Washington State Road Usage Charge Assessment

DRAFT Feasibility Assessment, Work Plan, and Budget

For Discussion at Steering Committee Meeting # 3

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Index

Steering Committee Members ............................................................................................................................................................................................................................. 3
Section 1: Introduction and Summary ............................................................................................................................................................................................................. 4
Section 2: Feasibility Assessment ................................................................................................................................................................................................................. 10
Section 3: Proposed Work Plan .................................................................................................................................................................................................................... 27
Section 4: Indicative Budget for Phases 1 and 2 .......................................................................................................................................................................................... 49
Appendix A: Steering Committee Member Biographies .............................................................................................................................................................................. 52
Appendix B: Summary of Operational Concepts Used for Feasibility Assessment .............................................................................................................................................................................. 57

Prior Steering Committee Reports

Background material used by the Steering Committee to reach the conclusions in this report are found in two background reports:

- Report 1: Domestic and International Review and Policy Context, Steering Committee #1 Briefing Material, September 13, 2012; and


These are available on the Steering Committee’s web site: http://waroadusagecharge.wordpress.com/.
## Steering Committee Members

<table>
<thead>
<tr>
<th>Name and Affiliation</th>
<th>Representing</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Steering Committee Chair, Commissioner Tom Cowan (WSTC Commissioner)</td>
<td>WSTC</td>
<td>Pete Capell (Clark County Public Works)</td>
<td>Cities and Counties</td>
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<td>Commissioner Anne Haley (WSTC Commissioner)</td>
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<td>Cynthia Chen (University of Washington)</td>
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<td>Commissioner Charles Royer (WSTC Commissioner)</td>
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<td>Don Gerend (City of Sammamish Councilmember)</td>
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<tr>
<td>Sen. Ann Rivers (La Center (R) 18th District)</td>
<td>Washington Senate</td>
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<td>Appointed by WSTC</td>
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<tr>
<td>Rep. Andy Billig (Spokane (D) 3rd District)</td>
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<td>Tom Hingson (Everett Transit)</td>
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<td>Janet Ray (AAA Washington)</td>
<td>Motoring public</td>
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Committee member biographies are shown in Appendix A.
Section 1:
Introduction and Summary
**Legislative Directive**

The 2012 Regular Session of the 62nd Legislature passed a Supplemental Transportation Budget, providing funding to the Washington State Transportation Commission (WSTC) “solely to determine the feasibility of transitioning from the gas tax to a road user assessment system of paying for transportation.” The Legislature also provided funding to the Washington State Department of Transportation (WSDOT) “solely to carry out work related to assessing the operational feasibility of a road user assessment, including technology, agency administration, multistate and Federal standards, and other necessary elements.”

Both efforts are being conducted under the guidance of a Steering Committee. Required activities include:

- Review relevant reports and data related to models of road usage assessments and methods of transitioning to a road usage assessment system;
  - Analyze the research to identify issues for policy decisions in Washington;
- Make recommendations for the design of systemwide trials;
- Develop a plan to assess public perspectives and educate the public on the current transportation funding system and options for a new system; and
- Assess technology, agency administration, multistate and Federal standards, and other necessary elements.

**Objective of the Feasibility Assessment**

The purpose of this study is to determine whether road usage charging is feasible for Washington, and if so, make recommendations about what next steps should be taken or further studied.

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1 Engrossed Substitute House Bill 2190, 62nd Legislature, 2012 Regular Session.
Motivations for Examining a Road Usage Charge

The gas tax represents the largest share of state transportation funding, supporting 76 percent of all transportation investments.\(^2\) Because the gas tax is levied as a fixed amount per gallon, it:

- Does not rise and fall with the price of fuel;
- Does not keep pace with inflation; and
- Declines on a per-mile basis as vehicles become more fuel-efficient, with steep declines in the near future given the recently enacted fuel-efficiency standards in 2016 and 2025 requiring an increase in average efficiency of approximately 22 miles per gallon (MPG) to 55 MPG.

These factors have caused an erosion of gas tax revenue, resulting in a projected decline of more than $5 billion in gas tax revenue between 2007 and 2023.\(^3\) Therefore, the gas tax is not sustainable.

This feasibility study builds on previous work to identify a sustainable, long-term funding source for transportation in Washington, including:

- 2007 – Long-Term Transportation Financing Study;
- 2009 – Implementing Alternative Transportation Funding Methods; and
- 2012 – Connecting Washington.

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\(^2\) Connecting Washington, January 2012.

\(^3\) Ibid.
Feasibility Assessment Process

The Steering Committee conducted its feasibility assessment in steps, establishing a common understanding of road usage charge policy and technical considerations. At its first meeting the Steering Committee received a report on domestic and international experience with road usage charging and an overview of policy issues. Through facilitated discussion Steering Committee members expressed their preferences on policy objectives and feasibility criteria, which were confirmed through a follow-up member survey.

At its second meeting, the Steering Committee received a report on potential road usage charge concepts for Washington that would carry out the policy objectives identified in the first meeting, and evaluated according to the feasibility criteria. Committee members unanimously agreed that road usage charging is feasible in Washington. The first two reports are available on the road usage charge web site.

This third report summarizes the work leading to the feasibility assessment, and proposes a work plan and budget. It is a consultant draft of the report that the Steering Committee will send to the WSTC, for ultimate transmittal to the Legislature. This report will be reviewed on December 4, 2012, with WSTC review on December 13, 2012. Based on feedback from these meetings, the final recommendation will be forwarded to the WSTC after the Steering Committee’s January 11, 2013 meeting.
**Steering Committee Feasibility Recommendation**

The Steering Committee unanimously concludes that a road usage charge is feasible in Washington and recommends further study as outlined in the Work Plan and Budget Sections of this report (Sections 3 and 4).

The Steering Committee recognizes that the gas tax is not a sustainable revenue source for transportation in Washington, as demonstrated by prior studies. Successful international examples of road usage charge systems in practice and successful demonstrations in the U.S. show that there are numerous viable operational concepts and technologies for road usage charging in Washington.

However implemented, road usage charging will not be perfect, but no tax mechanism is perfect, including the current gas tax. All taxing policies involve tradeoffs between ideal policy objectives and how these objectives can be implemented in the real world. This feasibility assessment demonstrates that offering choices to users may solve many of the issues related to road usage charging and other associated issues such as privacy and acceptance.

**The Way Forward**

Road usage charging has been used in other places, so there was never a question as to whether it is “possible.” The effort of the Steering Committee to date has focused on whether road usage charging is “feasible” in Washington. The next step would provide information to enable the Legislature deciding whether road usage charging is desirable for Washington, and if it is desirable, the general operational concepts that should be advanced – Phase 1 of the proposed work plan. If, and only if the Legislature authorizes it, Phase 2 would develop a system that is ready to implement – meaning that the policy issues have been resolved and the systems have been designed, but the actual work of creating the administrative and technical systems – implementation – still remains.
Proposed Work Plan Summary

To enable the Legislature and Governor’s office to decide whether road usage charging is desirable, and, if so, to study the details necessary to get it ready to implement, we propose an iterative process that addresses:

- Choices among policy frameworks, narrowing the objectives of a potential road usage charge;
- Public outreach and engagement that measures public perspectives and provides information;
- Operational concepts that achieve the policy objectives;
- System design alternatives to carry out the operational concepts; and
- Business analyses that evaluate costs, risks, transition issues, and interoperability of road usage charging.

All elements would be addressed in both phases of the work plan, with Phase 1 focusing more attention on the policy choices and operational concepts, and Phase 2 focusing more on the system design alternatives. Evaluation of the business case would be done in both phases. The total estimated budget for this work plan is $3.5 million, with $1.6 million for Phase 1 and $1.9 million for Phase 2, excluding the cost of pilot tests. Depending on the goals of the tests and their complexity, such tests could add anywhere from $1 million to $5 million. Further, the costs of pilot tests might be shared with other states.
Section 2: Feasibility Assessment
Reasons and Ways to Charge for Road Use

There are many reasons to assess charges on road users, and many ways to implement such charges in practice. Reasons include revenue generation for roads, revenue generation for other purposes, congestion management, and environmental protection. Practitioners often use terms such as tolling, congestion pricing, and road usage charging interchangeably, and it is easy to get confused; but there are substantive differences among them. The list below provides brief descriptions of four forms of charging in order to clarify the differences.

- **Fuel tax.** Charges assessed on fuel consumed by road users.

- **Toll.** Charges assessed on users of a specific highway, bridge, or tunnel (such as on Tacoma Narrows Bridge and SR 520 in Washington), including express toll lanes (such as SR 167).

- **Congestion charging.** Charges assessed during specific times and at specific places to change travel behavior and manage congestion.

- **General road usage charging.** Charges assessed across the entire network of roads based on measured usage.

The sole focus of this study is on “general road usage charging,” which we define as an alternative means of paying for the road system in general, and has these characteristics:

- **Network-Wide.** Charged across an entire network of facilities for a specified geography rather than for a single facility, corridor, or “trunk line” as is often the case in tolling.

- **Charged 24/7.** Charged regardless of the time of use. In this respect, road usage charges are like other utilities or consumer products. Time-of-day charging can manage demand, but is not a necessary component.

- **For General Highway Use.** Would fund a broad region or state, rather than a single facility or limited jurisdiction.
Policy Objectives of General Road Usage Charging

- **Primary Objective: Revenue Generation.** The primary purpose of general road usage charging, as we define it, is to raise revenue. The use of that revenue may vary. In practice, examples of the allocation of these revenues include:

  > **Revenues dedicated to highways.** New Zealand’s road usage charge is dedicated to the highway system, transport studies, and environmental projects.

  > **Revenues dedicated to transportation.** Examples include U.S. Federal fuel taxes that are devoted to the Highway and Transit Trust Funds. Most state gas taxes are similarly devoted to transportation uses, if not dedicated explicitly to highways.

  > **Revenues partially dedicated to highways or transportation.** Outside the U.S., particularly in Europe, revenues deriving from road users, such as fuel taxes and tolls, are often diverted to non-transportation uses. In the UK, less than half of road revenues were devoted to transport and only 20 percent to highways (in 2010, out of £50 billion).

  > **Revenues devoted to a general fund.** In many places around the world (but not in the U.S.), road usage-derived charges, including fuel taxes, are deposited into a general fund together with other tax revenues. Because funds are fungible, there is no meaningful link between revenues and spending.

- **Secondary Objectives:** Reach other social objectives.

  > **Manage demand/congestion.** Prices can influence the demand for transportation. Therefore, it is possible to use price to manage demand in addition to raising revenue.

  > **Protect the environment by reducing fuel use.** Fuel taxes directly discourage fuel consumption. France’s “eco-tax” on heavy vehicles and the Swiss heavy vehicle tax have explicit tax components based on environmental impact. Austria utilizes road usage charging to help shift freight from roads to rails. In all of these cases, however, revenue is still a primary objective.

  > **Influence travel behavior and other decisions such as land use.** All charges or taxes affect user behavior. Some are explicitly designed to influence choices, such as the very high fuel taxes found in Europe, congestion charges, and environmental taxes. Charges that seek only to recover costs of road use, such as New Zealand’s road usage charge and U.S. fuel taxes, have less impact on personal decisions.
Actual Experience With Road Usage Charges is Limited

Though studied extensively both by academics and by practitioners, implementation of road usage charging has been limited:

- **New Zealand.** All heavy and alternative fuel vehicles have been subject to road usage charges since 1978 using a low-tech system where drivers buy blocks of kilometers. Newer systems that use advanced technologies to measure and pay charges are being phased in.

- **European Vignette Systems.** Several European nations use vignettes (stickers) that allow drivers to use certain roads for a designated time (from a few days to a year.)

- **U.S. – Weight-Distance Taxes.** Over 20 states implemented weight-distance charging for commercial vehicles in the mid-20th century, but only four programs remain (Kentucky, New Mexico, New York, and Oregon), the rest having been replaced by diesel taxes. The reasons for switching from weight-distance charges to diesel taxes included high cost of collection for government agencies, high cost of compliance for operators, evasion, and legal action by the American Trucking Association.

- **U.S. – IFTA and IRP.** Interstate truck operators report miles state-by-state in order to convert diesel taxes and registration fees into mileage-based fees through the International Fuel Tax Agreement (IFTA) and International Registration Plan (IRP), respectively.

Sections 4-7 of Report 1 provide more details on many of the systems mentioned here and on the next page.
Studies and Proposals of Road Usage Charge Systems Are Numerous

International

Four countries outside the U.S. have studied and conducted pilot tests of road usage charging: United Kingdom, 1964 – Present; Singapore, 1978 – Present; The Netherlands, 1988-2010; and Hong Kong, 1983-2009. While there are many differences, they share the following characteristics in common:

- Studies have been underway for several decades or more;
- Road usage charging was coupled with one or several companion policies such as congestion charging, tolling, and environmental impact charging;
- The studies have continued for many years or decades and have rarely led to the implementation of new operational systems; and
- Policy-makers often undergo several “rounds” of study, outreach, and analysis before a system is implemented.

Domestic

General road usage charging has been discussed, proposed, studied, and subject to pilot tests in almost 20 states, including:

- **Studies with completed trials** – University of Iowa (not fully reported); Oregon DOT (2007), Puget Sound Regional Council;
- **Studies with trials in progress** – Minnesota, Oregon DOT (2012); and
- **Studies without trial (so far)** – I-95 Corridor Coalition, Nevada, Colorado, California.

Motivations for these efforts were similar to those in Washington: falling gas tax revenues caused by increasing vehicle fuel efficiency and the emergence of vehicles that do not use motor fuel. While these studies generally focus on generating revenues to cover road usage costs as their primary policy goal, several of these studies also considered reducing peak-hour urban congestion and reducing emissions.
Lessons Learned from Prior Road Usage Charging Efforts

Prior efforts provide valuable lessons for Washington’s feasibility assessment, including:

- **Policy framework:**
  - Establish policy and legislative framework first – then select a solution to fit policy objectives.
  - Policy objectives drive the technology selection, not the other way around.
  - Understand, refine, and test policy objectives – be open and communicate clearly with the public and stakeholders.
  - Passenger cars are different than trucks.

- **User experience:**
  - Choices in technology and payment streams are key.
  - Ensure simplicity and efficiency.

- **Public acceptance:**
  - Minimize exemptions and consider phase-in discounts.
  - Clearly define what will be done with the revenues.

- **Implementation:**
  - “Open market” approach and use of certified service providers reduces overall costs and ensures system sustainability.
  - Enforcement and legal appeals process are critical – taxes have more “bite” than fees, tolls, or charges.
  - Political will is essential.
Steering Committee Policy Objectives

Working with the consultants, Steering Committee members expressed their policy objectives for road usage charging in Washington, recognizing that there may be some tradeoffs in how well different objectives are met:

- Create a sustainable transportation revenue source to address erosion in revenue due to vehicle fuel efficiency gains;
- Demonstrate equity in who uses and who pays for transportation; and
- Accomplish other social objectives, such as:
  > Increase the transparency of what road use costs and how funds are spent;
  > Reduce the amount of driving;
  > Reduce energy usage;
  > Reduce greenhouse gas emissions; and
  > Reduce congestion through pricing.

There was a range of opinion as to which objectives should be considered in the feasibility assessment. For the most part, creating a sustainable transportation revenue source was a high priority for most of the Steering Committee members. The policy objectives formed the basis for a set of illustrative road usage charge concepts developed by the consultant team for use in the feasibility assessment, but considerably more work on refining policy objectives would be needed in Phase 1 of the proposed work plan (see Section 3).

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Please reference Report 2, Potential Road Usage Charge Concepts for Washington, for more detail about the policy objectives and feasibility criteria.
Feasibility Criteria

The Steering Committee developed 10 feasibility criteria to evaluate the illustrative operational concepts developed by the consultant team:

- **Convenience**: The system is convenient to the users; it does not impose a significant burden for compliance and offers choices to meet the needs of diverse users.

- **Implementability**: The system can overcome implementation barriers and challenges – reasonable solutions exist.

- **Transparency**: The system can achieve transparency in the rate-setting, customer billing, and accounting.

- **Stability and Sustainability**: There is a high degree of confidence in revenue expected from the system, measured by revenue stability and sustainability relative to the gas tax.

- **Privacy**: Actual and perceived.

- **Fairness (Equity)**: The system can collect revenues from users in a way that is fair across classes of users such as cars and trucks; urban and rural residents; and motorists of all income levels.

- **Flexibility**: The system can accommodate evolving revenue collection technologies, revenue needs, user needs, and policy changes such as rate-setting.

- **Choice**: Users can choose from a menu of options to meet their individual preferences.

- **Out-of-State Travel**: The system can distinguish between in-state and out-of-state travel.

- **Collect Revenue from Out-of-State Travelers**: The system has an appropriate way to collect revenue from out-of-state travelers.

While there was a general consensus that all of the feasibility criteria were appropriate, the Steering Committee found the criteria related to out-of-state travel to be of lesser importance in making a feasibility determination.
Core Elements of Potential Operational Concepts

Road usage charge concepts are composed of the following core elements:

- **Principal.** The responsible party – individual or entity such as a corporation or other organization – that is legally responsible to pay charges and fines. This party should be defined in law.

- **Vehicle.** Vehicles that need to pay a road usage charge should be identified in legislation, as should vehicles that might be exempted.

- **Road Network.** The road network defines the roads that are subject to the road usage charge. It is possible that some roads might be excluded from charges, such as roads on private land and toll facilities.

- **Usage.** A measure of usage of the road system that can be based on distance or time (or both).

- **Charge Rates.** How much is charged per unit of usage.

- **Charging Policy.** The set of laws, regulations, and rules that defines the road network, usage, rates, and approved methods of measurement.

- **Road Usage Charge Administration.** Includes account management, charge management, compliance and enforcement, and policy/administrative functions. A combination of governmental and private entities can carry out these functions.
Core Elements of Potential Operational Concepts (continued)

The core elements combine to form operational concepts that include these characteristics:

- Every **vehicle** will have a single **principal**, but a **principal** may be responsible for more than one vehicle.
- Usage of the **vehicle** on the **road network** will generate **charges** based on the **charging policy**.
- A road usage charging administration will manage accounts, charge the principal, and collect and manage payments.
- The **road usage charging administration** might be part of an existing organization or organizations, a new entity, or some combination of these. It may also encompass both governmental and private sector elements.
- Figure 2-1 provides an overview of how the core elements fit together into the **generic operational concept**.

Figure 2-1: Generic Road Usage Charge Operational Concept
Core Elements of Potential Operational Concepts (continued)

A Simple Charging Policy

At its simplest, the road usage charge consists of a rate that applies to road usage on all roads at all times (Figure 2-2):

- **Rate**, could be the same for all vehicles or differ based on:
  - Number of axles;
  - Physical size of vehicle (length, width, and height);
  - Type of vehicle drive train (e.g., internal combustion engine, gas hybrid, diesel hybrid, electric.);
  - Vehicle class; or
  - Combination of any of the above.

- **Usage**: The amount of usage based on some combination of these factors:
  - **Time**:
    - Calendar (e.g., week, month, year); or
    - Engine run time.
  - **Distance**:
    - Odometer reading;
    - Computations from an inertial navigation system (INS); or
    - Computations from a global positioning system (GPS).

In addition to simple road usage, charging policies can assess charges for congestion and environmental impacts of driving, either separately or in combination.
**Framework for Operational Concepts**

Figure 2-3 outlines a framework for eight operational concepts, each reflecting how Washington State might implement a road usage charge, consisting of the following dimensions:

- **Basis of the charge** – Either *time* or *distance* (potentially including congestion or environmental factors).
- **Reporting responsibility** – Either declared by the user or detected by the road usage charge “system,” including any component technologies.

These eight operational concepts capture a broad range of policies – from “simple” usage charging to “more complex” congestion and environmental charging, and technologies – from no technology to non-location-based technology to location-based technology. **It is possible – and probably preferable – to implement several operational concepts in parallel rather than relying on one single concept in order to achieve a range of choices for principals.**

We elaborate on the technology alternatives associated with the eight operational concepts on the next page.
Enabling Technologies

We further considered technology options to implement each of the eight concepts, as illustrated in the bottom row of Figure 2-4 (next page). There is no technology required for the concepts in which the principal reports usage, while there are several technology alternatives for concepts in which the system detects usage. Please reference Report 1, Domestic and International Review and Policy Context, for a more detailed treatment of the technology options and how each works.

Time-Based System Technology Options

The technology for reporting engine run time is relatively simple. Vehicles emit unique vibrations that only occur when the engine is running, and there are sensors that can detect these vibrations. It would be a simple matter to keep track of how long the engine is running, and then communicate the information to the road usage charge authority via in-vehicle telematics, Bluetooth device to a smartphone, or built-in single-purpose communications device. Even electric vehicles will have vibrations that can be detected.

Distance-Based System Technology Options

Automatic system reporting requires some technology (see Figure 2-4, next page).

- **OBD-II devices** such as the Progressive insurance “Snapshot” dongle are currently used for reporting miles for pay-as-you-drive (PAYD) insurance. The dongles have built-in cellular modems that transmit data over the Internet to a central server.

- Experiments in Ohio and Oregon are testing the **OBD-II dongle with a Bluetooth interface** to a cellular telephone that runs an application to collect and report data from the vehicle.

- **Vehicle telematics** such as GM’s “OnStar” or Ford’s “SYNC” can collect the data and transmit them over the cellular network to a cloud-based application for automated reporting.

- A number of stand-alone, **third-party GPS units** exist and are field-tested. Most of these are from truck mileage systems, but can be adapted to a car.

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5 OBD-II devices connect to a vehicles on-board diagnostics port on vehicles manufactured after 1995 via a “dongle.”
Figure 2-4: Road Usage Charge Operational Concepts with Enabling Technology Options
Potential Operational Concepts – Overview

Descriptions of the road usage charging operational concepts, associated technology options and their relative advantages and disadvantages are provided on the next few pages. Please reference Report 2, Potential Road Usage Charge Concepts for Washington, for additional detail about each operational concept.

In considering the eight operational concepts, note that:

- **Operational concepts are illustrative**, designed to provide a better understanding of the range of alternatives and the high-level requirements to implement them.

- **Some concepts do not require technology**, while others need one or more technologies.

- **Operational concepts are not mutually exclusive**. In fact, if road usage charging advances in Washington State, it is likely that a combination of several concepts would be pursued, especially if some of the more technologically advanced concepts were included.

- **Switching to a road usage charge all at once, in a “big bang”** increases the consequences of any failure in the system. A more gradual approach to introducing the road usage charge will have smaller downside risks.

- Policy choices, such as rate structure, determine whether some of these concepts can work.

- All of the eight operational concepts can be accommodated by a variety of administrative concepts.
Potential Operational Concepts – Specifics

The eight operational concepts, including technology alternatives associated with each, are briefly described below, grouped according to the basis of the charge: time or distance. A summary assessment of the potential operational concepts is included in Appendix B.

Time-Based Concepts

1. **Time Permit.** Purchase unlimited road network access for a set period of time (e.g., week, month, year).

2. **Engine Run Time Charge.** System detects engine run time over a set period (e.g., monthly) and reports charges automatically. There are three technology alternatives: a) In-vehicle telematics device, b) Aftermarket device with cellular reporting, c) Aftermarket device using principal’s smartphone.

Distance-Based Concepts

3. **Mileage Permit.** Purchase a license to drive a certain number of miles.

4. **Estimated Annual Mileage Permit with Reconciliation.** Pay for estimated mileage for a set period, then reconcile the account based on actual distance driven periodically (monthly, quarterly).

5. **Simple Odometer or Other Mileage Reading.** Report mileage at the end of a period (e.g., quarterly) and pay the corresponding amount owed.

6. **Automated Mileage Reporting.** System detects mileage traveled and reports charges automatically at the end of a period (monthly, quarterly). There are three technology alternatives: a) OBD-II dongle with cellular modem, b) OBD-II dongle with Bluetooth to smartphone, c) Vehicle telematics.

7. **Automated Mileage and General Location Measurement.** System detects mileage traveled by geographic zone over a set period of time (e.g., monthly) and reports charges, with rates set by zone. There are three technology alternatives: a) Existing vehicle telematics with GPS, b) User-provided smartphone + OBD-II backup dongle, c) Third-party GPS device with cellular modem.

8. **Automatic Mileage and Specific Location Measurement.** System detects mileage traveled by geographic zone over a set period of time (e.g., monthly) and reports charges, with rates set by road segment or type of road. There are three technology alternatives: a) Existing vehicle telematics with GPS, b) User-provided smartphone + OBD-II backup dongle, c) Third-party GPS device with cellular modem.
Feasibility Assessment

The feasibility assessment considered each of the potential road usage charge concepts through the lens of the feasibility criteria. The consultant team conducted a preliminary feasibility assessment, rating each concept across the criteria using a five-point scale. In the end, all Steering Committee members agreed that road usage charging was feasible in Washington.

In conducting the preliminary assessment, a number of common themes and issues emerged across all concepts:

- **Evasion likely to increase.** Not all principals subject to the road usage charge will have a valid vehicle registration and might be able to avoid paying their road usage charges. With the gas tax, even unregistered drivers pay their road usage charge.

- **Infrequent users are problematic.** The high cost and complexity of implementing a road usage charge system that applies to infrequent users is problematic, especially given that one of the benefits of the road usage charge is making clear to users the relationship between user costs and actual road usage.

- **Administrative costs will be higher than with a gas tax.** An entirely new administrative system will be needed. Costs may change over time as well, especially if other states are involved.

- **Perception of double taxation.** To avoid a perception of double-taxation, methods for processing gas tax refunds for motorists subject to road usage charges during a potential transition phase will be necessary.

- **All solve the problem of revenue erosion equally.** Relative to the gas tax, revenue erosion is no longer an issue. However, unless road usage charge rates are indexed to some inflation index, revenue will not keep pace with inflation.

- **All will need a rate-setting rationale.** Rate structure will need to be addressed so that if a flat tax is imposed, it captures external costs and can accommodate changes to those costs over time.

- **Virtually all are more inconvenient than the gas tax.** All systems will be more inconvenient than the gas tax, because they will require users to pay a new bill or find a way to purchase licenses of some sort. The exception would be a system that does not count miles and is paid at the same time as vehicle registration.
Section 3: Proposed Work Plan
Proposed Work Plan Context

Road usage charging has been used in other places, so there was never a question as to whether it is “possible.” The effort of the Steering Committee to date has focused on whether road usage charging is “feasible” in Washington.

Proposed Work Plan – Phase 1: Evaluate Desirability and Potential Direction for Implementation

We propose that the Phase 1 work plan – ending in June 2015 – focus on the question of whether road usage charging is desirable and provide direction regarding the desired operational concept. This would address the difficult policy choices relating to how charges should be set and how they would be collected, and public acceptance issues. Phase 1 would provide information to enable the Legislature deciding whether road usage charging is desirable for Washington, and if it is desirable, the general operational concepts that should be advanced.

Proposed Work Plan – Phase 2: Make Road Usage Charging Ready to Implement

If, and only if the Legislature authorizes it, Phase 2 would develop a system that is ready to implement – meaning that the policy issues have been resolved and the systems have been designed, but the actual work of creating the administrative and technical systems still remains. Phase 2 is estimated to cost $1.9 million, and take two to three years or longer.

Implementation – Beyond this Work Plan

Developing, procuring, and testing the necessary technology and administrative systems would occur after this work plan as would rolling a system out to the public.

Pilot tests or Demonstrations

Either Phase 1 or 2 might benefit from testing systems or components of systems, the cost of which could range from $1 million to $5 million. This is not included in the above budget estimates since the specifics are so uncertain.
**Work Plan Tasks**

To enable the Legislature and Governor’s office to decide whether road usage charging is desirable, and, if so, to study the details necessary to get it ready to implement, we propose an iterative process that addresses:

- Choices among **policy frameworks**, narrowing the objectives of a potential road usage charge;
- **Public outreach and engagement** that measures public perspectives and provides information;
- **Operational concepts** that achieve the policy objectives;
- **System design** alternatives to carry out the operational concepts;
- **Business analyses** that evaluate costs, risks, transition issues, and interoperability of road usage charging; and
- **Pilot tests or demonstrations**, which can evaluate whole road usage charge systems, or components of those systems, potentially in parallel with the other policy and analytical work, and in conjunction with other states.
Work Plan Tasks (continued)

The proposed work plan includes these tasks, all of which span both Phase 1 and 2:

- **Engaging the Public**
  - Task 1: Measure Public Attitudes and Acceptance
  - Task 2: Communications and Public Engagement

- **Policy Framework**
  - Task 3: Define Policy Objectives
  - Task 4: Policy Research

- **Operational Concepts**
  - Task 5: Define Operational Concepts

- **System Design**
  - Task 6: Administrative Design
  - Task 7: System Architecture and Technical Requirements

- **Business Analysis**
  - Task 8: Business Case
  - Task 9: Evaluation Framework
  - Task 10: Interoperability with Other Systems
  - Task 11: Transition Strategy
  - Task 12: Risk Analysis

- **Pilot Test**
  - Task 13: Preparation for and Conduct of Pilot Tests
Engaging the Public
Task 1: Measure Public Attitudes and Acceptance

Objective. Measure and evaluate public perceptions of road usage charging over the course of the two phases.

Approach. We will use a combination of surveys starting with the Voice of Washington survey panel, and supplemented later with focus groups, which will explore concepts in more detail and test messaging strategies.

Phase 1:

1A: Baseline evaluation of public perception and understanding related to transportation funding needs, existing revenue sources, and potential road usage charge approaches using the existing Voice of Washington survey panel and supplemented with additional market research to capture a broader population. This would occur towards the beginning of Phase 1.

1B: Interim evaluation, where we explore more specific road usage charge proposals, in preparation for the determination as to whether road usage charging is desirable. The interim evaluation will involve:

- Focus groups to test public reaction to various policy and operational concepts and communication approaches, to understand how people react to alternative ways of describing problems and proposed road usage charging solutions.
- Voice of Washington survey panel, market research, and targeted polling of specific populations and stakeholder groups.

Phase 2:

1C: Advanced evaluation, where we repeat components of the interim evaluation once more details are known about the proposed system.

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6 The Voice of Washington is an Internet survey panel of over 15,000 participants used by the WSTC to test public responses to transportation issues.
Engaging the Public

Task 2: Communications and Public Engagement

Objective. Provide information to the public and engage them in discussions about policy and operational issues.

Approach. Communications and public engagement activities will be appropriate throughout Phases 1 and 2, and will involve iterative efforts.

Phases 1 and 2:

2A: Develop a communications plan at the beginning of each phase, and updated periodically throughout to respond to needs as they arise.

2B: Develop collateral material, such as:

- Public web site for two-way communication (i.e., provide project information and updates and accept public comment).
- Fact sheet(s) that provides a short, easy-to-understand overview of road usage charging objectives and methods.
- Reference information, including project reports, news stories, reports from around the world, white papers, and other project web sites.
- Informational video on the project.
- Presentation for use with stakeholders and key audiences.
- Frequently asked questions for external audiences.
Engaging the Public
Task 2: Communications and Public Engagement (continued)

2C: Communications activities, such as:

- Press releases, media briefings, newsletter blasts and interviews with media outlets, timed to coincide with important project milestones;
- Use of social media;
- Media roundtable in advance of party caucuses;
- Web conference for global and national stakeholders;
- Meetings with local stakeholders, including Regional Transportation Planning Organizations, Transportation Choices Coalition, and other transportation stakeholder groups Webinars and on-line forums;
- Op-eds in key media markets;
- Workshops, summits, and open houses with the public;
- Open meetings of the Steering Committee, with opportunities for public comment; and
- Individual briefings of key legislators or other stakeholders.
Policy Framework
Task 3: Define Policy Objectives

Objective. Establish a road usage charging policy for Washington State.

Approach. There are some basic, high-level policy objectives that need to be resolved early enough in the process (in Phase 1) to provide a good framework for the system and operational designs that must follow. Refinement of these policy objectives will occur in Phase 2, but the majority of the questions should be addressed in Phase 1.

Phase 1:

- **Relationship to the gas tax** – Replace, supplement, or transition from. How do these choices affect the definition of a road usage charge and how it might be implemented?

- **Social objectives** – Should the road usage charge be used to influence traveler behavior in ways that have different social objectives, such as reducing energy use, greenhouse gas emissions, and congestion, or encouraging transit use?

- **Use of revenues** – Should a road usage charge be strictly for roadway use (similar to the gas tax) or should there be a broader use of such revenues? How does the 18th Amendment to the Washington Constitution influence this decision?7

- **Equity among user groups** – Should charges account for special situations, such as the amounts that urban or rural drivers might pay, or the ability of poor people to afford the charge? What factors should be considered when considering equity?

- **Rate setting** – How should cost responsibility be measured? How important is it for a road usage charge to reflect actual miles traveled? To what extent are compromises in this desire appropriate to satisfy issues related to technology and/or privacy? To what extent is it important to distinguish between miles driving within Washington or outside of Washington?

- **Out-of-state issues** – How important is it for a road usage charge to capture revenue from all out-of-state drivers? How important is it to distinguish Washington residents’ in-state versus out-of-state travel?

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7 The 18th Amendment to the Washington State Constitution dedicates motor fuel tax collections to “highway purposes.”
Policy Framework

Task 3: Define Policy Objectives (continued)

Specific steps in Phase 1 would include:

- A series of workshops that focus on several policy issues. The workshops would be similar to the Steering Committee meetings, involving presentation of research materials by staff or consultants, plus facilitated discussions aimed at garnering the consensus of Steering Committee members.

- Legislative briefings for Legislators and their staff as well as the Governor’s office to ensure that the Steering Committee is heading in a direction that can result in legislation that has a high likelihood of passing.

- Draft recommendations and determination of “desirable,” if supported by the work.

Phase 2:

- **Tax versus fee** – Should the road usage charge be a tax or a fee, given the legal, administrative, and enforcement differences between the two, as well as the political challenges associated with creating a new tax?

- **Define legal terms** – How should legislation define “principal,” “measuring instrument,” “road usage charge,” “public road,” “out-of-state,” “subject vehicles,” and other terms critical to successful implementation of road usage charging policy?

- **Penalties and enforcement** – How will the policy specify penalties and other enforcement regimes for road usage charging?

- **Government agency and private sector involvement** – Which agencies should be responsible for which activities, and what elements should be done by the private sector.

These policy issues would be addressed in additional workshops in Phase 2.
Policy Framework

Task 4: Policy Research

Objective. Provide the analytical information needed to make informed policy decisions.

Approach. The Steering Committee will identify their research needs to support the recommendations they need to make and direct staff to carry out the needed analysis.

Phase 1:

- Fleet and vehicle miles of travel composition trends, forecasts and scenarios;
- Quantification of out-of-state travel by Washington residents;
- Quantification of travel in Washington by out-of-state travelers;
- Rate options report: Initial research and analysis of rate-setting options based on experiences in other contexts and the Washington State context;
- Preliminary transportation cost allocation study to address road costs allocated to various classes of users, including by geography (counties or regions) and vehicle type (light vehicles, buses, trucks); and
- Preliminary transportation revenue allocation study to address alternative methods of allocating revenues to different uses and needs such as user class, including by geography (counties or regions) and vehicle type.

Phase 2:

Research in Phase 2 would delve further into the specifics of rate setting, including finalizing the transportation cost and revenue allocation studies, as well as the more detailed issues suggested in Task 3, including tax versus fee, definition of legal terms, and options for penalties and enforcement.
Operational Concepts

Task 5: Define Operational Concepts

Objective. Define how system users will experience the system when driving and paying charges.

Approach. Take the highest-level policy goals, and transform them into a description of the user’s experience, which occurs before any work on architecture or technical requirements.

Phase 1:

- Develop a short list of potential operational scenarios, based on the policy direction from Task 4, considering:
  
  > Preliminary operational concepts – Construct operational concepts, which involves thinking through the standard driving and payment situations, and developing preliminary approaches to handling them. These include: driving in Washington State; driving out of Washington State; paying an invoice; buying a vehicle; selling a vehicle; setting up an account or purchasing a mileage block; and other similar situations.
  
  > Enforcement/Compliance Approach – How to maximize compliance with the system and address nonpayment?
  
  > Security – Encryption and authentication measures for data; physical security for system.
  
  > Data Privacy and Usage – What measures will be instituted to protect privacy? Also address who reviews possible privacy complaints.

- Work with the Steering Committee to define one or two operational concepts in sufficient detail to prepare preliminary administrative designs and evaluate the business case (Tasks 6, 7, 8).

Phase 2:

- Further refine operational approaches, including reports on compliance and enforcement, system security approaches, and privacy measures.

- Review operational approaches with the Steering Committee and refine as necessary toward a preferred combination of concepts.
System Design
Task 6: Administrative Design

Objective. Provide recommendations relating to the administrative functions of a road usage charge.

Approach. Building upon the operational concepts (Task 5) address implementation options by existing or new government agencies and private partners.

Phase 1:

- Identify administrative functions necessary to support road usage charge concepts.
- Evaluate current administrative functions of state agencies, including departments of Transportation, Licensing, and Revenue, and opportunities to cost-effectively integrate new functions into these agencies.
- Evaluate opportunities for outsourcing or other ways of partnering with the private sector, such as through certified service providers and auditors.  
- Develop initial recommendations for several systems and review with Legislature and Governor’s Office.

Phase 2:

- Working with policy-makers, the Legislature, and Governor’s Office, down-select to a preferred administrative alternative.
- Design an organizational transition and implementation plan for implementing the preferred alternative.
- Develop a procurement approach and documentation (including certification) to support any outsourcing or private sector involvement envisioned.

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8 See Report 2, pages 40-42 for details on these concepts.
System Design
Task 7: System Architecture and Technical Requirements

Objective. Based on the operational concept defined in Task 5, develop the system architecture – the basic framework for how the system will operate – and detailed technical requirements of the technology so that the technology can be tested and procured.

Approach. Develop preliminary system architecture and technical requirements for a few systems in Phase 1, adequate for a preliminary assessment of the business case (Task 8). Further refine these in Phase 2 so that systems can be procured.

Phase 1:

- Develop system architecture for several systems through an interactive process with the operational concepts.

- Develop draft technical requirements. Requirements are not technical specifications; they explain what the system components and the system as a whole must do, but not precisely how the system must accomplish those tasks. Requirements leave room for the creativity and flexibility of private industry. However, all system interfaces – interfaces to existing Washington State systems and interfaces between various parts of the system that need to be procured separately – must be specified precisely.

- Identify information to be exchanged between systems.

- Identify communications exchange parameters.

- Draft messaging, data standards and communications specifications.

Phase 2:

- Consult with industry for inputs to draft technical requirements and specifications.

- Test technical requirements and specifications.

- Recommend final requirements and specifications.
Business Analysis
Task 8: Business Case

Objective. Develop a business case based on the preliminary concepts developed in Tasks 5-7.

Approach. Evaluate the value of road usage charging for Washington State, considering the cost to implement, operate, and enforce a road usage charge and the resulting revenue streams. It will be used to compare road usage charge alternatives, as well as to compare to other types of state revenues, including the gas tax.

Phase 1

- **Develop Evaluation Models.** Some policy objectives may cost more than they are worth to implement, and there could be variations based on future levels of vehicle miles of travel and fuel consumption. We would build models to evaluate concepts such as:
  > Involvement of the private sector versus State control over system operations;
  > Charging out-of-state users versus incurring additional operational and enforcement costs;
  > Utilizing existing State agencies and resources versus establishing a new agency to administer road usage charges;
  > Operating advanced technology approaches to road usage charging versus offering simple, low-tech approaches; and
  > Effects of different levels of vehicle miles of travel and fuel consumption (from Task 4).

- **Benefit/cost analysis**, to allow decision-makers to compare alternative strategies and recommendations regarding a transition toward road usage charging.
Business Decisions

Task 8: Business Case (continued)

- **Formal Business Case For Recommended Option(s) to address:**
  > Business case for government, including benefits versus costs, potential risks and mitigations, and comparisons to other approaches, including a “do-nothing” approach.
  > Business case for Washington State motorists.
  > Business case for the private sector – Some administrative concepts for road usage charging involve the private sector in a range of possible roles, from contracted providers of specific outsourced roles to certified agents operating in an open market. The business case for the private sector entities with the experience in providing hardware, software, and services (including customer account management, transaction processing, and revenue collection) depends on the operational concepts pursued and the degree of openness envisioned. This aspect of the business case is often overlooked, but it could be the key to overcoming risks and challenges facing road usage charging and relates to other dimensions of the overall business case (Washington State and motorists).

**Phase 2**

- Update business case analysis from Phase 1 as details are refined.
Business Analysis
Task 9: Evaluation Framework

Objective. Provide objective criteria and an approach to evaluate a road usage charge system, once it is operational.

Approach. Planning for evaluation, prior to testing and implementation of road usage charging, provides a way both to correct system errors and to reassure the public that system performance is being monitored objectively. Evaluation can be used both for a pilot study as well as a full-scale implementation.

Phase 1

- **Develop Evaluation Criteria** – Possible evaluation criteria include: policy conformity, public acceptance, technology performance, operations performance, cost, administrative performance, and ease of compliance.

Phase 2

- **Develop Evaluation Procedures** – Evaluation will involve data collection and methods to evaluate the data. It will be dependent upon the specific evaluation criteria. The procedures will also indicate a timeline – some may be appropriate on a monthly or annual basis, while others might occur less frequently.
Business Analysis
Task 10: Interoperability with Other Revenue Systems

Objective. Reduce redundancy with similar systems. Interoperability of systems creates convenience for system users and has the potential to leverage existing systems to lower costs.

Approach. This task will evaluate alternative approaches to interoperability and recommend ways forward.

Phase 1:

- Evaluate potential interoperability with existing Washington State revenue systems such as tolling, vehicle registration fees, and fuel excise taxes.

- Evaluate potential interoperability with other states and countries. This would include entities such as the Alliance for Tolling Interoperability and the Western State Alliance – a nascent entity of Western states interested in road usage charging. It would also consider how enforcement can legally work across borders, in both the U.S. and Canada and how money transfers can work across the border.

- Explore possibilities for common certification entities in a multistate context.

Phase 2:

- Refine interoperability decisions as more information is available from refined concepts.
Business Analysis
Task 11: Transition Strategy

Objective. Develop a strategy to transition from the gas tax to a road usage charge, potentially in phases, recognizing that an all-at-once conversion is likely to be difficult or impossible.

Approach. This task will explore options and approaches for a transition.

Phase 1:

Develop the rudiments of a transition plan:

- **Evaluate fleet phase-in options and impacts** – Potential options include basing road usage charging liability on miles per gallon rating, on vehicle class, or on vehicle engine technology.

- **Technology phase-in study** – Consider issues such as the likely supply of on-board equipment at different time horizons, how to avoid single suppliers, how to support future technology change, integration with current and emerging technology trends such as smartphones, in-vehicle telematics, and connected vehicle systems.

- **Administrative phase-in study** – As the system grows, staffing needs and the need for interaction with a greater population of users will grow. This task will study organizational change as the system grows.

- **State/interstate/international phase-in study** – Explore how system expansion would synchronize with system rollouts and expansions of other organizations, including other states, such as those in the Western States Alliance and British Columbia.

Phase 2:

Refine the transition plan, considering the same topics as Phase 1.
Business Analysis

Task 12: Risk Analysis

Objective. Identify, quantify, and develop mitigation measures for risks when transitioning to a road usage charge.

Approach. Risk analysis addresses not only the quantitative modeling, but also the communications, legal, administrative design, and other tasks. A running inventory of risks and threats to road usage charge development and implementation will be logged, described, and analyzed. Solutions or methods to mitigate these risks will be proposed by the team and discussed in periodic workshops as well as being integrated into the overall thought process and project processes.

Phase 1:

Because the risk analysis is an ongoing task with implications for the overall program development, it should initiate at the outset of the Phase 1. An initial workshop should be conducted to classify the risks, assign responsibility for researching, analyzing, and developing mitigation approaches, along with a process for logging other risks and conducting follow-on workshops.

As other tasks progress throughout the course of Phase 1, the risk analysis inventory will be periodically revisited as risks identified from across all tasks feed into it. According to the risk mitigation strategy determined at the first workshop, follow-on workshops will be periodically conducted to update the inventory, note progress in mitigating risks, and note new risks that have been identified.

Phase 2:

Throughout the transition from “desirability” to “ready to implement,” should the effort move forward, the risk inventory will be periodically updated, with workshops convened to develop approaches for addressing risks to program success as defined in the policy objectives.
Pilot Test
Task 13 – Preparation for and Conduct of Pilot Tests

Objective. Demonstrate the viability of operational concepts through pilot tests or demonstrations of technology, administrative systems, or public acceptance. A pilot serves three main purposes:

1. **Validates or provides greater information or user acceptance** of a specific process or series of processes from the user perspective in achieving greater public or user acceptability;
2. **Validates the operational concept(s)**, and highlights ways of improving them; and
3. **Demonstrates concepts to the public or key decision-makers before a commitment**, and thus allows public opinion to be influenced positively or to proceed with greater confidence to the next decision point.

Approach. Whether or when a pilot is needed will depend on the specifics of the operational concept(s) chosen. Tests could be of individual components of a system or of an entire system. Preparation for, carrying out, and developing reports from a pilot or demonstration could take anywhere from 18 months to several years. Pilot tests are more likely to occur in Phase 2, if at all. Specific tasks could include:

- **Pilot Planning**
  > Develop a strategic plan for the pilot, including the nature of the participants, how they will be recruited, and how they will be invoiced; and
  > Develop an implementation and operations plan for the pilot, which specifies the technical steps need to set up and operate the pilot system.

- **Pilot Test Procurement**
  > Create a procurement document or documents, such as request for information (RFI) or request for proposals (RFP);
  > Select winner(s) of procurement; and
  > Negotiate contract(s) with winner(s) of procurement.
Pilot Test
Task 13 – Preparation for and Conduct of Pilot Tests (continued)

- Pre-Pilot Technology Tests and Preparation
  > Design and carry out tests of equipment in isolation, equipment interfaces, and the complete system using all equipment integrated together; and
  > Develop the administrative functions to conduct the pilot tests.

- Pilot Test Execution
  > Participant recruiting, sign up, and outfitting;
  > Pilot test; and
  > Decommissioning of pilot.

- Pilot Test Evaluation – Evaluate the performance of the pilot according to the evaluation strategy developed in Task 9.
  > Adapt evaluation criteria to pilot;
  > Execute pilot data collection; and
  > Prepare documentation.
Potential Implementation Tasks After Phase 2

Once road usage charging is ready to implement, there will be a significant effort to implement the system. The following is a partial list of tasks that would be needed to move from the end of the work plan described in Section 3 to an operational system.

**Pre-operational Phase**

- Policy and Communications
  - Translate legal provisions into processes and rules
  - Ongoing public communications and education
- Administrative
  - Create taxing entity and enforcement unit
  - Contract certification agent
  - Develop interface with Departments of Licensing and Revenue
- Operational
  - Refine and finalize operational concepts
  - Finalize system requirements specifications and interface control documents
  - Procure technology
  - Develop communications network
- Business
  - Cultivate network of certified service providers
  - Develop evaluation procedures and procure evaluator

**Transition Phase**

- Policy and Communications
  - Ongoing communications and education
- Administrative
  - Implement new organizational structures and processes
  - Plan for program expansion and interoperability
- Operational
  - Collect, audit, account for road usage charge
  - Fine enforcement and collection
- Business
  - Monitor certified service providers
  - Evaluate program performance, identify and plan for efficiency improvements, and report periodically to policy-makers
Section 4:

Indicative Budget for Phases 1 and 2
**Indicative Budget for Phases 1 and 2**

The indicative budget to carry out Phases 1 and 2 of the work plan is $3.5 million, with $1.6 million for Phase 1 and $1.9 million for Phase 2. See Table 4-1 on the next page. The budget amount could vary according to circumstances that might change from those assumed when preparing this estimate. Some examples of changes that could affect the budget (up or down) include:

- Time lines that are faster or slower than assumed;
- More or fewer road usage charge options carried further into the Phase 2;
- Desire for more or less public involvement and communication; and
- More or less emphasis on the need for analysis in Phase 1 to make a go/no-go decision in the 2015 Legislative session.
### Table 4-1: Indicative Budget for Phases 1 and 2

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<th>Tasks</th>
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</table>

Pilot tests could range from $1 million to $5 million and could be accomplished in either phase depending on progress and/or the progress of other states or the Western States Alliance, a nascent entity of Western states interested in road usage charging.
Appendix A:

Steering Committee Member Biographies
Washington State Commissioners

Tom Cowan – San Juan County – Steering Committee, Chair

Tom is a public policy consultant and also manages marine resources restoration projects. Tom was formerly the Director of the congressionally authorized Northwest Straits Commission and was a former Assistant Director for the Puget Sound Action Team. Prior to that, Tom was a San Juan County Commissioner for 12 years and served as President of the Washington State Association of Counties. Tom and his wife owned and operated an electrical contracting firm and the only hardware and building supply store on Lopez Island. Tom is currently the Chair of the San Juan County Land Bank and a Board member of the SeaDoc Society. Tom has lived on Lopez Island for the past 36 years and is a frequent ferry rider. He was appointed to the Commission by Governor Gregoire in 2011.

Anne Haley – Walla Walla County

Anne comes to the Transportation Commission with a breadth of experience on private, public, and nonprofit boards and commissions, and 30 years experience of managing public libraries in Washington. She currently is Chairman of the Board of Directors of Brown & Haley, Tacoma. As Chairman of the Washington State Library Commission, she guided the Washington State Library’s merger into the Office of Secretary of State in 2002. She was President of the Washington Library Association and Pacific Northwest Library Association, and Counselor-at-Large of the American Library Association. In Walla Walla, she founded Project Read, sat on the Sherwood Trust Advisory Committee, served as Chairman of the Budget and Allocation Committee of United Way, and served on various community organization Boards. After retiring from the Yakima Valley Library in 2002, she returned to school and earned a BFA degree. Anne was appointed by Governor Gregoire in 2011.

Charles Royer – King County

Biography forthcoming.
Members Required by Legislation

Auto and Light Truck Manufacturers

Curt Augustine is Director of Policy and Government Affairs for the Alliance of Automobile Manufacturers, a national trade association representing domestic and foreign car and light truck manufacturers. He served as chief transportation advisor to California Governor Arnold Schwarzenegger and currently is a member of Oregon’s Road User Fee Task Force.

Business

Neil Strege is Vice President of the Washington Roundtable, a public policy research and advocacy group comprised of chief executive officers of major Washington state companies. Before joining the Roundtable in February 2012, Neil worked at the King County Council and for a Member of Congress. He is a graduate of Washington State University and life-long resident of Washington State.

Cities

Don Gerend, Councilman, City of Sammamish, is the 2012-2013 President of the Association of Washington Cities. Currently working in real estate, he has a Ph.D. in astronomy from the University of Washington. He formerly worked as a rocket scientist with Boeing and as a Professor of Astronomy and Physics at Seattle University.

Counties

Pete Capell, PE, is County Engineer and Director of Clark County Public Works. He is a member of the Washington State Public Works Board and is Board Chair of the Southwest Washington Chapter of the American Red Cross.

Environmental

Rod Brown, Jr., President, Washington Environmental Council, is a founder and partner of Cascadia Law Group. A graduate of the University of Texas School of Law, he is a Member, Board of Directors, Portland General Electric and served as a Member of the Connecting Washington Task Force.
Motoring Public

Janet Ray is Assistant Vice President of Corporate Affairs and Publishing, AAA Washington. A University of Washington graduate, Janet has been with AAA Washington for 38 years and is the Chairman of the Board of the Bellevue Chamber of Commerce.

Public Transportation

Tom Hingson is the Director of Everett Transit. Tom has led the agency in several projects of regional significance, including the ORCA regional fare card system and the Swift Bus Rapid Transit Agreement with Community Transit. A graduate of Seattle Pacific University with an MPA from the University of Washington, he also performs with the Seattle Opera.

Trucking

Scott Creek, Crown Moving Company, Inc.

User Fee Technology

Kush Parikh is Senior Vice President of Business Development at INRIX, a worldwide leader in traffic information, driver services and applications. Earlier in his career, he was a product marketing and applications engineer at IBM Microelectronics. Kush holds a MBA from Duke University’s Fuqua School of Business and a B.S. in electrical engineering from Pennsylvania State University. He was also recently granted INRIX’s first business methodology patent related to data and traffic information.

Legislators

Senator Tracey Eide – Federal Way (D – 30th District).

Senator Ann Rivers – La Center (R – 18th District).

Representative Andy Billig – Spokane (D – 3rd District).

Representative Mark Hargrove – Covington (R – 47th District).
Additional Members Appointed by the WSTC

Kurt Beckett is Chief of Staff for the Port of Seattle. Previously, he served as chief of staff for U.S. Senator Maria Cantwell and worked for Congressman Norm Dicks for nearly 10 years, most recently as district director. He is a graduate of the University of Washington.

Paula Hammond, PE, is Transportation Secretary. A graduate of Oregon State University in civil engineering, she currently chairs three AASHTO Committees: AASHTO Standing Committee on Highways; AASHTO Leadership on High-Speed and Intercity Passenger Rail; and AASHTO Sustainable Transportation Steering Committee.

Cynthia Chen is Associate Professor of Civil Engineering, University of Washington. Her current research interests include land use and travel behavior, the use of GPS in travel surveys, and residential search and location decisions. She chairs the subcommittee on Time Use and Activity and Travel Patterns at the Transportation Research Board (TRB), a division of the National Research Council. She also is a member of the TRB Committees on Travel Behavior and Values and Telecommunications and Travel Behavior.

Sharon Nelson served two terms as Chairman of the Washington Utilities and Transportation Commission (WUTC), from 1985 to 1997 and was Chief of the Consumer Protection Division, in the Washington State Attorney General’s office from 2003-2006. She sits on the Board of Directors of Itron, Inc., was a commissioner on the National Energy Policy Commission, and is a former Chair of the Board of Consumers Union, the publisher of Consumer Reports.
Appendix B:

Summary of Operational Concepts Used for Feasibility Assessment
<table>
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<th>Concept</th>
<th>Advantages</th>
<th>Disadvantages</th>
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<td><strong>1. Time Permit</strong></td>
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<td>Purchase unlimited road network access for a set period of time (e.g., week, month, year).</td>
<td>• Proven implementation in Europe (vignette system).&lt;br&gt;• Simple system that can be implemented with no advanced technology, if there is no enforcement for out-of-state vehicles.&lt;br&gt;• Potential stepping stone to more advanced approaches.&lt;br&gt;• Privacy, both actual and perceived, is completely mitigated.&lt;br&gt;• Cross border issues can be solved.&lt;br&gt;• Enforcement is relatively simple for in-state vehicles, requiring only seeing a valid sticker (no odometer match needed).&lt;br&gt;• Out-of-state travel not an issue, since miles are not charged.</td>
<td>• Upfront payment inconvenient and needs to be repeated. With an electronic system, however, automatic replenishment is possible.&lt;br&gt;• Cross-border issues, though solvable, create a significant departure from current practice.</td>
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<td><strong>2. Engine Run Time Charge</strong></td>
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<td>System detects engine run time over a set period (e.g., monthly) and reports charges automatically.</td>
<td>• Automates collection of road use data, with a simpler system than collecting mileage data.&lt;br&gt;• More convenient for road users.&lt;br&gt;• Provides more immediate feedback to drivers on amount of driving they do (amount of time their engine is running).&lt;br&gt;• Offers customer choices in technology.&lt;br&gt;• Opportunity to piggyback on existing service providers.&lt;br&gt;• Reflects not only cost of miles, but also environmental costs and costs of congestion (since time spent idling is charged the same as time spent moving) – similar to the gas tax.</td>
<td>• Relationship between payment and benefit received not as close as with mileage.&lt;br&gt;• Upfront equipment and costs for users.&lt;br&gt;• Some vehicles may not have technology capabilities – creates a two-tiered system – those that can afford (or are willing to use) an automated system, and those that cannot.&lt;br&gt;• Automated equipment in cars may lead to perception of loss of privacy (though there are ways to handle this).&lt;br&gt;• Will not work the same on hybrid-electric and electric vehicles.</td>
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### Distance-Based Concepts

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<th>Concept</th>
<th>Advantages</th>
<th>Disadvantages</th>
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| **3. Mileage Permit**                        | • Proven implementation in New Zealand.  
• Simple system that can be implemented with no advanced technology.  
• Potential stepping stone to more advanced approaches.  
• Privacy, both actual and perceived, is completely mitigated.  
• Cross border issues can be mitigated. | • Upfront payment inconvenient and needs to be repeated.  
• Enforcement is burdensome, requires seeing both the distance license and the odometer.  
• Cross-border issues though solvable, create a significant departure from current practice.  
• Out-of-state travel not easily refunded. |
| Purchase a license to drive a certain number of miles. |                                                                                                                                                                                                              |                                                                                                                                                                                                         |
| **4. Estimated Annual Mileage Permit with Reconciliation** | • Simple system that can be implemented with no advanced technology.  
• Privacy, both actual and perceived, are completely mitigated.  
• Potential stepping stone to more advanced approaches.  
• Cross border issues can be solved. | • Upfront payment inconvenient, needs to be repeated, and introduces reconciliation process, another step.  
• Cross-border issues though solvable, create a significant departure from current practice.  
• Out-of-state travel not easily refunded. | Pay for estimated mileage for a set period, then reconcile the account based on actual distance driven periodically (monthly, quarterly). |
| **5. Simple Odometer or Other Mileage Reading** | • Simple system that can be implemented with no advanced technology.  
• Potential stepping stone to more advanced approaches.  
• Privacy, both actual and perceived, is completely mitigated.  
• Cross border issues can be solved.  
• No need for reconciliation saves a step. | • Government cash flow – revenue not received until after travel is completed.  
• Cross-border issues though solvable, create a significant departure from current practice.  
• Out-of-state travel not easily refunded. | Principal reports mileage at the end of a period (e.g., quarterly) and pays the corresponding amount owed. |
| **6. Automated Mileage Reporting** | • Automates collection of road use data.  
• More convenient for road users.  
• Provides more immediate feedback to drivers on amount of driving they do and related costs.  
• Offers customer choices in technology.  
• Opportunity to piggyback on existing service providers. | • Upfront equipment and costs for some users.  
• Some vehicles may not have technology capabilities – creates a two-tiered system – those that can afford (or are willing to use) an automated system, and those that cannot.  
• Automated equipment in cars may lead to perception of loss of privacy (though there are ways to handle this). | System detects mileage traveled and reports charges automatically at the end of a period (monthly, quarterly).  

*Three technology alternatives: a) OBD-II dongle with cellular modem, b) OBD-II dongle with Bluetooth to smartphone, c) Vehicle telematics*
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| 7. Automated Mileage and General Location Measurement | • Adds ability to differentiate miles driven in different locations to address in-state/out-of-state concerns and rudimentary congestion pricing.  
• Automates collection of road use data.  
• More convenient for road users.  
• Provides more immediate feedback to drivers on amount of driving they do and costs.  
• Offers customer choices in technology.  
• Opportunity to piggyback on existing service providers. | • Upfront equipment and costs for users.  
• Some vehicles may not have technology capabilities – creates a two-tiered system – those that can afford (or are willing to use) an automated system, and those that cannot.  
• Automated equipment in cars may lead to perception of loss of privacy, especially with general location component (though there are ways to handle this).  
• General location component allows for differential pricing by region – something that some populations may not appreciate. |
| 8. Automatic Mileage and Specific Location Measurement | • Adds ability to differentiate miles driven on specific roads to allow for differential pricing by road or congestion pricing. Also handles in-state/out-of-state concerns and rudimentary congestion pricing.  
• Automates collection of road use data.  
• More convenient for road users.  
• Provides more immediate feedback to drivers on amount of driving they do.  
• Offers customer choices in technology.  
• Opportunity to piggyback on existing service providers. | • Upfront equipment and costs for users.  
• Some vehicles may not have technology capabilities – creates a two-tiered system – those that can afford (or are willing to use) an automated system, and those that cannot.  
• Automated equipment in cars may lead to perception of loss of privacy, especially with general location component (though there are ways to handle this).  
• Specific location component allows for differential pricing by specific road – something that some populations may not appreciate – potentially even more than general location. |