In early 2020, the Washington State Transportation Commission recommended that the Legislature begin a gradual transition from taxation of motor fuels to per-mile road usage charging (RUC) as the preferred mechanism for funding state roads and bridges. The Legislature had directed the Commission in 2019 to seek additional federal funding to conduct additional research on RUC including financial, equity, technology, and cost reduction analyses, leading to a demonstration of enhanced approaches to RUC that build on the work of the 2017-2019 WA RUC pilot. In July 2020, the U.S. Department of Transportation awarded the Commission a $5.525 million federal grant, dubbed Forward Drive, to conduct this additional research and testing. Work began in October 2020.

The Forward Drive project will focus on addressing specific hurdles that remain for the advancement of RUC as a large-scale replacement for motor fuel taxes. The work is designed to proceed in parallel with the enactment and implementation of a small-scale RUC system.

Research activities will directly support development and implementation of a small-scale system, and findings will inform policy decisions and operational improvements for a transition to a larger-scale RUC system. Key hurdles that Forward Drive aims to address include preserving or enhancing equity of RUC relative to fuel taxes, improving user experiences, incorporating new technologies, and reducing costs through innovation and multi-state collaboration.

In the final quarter of 2020, the Commission and Forward Drive project team devised a more detailed work plan for carrying out project activities. The work plan calls for conducting research and testing through 2023. Research tasks will build future revenue modeling capabilities that address a wide range of transportation and mobility scenarios; advance understanding of equity through engagement and analysis; explore emerging technology and business applications that improve RUC mileage reporting and payments; and develop approaches for collecting RUC more cost effectively by collaborating with other states already implementing RUC systems.

In 2022, the Commission and Forward Drive project team will develop a detailed plan and begin testing the most promising elements from the research, including equity mitigation measures, new reporting technologies, and multi-state RUC system features aimed at reducing collection costs. The work will culminate with a report on the results of the research and testing in 2023. In addition, the Commission will produce a roadmap for how Washington can more fully transition from fuel taxes to road usage charges based on the findings of the Forward Drive project.

The RUC Steering Committee held its only meeting of 2020 on December 8 to learn more about the Forward Drive project and provide input. The Steering Committee will remain engaged for the entire research and testing effort, through 2023.
In 2012, the Legislature directed the Washington State Transportation Commission to research road usage charging (RUC) as a possible replacement for state fuel taxes. Since then, the Commission has convened and sustained a legislative and stakeholder Steering Committee of 30 members, determined the feasibility of RUC, conducted a business case analysis, developed concepts, and tested concepts in a 2,000-vehicle statewide pilot in 2018-2019. At the conclusion of 2019, the Steering Committee provided a final report on the analysis and findings of the assessment and pilot test, and the Commission issued 16 recommendations to the Legislature, on how to advance RUC in Washington State.

In 2019, amid analysis of the WA RUC pilot, the Legislature directed the Commission to recommend an approach for analyzing the impacts of a RUC on underserved communities including communities of color, low-income households, vulnerable populations, and displaced communities. The Legislature further directed the Commission to seek federal funds to conduct additional research on financial impacts of new mobility trends, update RUC operational concepts, and examine revenue allocation frameworks. The Commission submitted its application to the U.S. Department of Transportation in Fall 2019.

In January 2020, while awaiting results of the grant application, the Commission issued RUC recommendations to the Legislature. The Commission recommended, among other things, that the Legislature begin a gradual transition by authorizing a RUC program initially for electric, hybrid, and state-owned vehicles. In addition, the Commission identified a range of areas for additional research, many of which it had previously included in its application for federal funding.

In July 2020, U.S. DOT awarded the full $5.525 million grant to the Commission for additional research. The remainder of this report summarizes the scope of the research proposed and funded, the work plan and schedule for the research, and the progress to date in 2020.
The Commission applied for funding from the U.S. DOT Federal Highway Administration (FHWA) in 2019 under the Surface Transportation System Funding Alternatives (STSFA) program, the same program that funded the 2017-2019 WA RUC pilot and subsequent analysis.

There are seven major tasks in the Forward Drive proposal. Each of these tasks is designed to probe and improve upon implementation challenges discovered during the prior assessment and pilot of RUC in Washington. Tasks are intended to work together, in sequence. Tasks 1 through 4 involve separate areas of research, analysis and deliverables and can be conducted concurrently. Tasks 5, 6 and 7 are sequential and will be undertaken once the results of Tasks 1 through 4 are known.

**TASK 1: Modeling the Revenue Impacts of Mobility Trends**

The Commission recognized that new trends in mobility could impact demand for transportation, including increased electrification, automated driving, and ride-sharing. These trends will impact vehicle miles traveled (VMT) and fuel consumption, which will, in turn impact future revenues available for the state transportation budget from RUC and/or fuel taxes. After submission of the Forward Drive application, the COVID-19 pandemic spurred yet another trend—teleworking—that has already impacted driving and, in turn, state transportation revenues. The persistence of this trend and of the broader reduction in driving wrought by the pandemic remains an open question.

Because of the importance of fuel consumption to state transportation funding today, and of VMT to state transportation funding under RUC, the Commission will develop a scenario-driven, multi-dimensional RUC revenue estimation tool capable of estimating near and longer-term RUC and fuel tax revenue in Washington. By considering the combination of future scenarios for electrification, automation, ride-sharing, and now teleworking, the model will highlight the range of likely future directions for fuel tax and RUC funding over a 30-year horizon (to 2050). This tool will inform the Commission’s recommendations to the legislature regarding the timing of a transition from fuel taxes to RUC.

**TASK 2: Equity Impacts and Mitigation Strategies**

Pursuant to the 2019 legislative proviso, the Commission specifically created a task to examine impacts of transitioning from fuel taxes to a RUC on underserved communities. Specifically, the Commission will identify, model, and survey how a per-mile fee might disproportionately impact communities of color, low income households, vulnerable populations and displaced communities. Based on the findings of outreach to affected communities, the Commission will identify potential mitigation measures that can be tested as a component of the broader demonstration to take place in Task 6.

**TASK 3: Enhanced Mileage Reporting Methods**

The WA RUC pilot advanced the range of possible mileage reporting methods for a RUC program by including a custom-built, GPS-optional smartphone application for measuring and reporting mileage, and by working directly with existing private-sector vehicle licensing offices to explore the creation of a network for in-person RUC reporting and payment.

Based on findings of the WA RUC pilot and other
RUC pilots around the U.S. and internationally, the Commission determined that a RUC system could benefit from mileage reporting technology enhancements aimed at user friendliness, including both low-tech (e.g., manual reporting) and high-tech (e.g., reporting based on in-vehicle telematics) options. The Commission will conduct additional research on emerging technologies and business models in the transportation and payments sectors that could contribute to improvements in the user experience and reductions in the cost of mileage reporting.

**TASK 4: Collection Cost Reduction “Scrum”**

RUC remains a more costly endeavor, with collection costs closer to those for tolling and other utilities, than the fuel tax it would replace. The Commission has identified cost of collection as a top issue for improvement in a large-scale RUC program. A series of work sessions with other states that have implemented or are seriously considering implementing a RUC program will be conducted. The purpose of these work sessions will be to concentrate on specific aspects of RUC collection that are more costly and that states can deliver jointly to share (and therefore reduce) costs, or that states can tap into jointly to benefit from economies of scale faster than they might if they pursued systems independently.

**TASK 5: Detailed Pilot Phase-in Plan**

Based on the results of Tasks 1 through 4, the Commission will prepare a detailed phase-in plan for testing, along with technical documentation for elements to be tested. Examples of areas for testing include RUC payment mechanisms that address concerns from underserved communities and individuals, enhancements to mileage reporting technologies, and multi-state cost reduction techniques. Should the legislature move to implement a limited RUC program for Washington before this task begins, the plan will also align the testing with any implementation activities happening in parallel.

**TASK 6: RUC Prototype Demonstration**

Consistent with the detailed phase-in plan, a limited-scale demonstration period of approximately six months will test various enhancements to RUC through prototyping and live pilot testing. Each specific enhancement or concept will constitute a focus area or “sub-test,” with approximately 50-75 test subjects. To support this demonstration phase, the Commission and project team will work with public and private entities to advance the testing. If the Legislature authorizes implementing a RUC program before or during Task 6, the enhanced RUC elements developed as part of the Forward Drive project will be available for inclusion into the program.

**TASK 7: Final Report & RUC Roadmap**

Based on the results of all prior tasks, including the demonstration and sub-tests, the Commission will produce a final report which will have two main components: (1) a comprehensive narrative documenting the findings, results, and conclusions from the research and limited-scale RUC demonstration and sub-tests; and (2) a comprehensive roadmap for RUC that offers practical policy and system development steps for transitioning more fully from the system of motor fuel taxation to a RUC. The roadmap will feature a Washington-specific transition analysis as well as a generic discussion of transition issues relevant for other states and U.S. DOT.
Current Status (as of December, 2020)

From October to December, the Commission and project team created a detailed work plan for carrying out the seven tasks described above. In addition, the Commission organized and conducted a meeting of the RUC Steering Committee to present the Forward Drive work plan, solicit feedback, and confirm the future role of the Steering Committee in providing input, contributing observations on findings, and participating in the testing. Within the research tasks, the project team has:

- Reviewed prior WA RUC financial models and initiated investigations of external data sources to make improvements and with which to inform construction of scenarios.
- Begun to craft outreach plans and create materials to accompany outreach efforts in support of the equity analysis.
- Initiated a comprehensive research scan of existing and emerging technologies and business models with possible relevance to RUC, including developing a repository for review and analysis of findings.
- Initiated outreach for the cost of collection reduction scrum to partner agencies.

The Commission received updates from the Forward Drive team at its October and December 2020 meetings, and expects to hear further updates throughout 2021.

The diagram below depicts the schedule for the Forward Drive project. The initial research-oriented tasks (Tasks 1-4) began in October 2020 and will continue through Q3 2021, at which time detailed planning for the testing phase (Task 6) will begin. Testing will span 2022, with final reporting and development of the RUC roadmap concluding in Q3 2023. Should the Legislature enact a small RUC program prior to 2023, the earliest advisable launch
date would be July 1, 2023. As the diagram above illustrates, the design, procurement, testing, and launch of a live RUC program that coincides with Forward Drive, can benefit from the findings of the work. A phase-in of a larger number of vehicles would start no sooner than 2023, allowing it to draw on findings of the Forward Drive research project and, specifically, the transition recommendations of the roadmap.
The project team will continue to advance the scope of Forward Drive per the work plan, with research activities expected to take place throughout 2021. In parallel, the Commission will support and monitor legislative activities related to RUC and incorporate relevant directives into the research and development of testing plans. The Commission also stands by to serve as a resource for information regarding previous RUC efforts, from financial modeling to pilot testing to policy analysis.

Outside Washington, the Commission will continue to monitor efforts at the Federal level and in other states in order to incorporate findings and developments that can support Forward Drive and Washington’s broader efforts for finding a gas tax replacement. Utah and Oregon continue to develop and enhance their road usage charge programs. At least one other state (Virginia) has passed legislation creating a similar program. Federally, Congressional transportation reauthorization is likely to feature additional funding to support state efforts to explore and implement RUC programs. Washington has benefitted from the STSFA program already, and the Commission will continue to share our state’s findings and reports with others interested in the subject.