Clean Transportation WorkForce Development Plan

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Executive Summary

Background and Context

In 2021, the San Joaquin Council of Governments (SJCOG) secured funding for a pioneering workforce development program focused on EV carsharing and E-bike sharing operations through a CARB Sustainable Transportation Equity Project (STEP) grant. This program was part of a larger initiative to introduce clean transportation options in disadvantaged areas of Stockton[1] according to CalEPA thresholds based on "geographic, socioeconomic, public health, and environmental hazard criteria, " and to develop a career pipeline in shared mobility operations, including EV maintenance, repair, and fleet management. As the program progressed, SJCOG recognized the need for a comprehensive plan for certification, expansion, and long-term sustainability beyond the initial grant period.

The following recommendations advance the goals of the STEP workforce plan by providing guidance for training program certification and its integration into the broader workforce development ecosystem of San Joaquin County and the northern San Joaquin Valley. These recommendations will also help ensure a skilled local workforce is available as investments in clean transportation increase across local, state, and federal levels.

Project Approach

This workforce development plan is informed by research and activities conducted from May 2024 to January 2025. These activities were carried out in two phases. The first phase lasted from May 2024 to August 2024 and involved qualitative and quantitative data collection and analysis of various sources of economic, education and training, and workforce system information. Specifically, the work conducted included:

1. Analysis of labor market and economic data to evaluate the occupational demand for E-bike, EV maintenance and repair, and EV charger installation training programs and identify cross-cutting skills and competencies in related pathway occupations
2. Literature review and documentation scan of green transportation initiatives nationwide
3. Outreach and engagement with key workforce, education, economic development, and employer/industry interest representatives to understand the regional clean transportation workforce, education, and economic ecosystem(s)
4. Examination of opportunities, gaps and challenges within the current STEP program and further development of a clean transportation workforce development ecosystem.

[1] See https://oehha.ca.gov/calenviroscreen/sb535 for definition of disadvantaged community.

After completing the first phase of the project, the WestEd team issued an interim report on November 13, 2024, summarizing findings and offering preliminary recommendations for integrating the STEP workforce program into the larger clean transportation training and workforce ecosystem.

Phase two activities built on the first phase through strategic meetings with education and training providers to integrate SJCOG training programs into regional educational pathways, including the Manteca Education and Training Center, Stockton School for Adults, Delta College, and the Green Economy Lab. These discussions explored implementation opportunities for E-bike, EV maintenance and repair, and EV carshare training programs and development of Integrated Education and Training (IET) and Integrated English Literacy and Civics Education (IELCE) modules combining basic skills instruction with specialized clean transportation technology training, including recognized industry credentials, to support participants facing language barriers and foundational skill needs.

Clean Transportation Career and Education Opportunity Mapping

To clarify pathways from the SJCOG's training programs into aligned education and training and, ultimately, jobs, the WestEd team developed a Clean Transportation Opportunity Map, found on the next page. The Map encompasses the formal education and training offered through the regional community college and trade schools, as well as the accelerated training contextualized for adult learners offered through local project partners such as the Green Economy Lab, Manteca Education & Training Center (Adult School), and the MDP fellowship program.

Wage ranges are listed for occupations based on 10th percentile (as proxy for entry-level wages), median, and 75th percentile earnings for each occupation. Educational and training pathways are categorized into four main types:

1. Job Training available through partner organizations offering a fellowship model
2. Skill Building through local non-profit organizations and Adult Schools offering a short-term training model open to the public
3. Credit Certificates through postsecondary institutions offering a traditional, semester-based credit model, and
4. Apprenticeships are offered through the IBEW-registered apprenticeship model, or Associate Degrees are offered through postsecondary institutions using traditional, semester-based credit models.

Opportunity Map
SJCOG Clean Transportation

SJCOG

Specialized Skills:

Mechanical aptitude
Suspension/Forks
Brakes
Lithium batteries
Cables/housing
Wheels/tires
Automotive Electricity and Electronics
12-volt electricity
Electrical wiring
Safety standards

Engine Performance /Fuel & Ignition
Auto HVAC
Steering and Suspension
Transmissions & Transaxles
Automotive Brakes
Programmable Logic Controllers (PLC)
Automation
Instrumentation
Control Systems
Blueprint Reading
Electromechanics
Low Voltage
Electrical codes
Electrical equipment
Transformers
Network Switches
Electrical systems

$15-24/hr.

Bicycle Repairers
Counter and Rental Clerks

Job Training

MDP:

E-Transportation Basics
Transportation Share Operations

$15-26/hr.

Electrical and Electronics Installers and Repairers, Transportation Equipment

Automotive Service Technicians and Mechanics

Electrical, Electronic, and Electromechanical Assemblers

Skills Builders

Green Economy Lab:

EV mechanic Bootcamp
EV Charging Station – Installation & Maintenance
Customer Service
Electrician Certificate Program

Manteca Education & Training Center:

Logistics, Industrial Maintenance, & Manufacturing
Basic Welding

Forklift Safety Certification Series

$26/hr.-$37

Automotive Service Technicians and Mechanics

Electrical and Electronics Installers and Repairers, Transportation Equipment

Electrical and Electronics Repairers, Commercial and Industrial Equipment

Electrical, Electronic, and Electromechanical Assemblers
Industrial Machinery Mechanics

Credit Certificates

Delta College:

Electromechanical/Electromechanical Engineering Technology/Technician

Electrician

Electrical/Electronics Equipment Installation and Repair Technology/ Technician, General

Heavy Equipment Maintenance Technology/Technician

Industrial Mechanics and Maintenance Technology/ Technician

Automobile/Automotive Mechanics Technology/ Technician

$26-45/hr.

Senior/Supervisor Automotive Mechanic

Electrical and Electronic Engineering Technologists and Technicians

Electricians

Apprenticeships, Associates, & Bachelors

IBEW Local 595 Electricians Apprenticeship San Joaquin Electrical Training Institute

Delta College:

AAS Electromechanical/ Electromechanical
Engineering Technology/Technician

AAS Electrician

AAS Heavy Equipment Maintenance
Technology/Technician

AAS Automobile/Automotive Mechanics
Technology/Technician

WestEd Center for Economic Mobility

Findings and Recommendations

The following section summarizes key findings and recommendations based on research and outreach conducted by the WestEd team and informed by ongoing conversations with the SJCOG. Findings and Recommendations are organized in the following key areas: Curriculum and Pathway Design, Participant Engagement and Navigation, Partnerships and Program Integration, and Project Feasibility and Infrastructure.

Curriculum and Pathway Design

Key Findings

- **The current fellowship model functions as on-the-job training with little formal instruction.** While providing valuable paid work experience and opportunities for self-directed learning, it lacks structured curricula and clear pathways to further education or career advancement in technical fields.
- **Separating technical from operational skills training could enhance adult learning outcomes.** Research on adult learning principles suggests that separating technical training (E-bike mechanics) from operational training (transportation share operations) would reduce cognitive load, allow for deeper skill processing, and better align with adults' preference for immediately applicable, problem-centered learning experiences.

Recommendations

- Identify and delineate the technical and operational competencies within the fellowship model and finalize formal curricula.
- Ensure training aligns with (and optimally leads to) third-party industry credentials, especially relevant Automotive Service Excellence (ASE) credentials.
- Consider expanding the Skills Builder Training at the Green Economy Lab to include Delta College's 40-hour noncredit Advanced EV boot camp.
- Consider adopting a cohort model to develop a learning track and assess, compare, and contrast learner experiences and outcomes, as well as expand the program's reach to serve more prospective students.

Participant Engagement and Navigation

Key Findings

- **Recruitment methods could be more effective if strategically scaled and diversified.** Current recruitment methods—relying on classroom visits and online job platforms—have limited reach and should be expanded through multiple communication channels, formalized marketing efforts, and partnerships with educational institutions to support a cohort-based training model that cycles learners every 9-12 months.
- **Participants enter the program with diverse levels of readiness and barriers.** Participants' varying levels of academic and professional readiness necessitate leveraging braided funding through established service providers like Delta College or the San Joaquin America's Job Center of California to provide comprehensive wrap-around services, including financial support for tools that could qualify workers for California's higher minimum wage of $22 per hour.
- **Integrated pathways and co-enrollment maximize learning opportunities and earning potential.** Creating integrated pathways across Community-Based Organizations, Adult Schools, and postsecondary institutions offers community members diverse opportunities for skills development while framing training as a stepping stone to additional fields and communicates the importance of continuous upskilling.

Recommendations

- Align and embed outreach within additional courses and through an education partner, conduct a marketing campaign, and coordinate with local partners.
- Build on WestEd's preliminary Opportunity Map to showcase possible trajectories that training can lead to and make these maps accessible to students and interested parties (e.g., partnering colleges, employers, community organizations, and members).
- Conduct pathway mapping to delineate program pathways into related programs and jobs within the clean transportation workforce ecosystem.
- Ensure that the program design integrates multiple on-ramps and off-ramps for adult learners and provides referrals or direction access to needed wraparound support services to support student persistence.
- Combine fellows' success stories and positive experiences with the program to inform both targeted improvements based on challenges they identify and refine outreach messaging that emphasizes the aspects current fellows find most interesting or essential.
- Incentivize and provide additional training and articulation opportunities outside the program for certification, badging, or professional learning events to bolster student experience and employability.

Partnerships and Program Integration

Key Findings

- **Partnering with community-based organizations to provide education and training is most sustainable when implemented in conjunction with traditional educational institutions and workforce systems.** The most effective workforce development strategy leverages both the strengths of community-based organizations (specialized expertise, community connections, agility) and established educational institutions (curriculum expertise, credentialing capabilities, resources for sustainability) to address immediate industry needs while building sustainable programs with recognized credentials and clear career advancement opportunities.
- **Agencies like SJCOG benefit from specialized technical assistance to effectively design and implement training programs integrated into the workforce ecosystem.** Specialized technical assistance helps agencies like SJCOG effectively bridge the gap between community-based providers and established institutions, enabling them to create integrated programs that realize a sustainable training ecosystem.

Recommendations

- Consider engaging an external technical assistance provider for future initiatives to support program design and implementation.
- Develop a partnership framework for engaging potential partners that incorporates coordinated instruction, support, and onramps with regional educational institutions and articulates clearly defined expectations around each partner's deliverables and roles.
- Compile an integrated table detailing agency types and their core focus areas. This table would serve as a planning tool to help foster cross-agency dialogue and collaboration.
- Explore options for convening a multi-agency working group dedicated to the ongoing alignment and integration of work streams and programs focused on addressing infrastructure workforce development pathways.
- Identify topics for the workgroup, such as how to get listed on the Eligible Training Provider List (ETPL). Providers listed on the ETPL are eligible to receive Workforce Innovation and Opportunity Act (WIOA) Title I funds to pay for training services provided to eligible individuals (out-of-school youth aged 16-24, adults, or dislocated workers) via their Individual Training Account (ITA).

Project Feasibility and Infrastructure

Key Findings

- **Transportation infrastructure needs improvement to support program uptake and e-bike utilization.** Until structural improvements outlined in Stockton's Active Transportation Plan and Bicycle Master Plan are implemented to create safer biking conditions in South Stockton, the Bike Stockton program will continue to struggle with community uptake.
- **Project area boundaries are limiting.** The geographically restricted project area defined by CARB funding diverts staff resources toward compliance rather than structural integration with the broader workforce ecosystem. Despite serving the intended populations facing systemic barriers, this limits the program's reach and impact.
- **Leveraging local businesses could enhance local impact and engagement.** Shifting from outside vendors to local businesses for E-bike fleet purchasing, maintenance, and replacement parts would create a multiplier effect in the regional economy, enhance local employer engagement, and align with successful models in other sectors like hospitality and national parks.

Recommendations

- Incentivize and encourage local biking infrastructure development in alignment with regional plans and programs.
- Report to CARB on the restrictive nature of project boundaries and the need for technical assistance to support project grantees. Technical assistance may include initial resources and planning time to ensure programs meet their objectives and align with the overall intent of the funding.
- Engage local and regional businesses in expanding the transportation share program. Connecting this initiative to local businesses will garner greater buy-in, increase economic impact, and align with local and regional priorities to support small business owners. The COG is encouraged to engage local owners to better understand interest and opportunities to retain dollars in the local community and expand local employment opportunities through apprenticeship programs.

Looking Forward

The challenge of establishing and aligning integrated training, pathway planning, and long-term career opportunities for the region is complex but critical for ensuring economic growth, addressing skill gaps, and promoting development that meets the evolving needs of both the workforce and industries. With its role in integrated transportation and land use planning, access to diverse funding sources, and expertise in regional data analysis, SJCOG is ideally situated to coordinate across public agencies, educational institutions, private employers, and community organizations to facilitate efforts to address gaps in the clean transportation ecosystem. The recommendations outlined above can help ensure a skilled local workforce is available as investments in clean transportation are expected to continue increasing across local, state, and federal levels.

To read the full report, please visit:
https://www.sjcog.org/708/13176/Clean-Transportation-Workforce-Plan