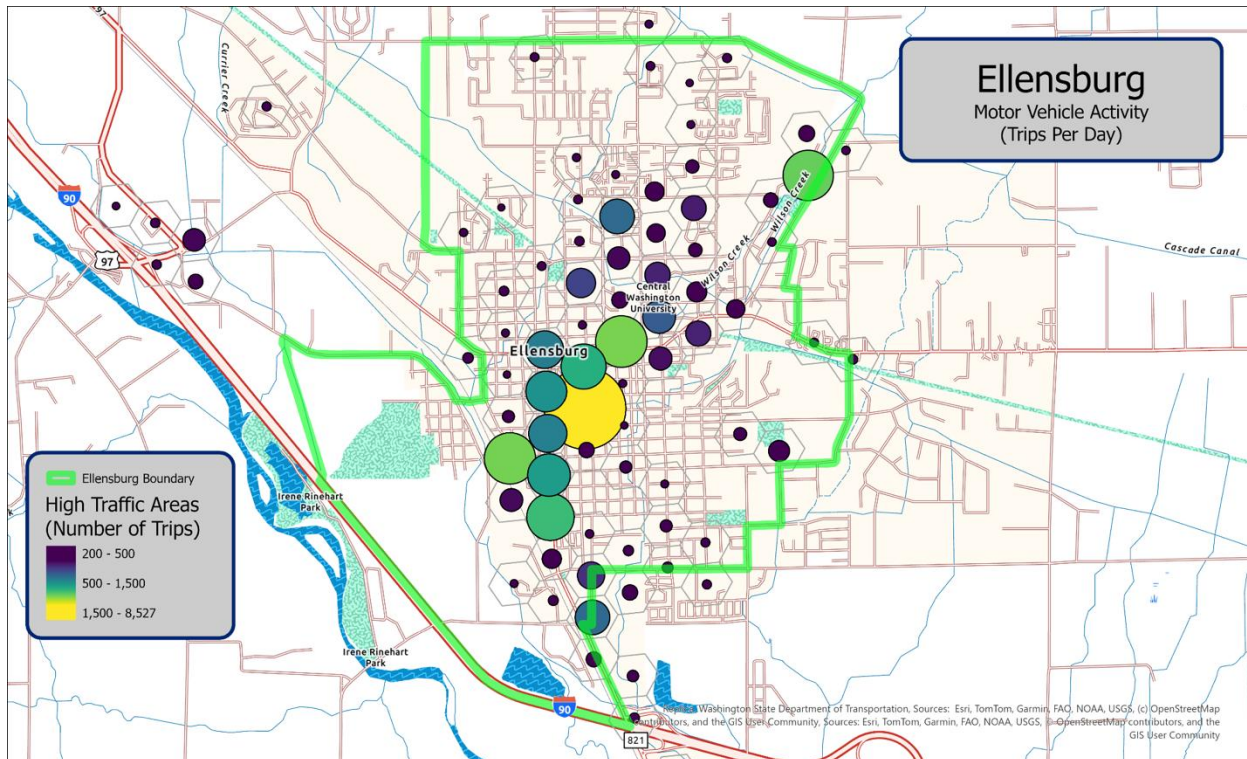


*Figure 1. Ellensburg | Poor Air Quality as Reported by Community Members. Map created by Community System Solutions - 2025. A dynamic version of this map is available at <https://arcg.is/0WTm540>*

Traffic modeling data reinforces these community reports. Figure 2 below illustrates daily automotive trips in Ellensburg as modeled by the Washington State Department of Transportation in Fall 2023.

The data shows consistently high traffic columns near downtown and Central Washington University, contributing to the elevated emissions noted by residents.





*Figure 2. Ellensburg | Motor Vehicle Activity (trips per day). Map created by Community System Solutions – 2025. A dynamic version of this map is available at <https://arcg.is/0WTm540>*

**Solution:** Deploying electric bicycles (e-bikes) offers a clean, low-emission transportation alternative for the overburdened community of Ellensburg. E-bikes reduce dependence on cars for short- to medium-distance travel, improve mobility access, and offer a scalable solution for reducing localized pollution.

By giving residents a practical alternative to combustion-engine and single-passenger commuter vehicles, this initiative will directly contribute to the reduction of PM<sub>2.5</sub> emissions. An E-bike network with service areas, common routes, and rental and storage facilities would support widespread community adoption of e-bikes

## Key Project Components

Wheels of Change includes five core components designed to maximize equity, community adoption, and long-term sustainability:

1. **Community Education and Engagement:** To identify e-bike strategy locations and build community participation, engagement will focus on inclusive practices through community listening sessions and partnerships with local nonprofits.

Public engagement will be supported through accessible in-person meetings with simultaneous Zoom options, ensuring participation for those with mobility challenges and providing wheelchair-accessible venues. All events and materials

will be available in both English and Spanish, with interpreters present for full accessibility.

Digital tools such as ArcGIS Hubs will make the process transparent and allow residents to share feedback easily

2. **Equitable Bike Distribution:** The program will launch with 50 e-bikes, one example shown below in Figure 3, divided equally between two tracks:
  - **Access Track (25 bikes):** Free distribution to participants in the training program, community ambassadors, and income-qualified residents. This ensures that those most impacted by air pollution and transportation barriers receive direct benefits.
  - **Rental Track (25 bikes):** Low-cost rentals made available to the broader community through a simple deposit-based system, offering affordable access without reliance on corporate bike-share apps.
    - i. Rental revenue will be reinvested into program operations, staffing, and future bike purchases.
    - ii. The community rental program will require a deposit or credit card on file, and a signed user agreement to promote accountability while keeping costs low.



*Figure 3.* Example of an e-bike used for urban and neighborhood commuting. E-bikes provide a zero-emission alternative for short- and medium-distance travel.

3. **Education, Outreach, and Rider Support:** To build long-term adoption, the program will provide:
  - Rider safety and traffic-awareness training
  - Helmet distribution and fitting assistance
  - Route planning workshops focused on commuting to CWU, downtown, and local schools
  - Secure storage and accessible charging stations

- Ongoing partnerships with schools, local organizations, and neighborhood groups to host group rides, bike lending opportunities, educational programs, and community events
4. **Workforce Training, Assembly & Maintenance Program:** A core innovation of the strategy is its integration of workforce development. Local residents and students will have the opportunity to:
- Assemble new e-bikes during initial distribution
  - Gain hands-on skills in e-bike mechanics, repair, and battery care
  - Support ongoing maintenance for the rental fleet and distributed bikes
- Participants who complete the program may receive an e-bike as an incentive while gaining marketable skills that support career pathways in clean technology and mobility services
5. **Community Partnership Network:** Collaboration with city and county agencies, Central Washington University (CWU), workforce development programs, and public health partners will anchor the initiative in the community.

Partners will support training, outreach, storage and charging infrastructure, and integration with local sustainability goals.

This network ensures that the e-bike program becomes a lasting component of Ellensburg's clean transportation strategy, not just a short-term pilot.

## Criteria Air Pollution Reductions

### Criteria Air Pollutants to Be Reduced

- Particulate matter (PM<sub>2.5</sub> or PM<sub>10</sub>)
- Ozone
- Carbon monoxide
- Nitrogen dioxide
- Sulfur dioxide

### Methods for Reducing Criteria Air Pollutants

The project will expand access to electric bikes for public and shared use in Ellensburg, supported by training workshops on safety, route planning, basic repair, and upkeep. As more community members choose electric bikes for short-distance travel, vehicle miles traveled in combustion vehicles will decrease, directly reducing tailpipe emissions of PM<sub>2.5</sub>, NO<sub>2</sub>, ozone precursors, and CO.

## Estimated Impacts

Reduced air pollutants in key pedestrian and high-traffic areas will lead to measurable health improvements, particularly for children, elderly residents, and people with respiratory conditions. Co-benefits include improved transportation access, lower commuting costs, and strengthened community engagement around clean mobility.

### Benefit vs. Cost

E-bikes provide a low-cost, high-impact solution with immediate air quality and public health benefits. Compared to traditional vehicle electrification, e-bike programs require have lower upfront investment and maintenance costs while broadening access to clean transportation for underserved residents.

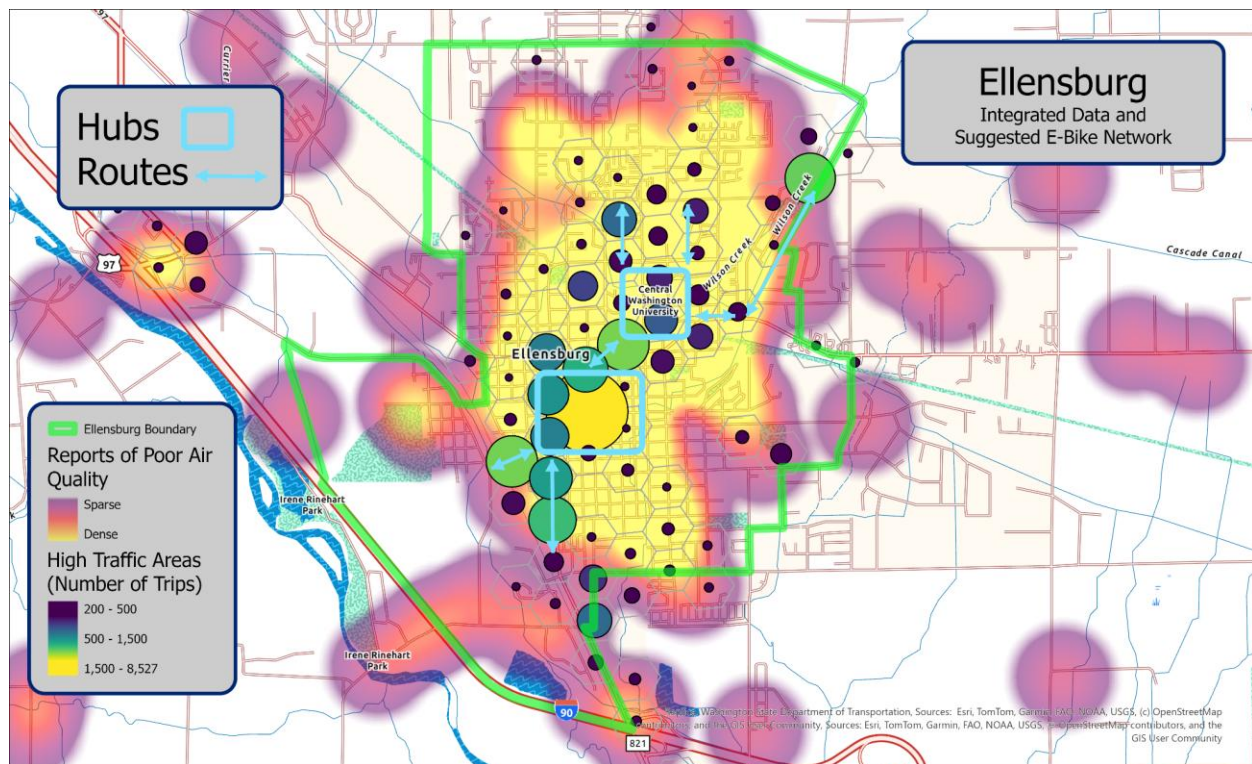
## Geographic Area of Air Quality Impact

The primary areas of impact will include high-use bicycle zones such as downtown Ellensburg, surrounding neighborhoods, areas near schools, and the CWU campus. These corridors experience frequent short vehicle trips that can be replaced with electric bicycle travel.

Expanding and improving Ellensburg's bike lane network will be an important step toward making e-bikes a practical and appealing transportation option. Partnering with the City to identify priority routes and address gaps in existing infrastructure can help ensure that residents feel safe and supported when choosing to ride. Enhancing bike lanes, signage, and connections between key destinations—such as schools, workplaces, and downtown—would strengthen the foundation for future e-bike programs and broader active transportation goals. Areas of focus should be the routes that connect to the hubs as shown in the map Ellensburg | Integrated Data and Suggested E-Bike Network.

Based on community feedback, these locations represent areas with the highest perceived air quality impacts. Figure 4 (below) layers community input, and high-traffic areas, to illustrate a potential e-bike network, highlighting service areas, common routes, and possible hub locations—such as bike shops and rental or storage facilities, that could support widespread community adoption.





*Figure 4. Ellensburg | Integrated Data and Suggested E-Bike Network. Light blue arrows and boxes represent service areas for a potential E-Bike Network. Map created by Community System Solutions – 2025. A dynamic version of this map is available at <https://arcg.is/0WTm540>*

## 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 feedback from recent outreach in Ellensburg, including tabling at the Farmers Market, revealed growing concern about air pollution from vehicle traffic and a desire for cleaner transportation options. Residents specifically emphasized the need for better bike infrastructure, expressing support for improving sidewalks and roads for cyclists.

Survey data reinforces this: 32% of respondents identified city road automotive pollution as a top air quality concern, and 7.2% of mock project funds were allocated to address it. Additionally, 39% of respondents noted air quality issues near the city center and 40% near school campuses, both areas with high traffic.

Despite this, only 2% of respondents currently use electric bikes, one of which is depicted in Figure 5, scooters, or similar alternatives in their daily commute. However,

68.75% of survey respondents support clean transportation projects, signaling strong community interest in solutions such as an electric bike program.



*Figure 5. Example of an e-bike promoting clean, low-emission mobility.*

Such a program would reduce vehicle emissions, improve air quality, and expand access to affordable, sustainable transportation options for Ellensburg residents.

Community System Solutions used a combination of outreach methods to collect meaningful, locally informed data about air quality in Ellensburg. Two community surveys were conducted to understand both perceptions and potential solutions. The first survey, completed by 106 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 16 participants, focused on residents' awareness of and support for proposed air quality improvement projects, while also gathering additional insights on housing and health factors.

## Execution Plan

The following phases outline how the Wheels of Change strategy will be implemented through collaborative governance, phased roll-out, and long-term community support.

Program governance, including purchasing, ownership, risk management, and operational oversight, will be led by designated lead organization in collaboration with program partners.

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, for student-led research, hands-on learning, and stewardship projects connected to the strategy.

## Phase 1: Equipment Purchase and Pilot Launch

- Purchase bikes through the lead organization, to be held in trust for either direct distribution (personal ownership) or placement into the community rental fleet.
- Establish secure storage and charging facilities at community hubs (such as CWU, the bike shop, and downtown), ensuring both safety and accessibility. Figure 6 shows an example of an e-bike shop equipped for sales, rentals and maintenance, which reflect the type of facility envisioned for Ellensburg's community bike program
- Identify community partners, staff, and locations to host workshops and collaborate on creating a community bike shop, that can serve as a hub for training, repairs, and ongoing program support.
- Initiate discussions with the city to assess current bike infrastructure and explore opportunities to expand or improve bike lanes that support e-bike adoption. Coordinate with planning staff to identify potential pilot routes or upcoming projects suitable for integration.



*Figure 6.* Example of an e-bike shop featuring rental and maintenance-ready e-bikes similar to those proposed for the Ellensburg program.

## Phase 2: Community Engagement & Education

- Host community workshops focused on e-bike safety, local route planning, and e-bike assembly, repair, and upkeep.
- Distribute assembled e-bikes to general workshop participants at a program-subsidized cost.
- Hire and train Community Bike Ambassadors to assist with facilitation and outreach. Include educational components about safe riding and helmet use, minimizing theft and vandalism, and understanding battery range and charging.



- Develop liability and risk management procedures, including insurance coverage, waivers, and safety training, in partnership with program insurers to protect both participants and the community.

### **Phase 3: Access & Expansion**

- Distribute fully subsidized e-bikes to selected participants and Ambassadors, with additional units designated for community sharing.
- Monitor VMT reduction and air quality improvements in targeted neighborhoods.
- Offer a volunteer-based pathway for participants to take on long-term roles in bike upkeep, lending logistics, and mentorship. Participation will remain optional but serve as a leadership pathway for interested individuals.

### **Phase 4: Ongoing Support**

- Facilitate weekly drop-in hours and group rides by Bike Ambassadors and staff.
- Provide repair and maintenance services at the community bike shop.
- Continued air quality education and share program updates through local events and school partnerships.

### **Program Governance and Operations**

The e-bikes will be purchased and owned by the lead program organization, which will oversee their allocation between the workforce training track (personal ownership) and the community rental fleet. Liability and risk management will be addressed through insurance coverage, user waivers, and mandatory safety training.

Rental bikes will be housed in secure community hubs with charging infrastructure, and rentals will require a deposit or user agreement to ensure accountability and prevent misuse. Fleet maintenance will be performed by trained program participants and staff, supplemented by vendor service agreements as needed.

This governance structure ensures that the program remains safe, sustainable, and accessible while reducing risk to partners.

## Budget

### 50 Electric Bikes

Item	Estimated Cost
Electric Bikes (25 for community use)	\$25,000
Electric Bikes (25 for program participants)	\$25,000
Helmets, locks, accessories	\$7,500
Staff time (part time Program Manager)	\$40,000
Community Ambassadors	\$40,000
Bike Shop supplies & tools	\$5,000
Marketing & outreach	\$2,500
Storage & charging infrastructure	\$15,000
Evaluation & reporting	\$25,000
<b>Total</b>	<b>\$185,000</b>

## Timeline

Month	Milestones/Events
M1-M7+	<b>Community Education and Engagement</b>
	Host community listening sessions and neighborhood walks to identify areas of need and interest.
	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.
<b>M1-M3</b>	<b>Create Digital Tools</b>
	Launch an ArcGIS Hub platform dedicated to the E-Bike 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.
<b>M1-M2</b>	<b>Finalize partnerships, purchase bikes, hire staff</b>
	Initiate discussions with the city to assess current bike infrastructure and explore opportunities to expand or improve bike lanes that support e-bike adoption. Coordinate with planning staff to identify potential pilot routes or upcoming projects suitable for integration.
	Partner with local schools at all levels, including Central Washington University, for student-led research, hands-on



	learning, and connection to further opportunities within the E-Bike Program for students.
	Bikes will be purchased by the program lead organization and held in trust for either direct distribution or placement into the community rental fleet.
	Secure storage and charging facilities will be established at community hubs, ensuring both safety and accessibility.
	Identify community partners, staff, and locations to host training workshops and collaborate on establishing a community bike shop that can serve as a hub for training, repairs, and ongoing program support.
	Hire and train Community Bike Ambassadors to assist with facilitation and outreach.
	Liability and risk management will be developed in partnership with program insurers to protect both participants and the community.
<b>M3</b>	<b>Begin workshops and community outreach</b>
	Host community workshops focused on e-bike safety, local route planning, and basic e-bike assembly, repair, and upkeep.
	Include educational components about safe riding and helmet use, minimizing theft and vandalism risks, understanding battery range and charging.
	Distribute assembled e-bikes to general workshop participants at a program-subsidized cost.
<b>M4-M5</b>	<b>Launch public-facing bike distribution and training</b>
	Distribute fully subsidized e-bikes to selected program participants and Ambassadors, with additional units designated for community sharing.
<b>M6</b>	<b>Begin shared use pilot and volunteer track</b>
	Offer a volunteer-based pathway for participants to take on long-term roles in bike upkeep, lending logistics, and mentorship.
	Advertising of community sharing units and locations of e-bikes.
<b>M7+</b>	<b>Program staff and lead organization monitor usage, adapt programming, continue engagement</b>
	Monitor VMT reduction and air quality changes in targeted neighborhoods.
	Weekly drop-in hours and group rides facilitated by Bike Ambassadors and staff.
	Repair and maintenance provided at the community bike shop.
	Continued air quality awareness education and progress updates via local events and school partnerships.

## Project Partners

### City of Ellensburg, Sustainability Office

- Purpose of the partnership: The Sustainability Office will provide resources to enhance the reach of the educational/marketing campaign.
- Key contact: Nichole Baker, Sustainability Coordinator

### Kittitas County, Public Health Department

- Purpose of the partnership: The Kittitas County Public Health Department 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: Lucy Garcia, Environmental Health Coordinator

### Central Washington University, Sustainability Office

- Purpose of the partnership: The Sustainability Office will provide resources to enhance the reach of the community engagement & education elements. The office will also provide Student Sustainability Ambassadors to support key community engagement efforts on campus and in the local community. .
- Key contacts: Jeff Bousson, Sustainability Director; Jordan Spradlin, Sustainability Coordinator

### WA Dept. of Ecology - Central Regional Office

- Purpose of the partnership: The Department of Ecology can provide resources to enhance the reach of the community engagement & education elements. The office could also provide expertise with all of the project elements.
- Key contact: Will Strand, Section Manager

### WorkSource Washington - Ellensburg Office

- Purpose of the partnership: WorkSource Washington can provide youth for the bike building program. The office could also provide additional support services for the youth.
- Key contact: Elise Rel, Business Representative

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

## Comparable Community Projects

### Sacramento, CA – Community E-Bike Pilot (CSS' Prior Program Experience)

The Community System Solutions team previously designed and implemented a community e-bike program in Sacramento in partnership with two local nonprofits: one serving homeless youth and another providing trade skills training.

The program paired bike distribution with wraparound services, safety workshops, and hands-on workforce development.

With education and guidance, participants then built their own e-bikes. After completing bike safety workshops, program participants joined staff-led group rides to test the performance and tuning of participant-built e-bikes.

The Sacramento initiative successfully transitioned into a full brick-and-mortar community bike shop, shown in Figure 7, offering retail sales, repair services, and structured training programs. It created full-time employment opportunities, hosted community events, and became a hub for clean mobility education.

This experience demonstrated the value of combining equitable bike access with workforce training and community engagement—a model directly informing the proposed Ellensburg e-bike program.



*Figure 7. After successfully launching the e-bike program, program partners at Community Shop Class Inc. carried that momentum into future initiatives, including opening a dedicated space called the Community Bike Shop. Community Shop Class and the Sacramento Area Bicycle Advocates - Continuation of E-Bike Program 2025.*

## Denver, CO – E-Bike Rebate Program

In 2022, Denver launched a first-of-its-kind citywide rebate program that provided residents with direct financial incentives to purchase e-bikes. The program was so popular that the first round of rebates sold out within days, and subsequent rounds have maintained high demand. Early evaluations show reductions in vehicle trips, increased commuter satisfaction, and high uptake among income-qualified residents. Denver's success demonstrates the strong community demand for e-bikes when barriers to access are removed.



*Figure 8. People walk their e-bikes into a rally and victory lap for the city, celebrating success in its rebate campaign, held in parallel with the (e)Revolution e-bike trade show at the Colorado Convention Center. June 10, 2023. | Photo from CPR News*

## Bend, OR – Community Bike Lending Programs

Bend has piloted several small-scale lending and library-style programs that make bikes and e-bikes available for short- and medium-term use. These programs often operate through partnerships with local nonprofits and schools, combining affordable access with community education. Bend's experience highlights how smaller cities can adopt flexible, community-based models tailored to local needs without relying on large-scale commercial bike-share systems.