



2018 Regional Congestion Mitigation Air Quality Improvement Program (CMAQ) Grant Application

| | | | | |
|---|---|-------------------------------------|-------------------------------------|-------------------------------------|
| PROJECT TITLE: | Electrifying the Thurston County I-5 Corridor | | Funding Source | |
| <i>If the proposal is programmed in the STIP, please use the same title.</i> | | | | |
| PROJECT SPONSOR | | | | |
| Agency or Organization | City of Lacey | | | |
| Contact Person | Martin Hoppe | | | |
| Phone Number | (360) 438-2681 | | | |
| Email Address | martin.hoppe@ci.lacey.wa.us | | | |
| PROJECT CO-SPONSOR (Leave blank if not applicable) | | | | |
| Agency or Organization | North Thurston Public Schools | | | |
| Contact Person | John Suessman | | | |
| Phone Number | (360) 412-4540 | | | |
| Email Address | jsuessman@nthurston.k12.wa.us | | | |
| STATUS OF EXISTING FEDERAL PROJECTS | | | | |
| | | | Yes | No |
| Does the applicant have any other federal funded projects underway? | | | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <i>If yes to either, attach separate documentation describing status of each project including project name, funding source, year of award, progress to date, future obligation commitments and strategy for meeting those obligation commitments in addition to those associated with new project funding.</i> | | | | |
| YEAR OF OBLIGATION (Select the federal fiscal year the project will obligate) * ADVANCE CONSTRUCTION (Select if A/C is an option) | | | | |
| | 2021 | <input checked="" type="checkbox"/> | 2020 | <input checked="" type="checkbox"/> |
| | 2022 | <input checked="" type="checkbox"/> | 2021 | <input checked="" type="checkbox"/> |
| <i>*Applicants are expected obligate their project on time if the proposal is selected.</i> | | | | |
| PROJECT OVERVIEW | | | | |
| <i>Brief abstract (~ 150 words) of proposal identifying problem or need, how the proposal will address it, and anticipated benefits. This is a high-level summary suitable for reports and on-line descriptions. Detailed project information is provided on pages 4-5.</i> | | | | |
| <p>In the coming years, residents will see an increase of plug-in electric vehicles (PEVs) on the roads, as well as PEV charging stations and other infrastructure at public and private facilities around the state. Using electricity for transportation fuel is a chance to increase the effectiveness of our energy system, reduce the use of fossil fuels, spur new technology, and reduce our carbon footprint. For information on the use of electric vehicles, see the Electric Drive WA website, a portal to information about electric vehicles in Washington State created by the Electric Vehicle Task Force.</p> | | | | |

SUPPORT FOR RECOGNIZED REGIONAL INITIATIVES

Identify ways in which the proposed project supports the goals and policies of the Regional Transportation Plan, implementation of Sustainable Thurston transportation initiatives, or other regional initiatives. Examples of other initiatives include, but are not limited to, The Thurston Regional Trails Plan, Urban Corridor Communities and associated District Plans, Healthy Kids Safe Streets Action Plan, South Thurston Economic Development Initiative, Thurston Thrives, Walk and Roll, Commute Trip Reduction, I-5 Action Plan, Bountiful Byways, Smart Corridors, and the Human Services Coordinated Transportation Plan.

Installing PEV charging stations in public locations around the City of Lacey will enable Thurston County to achieve several parts of goal 18 - Environment and Human Health - of the Regional Transportation Plan. PEVs would allow the County to "minimize transportation impacts on the natural environment and the people who live and work in the Thurston region" by reducing the emissions of greenhouse gases as well as PM10 and PM2.5, lessening the region's dependency on fossil fuels, and cutting down on automotive fluids mixing with rain water runoff.

PEVs including Battery Electric Vehicles (BEVs) and Plug-In Electric Hybrid Vehicles (PHEVs) have been shown to significantly reduce the emissions of greenhouse gases and PM10 and PM2.5 particles. Data from the Southwest Energy Efficiency Project show that BEVs reduce emissions compared to gasoline-fueled vehicles by 98% for Sulfur Oxides, 99% for Volatile Organic Compounds (VOCs) and 90% for Nitrogen Oxides (NOx).

Because PEVs are not reliant on oil or gasoline to operate there is a reduction in fluid leaks on roadways. In turn that results in less contaminated runoff entering the County's streams and rivers. To increase the number of BEVs on the County's roadways, it is necessary for a strong network of modern chargers be available for public use. Experiences from other states and countries show that it is necessary for the government to step up and lead the way for citizens.

THRESHOLD CRITERIA (check all that apply)

| | Yes | No |
|---|-----|----|
| The project is in the Air Quality Maintenance Area (see application instructions) | X | |
| Project elements meet all regional eligibility requirements | X | |
| Project elements and administration meet all federal eligibility requirements | X | |
| Applicant can demonstrate ability to obligate funding as proposed | X | |

Answering 'No' to any eligibility item above will disqualify the proposal.

APPLICATION PRIORITY

| | |
|--|---|
| If submitting more than one proposal, indicate the priority of this proposal compared to others submitted (i.e. 1, 2, or 3). | 1 |
|--|---|

TYPE OF PROJECT OR PROGRAM

Identify project type that applies to this proposal

| | |
|---|---|
| Alternative Fuels and Vehicles | X |
| Congestion Reduction and Traffic Flow Improvements | |
| Transit Vehicle Acquisition | |
| Transit Capital Facilities | |
| Transit Incentives Program | |
| Bicycle and Pedestrian Facilities and Programs | |
| Travel Demand Management | |
| Public Education and Outreach Activities Related to Air Quality | |
| Carpooling and Vanpooling | |
| Freight / Intermodal | |
| Diesel Engine Retrofits and Other Advanced Truck Technologies | |
| Idle Reduction Programs | X |
| Training for Implementation of Air Quality Programs | |
| Inspection / Maintenance (I/M) Program | |
| Other: <input type="text"/> | |

PM10 AIR QUALITY BENEFITS

Briefly describe how this project will reduce PM10 emissions and improve air quality within the Air Quality Maintenance Area.

Transportation is Washington State’s largest source of greenhouse gas emissions and it emits other major pollutants such as particulate matter and nitrogen oxides. The continued progress of electric vehicle (EV) technology, coupled with the state’s abundance of economical, zero-emission electricity, provides an opportunity to reduce transportation emissions through electrification.

BEVs have been shown to reduce PM10 emissions by 57% compared to gasoline engines. PHEVs are recorded to reduce them by 30%. One of the main reduction sources is the reduce usage of brake pads in PEVs. Because PEVs can use regenerative braking to produce a charge for on-board batteries, it isn’t necessary for drivers to use traditional brake pads. In addition, PEVs use low-rolling resistant tires which have been shown to reduce the amount of “kick up” of PM10 from roadways.

PM10 AIR QUALITY ANALYSIS AND DATA

Yes

I acknowledge as an applicant that I will coordinate with TRPC and provide relevant information to measure this proposal’s air quality benefits before the project is selected for funding.



An air quality improvement report is submitted to WSDOT Local Programs when a project sponsor obligates a CMAQ-funded project.

PROJECT LOCATION AND DETAILS – applicants may submit a map of the project or program/service area

| | | |
|------------------------------|-------------------------------------|-----------------------------|
| Construction Projects | Project Location | Lacey -- Multiple Locations |
| | Type of Construction Project | Construction |
| | Length/Size of Construction Project | |
| Programs/Services | Delivery Area of Program/Service | |
| | Duration of Program/Service | |

PROJECT PHASING AND COSTS - Identify project phases and costs

| | | Phase | Cost |
|--|---------------------------------|-------|----------------------|
| Construction Projects (mark the appropriate phase and enter cost) | Preliminary Engineering/Design: | X | \$ 25,000.00 |
| | Right-of-Way: | X | \$ 1,000.00 |
| | Construction: | X | \$ 300,000.00 |
| Programs or Capital Costs | Program Costs: | | \$ 0.00 |
| | Vehicle or Capital Costs: | | \$ 0.00 |
| Total Project Cost (Sum of all project phase costs identified above): | | | \$ 326,000.00 |

CMAQ FUNDING REQUEST AND MATCHING REVENUES

**Applicants must provide a minimum of 13.5% non-federal share to federal share. Federal share cannot exceed 86.5% of total project cost.*

Non-federal share: \$13,500
Federal CMAQ Funds: \$86,500 Total Project Cost: \$100,000

| | |
|---------------------------------|---------------|
| Local funding or other sources: | \$ 44,010.00 |
| State funding: | \$ 0.00 |
| Federal CMAQ Grant Request: | \$ 281,990.00 |
| Total Project/Phase Revenue: | \$ 326,000.00 |

Project Title: Electrifying the Thurston County I-5 Corridor

PROJECT DESCRIPTION & SIGNIFICANCE (2 PAGES MAX, 10 POINT FONT MINIMUM)

Using the space provided below, please address the following in your narrative: Describe the proposed project and why it is a regional funding priority, paying attention to benefits the proposal will deliver. Consider all modes of travel in your description. Identify any collaboration or partnership with other entities with a vested interest in this project. Note whether this project leverages previous work, such as an implementation phase of a previous study or design phase, or whether it completes or lays the groundwork for subsequent implementation phases. Describe any efforts that will help ensure this project can meet its obligation commitments.

The proposed project is a partnership between North Thurston public Schools and the City of Lacey is to install multiple electric vehicle (EV) chargers at City Hall, Library, Community Center, and the North Thurston Public Schools Administrative Building. These ideal locations are located in close proximity to on ramps for I-5 South and I-5 North, local commerce hubs, libraries, walking trails, and community parks.

As of the end of 2017, there are 1,015 PEVs registered in Thurston County. Pierce and King County have a combined 17,590 PEVs registered in their jurisdictions. Installing EV chargers will encourage the use of EVs between urban centers, reduce local emissions and use of fossil fuels, and encourage economic development in Thurston County.

One of the main barriers of purchase for individuals looking to purchase a PEV is the limited mileage provided by the vehicle's battery. The common term for this barrier is "range anxiety." One of the goals of this project is to provide a more stable and powerful network of EV chargers to give PEV drivers "range confidence."

Level 3 EV chargers can add up to 200 miles to a compatible car's in under 30 minutes – nearly eight times the amount of a Level 2 charger. This rapid charging capability allows PEV drivers to venture outside of their cities and use their electric vehicles for business or road trips. By installing a robust and accessible system of EV chargers within a half mile of Interstate 5, we would be enabling PEV drivers to more confidently travel along the corridor.

PEVs have been shown to significantly reduce the emissions of greenhouse gases and PM10 and PM2.5 particles. Data from the Southwest Energy Efficiency Project and Utah Clean Energy show that BEVs reduce emissions compared to gasoline-fueled vehicles by 98% for Sulfur Oxides, 99% for Volatile Organic Compounds (VOCs) and 90% for Nitrogen Oxides (NOx) as well as a 81% reduction for PM2.5 and 57% reductions for PM10.

On average, each gasoline powered vehicle consumes 375 gallons of fuel each year (assuming 12,000 miles of driving at 32 miles per gallon). That would mean the 1,015 PEVs registered in Thurston County may have reduced fuel usage by 380,625 gallons or over 3,500 tons of greenhouse gases in 2017. That is an equivalent amount to what 1,400 acres of new growth forest could absorb in one year.

PEVs also have a unique advantage because their fuel source (electricity) has the ability to become cleaner over time as energy produces move towards cleaner and more renewable energy sources. That means a PEV purchased in 2017 has the potential to reduce its overall emissions, including emissions from its primary energy source, over time.

Roughly 14% of PM10 comes from brake wear on gasoline or diesel powered vehicles. PEVs instead use a combination of regenerative braking and friction braking to slow down. Regenerative braking allows a PEV to use its electric motor as a generative to convert the momentum of the vehicle into energy used to charge the onboard batteries. This process also eliminates the creation of PM10 caused by friction braking.

By building up our local network of EV chargers, we are building an energy source that will help reduce emissions of greenhouse gases on our roadways, lessen the amount of PM10 create by vehicles, and establish a fuel for transportation that has the potential to become cleaner over time.

Encouraging the use of PEVs will also have numerous financial benefits to Thurston County as well. Reduced fuel bills, higher vehicle prices, and increased EV vehicle traffic near commercial hubs all have the potential to increase spending and economic development in our county.

Project Title: Electrifying the Thurston County I-5 Corridor

PROJECT DESCRIPTION & SIGNIFICANCE (continued)

PEV owners save over \$1,000 in gasoline costs and reduced maintenance by driving electric. While there are costs for charging their vehicle at home or out in public, those costs are minute compared to cost of maintain and fueling a gasoline vehicle. Those additional freed up funds have the potential of entering our local economy though other services than fueling stations and mechanics. This diversification of spending and growth could reinforce our local economy and make it strong against future storms.

A PEV on average costs over \$40,000 – over \$6,000 more than an average price of a carbon fueled vehicle. That would equate to over \$500 additional tax dollars collected per vehicle. As growth in PEV sales continues, the county could see hundreds of thousands of dollars in additional tax revenue over the next several years.

The proposed locations of the EV chargers are all within short walking distances of commercial centers or parks. As charging sessions can take up to 30 minutes, PEV drivers often get out and explore the local community. Anecdotal accounts show PEV drivers visiting stores, restaurants, and other points of interest as they wait for their car charge. This in turn benefits business that are located near charging stations. Again, anecdotal accounts from store owners show an increase in foot traffic once an EV charger was installed near their business.

This project will lay the groundwork for adding additional chargers in the future as the demand from electric vehicles grow. Because EV chargers do pull a significant amount of power, it is often necessary for them to have direct access to a power source versus pulling power from a building's established grid. The funds from the grant would allow the City of Lacey and NTPS to lay conduit near and through parking lots that would connect chargers to direct energy sources. This would allow both organizations to easily expand the number of chargers at those locations in the future, as well as install higher powered chargers in the future as the technology improves.

The City and North Thurston Public Schools are amenable to utilizing advanced construction funds to ensure that obligation deadlines are met.

| CERTIFICATION ACCEPTANCE | |
|------------------------------|--|
| CA Agency and Representative | City of Lacey, Martin Hoppe |
| CA Signature and Date | <i>Martin Hoppe</i> CITY ENGR 04/06/2018 |

Project Verification and Endorsement

This project proposal reflects established local funding priorities consistent with the Regional Transportation Plan. Costs represent accurate planning level estimates needed to accomplish the work described herein. The project described is financially feasible, and local match revenue identified above is available and will be committed to the project if TRPC awards the requested CMAQ grant. **If selected, the project shall obligate by the date specified on the project award letter.** Failure to do so will result in loss of funding for the project and an alternate project will be funded instead. I realize that the use of federal funds for this project entails administrative and project compliance requirements over which TRPC has no control, and for which this agency or organization will be responsible. This project has the full endorsement of the governing body/leadership of this agency or organization.

| AUTHORIZATION | |
|---|--------------|
| Scott Spence | City Manager |
| Name of Representative Authorized to Submit Application | Title |
| <i>SS</i> | 01/01/2018 |
| Signature | Date |

| Co-AUTHORIZATION | |
|---|--------------------------|
| Monty Sabin | Assistant Superintendent |
| Name of Representative Authorized to Submit Application | Title |
| <i>Monty Sabin</i> | 01/01/2018 |
| Signature | Date |

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