Appendix C - Supplementary Materials to Transportation Chapter

Vehicle Miles Travelled Background and Targets

This section expands on the following recommendations in the 2021 State Energy Strategy:

- The Legislature, in consultation with the Washington State Department of Transportation (WSDOT) and local transportation organizations, should adjust and update state Vehicle Miles Travelled (VMT) reduction targets to reflect existing VMT levels and the state's greenhouse gas emission limits; and
- The Legislature should consider transportation efficiency and emission targets to accompany updates to VMT reduction targets.

VMT is a function of the distances between destinations, the availability of transportation options and the availability of technologies and services that could replace travel. Land use patterns are a key factor in demand for transportation. Reducing VMT requires transportation planning and land use planning to be coordinated.

By requiring less driving to meet daily needs, transportation efficient communities support health, a prosperous economy, energy conservation and a sustainable environment. They do this by improving the proximity between the places people live and the destinations where they regularly travel. Transportation efficient communities can provide: complete networks for walking and bicycling and options for high occupancy vehicle travel, the siting of long-term facilities in areas less likely to be impacted by natural disasters and the protection and preservation of green spaces.

By improving the efficiency of their transportation system, cities and counties can reduce carbon emissions, improve air quality, and reduce the risks of flooding, landslides and wildfires. Action by local governments as well as by state agencies is needed to achieve statewide goals for greenhouse gas reduction through development of transportation efficient communities, which can include implementation of transportation-oriented development (TOD) communities. There is an important role for regional coordination in linking local decision-making to statewide goals. Local governments in Washington will soon begin work on state-mandated Growth Management Periodic Updates, with completion deadlines for the first jurisdictions in 2024.[1]

In 2008, the state established long-term targets for reducing the VMT of light-duty vehicles statewide.[2] These targets call for an 18% reduction in VMT per capita by 2020, a 30% reduction by 2030, and a 50% reduction by 2050. However, these targets are pegged to a statewide baseline of 75 billion VMT per year, which is substantially higher than Washington's actual annual VMT. Although Washington is nominally close to achieving the 2020 target, growth in the state's population has meant that VMT continues to grow in absolute terms even as VMT per capita has declined. In 2019 – the highest year yet – statewide VMT was 62.5 billion.

[1] Chapter 36.70A.130 RCW.
[2] Chapter 47.01.440 RCW.

The state should update the VMT baseline based on historical values and set targets that are achievable while contributing meaningfully to the state's efforts to meet our greenhouse gas reduction limits.

Because transportation needs can vary among urban, suburban, small city and rural settings, the state also needs regional targets. In setting targets, special consideration should also be made regarding how efforts to reduce VMT impact activities that are dependent on vehicular travel (i.e. freight shipments, tourism, recreation) and equity principles.

Transportation-Oriented Development

This section expands on the following recommendation in the 2021 State Energy Strategy:

- The Legislature, state agencies and local governments should take steps to incentivize and remove barriers that restrict TOD.

Transportation-oriented development (TOD) emerged in the late 1980's. While others had promoted similar concepts and contributed to the design, TOD became a fixture of modern planning when Peter Calthorpe published *The Next American Metropolis* in 1993.[3] Since then, TOD programs have been adopted and implemented across the country at the federal, state and local level. In contrast to single- use zoning, TOD results in complete, mixed-use communities within easy walking and bicycling distance of high frequency transit. TOD may be "origin-oriented" with a primary focus on housing and supportive commercial and community services, "destination-oriented" with a primary focus on employment and supportive commercial and community services, or a mix of both. The aim of TOD is to maximize the number of destinations people can access by walking, bicycling and transit. Equitable TOD works to ensure the availability of housing affordable to people with a variety of income levels. This increases equitable access and reduces VMT.

Through a pilot project at the Kingsgate Park and Ride in Kirkland, Washington, WSDOT identified multiple barriers to advancing TOD in Washington State on WSDOT-owned park and ride lots. The statutory barriers were laid out in a report to the Legislature in January 2020.[4] The report was amended later in the year as new information became available through the pilot project effort. If these barriers are removed, the conversion of surface parking to joint TOD and park and ride functions could be feasible on other WSDOT-owned park and ride lots. The findings of this pilot project may be applicable to other jurisdictions and situations.

In addition to WSDOT, other Washington agencies face barriers to implementing TOD, including many interwoven codes, regulations and laws that support and reinforce a preference for more conventional single-use zoning. Barriers to developing TOD should be removed to support holistic, multimodal transportation solutions such as transit-oriented development that can both improve access and mobility and reduce VMT.

To expand the use of TOD in the state, Washington law and funding must encourage land uses that co-locate different destination types near transit (e.g., childcare, grocery stores, schools, employment), centering equitable development outcomes. To do this, policy makers can remove state and local regulatory barriers. Innovative strategies can help address the financial pre-requisites for TOD, with a focus on anti-displacement and wealth building for low income and transit-reliant communities. For example, a land bank could help

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[3] Calthorpe, Peter. *The Next American Metropolis: Ecology, Community, and the American Dream*. New York: Princeton Architectural Press, 1993. Print.

[4] *See* https://wsdot.wa.gov/sites/default/files/2020/01/30/Kingsgate-Transit-Oriented-Development-Report.pdf

convert vacant, abandoned and tax-delinquent properties into productive uses such as affordable housing, urban gardens, local businesses and parks. Example: Genesee County Land Bank in Michigan.[5]

Targets for EV and FCV adoption

This section expands on the following recommendation in the 2021 State Energy Strategy:

- The Legislature, in consultation with state agencies, should set targets for EV and FCV adoption, differentiated by vehicle class. These targets must be aligned with ambitious targets in existing agreements with other states.

Electric vehicles (EVs) include battery electric vehicles (BEV) and fuel-cell vehicles (FCV). The adoption of targets for EVs can enable carefully designed policies that ensure incentives, financing mechanisms, outreach campaigns and other accelerative policy mechanisms result in a pace of vehicle adoption in the state that correlates with greenhouse gas emission reduction limits. Also, targets are a necessary foundation for monitoring and enforcement measures that can help the state track progress towards other pollution and mobility goals that indicate communities and highly impacted populations are benefiting from investments and programs.

Federal law limits states in pursuing their own vehicle emissions standards, such as fuel efficiency or minimum amounts of EVs sold per year.[6] The federal Clean Air Act (CAA) provides for one exemption to this preemption: California's vehicle emission standards.[7] The CAA grants the California Air Resources Board (CARB) the ability to seek a waiver for higher vehicle emissions standards, known as the Advanced Clean Cars program (ACC), which applies to passenger cars, light-duty trucks, and medium-duty vehicles only.[8] Other states may adopt California's ACC through a provision known as CAA §177.[9]

To date, Washington has implemented the low-emission vehicle regulations component of California's ACC standards under CAA §177, enabling Washingtonians to benefit from more efficient, less polluting internal-combustion engine vehicles.[10] In 2020, the Washington Legislature passed and Gov. Inslee signed SB 5811, directing the Department of Ecology (Ecology) to adopt the zero-emission vehicle (ZEV) program, the other component of the ACC that CARB has successfully implemented under its CAA waiver.[11] The ZEV program requires automakers to achieve a certain percentage of ZEV "credits" as a total amount of vehicles sold. Certain vehicle characteristics such as partial or full electrification and vehicle range determine the amount of credits assigned to each delivered vehicle.

Ecology is preparing to initiate the rulemaking that will result in codification of the ZEV program. Based on the expected rulemaking timeline, the ZEV program will apply to model year 2024 passenger vehicles delivered to Washington for purchase. The current credit requirements are:

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[5] Genesee County Land Bank - (thelandbank.org).
[6] 42 U.S.C. §7543 (a) (2018).
[7] 42 U.S.C. §7543 (b) (2018).
[8] *See* https://ww2.arb.ca.gov/sites/default/files/2019-07/cleancomplete%20lev-ghg%20regs%2010-19.pdf. For a summary of the ACC, refer to https://ww2.arb.ca.gov/sites/default/files/2019-12/acc%20summary-final_ac.pdf.
[9] 42 U.S.C §7507 (2010).
[10] "Clean Car Law" Engrossed Substitute House Bill 1397, 59th Legislature, 2005 Regular Session.
[11] Chapter 70A.30 RCW.

Table 1. [12]

Model Year	Credit Percentage Requirement
2018	4.5%
2019	7.0%
2020	9.5%
2021	12.0%
2022	14.5%
2023	17.0%
2024	19.5%
2025 and subsequent	22.0%

The next version of the ZEV program to be adopted by CARB under the ACC is expected to include new credit requirements for automakers that apply to model years later than 2025.[13] Additionally, Gov. Newsom recently issued Executive Order N-79-20 setting out California's goals for 100% new passenger ZEV sales in 2035. Before CARB can adopt rules to implement the Order, the state must receive a revised waiver from the federal government.

In June 2020, CARB adopted the Advanced Clean Truck (ACT) regulations setting ZEV requirements for all classes of vehicles not covered by the ACC (Class 2b to Class 8).[14] Similar to the ACC ZEV, the ACT ZEV requires Class 2b-8 vehicle manufacturers to sell a certain percentage of ZEV trucks as part of their total annual sales.[15] By 2034, zero-emission truck and chassis sales would need to be 55% of Class 2b-3 truck sales, 75% of class 4-8 straight truck sales, and 40% of truck tractor sales.[16] The full percentages are set out in Table 2.

Table 2.

Model Year	Class 2b-3	Class 4-8	Class 7-8 Tractors
2024	5%	9%	5%
2025	7%	11%	7%
2026	10%	13%	10%
2027	15%	20%	15%
2028	20%	30%	20%
2029	25%	40%	25%
2030	30%	50%	30%
2031	35%	55%	35%
2032	40%	60%	40%
2033	45%	65%	40%
2034	50%	70%	40%
2035	55%	75%	40%

[12] 13 CCR § 1962.2
[13] *See* https://ww2.arb.ca.gov/sites/default/files/2020-09/ACC%20II%20Sept%202020%20Workshop%20Presentation%20%28Updated%29.pdf
[14] California Air Resources Board, Resolution 20-19, June 25, 2020.
[15] Ibid.
[16] California Air Resources Board, Appendix A, Proposed Amendments to the Proposed Advanced Clean Trucks Regulation, April 28, 2020.

During the upcoming rulemaking, Ecology will evaluate adopting the ACT regulations in addition to the ZEV component of the ACC program.

To meet the greenhouse gas emission reductions identified for the transportation sector in the deep decarbonization (DDP) modeling, the following ZEV targets must be reached:

- For light-duty vehicles (cars and trucks): a minimum of 22% of new vehicle sales by 2025, 85% of new vehicle sales by 2030, and 100% of new vehicle sales by 2035
- For medium- and heavy-duty vehicles: a minimum of 30% of new vehicle sales by 2030, and 100% of new vehicles sales by 2050
- For drayage trucks and off-road vehicles: 100% of new vehicle sales by 2035

The estimates derived from the DDP modelling closely align with the ACC and ACT requirements as well as the new targets proposed in Executive Order N-79-20. Vehicle classes that would need additional regulation or incentive in Washington are drayage trucks and light-duty vehicles prior to 2025.

Assessing Infrastructure needs

This section expands on the following recommendation in the 2021 State Energy Strategy:

- The Legislature should direct and fund a comprehensive BEV charging and FCV fueling infrastructure needs assessment.

To meet the greenhouse gas emission reductions identified for the transportation sector in the deep decarbonization (DDP) modeling, charging and refueling infrastructure deployment will need to keep pace with the accelerated adoption rates of BEVs and FCVs. Infrastructure targets can ensure sufficient deployment while also providing beneficial signals to private and public entities involved in the planning, financing, installation or operating of charging or fueling infrastructure. To establish infrastructure targets, the state should first conduct a comprehensive BEV charging and FCV fueling infrastructure needs assessment linked to community needs, targeted sales and penetration rates. The needs assessment should be undertaken in collaboration with the state's public and private utilities, the Utilities and Transportation Commission, the Department of Transportation, regional transportation planning organizations, municipal planning organizations, Tribal Nations, port districts, public transit authorities, other local governments and with local communities.

The infrastructure needs assessment should be aligned with broader transportation system planning and coordination efforts. It should identify where charging or fueling infrastructure is needed to support BEVs and FCVs across all transportation modes. The use of cumulative impacts analysis tools should be integrated into the needs assessment to determine optimal health, environmental and economic benefits for frontline communities. Successful examples of the use of such tools to benefit highly impacted populations can be found in Ecology's and the Department of Commerce's (Commerce) charging infrastructure grant programs.

In particular, the needs assessment should identify: (1) where, and how much, infrastructure is needed to ensure equitable access to BEV charging and FCV fueling across all Washington communities, including low-income, rural, and highly impacted populations; and (2) where and when large capital projects will be needed to support EV and FCV needs across multiple modes, including freight corridors, public transit agencies, ferries, port districts, rail, and aviation – taking into account opportunities for co-location and integration of other

needed infrastructure. Because of the lead time for completing infrastructure projects, the risk of underutilized or stranded assets, and the evolving nature of transportation technology and use patterns, the needs assessment must identify iterative and localized infrastructure installation needs.

The state could then use the findings of the needs assessment to set explicit targets for the development of BEV charging and FCV fueling infrastructure, by geographic location and year. At the same time the state can identify and focus on capital needs or projects that are priorities for state funding and support.

The importance of a charging and refueling infrastructure needs assessment is further elevated by two external forces: (1) the possibility of federal stimulus funds, and (2) the similar work currently underway by neighboring jurisdictions. Under a new federal administration that is prioritizing both greenhouse gas emissions reductions and investments in infrastructure, Washington could receive substantial funding to develop charging and refueling infrastructure. The optimal deployment of an infusion of federal dollars would greatly benefit from a needs assessment and targets. This could ensure projects further accelerate EV adoption, and that highly impacted populations receive maximum environmental, economic and health benefits associated with infrastructure deployment.

Under AB 2127, which Gov. Newsom signed into law in 2018, the California Energy Commission must produce biennial reports assessing the EV charging infrastructure necessary to meet the state's goals of ZEV goals and greenhouse gas emissions targets.[17] Earlier this year, Gov. Brown, signed Executive Order 20-04, which directs Oregon's Department of Transportation to lead a transportation electrification infrastructure needs analysis study to identify the charging needs and gaps across Oregon.[18] Washington, which is closely behind California and Oregon in EV per capita rates, would benefit from conducting a similar charging and refueling infrastructure needs assessment.[19] This would support the state's own infrastructure needs, while ensuring the state keeps pace with two of its most important economic and policy partners.

Conversion of public and private fleets

This section expands on the recommendation in the 2021 State Energy Strategy that:

- The Legislature should pursue accelerative policies, including financial incentives, loan programs, fleet targets and outreach campaigns for public and private fleets. Priority for assistance should be given to vehicle owner/operators.

Large-scale, centralized fleet charging facilities can achieve scale economies and be leveraged to expand charging options for the public at large. In addition, converting fleets helps expose large numbers of drivers to these vehicle technologies, building awareness and confidence and contributing to greater uptake for personal use.

Washington law requires state and local governments to purchase EVs based on a total cost of ownership assessment. Agencies can also comply with this requirement through the use of biofuels. Tax incentives or direct funding should be used to further the conversion of other public and private fleets, including transit, school bus, and van pool fleets, and fleets owned or managed by freight and drayage companies, shared mobility companies, and transportation network companies (TNCs).

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[17] *See* https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180AB2127.
[18] *See* https://www.oregon.gov/gov/Documents/executive_orders/eo_20-04.pdf.
[19] Atlas Public Policy's EV Hub. *See* https://www.atlasevhub.com/.

Where relevant for private fleet conversion, such as with TNCs and trucking companies, assistance should be targeted to those drivers bearing the direct costs of vehicle operation and ownership. Incentives could include subsidies for vehicle lease or loan programs operated by fleet companies, or direct rebates to vehicle owners. The state should also update the existing tax credit for commercial vehicles to focus on emissions-free vehicles and eliminate the cap.[20]

To accelerate the adoption of EVs in public fleets, the state should update and expand the existing targets for new EV purchases for state-owned vehicle fleets, including trucks and off-road vehicles, with the goal of achieving 100% EV purchases: (1) by 2025 for light-duty vehicles; and (2) by 2030 for all other vehicle types. Technical support and oversight by the state is also needed. The State Treasurer can take steps to incorporate public fleets into the LOCAL[21] funding program as a mechanism to provide low- (preferably no-) cost short-term loans to bridge the gap between higher upfront capital costs and long-term operational savings. Public agencies should prioritize planning, development, and funding for BEV charging and FCV fueling infrastructure projects that support fleet conversions.

Complementing, and mirroring some of, these recommendations is the comprehensive and robust Electrification of Public Vehicle Fleets study coordinated by the Joint Transportation Committee and conducted by a team of consultants led by Atlas Public Policy.[22]

Enhance electric vehicle incentives, and reduce disincentives

This section expands on the recommendations in the 2021 State Energy Strategy that:

- The Legislature should enhance existing and restore expired electric vehicle and low carbon fuel incentives and reduce disincentives.

The state currently offers a sales and use tax exemption for new and used EV purchases or leases costing less than $42,500. The incentive could be more effective if the tax could be waived at the point of sale.

Because the value of the tax exemption increases with the cost of the vehicle, customers who choose more expensive vehicles receive a greater incentive. To make ZEV incentives more equitable, a uniform incentive amount should be considered. Other states provide increased savings for low-to-moderate income households. Washington could pursue a similar policy by creating a separate grant program for low-to-moderate income buyers.

Incentives should be proportionally greater for high-priority vehicle classes or market segments, including short-haul medium- and heavy-duty freight and service vehicles and targeted classes of off-road vehicles, for which conventional engines have greater local air pollution impacts.

The state should also pursue a range of other indirect or non-financial incentives and eliminate any current disincentives to EV ownership, including focus on measures to build out the state's EV charging infrastructure.

In addition to expanding state-led incentive programs, the state should enlist the support of electric utilities in providing incentives for EV adoption, expanding current programs limited to charging equipment. Utilities have

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[20] Chapter 82.04.4496 (3) RCW.
[21] LOCAL Program - Washington State Treasurer.
[22] *See* https://leg.wa.gov/JTC/Documents/Studies/Electrification/FinalReport_ElectrificationStudy_Nov2020.pdf.

extensive experience administering energy efficiency incentive programs for buildings. This history could be leveraged and expanded to include targeted incentives for EV purchases.

Finally, the state should stop using EV registration fees to compensate for failures in Washington's transportation funding mechanisms. The state's fees are currently the highest in the nation,[23] and discourage EV ownership. Instead, the state could replace EV registration fees with a per-kWh tax on EV charging.

To improve EV incentives, the state should consider steps to:

- Improve coordination around vehicle funding programs currently administered by the Departments of Ecology and Commerce, and WSDOT.
- Provide or enable additional financial incentives for ZEVs, including by:
  - Offering additional incentives – including cash rebates and/or low-cost financing – for low-to-moderate income households
  - Providing additional or enhanced graduated incentives targeting freight, service and off-road vehicles that contribute the most to local air pollution
  - Enabling utility-sponsored incentive programs for EV purchases modeled on energy efficiency programs
  - Adopt or support non-financial incentives for EVs, e.g., ferry access, reserved parking and license plates.
  - Explore mechanisms to increase the installation of charging infrastructure at Washington workplaces and commercial establishments not otherwise subject to "EV-ready" building code requirements.
  - Repeal burdensome EV registration fees as part of a broader reform of transportation funding mechanisms.
  - Eliminate disincentives to EV ownership, including the measures to address the access to and operation of infrastructure (e.g., ease of access, interoperability, and downtime requirements).
  - Make electric motorcycles eligible for existing tax exemptions.

Support EV outreach & education

This section expands on the recommendations in the 2021 State Energy Strategy that:

- The Legislature should provide resources for robust, comprehensive and accessible EV outreach and education.

The University of California Davis has conducted research concluding that "the first step to expanding markets for ZEVs is to radically increase the number of households considering the question whether a ZEV [is] right for

[23] "States Evaluating EV Registration Fees and Alternatives to Support Transportation Infrastructure Funding," *DSIRE Insight* (blog), May 27, 2020, https://nccleantech.ncsu.edu/2020/05/27/states-evaluating-ev-registration-fees-and-alternatives-to-support-transportation-infrastructure-funding/.

their household."[24] Surveys of Americans over the past decade have confirmed the existence of incorrect notions about range anxiety, charging infrastructure needs, and the diversity and availability of EV models.[25]

The state is uniquely positioned to leverage resources to educate Washingtonians about the opportunities and benefits associated with owning and operating an EV. Creating and investing in partnerships with community-based organizations, local governments, automakers, charging and refueling infrastructure companies and non-profit organizations can result in targeted, helpful education and outreach. Partnerships will be critically important in providing appropriate and essential outreach to highly impacted populations about the benefits of not only EVs, but also alternative mobility options like walking and biking.

To increase consumer awareness and education, the state should take steps to:

- Update and maintain auto sales force education and outreach materials on EV "basics," including how EVs work, available incentive programs, charging and fueling requirements and full costs of ownership.
- Establish customized dealership education programs.
- Support local "ride and drive" events.
- Support additional development and enactment of utility-led EV education and outreach programs, including in partnership with auto dealers and in conjunction with enabling utility EV purchasing incentive programs and continuing utility-sponsored infrastructure incentives.

[24] *See* https://phev.ucdavis.edu/project/awareness-knowledge-experience-and-attitudes-towards-zevs/.
[25] *See* https://www.greencarreports.com/news/1126873_survey-owning-an-electric-car-will-cure-range-anxiety-other-concerns-about-evs, https://www.greencarreports.com/news/1130102_survey-americans-expect-more-electric-car-range-than-before-pandemic, and https://www.govtech.com/fs/transportation/EV-Options-Have-Increased-but-Public-Awareness-Not-So-Much.html.