Strategic Program Plan

(Final)

November 2011

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Edited by James M. Whitty, Manager
ODOT Office of Innovative Partnerships & Alternative Funding

Oregon Department of Transportation
355 Capitol St. NE
Salem, OR 97301-3871

(503) 986-4284
jim.whitty@odot.state.or.us

Oregon Department of Transportation

Original Report Prepared by D'Artagnan Consulting LLP

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Executive Summary

This report summarizes the Strategic Program Plan (SPP) of the mileage tax (MT) program for the Oregon Innovative Partnerships Program (OIPP) of the Oregon Department of Transportation (ODOT), developed as part of the Flexible Services Agreement 29142/WOC1, Task 3. The SPP is an evolutionary approach to the project, oriented to achieve the project goals. It is a "rolling wave" concept divided into five phases spanning from May 2011 to July 2019, when it is envisaged that a full year of operations would be completed, and designated vehicles registered in Oregon would have begun to pay a mileage tax as mandated by future legislation. The SPP, in short, is the roadmap to realizing all of the activities, tasks, requirements, testing, development, and organizational framework to efficiently and effectively meet the goals established for the MT program. As such, it is the overarching planning document that describes the implementation of all other MT plans such as the initial system concept described in a companion report called the preliminary Concept of Operations (CONOPS). The SPP is the "plan-of-plans" for the program.

The large-scale transformation of the Oregon state transportation funding system through technological, design, and business innovation is a classic example of what Horst Rittel and Melvin Webber defined as a "wicked problem." It involves the change management of highly interdependent systems—interdependencies that are familiar and recognized by ODOT and the public alike. To improve one aspect of the system without considering these interdependencies may produce unexpected and unwelcome side effects in other quarters of the system. The establishment of an MT system is complex, ambiguous and not well suited to the straightforward engineering progression from defining goals, through designing and engineering solutions, to manufacturing of products, and system integration and deployment. The process of the SPP requires creative speculation about possibilities, ongoing critical discussions of principles and options, engagement of stakeholders with differing and perhaps conflicting interests, building consensus and coalitions of interest, and responding flexibly to the unexpected twists and turns that emerge along the path to a solution.

The SPP is designed to encompass the multitude of skills necessary to reach what Malcolm Gladwell called the "tipping point." Gladwell's concept illustrates how a previously niche concept, such as a mileage tax, can cross an unseen social threshold, "tip" an established social, technological, or political system and then spread rapidly. Tipping is enabled by the fact that human beings are profoundly social beings, influenced by and influencing other human beings. Realization of a system such as a mileage tax is a transformational change in the face of enormous inertia from years of collecting excise tax from fuel that requires identification and pursuit of tipping points. The information flow in this program is under the leadership of the OIPP and is focused to create the necessary tipping points to create an MT system for the State of Oregon. The dimensions of the SPP are shown in Figure 1.

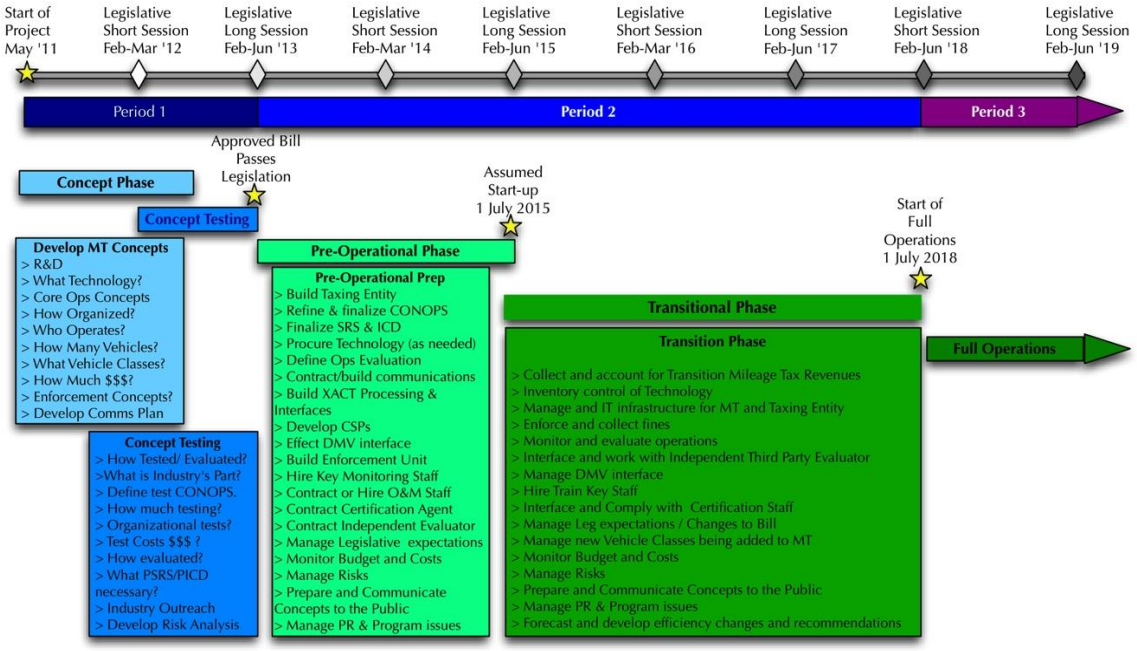
Figure 1: The multi-dimensions of the Strategic Project Plan that shape the concepts to achieve a "tipping point" are shown

To achieve the informational flow to create the tipping points, the program is divided into two periods. Period one comprises the establishment of the program based on House Bill 2138 (which was passed and signed into law during the 2011 legislative session), guidance from the Road User Fee Task Force, the development of concepts and the testing of those concepts through pilot testing. The development of concepts of operations, operational scenarios, cost and financial data, an organizational framework, and supporting technologies to meet the guidance of the Road User Fee Task Force are the foci of period one. Once a mileage tax bill is passed into law, the program transitions to period two, which focuses on the procurement and contracting of services tested in period one to begin operations in the time frame established by the legislation. Period two has three phases: pre-operational, transition to full operations (tentatively identified as July 2018, following a three year transition period), and full operations.

Spanning the two periods are five phases: concept development, concept testing, pre-operational, transition, and full operations. Each phase will include progressive refinement of the technologies and policies used in the system and will lead to the start-up and charging of an efficient and effective system. Period one spans the concept development and concept testing phases, while period two includes the pre-operational, transition and full operations phases. The

overview of the two periods and the phases of the SPP is shown in Figure 2 below and can also be viewed in a larger format in appendix 5.

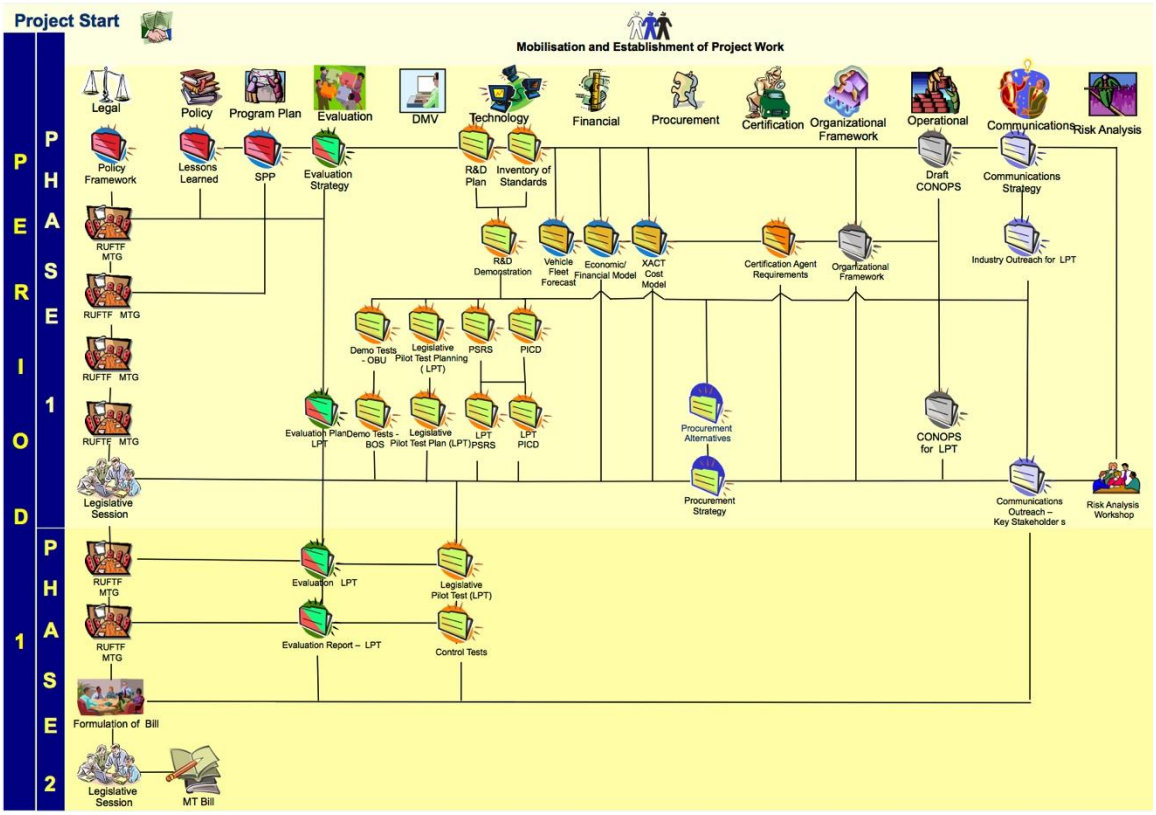
Figure 2: Overview of the information flow across the entire time frame of the project



Each of the phases is summarized below, starting with ***period one*** (phases 1 and 2). A graphic of period one's activities including the distinction of phase 1 and phase 2 is shown as Figure 3 below. Appendix 5 also contains these graphics in a larger, foldout format, which can be separated and used to follow the text of all the following sections. Each of the graphic elements shown illustrates a body of knowledge and information, an "activity" in the overall project flow organized vertically as workstreams. The exact work product or task for the activity is contained in the material, and work products for the details of each work order contract and the individual tasks that are contracted.

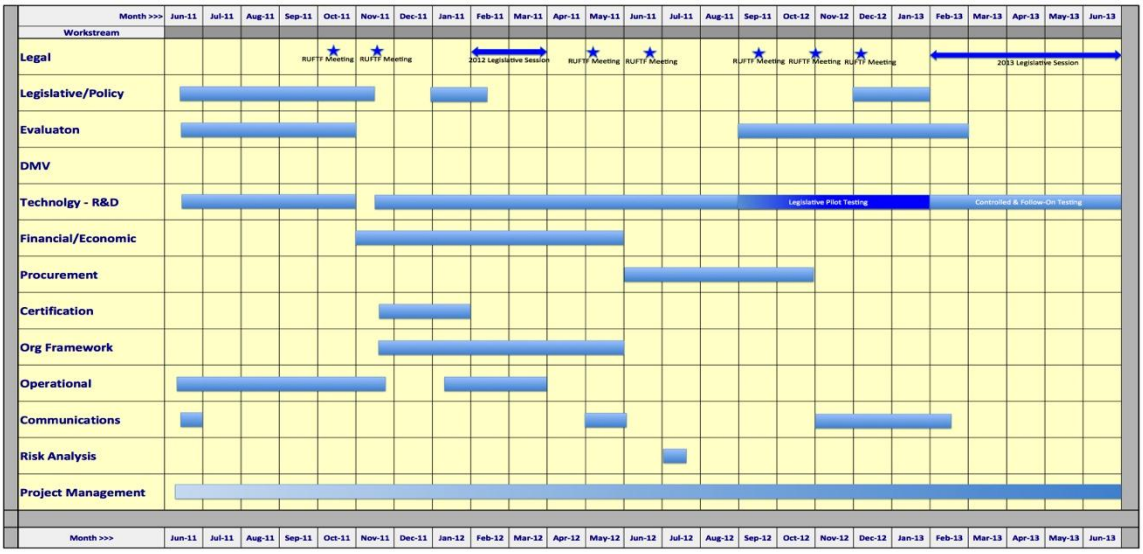
The text that follows for each phase corresponds and is illustrated in the Figure 3 below.

Figure 3: Period one activities leading to an assumed mileage tax bill in the 2013 legislative session



Phase 1 is detailed out into activities for each workstream. These activities and the related time frame for each are shown in Figure 4 below.

Figure 4: Summary Gantt chart for period one activities across each respective workstream



The duration for the various activities is illustrative only and the actual time frame will be dependent on the actual project schedule and the authorization of work through the ODOT task order process.

Phase 1 - Concept Design

Period one begins with phase 1. Phase 1 activities are based in large part on prior work performed by ODOT on its successful Mileage Based User Fee (MBUF) pilot testing of a mileage-based user fee concept, 2001-2007. The original MBUF pilot project proved that the concept had sufficient support and intellectual rigor to be pursued. The lessons learned from the previous project also indicate that a successful technical approach must be multifaceted and based on user acceptance. User acceptance may be achieved by providing choices in how the individual interacts with the system. The MBUF pilot project also indicated that the starting point for the program should be a smaller subset of the vehicle fleet. The emergence of new electric and plug-in hybrid electric vehicles in the vehicle fleet in 2011-2012 provides an ideal match. These vehicles were selected because they will use the Oregon road network, produce wear and tear on the road surfaces and add to traffic congestion, but they do not pay for their fair share of costs to maintain and sustain the system.

The Road User Fee Task Force (RUFTF) identified this grouping of vehicles and initiated policy in the form of House Bill 2328 (H.B. 2328), 2011, that was introduced during the 2011 Oregon legislative session. Being classified as a new tax and not a “fee,” passage would require a three-fifths “supermajority.” Although there was substantive and expanding bipartisan support for an mileage tax (MT) as an alternative to the fuel tax, the bill did not pass during the 2011 legislative session. RUFTF and OIPP efforts expended in building support, answering inquiries, and refining the bill created a strong foundation for the SPP going forward. The creation and passage of a separate bill, H.B. 2138, recognized that road user charging (RUC) is a valid initiative and authorized the RUFTF to guide and oversee ODOT through the development of a program and process. Therefore, a primary purpose of this SPP is to provide RUFTF with sufficient information and options to enable a tipping point for the formulation of a revamped policy and bill for introduction to subsequent legislative sessions for consideration and potential approval.

The first phase of the SPP is focused on the development of concepts and preparation of the information for RUFTF to consider in the restructuring of the basic tenants of H.B. 2328, 2011. This phase involves development of concepts and testing of basic principles. The lessons learned and experience of the interaction of the proponents and opponents to various versions of H.B. 2328, 2011, are captured in Task 4, Policy Framework. Using that experience, the multiple workstreams under this SPP will provide information, options, and data for discussion between now and the end of the short legislative session in 2012. Research and development including the design and construction of OBUs and

demonstration testing using those OBUs are formulated to help gain insight and develop practical scenarios that have been conceived in the preliminary CONOPS (Task 2). In parallel, the refinement of standards (Task 6) and the research and development plan (Task 5) will be used to ensure an open system architecture model is employed in accordance with the state intelligent transportation systems (ITS) architecture and the directives from H.B. 2138, RUFTF, and the current version of H.B. 2328, 2011. The evaluation strategy and criteria (Task 8) will also be used as feedback to RUFTF on how well the concepts developed meet its criteria. A preliminary systems requirement specification (SRS) and interface control document (ICD) will be developed to support the testing. Information and education will be guided by the draft Public Information Plan (Task 7) to ensure feedback from various key stakeholders and the larger audience, both state and national. An industry forum event will also be used to invite industry to participate in the testing of the concepts developed. The evaluation strategy will be formatted into an evaluation plan for the testing.

An estimate of the taxable vehicle fleet will provide a basis for estimating and considering various tranches of vehicles to be considered in the MT legislation. This activity will estimate the number and percentage of electric, plug-in electric, hybrid and high efficiency vehicles in the overall state fleet between 2015 and 2030.

Additionally, financial and cost models will both be developed to aggregate the test data and experience to ensure that a focused transactional model of the system is targeted right from the start of the project to ensure the goals of efficiency and effectiveness are designed into any resulting recommendations put forward to RUFTF. These costs models will use the data estimated in the taxable vehicle fleet study.

Work in phase 1 will begin the building of the organizational framework that will entail how a MT taxing authority will be organized and staffed. The basis for the staffing will be based on the estimates of the taxable vehicle fleet forecasts. The organizational framework will begin to seed ideas and costs from third-party individuals and organizations into the project team to help transition from the concepts developed in period one to the refined CONOPS created in period 2. Of special interest will be the certification entity and the cultivating of certified third-party service providers (CSPs) to support the open system model of the system design. There will also be development of the procurement planning, by identifying the preferred approach and how contractually the system procurement may be structured.

Phase 2 – Concept Testing

Phase 2 of the SPP will build on the phase 1. The demo OBUs will be tested in phase 2 to produce sufficient data and information to provide input to the proof of concept (POC) pilot testing. Firms responding to the communications outreach event, the Industry Forum, will be invited to pilot test hardware and software they can produce to employ the design standards and interfaces provided from the preliminary SRS and ICD. Employing the hardware developed during phase 1 and commercial industry equipment and systems invited from the industry outreach and forum, will be tested in phase 2 through extensive pilot testing. These pilot tests will be designed to allow evaluation of the multiple selected scenarios developed and refined in the preliminary CONOPS.

The evaluation plan for the testing and criteria approved by RUFTF will be used to evaluate how well the system components meet the criteria established by RUFTF. An evaluation report will result from the actual evaluation during testing to provide feedback to RUFTF.

Continued work will be done in outreach and public information and education in phase 2 based on a reassessment of the communications plan at the end of phase 1. The information flow will be metered on the continual building of information and the need to continually inform special interest groups and the public alike.

Both policy and technical objectives will be present throughout all phases of the SPP, but the overriding objective of period one (phases 1 and 2) as described above is to provide support for the development of *policy*, culminating in the anticipated passage of enabling MT legislation. Once legislation is passed, the program will transition to period two. In period two, as discussed below, the overriding objective will be to develop, procure, and contract operations and services that will enable the initiation of full operations in the time frame established by legislation.

Period two consists of phases 3, 4, and 5. This period begins with the assumed passage of a mileage tax bill in the 2013 legislative session. The phases of activities transition the project from a development project to an operational reality. The operations are divided into a pre-operational phase, a “transition” phase of three years where the initial deployment of the system begins in July of 2015 and gains momentum to full operations in July of 2018.

Actual results from the phase 2 proof of concept pilot test and select testing, with special emphasis on the ultimate hardware and software costs of the onboard units developed by industry, will be used to update previous estimates used in period one. The fleshing out of the organizational framework will also be used to fine-tune the preliminary CONOPS, operational costs and transactional costs of the system to be deployed.

The preliminary SRS and ICD will be finalized and used to help procure the hardware, software and systems tested in period one. Refinement of these concepts, their costs and organizational impacts will kick off period 2.

The activities of period two are illustrated in Figure 5 and Figure 6 below and discussed by phase in the below sections. A larger copy of the graphics can be found in appendix 5 and can be folded out to help follow the discussions.

Figure 5: Period two bar chart indicating the work flow after a legislative decision to proceed with the mileage tax

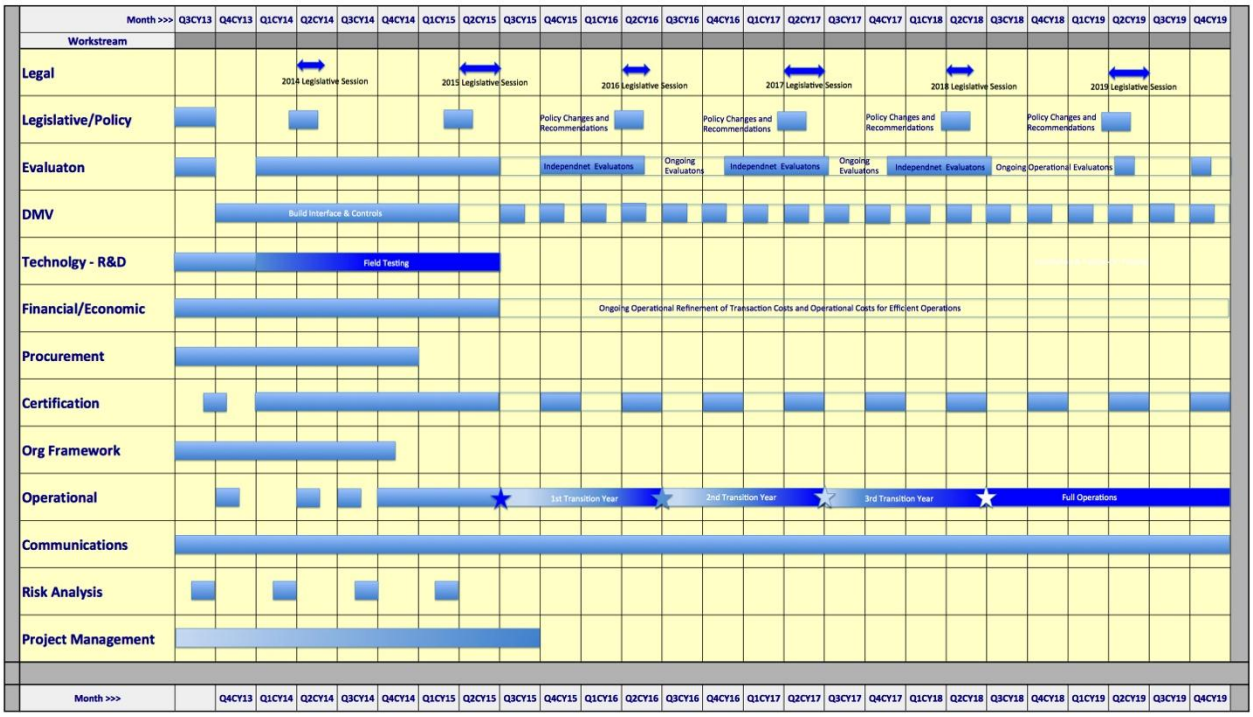
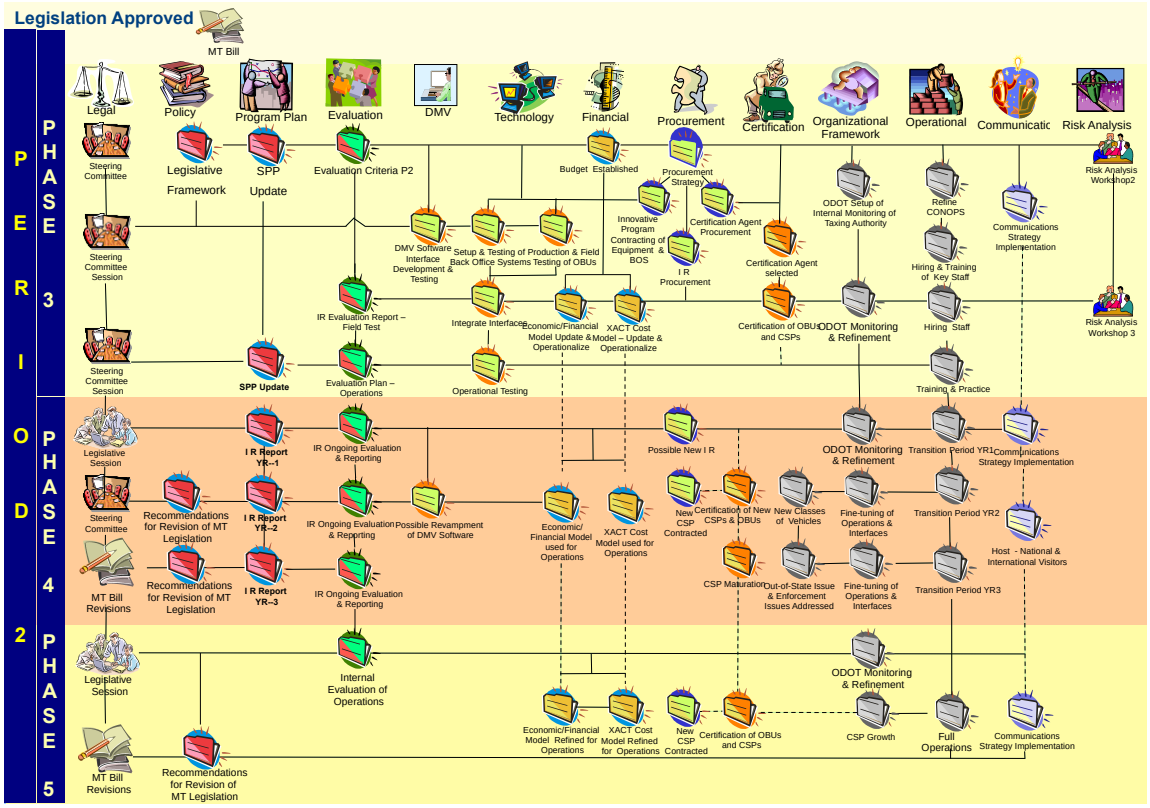


Figure 6: Period two is focused on the pre-operational activities which lead to a start of mileage tax collection in July of 2015 and a transition to full operations in July of 2018



Phase 3 – Pre-Operational Phase

Phase 3 marks the beginning of period two, which is dependent on the approval of RUFTF and the passage of enabling MT legislation. The key objective of phase 3, the pre-operational phase, is to transition into an operational taxing authority. It will see the transition of the concept from conceptual testing to the actual building of the organization. Phase 3 includes more extensive field tests utilizing a production-grade OBU chosen from among the OBUs built in response to the RFI and further refined using the results of phase 2 proof of concept pilot testing and select testing. Field testing will be evaluated against the finalized SRS and ICD produced at the beginning of period two. The procurement decisions following the procurement strategy adopted in period one will also be executed to procure both the equipment and the services necessary to commence operations by the targeted date of July 2015.

Public information and communications efforts will proceed hand-in-hand with this transition to operations. Communications efforts will use the evaluation results of the system in phase 2 as its a primary source of information to guide the distribution of information to the key special interest groups, regional interest groups, state and national audiences.

The evaluation criteria for operations will be tested and confirmed during phase 3 in preparation of ongoing operational evaluation of the system during field testing by the key individuals hired to monitor the operational organization. Depending on the operational framework chosen, these criteria will be used to incrementally review and refine ODOT operations and/or to evaluate services outsourced to external entities. The preliminary CONOPS will be updated and refined at the beginning of Phase 3 based on the proof of concept testing, select testing and evaluation of the scenarios of the preliminary CONOPS. Once refined, the CONOPS will be used in the transition to define procedures and processes for the actual operations. The economic model developed earlier and updated in phase 3 will provide financial parameters for the MT system that will be accessed and used to measure the actual system performance. The model will incorporate evolutionary targets that require the system to continually make the overall performance of the system more efficient on an ongoing basis during operations.

Phase 4 – Transition

Phase 4, the transitional phase, comprises the start of revenue operations. It includes the concepts, functions, and pre-operational preparations of the previous phases, which will be manifested into ongoing operations. During the latter part of phase 3, the informational/outreach campaign will shift to informing and educating the public on the requirements of the system. The start of operations should be a smooth transition from preparation to operations. An ongoing evaluation of the operations will occur to provide feedback to the legislature and to RUFTF on the achievement of performance and critical success factors. This will be done by an independently selected firm and a yearly evaluation report will be produced for ODOT and legislative review. The evaluation will also incorporate an assessment of the overall economic benefits of the system to demonstrate that the system provides value for money to the state and any recommendations to improve its ongoing operations or changes to the legislation to ensure greater compliance or enforcement.

Phase 5 – Full Operations Year

Finally, phase 5 is the first year of full operations, which is the natural extension of phase 4. By the end of phase 4, it is envisaged that a fully functional system will have been developed, debugged, and set into operations for a subset of the vehicle fleet. Phase 5 involves the operations, monitoring, evaluation, and possibly expansion of the program to new categories of vehicles, along with dynamic responses to new emerging challenges as experience is gained and program growth occurs. The establishment of full operations ends phase 5 and period two of the strategic plan. It will also complete the independent review of the system and its operations, but not the continuing evaluation and review. In phase 5, the yearly assessment will be completed by the operating staff and monitored and reviewed by ODOT. A yearly evaluation report will be issued by

ODOT as part of its overall responsibility to monitor the MT system and make recommendations to improve the legislation or operations accordingly.

Throughout both periods one and two of the MT program, the process of incremental design refinement will allow for the ideal balancing of conflicting interests. The SPP is focused on achieving a good balance between developing a highly accurate mileage tax and the goal of keeping things simple and straightforward. In researching examples of other vehicle road user charging (VRUC) programs, the findings of the independent review group (IRG) of the New Zealand (NZ) RUC system are noted. The IRG was commissioned by the NZ Government to review the NZ RUC system 40 years after its inception. The IRG cited that several initial trade-offs were required in any road user charging system. One of these was simplification versus accuracy. For example, a better level of accuracy in cost allocation would create an overly complicated model. This would also imply a higher degree of accuracy than can be obtained in any allocation basis. Accordingly, a degree of averaging has to apply. To quote from the report:

> *"A good charging system should not be discarded in the pursuit of a perfect system. The policy aim should be for a system that accomplishes as many and as much of the objectives as possible at low cost and, from a dynamic perspective, is not so complicated that different parties are constantly tempted to chip away at various components and undermine it"*

The above point is not lost on the program plan. Any system can be made complex by trying to achieve too great a level of detail. Simplification over accuracy is being sought. The phases detailed in this SPP are intended to help achieve simplicity and solve the "wicked problem" facing the creation of an MT system in Oregon. The evolution of design from concept to functional to pre-operational and finally operational reality can be achieved through intelligent and thoughtful design in the program through the incremental design approach established in the SPP. It will also help inform and educate key decision makers, key stakeholders and the public. The creation of data, information and options for RUFTF will help guide this process and create the tipping point necessary and achieve the main objectives of the program.

Definitions and Abbreviations

In this document, the following definitions and abbreviations are employed:

Term / Abbreviation	Definition	Remarks
CSP	certified (third-party) service provider	
EV	Refers to electric vehicles	While EV and PHEV have some important distinctions, these two classes of vehicles are often bundled together, particularly within the latest MT legislation.
H.B.	House Bill	
MT	mileage tax	Equivalent to VRUC, the term used previously to refer to the mileage tax.
S.B.	Senate Bill	
ODOT	Oregon Department of Transportation.	
OIPP	Oregon Innovative Partnerships Program	
OBU	on-board unit	Hardware device used to receive, store and communicate vehicle identification and cumulative mileage
PHEV	Refers to plug-in hybrid electric vehicles.	While EV and PHEV have some important distinctions, these two classes of vehicles are often bundled together, particularly within the latest MT legislation.
PICD	preliminary interface control document	
PSRS	preliminary system requirements specification	
RFI	Request for expression of interest	
RUC	refers to road user charge or road user charging.	RUC and VRUC were used interchangeably in the past; mileage tax (MT) is the current preferred terminology.
RUFTF	Road User Fee Task Force	The controlling oversight committee
SLRP	statewide long-range transportation plan	
SPP	Strategic Program Plan	Overarching program document
VMT	vehicle miles traveled	Generic term for road user charging
VRUC	refers to vehicle road user charge or vehicle road user charging.	RUC and VRUC were used interchangeably in the past; mileage tax (MT) is the current preferred terminology.

Prolog

This **Task 3 – Strategic Program Plan Final Report,** was intended as a draft strategic program plan emanating from the VRUC legislation and ODOT policy directives that, at the minimum, outlines the Project scope of work of mandatory rulemaking requirements, the authorities that the legislature granted the Department to construct the Project, and project-oriented tasks to meet legislative mandate.

Due to the fact that the VRUC legislation, H.B. 2328, 2011 (engrossed) was not passed, the original intent of this Strategic Program Plan Final Report was changed, and agreed with the APM, to lay the foundation of the program plan strategy in preparation for presentation and review by the RUFTF. The change was agreed as a no cost change to the work order contract. This final version of the report is the end product of Task 3.

In addition, a Strategic Program Plan project workshop was conducted to garner agency input and identify issues attendees feel should be incorporated into the draft Strategic Program Plan. The project workshop took place in Salem, Oregon as agreed to in writing from the APM. Draft minutes from the workshop were prepared and submitted to the APM for review within five (5) business days after the workshop. The draft minutes were revised and distributed as the final minutes no more than five (5) business days after receiving APM's response.

1 Introduction

This report summarizes the Strategic Program Plan (SPP) elements and phasing for Oregon's proposed mileage tax (MT) system, divided into five phases from May 2011 to June 2019. Drawing on progress over the past year, from the reconstitution of the Road User Fee Task Force (RUFTF) in 2010 until the end of the 2011 Oregon legislative session, this document describes the recent events, current state, objectives, strategy, and path forward as it is envisioned today.

We begin in Chapter 2 with a description of the policy basis for the MT program and the SPP. This Chapter is a summary of the report for Task 4, Policy Framework, which describes recent policy developments in greater detail.

In Chapter 3, the two periods of the program and their constituent five phases are presented and summarized, including visual depictions of the timelines and interconnections of the various workstreams within each phase:

Period one:

- Phase 1: concept and demonstration phase
- Phase 2: concept testing phase

Period two:

- Phase 3: pre-operational phase
- Phase 4: transition phase
- Phase 5: full operational phase

In Chapter 4, we present more detailed descriptions of each of the workstreams to be undertaken as part of the MT program, including their linkages with one another, with policy elements, and with the phases of the strategic plan.

The Appendices provide a much more detailed description of the phases (Appendix 1) and the workstreams (Appendix 2). Appendix 3 is a cross-reference matrix of the evolution of H.B. 2328, 2011, from its introduction to version B. It includes references to the workstreams, identifying where each program element will be addressed. Lastly, Appendix 4 presents the text of H.B. 2138, passed in 2011, which, among other things, authorizes RUFTF to continue conducting pilot studies in support of the MT system. H.B. 2138 is the basis for the period one activities within the general perimeter of the concepts identified in H.B. 2328, 2011 and the guidance of the latest RUFTF directions provided. Appendix 5 provides large scale, foldout graphics identical to those used in the individual sections. They are provided for ease of reading and following the text in each chapter.

2 Policy Framework

2.1 Introduction

This Chapter summarizes the policy evolution of the proposed mileage tax during the yearlong period from the reconstitution of RUFTF in 2010 until the end of the 2011 Oregon legislative session. MT policy serves as a foundation for all program activities, and its evolution is an essential input to the SPP. Several key policy milestones were achieved during this period:

- The re-establishment of RUFTF,
- The introduction of House Bill 2328 (H.B. 2328, 2011) in the 2011 Oregon legislative session,
- The initial revisions to H.B. 2328 to version "A,"
- Revisions from version "A" to version "B" of H.B. 2328, 2011, which sets the stage for the next phase of work to advance MT in Oregon, and
- Passage of H.B. 2138, which provides policy guidance to RUFTF in the conduct of MT pilot programs.

Established by the Oregon legislature in 2001, Oregon's Road User Fee Task Force (RUFTF) has a mission to "develop a revenue collection design funded through user pay methods, acceptable and visible to the public, that ensures a flow of revenue sufficient to annually maintain, preserve and improve Oregon's state, county and city highway and road system." The task force also has the statutory authority to recommend legislation to the Oregon legislature in line with its mission. Members include two state Senators, two members of the state House of Representatives, two members of the Oregon Transportation Commission, two representatives of local government, four at-large members, and two ex officio members from the House of Representatives. Members serve four-year terms, which have become staggered over time as some officials have stopped serving in their appointed or elected positions. After overseeing a successful pilot project of a MT system in 2006 and 2007, RUFTF was reconstituted in October 2010 to help the legislature address the issue of electric vehicles, whose growth is expected to contribute to a decline in transportation funding from the fuel tax.

2.2 RUFTF Development of MT Policy and Draft Legislation, October-December 2010

As one of its first orders of business in 2010, RUFTF compiled a series of recommendations and draft legislation intended to guide the design and implementation of a MT for electric vehicles (EVs) and plug-in hybrid electric vehicles (PHEVs), with the longer term vision of growing this framework to include other very high-efficiency vehicles as the composition of the vehicle fleet evolves.

With drafting proposed legislation as its goal, RUFTF began considering the details of a VMT-based approach and arrived at several key policy recommendations. Several themes are noted in these deliberations. These themes include simplicity and flexibility for users, conformity with characteristics of the fuel tax collection system, and an emphasis on procedures for imposition of penalties for noncompliance. At the same time, however, the decisions and recommendations made by RUFTF preserve the flexibility of RUFTF, ODOT, and the legislature to revise the policies underlying the legislative proposal in the future. The list below captures the key policy parameters decided over the course of three RUFTF meetings from October to December 2010.

- Simplicity:
  - The program will not be designed around the accommodation of congestion pricing, weight-based taxation, or differentiation of miles driven within cities or counties.
  - The tax will apply only to miles driven inside the state of Oregon.
  - To avoid “double taxation,” responsible persons paying for distance-based travel should be refunded for any fuel taxes paid, according to a method to be established by ODOT.
  - Responsible persons will not be charged any additional fees (e.g., an “administration fee”) in the registration process.
  - Mileage will not be reported manually.
- Flexibility for responsible persons:
  - Responsible persons will have the option of choosing between electronic odometer data transmission or more sophisticated vehicle location technologies to meter their road use.
- Conformity with characteristics of the fuel tax:
  - In the short term, the tax would apply only to EVs and PHEVs in order to focus attention on offsetting the decline in motor fuel taxes.
  - Off-road and private-property road use will not be taxed.
  - A VMT tax would not be tied to inflation.
  - EVs and PHEVs would be charged at a rate of 0.6 cents per mile, comparable on average to the fuel taxes paid by a 50-MPG vehicle (e.g., Toyota Prius).

- Revenues belong to the state highway trust fund, and the bill would specifically state that the revenue split is to be 50% state, 30% county, and 20% city.

- Penalties:
  - Penalties were discussed at length and modeled after the truck weight-mile tax program. In addition, nonpayment would be punished by revocation of the ability to register the vehicle.
  - ODOT could audit responsible parties and impose a percentage penalty for nonpayment, while tampering with the measurement would be a more serious infraction.

- Other items;
  - The start date for the VMT tax was set at January 1, 2014 (later changed to July 1, 2015).
  - Miles accrued by vehicle dealers would not be taxed and, therefore, lost. A specific exemption was recommended to be written into the bill, apparently because this was the simplest way to deal with these miles legally/administratively.

- Flexibility for ODOT:
  - Technology options could be public or private, but all must conform to an open systems architecture established by ODOT.
  - ODOT would determine payment methods.
  - Refunds could either be paid or credited against future taxes due, and the decision should be left to ODOT on a case-by-case basis to avoid cases where substantial administrative costs are incurred for small refunds.

2.3 MT Legislation in the 2011 Oregon Legislative Session (H.B. 2328)

H.B. 2328, 2011, borne of the RUFTF discussions in the preceding months, was first introduced in the Oregon House Interim Committee on Transportation just prior to the start of the 2011 legislative session in February 2011. It was later introduced during the 2011 session and referred to the House Committee on Transportation and Economic Development. All tax bills must originate in the House, and they require 3/5 support in both the House and the Senate (known as the “supermajority”) and the Governor’s signature before becoming law. Few of the features of the bill were changed from the decisions made in the RUFTF meetings, while few additions and subtractions were made. The basic features of the program began to take shape: EVs and PHEVs would be required to pay a VMT tax at a rate of 0.6 cents per mile, using methods determined largely by ODOT according to a set of criteria established in the bill (accuracy, privacy, adaptability, ease of installation, safety, and tamper-resistance), with exemptions for miles driven off road or on private property and/or by vehicle dealers while in their possession.

After the introduction of H.B. 2328, 2011, the bill was referred to the House Committee on Transportation and Economic Development, which conducted one public hearing and two work sessions, made some revisions to the bill, and passed the modified version, known as version A, by a vote of 6-2. This version was largely unchanged, but a few key sections relating to penalties for enforcement were removed, perhaps portending the later removal of broader pieces of penalty-related sections. Most of the changes were of a detailed legal nature: amendments to existing Oregon laws and regulations to ensure conformity with some features of H.B. 2328, 2011. However, several substantive changes were made including an increase in the per-mile rate from 0.6 to 1.43 cents per mile, the addition of a voluntary opt-in to the MT program for non-EVs and non-PHEVs, and a stronger emphasis on open systems.

After passing the House Transportation and Economic Development Committee, version A of the bill was referred to the House Committee on Revenue, which held 2 public hearings and 8 work sessions. Here, the bill underwent its most radical changes since inception during the RUFTF meetings of late 2010. Almost all of the penalty-related provisions were removed. The per-mile rate was revised downward but set to increase back to 1.56 cents per mile 3 years after the beginning of operations of the MT program, which itself was delayed to July 1, 2015. More importantly, responsible persons were given the option to pay an annual fee of $300 in lieu of the mileage-based charge. Furthermore, the voluntary opt-in program for non-EV/non-PHEV motorists was dropped since ODOT already has authority to conduct such programs.[1] A second interim report from ODOT to the legislature on the MT program would be required, and RUFTF received a new set of tasks. After making these changes, the bill was labeled version B and passed by the Committee on Revenue by a vote of 8-0. At this point the bill was referred to the Joint House-Senate Ways and Means Committee, where it remained until the end of the legislative session.

A table outlining the evolution of H.B. 2328 during the 2011 legislative session can be found in Appendix 3, including a detailed description of the bill's contents by section and the connection of each section to the various workstreams outlined in this SPP. A summary of these linkages is presented in the table below.

[1] The issue of rates to charge voluntary opt-in users complicated the voluntary program, which was seen as necessary to ensure eligibility for future federal pilot programs. Ultimately, though, ODOT already has the authority to conduct such programs.

Table 1: Summary of House Bill 2328 Version B linkages to S PP workstreams

H.B. 2328 Version "B" (2011) Section	H.B. 2328 Version "B" (2011) Contents	Corresponding SPP Workstreams
Definitions	Definitions of electric motor vehicle, highway, lessee, plug-in hybrid electric motor vehicle, and registered owner.	Legislative, Communications, Economic Analysis, Operational
VRUC (mileage tax)	Rate of 0.85 cents per mile established until July 1, 2018, at which time the rate increases to 1.56; option for $300/year flat fee in lieu of mileage tax (flat fee option expires on July 1, 2018); miles driven by vehicle dealers are exempt.	Legislative, Communications Economic Analysis, Operational
Methods of reporting VMT	ODOT shall establish methods for identifying and charging; criteria to consider include accuracy, privacy, adaptability, installation, safety, tamper-resistance, ease & cost of compliance by responsible persons, and cost efficiency of administration; at least one undifferentiated mileage reporting option must be made available; ODOT will establish standards for vehicle location technology for detecting in-state vs. out-of-state miles.	Technology (R&D), Organizational Framework, Certification (TTSPs), Legislative, Risk Analysis, Operational, Procurement
Collection by ODOT	ODOT is responsible for collection of the MT	Legislative, Communications, Operational
Private property refund	Miles driven on private property can be refunded (within 15 months)	Technology, Organizational Framework, Certification (TTSPs), Operational
Investigation of refunds	ODOT can audit refund requesters to prevent fraud	Risk Analysis, Economic Analysis, Operational
Allocation	Allocation of MT revenues will remain: 50% state, 30% counties, 20% cities	Legislative, Economic Analysis
Reporting	Responsible persons must equip and report mileage; assume all miles are drive in Oregon unless otherwise stated by owner unchanged; ODOT will develop reporting/billing cycle period options for responsible persons based on effort to user, MT amount owed, cost to users of reporting and paying, and cost to department of collecting; refunds may be applied as credits to future charges.	Legislative, Communications, Economic Analysis, Operational
Prohibitions	User misrepresentation, fraud, or deliberate attempts to mislead with respect to any section of the bill are not allowed. Any prohibition violated constitutes a Class A traffic violation.	Legislative, Communications, Economic Analysis, Operational

H.B. 2328 Version "B" (2011) Section	H.B. 2328 Version "B" (2011) Contents	Corresponding SPP Workstreams
Privacy	All personally identifiable data collected under the program must be kept private (except to ODOT staff, the users themselves, banks, contractors, and others involved in the MT). Aggregate data can be used for research/planning purposes but no personally identifiable information is allowed to be kept	Legislative, Communications, Technology, Operational
Penalties	Mileage reporting fraud, fraudulent refund request procedures, and tampering with the device are class A violations	Legislative, Communications, Economic Analysis, Operational
Tampering penalty	Knowing operation of a vehicle with a non–operational metering device and/or tampering with the device to reduce the number of miles reported is a class A traffic violation.	Legislative, Communications, Economic Analysis, Risk Analysis, Operational
Proof of MT payment prior to registration	ODOT can refuse to renew vehicle registration for unpaid persons, unless they were not the ones who accrued the charges.	Legislative, Communications, Operational
Amendments to 319.280 (gas tax refunds)	PHEV users get a gas tax refund, applied as a credit or estimated based on vehicle class,	Legislative, Communications, Economic Analysis, DMV, Operational
Amendments to 319.550 (licensing requirements for visitors)	OR users' licenses not required for visitors (<30 days) who use fuel for PHEVs,	Legislative, Communications, Economic Analysis, DMV, Operational
Emblem	ODOT can provide an emblem for participating "use fuel" vehicles (intended for Diesel PHEVs),	Communications, Operational
Amendments to 319.665 (fuel tax collection)	Fuel sellers not required to collect fuel taxes on vehicles participating in the MT (intended to apply to Diesel PHEVs),	Communications
Amendments to 319.831 (fuel tax refunds)	PHEV users can apply for a gas tax refund, applied as a credit to the MT.	Evaluation, Communications, Economic Analysis, Operational
Amendments to 367.802 ("transportation project" definition)	Definition of a project is expanded to include collection of MT, which allows PPPs.	Evaluation
Rules	ODOT shall adopt rules to implement this law.	Legislative, Communications, Economic Analysis, DMV
Operative date	July 1, 2015	Legislative, Technology, Procurement, Communications, Operational
Model year	The bill initially applies to 2016 model year EVs and PHEVs; after July 1, 2018, all model year EVs and PHEVs are included.	Legislative, Technology, Procurement, Communications, Operational
Report	ODOT shall provide interim reports on program progress by October 1, 2012 and October 1, 2014.	Legislative, Technology, Procurement, Communications, Operational

H.B. 2328 Version "B" (2011) Section	H.B. 2328 Version "B" (2011) Contents	Corresponding SPP Workstreams
Amendments to 184.843 (RUFTF)	Directs RUFTF to: • examine MT implementation progress, • examine impact of MT on EV and PHEV market penetration, • examine potential to apply MT to hybrids and other emerging technology vehicles; and • make recommendations to the legislature on options for voluntary participation in MT instead of fuel tax, adding out-of-state users to MT program, improve MT compliance	Legislative, Technology, Procurement, Communications, Interface with RUFTF, Operational

It should be noted that the following bill sections relating to penalties were removed in the "B" version: penalties for delinquent payment of MT, MT as a lien, collection of unpaid MT via seizure and sale of motor vehicle; collection of delinquent payments via warrants issued for and sale of real and personal property; use of a collection agency by ODOT; assignment of uncollectible obligations after two years; ODOT audits of user-reported mileage; ODOT action in case of failure to report mileage; reassessment of mileage; appeal to circuit court; suspension of driving privileges; and hardship permit eligibility.

2.4 Passage of Legislation Relating to MT Pilot Program (H.B. 2138)

House Bill 2138 (H.B. 2138) was passed and signed into law during the 2011 Oregon legislative session. The bill contains nine sections relating to transportation, of which Sections 7 and 8 are directly relevant to the development of MT policy. Section 7 provides amended directives to RUFTF relating to the conduct and evaluation of MT pilot programs, while Section 8 expands the definition of a "transportation project" for purposes of public-private partnerships to include mileage tax collection. Each Section is briefly summarized below.

Section 7 of H.B. 2138 amends ORS 184.843, statutes relating to RUFTF. The statutes include descriptions of the purpose, membership, and activities of the task force. H.B. 2138 replaced a section of 184.843, which had several years ago instructed RUFTF to propose legislation for a revenue collection system to replace the motor fuel tax. In its place, six items for RUFTF to consider in its study of alternative revenue systems and in its execution of pilot programs of such systems are inserted. These items are quoted below in their entirety:

a. Take into consideration the availability, adaptability, reliability, and security of methods that might be used in recording and reporting highway use.

b. Take into consideration the protection of any personally identifiable information used in reporting highway use.

c. Take into consideration the ease and cost of recording and reporting highway use.

d. Take into consideration the ease and cost of administering the collection of taxes and fees as an alternative to the current system of taxing highway use through motor vehicle fuel taxes.

e. Take into consideration effective methods of maintaining compliance.

f. Consult with highway users and transportation stakeholders, including representatives of vehicle users, vehicle manufacturers and fuel distributors.

In addition, H.B. 2138 amends ORS 184.843 to say that RUFTF shall report on the work of designing, implementing, and evaluating pilot programs only in odd-numbered year regular sessions of the legislature.

These changes represent the only policy guidance on the mileage tax passed during the 2011 legislative session. Moreover, these changes have a clear impact on the conduct and evaluation of pilot programs and therefore for the SPP.

Section 8 of H.B. 2138 revised the statutes governing the Oregon Innovative Partnerships Program by expanding the definition of a transportation project to include the MT program. Specifically, ORS 367.802 (Definitions) now defines a “transportation project” or “project” as “any proposed or existing undertaking that facilitates any mode of transportation in this state or that facilitates collection of taxes and fees as an alternative to the motor vehicle fuel taxes imposed under ORS 319.020 and 319.530.” The purpose of this change is fundamentally to allow public-private partnerships (e.g., certified service providers) in the operations of the MT system.

3 Phasing of the Strategic Program Plan

The Strategic Program Plan is divided into two periods. Period one corresponds with the months from the start of the program until the end of the 2013 Oregon legislative session, when it is expected that enabling legislation for the MT program will have passed the legislature and been signed into law. It consists of two phases: concept design (May 11 to September 2012) and concept testing (October 2012 to June 2013).

Period two begins in July 2013 and ends after the system has been in full operations for a year. It consists of three phases: pre-operational (July 2013 to June 2015), transition (July 2015 to June 2018), and first year of full operations (July 2018 to June 2019).

This Chapter outlines the purpose and principal activities of each of the five program phases.

3.1 Period One: May 2011 to June 2013

Period one comprises the establishment of the MT program based on H.B. 2138 (which was passed and signed into law during the 2011 legislative session) and the development of functional concepts through pilot testing. The development of concepts of operations, operational scenarios, cost and financial data, an organizational framework, and supporting technologies to meet the guidance of the Road User Fee Task Force are the foci of period one, in support of the ultimate objective of providing policy guidance that will culminate in the passage of enabling legislation. Period one is divided into two phases: concept design (May 2011 to September 2012) and concept testing (September 2012 to June 2013). Each is described below. The details of the activities and the time flow for each are shown in Figure 7 below. The activities and their interconnections are captured in Figure 8, illustrating the timing of each activity in the workflow over time. A larger foldout graphic of each diagram can be found in appendix 5. The logical connections and flow of data and information are represented by the interconnecting lines and establish a precedence relationship between the various activities in the workstream.

Figure 7: Time line flow of work and activities envisaged in period one by their respective workstreams

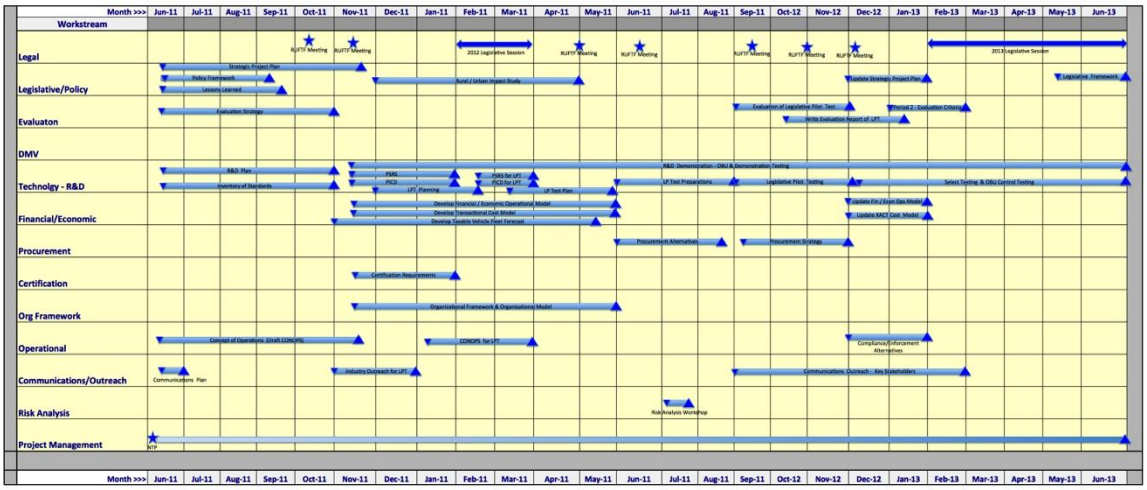
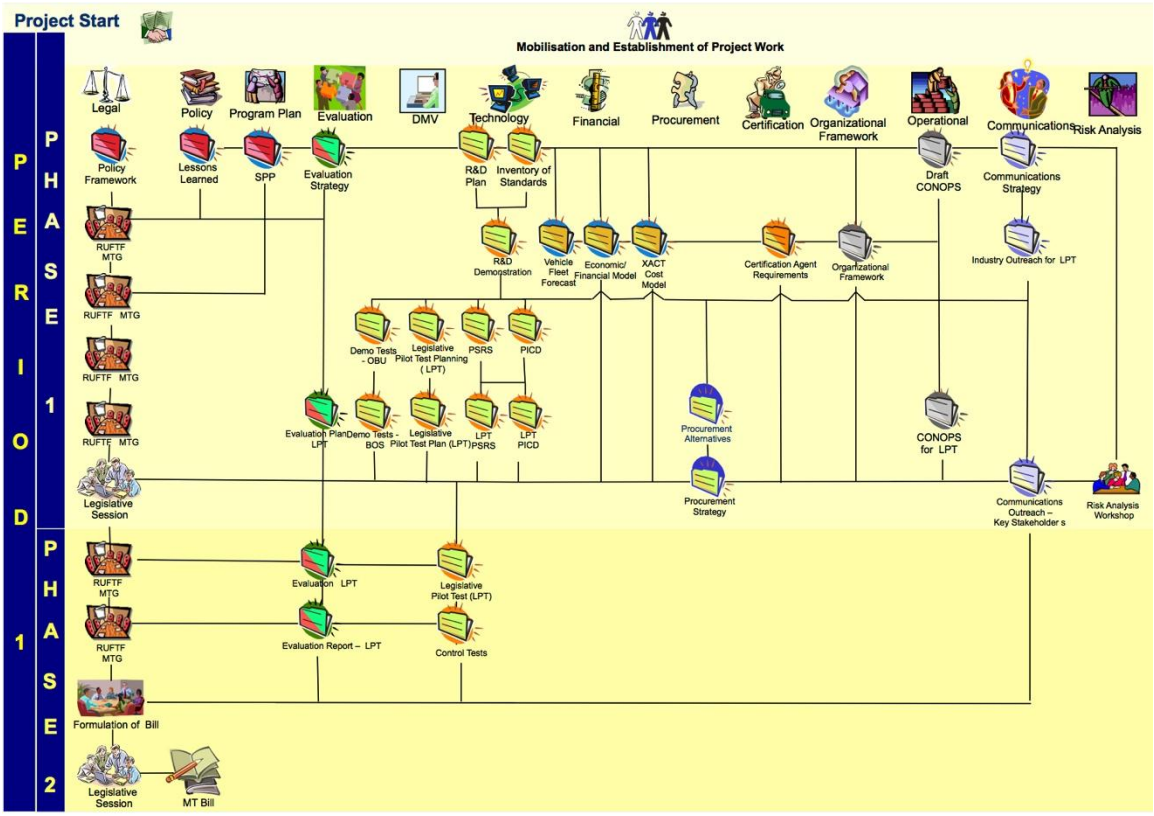


Figure 8: Period one task relationships



3.1.1 Phase 1 - Concept Design Phase - May 2011 to September 2012

PURPOSE: Phase 1 is focused on the development and preparation of the information for RUFTF to consider in the restructuring of H.B. 2328, 2011. The ultimate aim is to inform development of policy that will culminate in the passage of enabling MT legislation during the 2013 legislative session.

PRINCIPAL ACTIVITIES: Phase 1 draws heavily on the recent policy developments during the 2011 Oregon legislative session and uses H.B. 2328 version B (engrossed) together with continual guidance from the RUFTF Committee as a starting point. The lessons learned and experiences of the interaction of the proponents and opponents to aspects of the bill during the 2011 session are captured in the Task 4 report (Policy Framework). Starting from that foundation, the various workstreams within phase 1 will provide information, options and data for discussion between now and the start of testing in the fall of 2012. The principal workstreams are:

- Evaluation (development of an evaluation plan),
- Technology (including R&D and proof of pilot test planning),
- Financial (financial modeling and vehicle fleet forecast), and
- Organizational Framework.

The Communications workstream is also ongoing during Phase 1.

Evaluation: The Evaluation Strategy (Task 8 final report) provides a guiding framework for evaluating the MT program from pilot testing through operations. That report calls for development of an evaluation plan for the pilot program in phase 1, which will be applied to the proof of concept pilot test in phase 2. The report also contains evaluation criteria that were presented to and approved by RUFTF on October 5, 2011 for application in the pilot program. During this phase, ODOT will guide and direct the consultant who will act as the reviewer to evaluate the legislative pilot program. The consultant will evaluate and write the evaluation report during phase 2.

Technology: The Technology workstream includes two tracks: R&D and proof of concept pilot test (LPT) planning. The R&D track is formulated to help gain insight and test practical scenarios that have been developed in the preliminary CONOPS and to feed directly into LPT planning. Preliminary system requirements specifications (PSRS) and interface control document (PICD) will be started and updated along the project time line. The analysis of standards (Task 6 final report) will be used to support the PSRS and PICD. The other track, LPT planning, is necessary to ensure an early start in phase 2 to the LPT and roll over of the R&D work and equipment into the pilot test and selective testing to ensure successful completion. Industry outreach will also be part of this LPT, and outreach will attempt to bring in suppliers for testing the preliminary CONOPS concepts in accordance with the PSRS and PICD, albeit all three may be partial

and limited implementations during this phase. AN industry forum will also be part of the communications strategy to ensure industry participation.

Financial and ***Organizational Framework***: Under the Financial workstream, several activities will take place. A vehicle fleet forecast estimate will be prepared to estimate the Oregon vehicle fleet of electric, plug-in hybrid vehicles, hybrid vehicles and high-efficiency internal combustion engine vehicles in 2015, 2020, 2025 and 2030. These estimates will feed a financial- and economic-cost model, a transaction cost model, and an organizational framework model (note that the Organizational Framework constitutes a separate workstream). These models will provide both RUFTF and ODOT sufficient data to make sound policy and operational decisions by applying the outputs to the system design and policy considerations. These three models will be developed in phase 1 to aggregate the data and experience to ensure the goals of efficiency and effectiveness are designed into any resulting recommendations put forward to RUFTF for policy considerations and incorporation into the system design from the beginning.

Communications: Information and education will be guided by the draft Public Information Plan to ensure feedback from various key stakeholders and the larger audience, both state and national, through outreach led by ODOT staff.

A separate activity will be the industry forum, which will be organized and be part of phase 1's communications activities. This forum will introduce the MT program to interested industry participant and present the PSRS and PICD for their consideration and comment.

Operational: A preliminary CONOPS will be drafted and a sub-set of the various processes will be used in the proof of concept pilot test and select testing. The Information and education will be guided by the draft Public Information Plan to ensure feedback from various key stakeholders and the larger audience, both state and national, through outreach led by ODOT staff.

Phase 1 will set the stage for the proof of concept pilot test while developing key tools (models) and data that will be used to inform policy decisions and development during phase 2.

3.1.2 Phase 2 – Concept Testing Phase - September 2012 to June 2013

PURPOSE: Phase 2 of the SPP builds seamlessly on phase 1, including a carryover of the objectives through testing of the concepts, which will inform development of policy that the concepts are viable and will culminate in the passage of enabling MT legislation during the 2013 legislative session.

PRINCIPAL ACTIVITIES: A number of workstreams will be active during phase 2 in order to maximize the amount of information provided to inform policy activities

as well as to refine operational concepts that move the program closer to implementation. Key workstreams include Evaluation (evaluation of the proof of concept pilot test and controlled tests, including the evaluation of the tests and writing of an evaluation report. As in phase 1, implementation of the Public Information Plan and key stakeholder outreach (Communications workstream) will continue during phase 2.

Evaluation: The evaluation plan developed during phase 1 (which includes the evaluation criteria approved by RUFTF) will be implemented during the proof of concept pilot test to ensure that the goals and objectives set by RUFTF are addressed. The scenario testing in uncontrolled tests and controlled demonstrations will be evaluated to ensure the performance and criteria set by RUFTF are met. The performance of the selected CONOPS scenarios will be monitored and assessed in anticipation of deciding whether to further evaluation of system aspects in select testing. Evaluation criteria identified in the Evaluation Strategy for period two will be re-considered in light of the LPT, and proposed revisions will be presented to RUFTF for consideration, pending passage of the bill.

Technology: LPT planning conducted during phase 1 will transition into the initiation of the LPT at the end of phase 1. The proof of concept pilot test will initiate phase 2. Data generated from the R&D demonstration task will be used both to support the LPT and to bring a common set of requirements for industry participation. The multiple scenarios developed and refined in the preliminary CONOPS will govern the LPT. Although the principal objective of the LPT is to inform policy development and build understanding of the potential functionality of the MT concept among key stakeholder groups, it will also serve to further refine the concepts and viable scenarios in the preliminary CONOPS. An “end-to-end” system design will be used for the LPT in order to test the in-vehicle technology, cloud communications, the MT transaction processing/RP account management and operational concepts. Multiple in-vehicle and transaction processing/RP account management systems may be employed in the LPT to prove and demonstrate an open system design and performance. The use of commercial companies for both technical solutions and account management will also help provide performance metrics and cost considerations, that will be captured in the evaluation and the economic/financial cost models as they are updated in period 2, phase 3.

While a full Pilot Test was initially envisaged, the budgetary restrictions prevented a more detailed test. The testing is being fitted to the budget available. Should additional revenues be allocated or become available for testing, the testing will be expanded to a fuller set of tests to match the expanded budget for testing.

Financial: The economic and transactional models may need to be updated depending on needs of legislation, but major refinements are not anticipated to be done until phase 3.

Procurement: As an outgrowth of the organizational framework task (phase 1), a procurement alternatives and strategy will be investigated in phase 2. This procurement alternatives and strategy will consider the results and operational decisions of ODOT. The strategy will begin the work to advance procurement thinking based on the operational alternative decided by the ODOT Director. This is a critical step necessary to have a clear picture of the procurement approach leading into period two, phase 3.

Organizational Framework and ***Certification***: Work began in phase 1 to build the organizational framework. The organizational framework will be tested during the LPT and evaluated for its effectiveness. Of special interest will be the certification entity and the necessary requirements from the organizational framework report (phase 1) to test and investigate the necessary PSRS and PICD requirements necessary to be collected and governed by certified service providers (CSPs) to support the open system model.

Operational: Feeding into the Technology workstream will be the preliminary CONOPS and its several alternate education/compliance/enforcement measures, which will be designed and reviewed. These education, compliance and enforcement measures will be further studied to narrow the focus for one to three viable alternatives. The operational cost model and transaction cost model will be used to estimate the cost impacts of the alternate measures. If time permits, some of these education/compliance/enforcement measures may be tested in the select pilot tests that follow the LPT or at least simulated to gain greater insights and verify processes and costs.

Communications: Continued work will be done in outreach and public information and education in phase 2 based on a reassessment of the communications plan at the end of phase 1. The information flow will be metered on the continual building of information and the need to continually inform special interest groups and the public alike.

Risk Analysis: In preparation of the legislative pilot testing and other phase 2 activities, a risk analysis workshop will be organized and led by ODOT staff. Its purpose will be to ascertain the risks to the program and possible mitigation measures to avoid, redesign or minimize any adverse impacts to the program.

Phase 2 (and thus period one) will be considered to have ended at the close of the 2013 legislative session when it is anticipated that enabling MT legislation will have been enacted in some form or a decision taken to its enactment. This marks a critical inflection point in the program, as the objectives will shift from policy development to ramp-up of operations. All of the workstreams identified in

phase 2, although focused on the principal objective of informing policy, have the dual function of supporting refinement and development of operational concepts. At the close of phase 2 (and period one), the operational objectives will take precedence as the new focus of the program becomes implementation of the MT system according to the guidelines specified in the enacted law.

3.2 Period Two: July 2013 to June 2019

PURPOSE: The key objective of period two is to transition into an operational taxing authority, moving from the start of operational planning to full operations. It covers a three-year transition period where the mileage tax system incrementally matures to provide all options and grows to encompass a wider range of vehicles, as well as the first full year of operations.

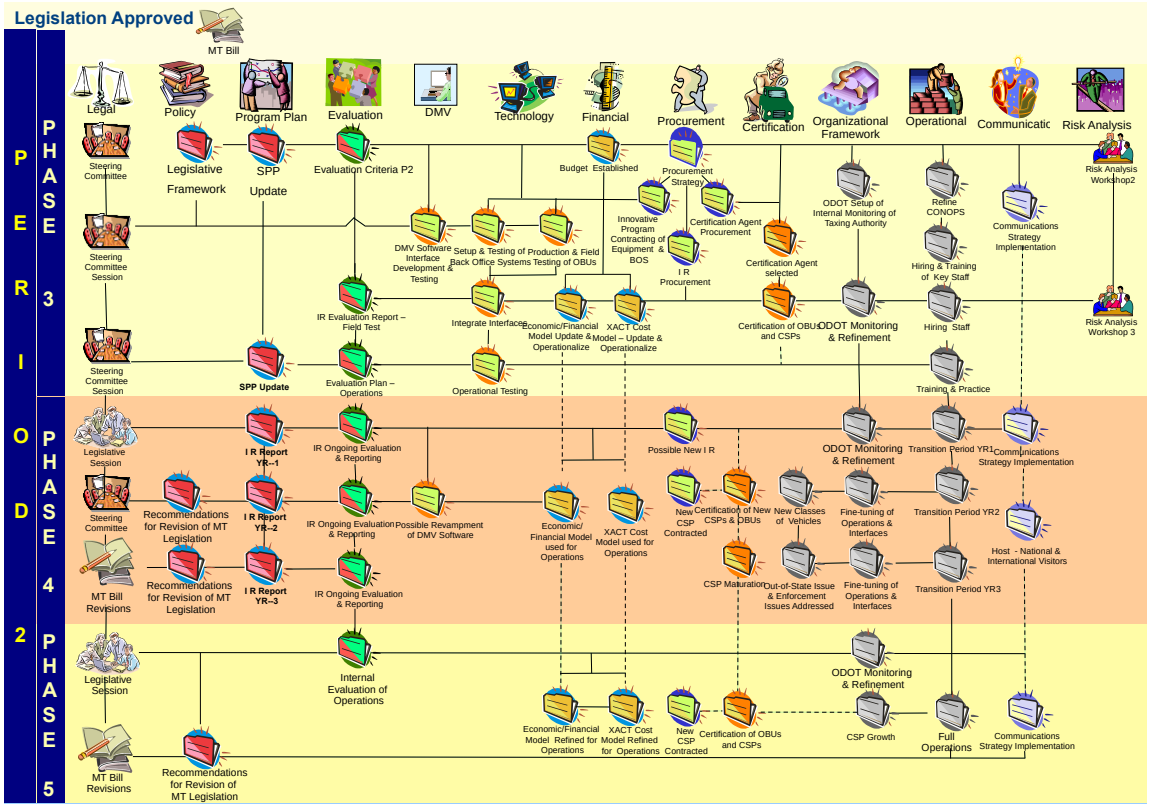
Phase 3 will see the transition of the concept from legislative pilot and select testing to foeld testing the system and the organization, pending approval of RUFTF and passage of the enabling legislation. In this phase, field testing will occur, allowing confirmation of the finalized SRS and ICD to be produced. The procurement decisions, based on the phase 2 procurement strategy, will be made on how to procure both the equipment and the services necessary to commence operations in the targeted July 2015 time frame (or as modified by the anticipated enabling legislation).

Phase 4 will see the start of a transition to a full operating system and a period of independent evaluation. The mileage tax system will start small and grow in number of accounts and options for the users. Any issues of compliance will be addressed and possible legislative changes can be made to ensure greater compliance. During this period of time, a greater number of vehicles will be enrolled into the system since there will be as many as 15-18 projected vehicles from manufacturers into the electric and plug-in hybrid vehicle category alone. In addition, the USA CAFÉ standards for 2016 will be coming into effect as well as a number of efficiency improvements as the 2025 Café standards will be planned by many manufacturers.

Phase 5 will see the transition to a full range of choices for users and the establishment of a mileage tax system that is envisaged by the legislation. The provisions for a transition period will be superseded by the full weight of the legislation. The taxing authority will be operational and continue to carry on with internal evaluation and yearly reports generated by the careful monitoring of ODOT.

Period two’s constituent phases (3, 4 and 5) are depicted in Figure 9 below.

Figure 9: Period two task relationships



3.2.1 Phase 3 - Pre-Operational Phase - July 2013 to June 2015

The key objective of phase 3 is to transition into an operational taxing authority. Phase 3 will see the transition of the concept from testing to the actual building of the organization, pending approval of RUFTF and passage of the enabling legislation. During Phase 3 the program will transition from concept testing through field tests and into live operations, which signify the end of phase 3 and beginning of phase 4.

In this phase, field testing will occur. It will be based on the finalization of the SRS and ICD which were preliminary in Phase 2. One of the first activities after passage of the legislation will be the finalization of these key documents in order to procure the necessary hardware and software for the system. The procurement decisions, based on the phase 2 procurement strategy, will be made on how to procure both the equipment and the services necessary to commence operations in the targeted July 2015 time frame (or as modified by the anticipated enabling MT legislation).

Operationally, the preliminary CONOPS will be refined based on the Phase 2 testing, the Organizational Framework decision by the ODOT Director and the financial/economic modeling updates. Both the preliminary CONOPS and the financial/economic will provide input to the operational concepts and the cost parameters of the operational system.

Hand in hand with this transition to operations will be the Public Information Plan that will use the results of the evaluation from phase 2 as its initial source of information to distribute to the key special interest groups, regional interest groups, state and national audiences. During the latter part of phase 3, the informational campaign will shift to informing and educating the public on the requirements of the system in anticipation of launch of operations.

The evaluation criteria for operations that were considered in the proof of concept pilot test will be refined for phase 3 in preparation for ongoing operational evaluation of the system and the organization. ODOT will procure the services of an independent reviewer (IR) who will independently review the MT Taxing Authority and its service providers against established operational criteria. The IR will evaluate the field tests and write an evaluation report summarizing findings. In preparation for phase 4, ODOT will consider revisions to the Evaluation Strategy, update RUFTF on evaluation activities, and develop a more detailed evaluation plan for operational evaluation (periods 2A and 2B of the Evaluation Strategy) to be executed in phases 4 and 5.

Depending on the organizational framework decided, evaluation criteria will be used to incrementally review and refine either the organic ODOT operations or services outsourced to external entities. The CONOPS will be updated at the beginning of phase 3 based on the evaluation of the scenarios, and the scenarios of the preliminary CONOPS will be first refined and then finalized at the midpoint of phase 3 and used in the transition to define procedures and processes for the actual operations. The initial ODOT staff that will be responsible for the operational results of the MT Taxing Authority will be hired in this time period and they will be responsible for interface and guiding the IR and finalization of the CONOPS. The economic model will provide financial parameters that will be accessed and used to measure the actual performance of the organizational framework created. These will also incorporate evolutionary targets to continually improve and make more efficient the overall performance of the system once it transitions into operations.

At the end of phase 3, field tests will have been completed, equipment and services procured and a transition to live operations will commence. This will be an incremental process based on the body of knowledge generated in period one and continually refined in the system's engineering process. The procurement strategy will use the most timely and economic mix of both industry and government in partnership to innovate a solution in the time available.

3.2.2 Phase 4 - Transition Phase - July 2015 to June 2018

In phase 4, operations will begin. The actual start date will depend on enabling legislation. The concepts, functions, and pre-operational preparations of the previous phases will be manifested in ongoing operations. The start of operations should be a smooth transition from preparations to pre-operations to operations.

An ongoing evaluation of the operations for three years will provide feedback to the legislature and to RUFTF, or its successor, on the achievement of performance and critical success factors through annual reports and briefings. The evaluation will also incorporate assessment of the greater economic benefits of the system to ensure value for money of the venture for the state. The three-year transition period may see the evolution from as few as one user choice to the full spectrum of choices over the three-year time line.

3.2.3 Phase 5 - Full Operations Year - July 2018 to June 2019

Phase 5 corresponds to the first full year of operations. The internal staff of the taxing authority and the ODOT management oversight group assigned by the Director to ensure compliance with the legislative powers vested in the bill to ODOT will perform evaluation. The first year of full operations will mark the end of the transition phase and the IR evaluations. The refined and final operational criteria used to perform the IR yearly evaluation reports during the transition period will be the continuing basis for the reports published by ODOT as part of the normal operational reporting. Potentially new tranches of vehicles may be added to the mileage tax system and on-going work will continue in parallel for the next batch of high efficiency vehicles to be mandated into the program. CSPs will continue to grow as the taxable vehicle base will grow. It is anticipated that the open system model will allow CSPs to take advantage of any new technology. These new technologies will be harmonized with the existing system by first being certified and then put into operations. CSPs may grow their business base into other states in the region and define their service plans customized for individual groups of users. Interstate co-operation and collaboration will be managed by ODOT. This will be through the growth of value added service plans to entice users by service offerings that provide value and convenience to their individual needs. It is also anticipated that ODOT will continue to refine the MT system, and new legislation may be sought to help improve efficiency, education, compliance and enforcement. The operational evaluation criteria will provide a good perspective on issues and problems, while providing the cost-benefit analysis to determine the true value of each change. Communications will be continuous for each year of operation and will focus on the addition of new tranches of vehicles and providing continued education, information, and market support. The communications staff assigned to the organization by ODOT will also handle any crisis situations and mitigate damages for issues that may occur.

3.3 Summary

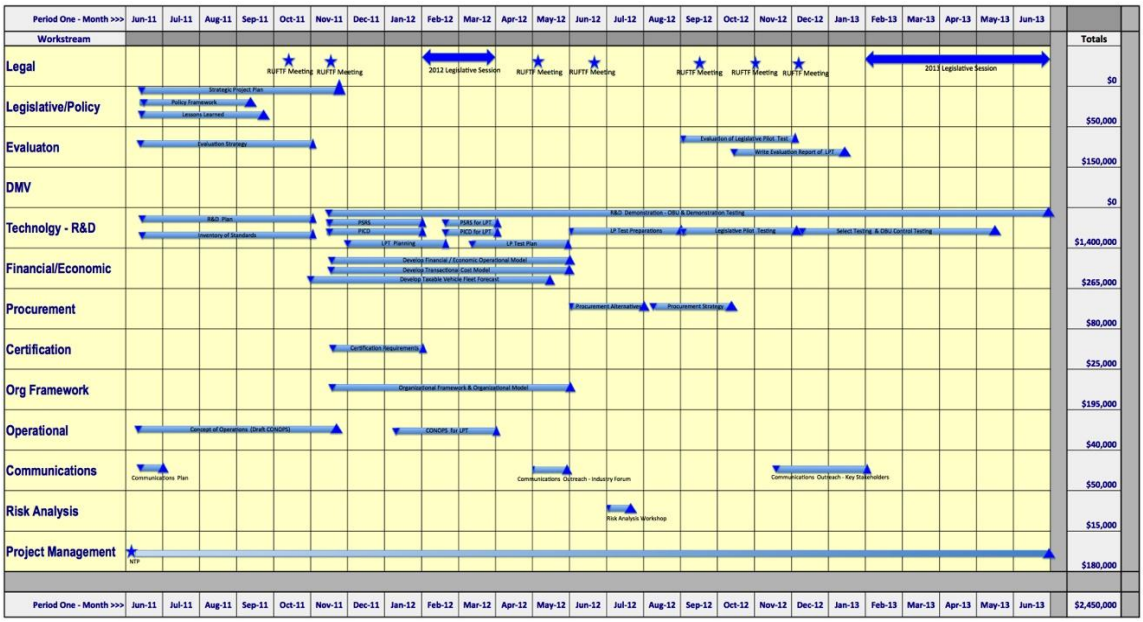
The above five phases outline the SPP from May 2011 to June 2019. They represent phases with soft transitions from one stage of the project development to the next. As a rolling wave concept, the details of a phase will be added and adjusted based on the program needs and build upon the progress of the previous phase of the program. In this way, the SPP is a living document that is expected to evolve to meet the needs of the project rather than constraining it.

The broad planning identified in the above sections is meant as a guideline and logical development of the program plan over time. More details on the phases, including detailed activities by workstream, are presented in Appendix 1.

The budget for the various period one activities has been set by ODOT/OIPP as approximately $2.5 million. This amount is exclusive of other contributions, for example, industry contributions for demonstrating their hardware and software during pilot testing.

The budget is divided amongst the various activities indicated in the period one detailed bar chart shown previously in Figure 4. The allocation of budget is approximately 50%-50% between technology and R&D related tasks in this time period and other activities related to supporting the project's policy nature. The relative weight of each workstream can be seen in Figure 10 or in a larger format in Appendix 5.

Figure 10: Detailed activities and budget for each workstream



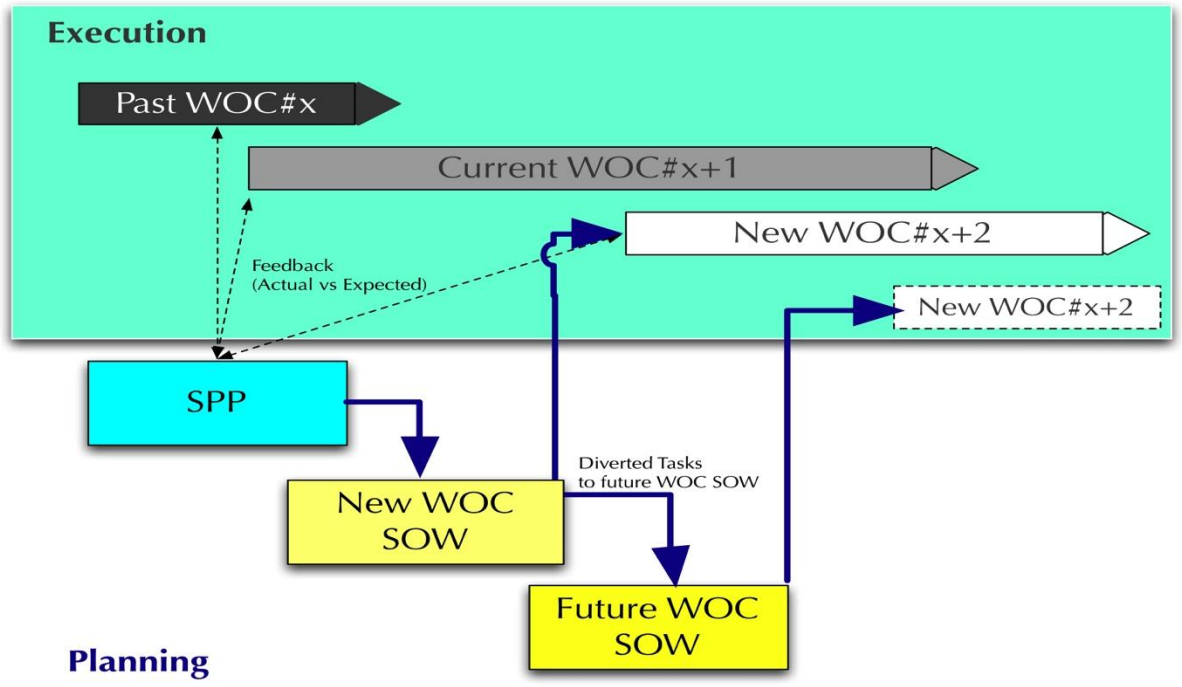
Period two is not estimated, since it will dependent on the specific statutes identified by the legislation. The period two activities provided in this SPP are the logical sequence of steps necessary to move from the period one base, through a pre-operational time frame to a transition period into full operations.

The primary purpose for this Strategic Project Plan (SPP) is to help guide and direct the project. As a policy driven project, all workstreams are dedicated to providing a body of knowledge that will assist in the possible establishment of mileage tax legislation. The data and information generated form the project will

help ensure that decisions and policy direction are both done with full background and foresight of the consequences, intended and unintended.

Additionally, the SPP helps to guide the creation, need and justification of work packages in each workstream for the project. In that role, the SPP is core precedent document that spawns new scopes of work and is updated dynamically as the project changes and is updated over time. This process is illustrated below in Figure 11.

Figure 11: SPP in the generation of new work order contracts and scopes of work



In the next Chapter, the SPP is summarized by workstream.

4 Definition of SPP Workstreams

Below, workstreams have been identified that encompass the full range of tasks and activities that must be completed and addressed as the MT program advances toward implementation. Each workstream does not necessarily represent a single "task" or task order, but rather a topical bundle of related activities that must be undertaken by OIPP and the MT project team. Although each workstream is summarized below individually, much of the work will cut across workstreams. These crosscutting activities are indicated where appropriate. A full description of each workstream by phase is included in Appendix 2.

4.1 Legal

The objective of this workstream is to identify any existing, future, and potential future actions that could affect the MT program, at any level of government (local, state, and federal). As stated in the workstream, there are many avenues for legal and regulatory input that can impact the MT program, sometimes in unexpected and/or unintended ways. These include:

- Laws from the legislature(s).
- Regulations/rulemakings from executive agencies.
- Contracts (both private and public-private contracts).

In addition, it will be necessary to identify and execute any public involvement requirements during MT program development. The Legal workstream, like the ***Policy*** workstream, is ongoing and cuts across all other workstreams.

4.2 Legislative/Policy

This is an ongoing workstream that cuts across all other workstreams. The objective of this workstream is to support the development of all mileage tax policy. Legislative outcomes and other policy directives (e.g., from RUFTF) will drive program decisions, which in turn drive the design of key aspects of the MT system. As a result, this workstream involves high-level, multilateral collaboration among OIPP, the legislature, automakers, and other stakeholders. The two overriding objectives are: (1) to support ODOT's efforts to present legislators with clear and objective arguments that lead toward the definition of an MT system that emphasizes user choice and open systems and (2) to support ODOT's efforts to translate legislative outcomes into workstreams, policy directives, and other activities for implementation. The key activities of this workstream are summarized below by stakeholder:

- OIPP: As the leader of the MT project, OIPP sets the vision and the agenda for the MT in Oregon. Ongoing support will be required to present

that vision to the legislature through policy documents, public hearings, and meetings with legislators and other stakeholders. At the same time, ODOT will require support in translating the legislative outcomes into policy directives and actions for implementation.

- Legislature: As stated above, OIPP will interface with the legislature, but will require support and inputs to its efforts to communicate policy suggestions to the legislature and incorporate legislative feedback into its overarching MT strategy.
- RUFTF: The Road User Fee Task Force is a key stakeholder that will provide periodic policy direction and feedback to ODOT as it works with the legislature to define the MT program. Interfacing with RUFTF includes reporting program progress and taking input from RUFTF and using it to feedback into the development and implementation of policy.
- ODOT Planning: At the policy level, one stakeholder worth mentioning is ODOT's strategic planning team. The statewide long-range transportation plan (SLRP) is an important policy document, and relevant MT developments will be communicated to the SLRP team and reflected in the planning products. Likewise, any important policy elements of the SLRP that will influence the MT program should be communicated to OIPP.
- Oregon government agencies: Other divisions of ODOT (e.g., Finance), DMV, and other agencies of Oregon government have rulemaking, regulatory, and other policy tool capabilities that may influence the MT program in ways unexpected and/or unintended. In other words, the legislature is not the only source of policy input, and these other sources need to be monitored for their impact on MT development. This "monitoring" is closely related to activities under the ***Legal*** workstream.
- Automakers: One of the key stakeholder groups in a position to influence the policy development is automakers. As such, they need to be engaged throughout the policy process in order to hear their ideas and objections, address their potential objections, and adjust the MT policy and implementation strategy where necessary.
- Other stakeholder groups: As with the automakers, other stakeholder groups that are positioned to influence the legislative and policy development processes should be engaged in order to exchange ideas and objections. These include, for example, other state agencies, AAA, environmental advocacy groups, and electric vehicle user groups. For example, an EV stakeholder-working group was formed at the October 2011 RUFTF meeting.

4.3 Evaluation

The purpose of this workstream is to develop an evaluation strategy and actionable evaluation plans to monitor the performance of and report on the pilot

test, field tests, and operations of the MT program. The Evaluation Strategy and its criteria approved by RUFTF will be used as the basis for evaluation plans to be implemented at various points throughout the MT program. By identifying what gets reported, what gets analyzed, and what gets measured, the program can aim to meet those expectations from the outset.

During period one, the legislative pilot testing will be evaluated. The policy basis for evaluation in this period is H.B. 2138, which became law in 2011 and provides a list of specific criteria for RUFTF to consider in evaluating any pilot programs and subsequent field test.

- Phase 1: The Evaluation Strategy will be formulated, reviewed by RUFTF, validated in the planning stage fro the Pilot Test and refined to meet the testing and survey of the planned legislative pilot test. The approved evaluation criteria will lead to the development of a more concrete evaluation plan for the pilot test and select tests for system operations.
- Phase 2: Evaluation of the proof of concept pilot test will take place and a report written to the RUFTF approved criteria. Further testing of the select testing will include OBUs assembled by companies responding to industry outreach..
- Phase 3: Evaluation of the field tests and approval of the period two criteria for operations by RUFTF.

During period two, the evaluation workstream focuses on evaluating the operations of the actual MT system, which begins during the pre-operational phase (phase 3), continues through the opening of the system to the public to establish accounts (with taxing potentially commencing some time later in phase 4), and culminates after start-up of full-scale operation (phase 5). The policy basis for evaluation in this period is not yet established, as there is no law establishing a MT system in Oregon. Once the policy basis is established, these elements of evaluation can be more fully developed. Broadly speaking, evaluation in period two can be broken into two parts which will be applied across phases 3, 4, and 5:

- Part 2A-evaluation of operations, and
- Part 2B-evaluation of greater economic indicators and societal impacts.

4.4 DMV

The DMV maintains a database of motor vehicles in Oregon. The purpose of this workstream is to analyze the existing database, identify points where the MT program should “hook” into it, and develop any modifications that will be necessary to the DMV database as well as its data collection and entry processes. These modifications include:

- Data collection: Identifying new sources of data that DMV will require to collect and/or receive from the MT program.
- Data ownership: Agree to ownership of the new data (DMV, ODOT, other entities, or some combination of these).
- Data entry protocols: Establish protocols for updating DMV databases given that data streams will potentially be coming from multiple departments.
- Privacy: Identify any privacy issues that arise by modifying the interface with the DMV and respond to these issues with safeguards.

4.5 Technology

The Technology workstream includes a variety of distinct tracks with the joint and ultimate objective of developing technical solutions for the MT program that satisfy legislative and other policy requirements. In phase 1, the Technology workstream includes R&D, inventory of standards, and LPT planning. The inventory of standards informs the development of preliminary system requirements specification (PSRS) and a preliminary interface control document (PICD), which will feed into the LPT plan. Meanwhile, R&D activities will also result in key inputs to the LPT plan. In later phases, the Technology workstream is focused on refining the technical solutions developed and considered in field tests in order to achieve a robust technical solution.

There are two broad categories of technology to explore for the MT program, location-based and non-location-based, defined as follows:

- Location-based or "differentiated mileage" means that miles traveled are computed from some measure of the vehicle's locations. Doing so typically implies GPS, but there are workarounds that do not necessarily require a GPS device to be installed in the vehicle, such as pervasive DSRC based tag-and-reader systems.
- Non-location-based or "undifferentiated mileage" technology options refer to technologies that capture the aggregate distance traveled over a given period of time. Such technologies typically involve reading the vehicle's odometer, though it is possible to compute a separate measure of the vehicle's distance traveled.

Technologies to be examined include the technology for the onboard unit (OBU), the device in the vehicle that measures miles traveled, and for the components of the taxing authority and the account management systems.

For the OBU, both location-based and non-location-based technologies will be explored. For communications with the taxing authority, the OBU should be able to employ a variety of wireless technologies to connect to the Internet.

For the taxing authority and account management system, a 'cloud-based' approach is preferred, as this will allow multiple communications technologies to access the system simultaneously, allow the system flexibility to function with new and evolving communications technologies, and enable leveraging the capabilities of private industry in the most effective way.

The various technological solutions will be explored from a variety of perspectives:

- What are the specific component technologies required for each approach?
- What technologies already exist in the vehicle fleet that will allow for implementation of each approach? What types of innovations/additions will be required, whether by the automakers or as aftermarket installations?
- What types of technologies are in the "pipeline" for new vehicles, particularly for EVs and other new vehicles that can be applied to the MT program?
- What are the R&D requirements that can produce the technologies needed in order to fulfill the policy objectives?

With regard to this last question, it is important to reemphasize throughout the Technology workstream that policy decisions will drive the choice of technology, whether it is off-the-shelf, in the pipeline for new vehicles, or under development. The goal is to engage private industry as much as possible, and cause minimal disruption to the automotive, electronics, and telematics markets.

4.6 Financial and Economic Analysis

The purpose of the Financial and Economic Analysis workstream is to gather data, develop technical tools, and conduct analyses that inform the understanding of MT program costs and benefits. This workstream includes the following subtopics:

- EV growth rates: Revenues will be a function of the EV deployment, so credible forecasts of the growth of taxable vehciles in the Oregon market need to be developed.
- Costs: Start-up and operations/transaction costs will be subtracted from gross revenues, so a clear understanding of the component costs of the system under various scenarios is necessary. Estimates for these costs will be achieved by developing financial cost and transaction cost models.

To integrate the various moving parts of this workstream, scenarios will be developed which consider a variety of assumptions about charging rates, EV growth rates, expansion of the MT system to other vehicle types, and cost evolutions. Ultimately these scenarios should provide upper and lower bound

estimates of both the costs of the system and its potential contributions to the Oregon highway trust fund. Benefit-cost analysis will be performed on various options along with sensitivity analysis.

An economic operations model will be required to estimate and simulate costs. In this model, transaction costs will also be developed to understand and drive the program. Understanding of the cost drivers to the system design will be tested first by estimates and later from data generated by demonstrations and pilot testing. The model will be a "living model" to be refined in subsequent stages as more specific data is generated. The objective would be to establish operating costs and parameters for the resulting organizational framework.

The financial workstream relates importantly to other workstreams, including ***Policy*** (rate setting and vehicles to include), ***Procurement*** (costs), ***Technology*** (costs), ***Operational*** (lost revenues due to evasion), and ***Organizational Framework*** (costs).

4.7 Procurement

There are a variety of options for procuring the MT system and services. This workstream will evaluate the various options according to a range of metrics that will include, but not be limited to normal procurement. Innovative procurement methods may and will most likely be addressed in order to conform to policy objectives and requirements, revenue potential, size and scalability, public acceptance, data management and ownership, enforcement and compliance capabilities, and operating/transaction costs. Contractual options need also be considered hand in hand with the ***Legal*** workstream and the existing innovative partnership process. Some of the specific alternatives to consider include:

- ODOT (in-house): Under this alternative, ODOT will build the staff capacity and procure the systems necessary to operate the MT scheme internally.
- BOT: Here, ODOT would outsource the development and initial operations of the MT scheme but ultimately take ownership of and responsibility for its operations.
- PPP: As an extension of the BOT model, a PPP would have ODOT contract with a concessionaire for the operations as well.
- CSP: Certified third-party service providers can have a role to play in any of the above configurations as the interface between the "toll charger" (whether ODOT or a private contractor) and the users of the system.

It is likely that a combination of approaches will be selected for various elements of the program, and approaches may evolve over time as, for example, the program grows to include a greater number of vehicles.

4.8 Certification

This workstream will focus on developing an independent certification process for various elements of the MT scheme, specifically technology. As defined in the preliminary CONOPS, the certification entity will be an independent contractor working for ODOT to assess and determine the interoperability of system components and the configuration management of the same. This has clear and important links to both the ***Organizational Framework*** and ***Technology*** workstreams.

4.9 Organizational Framework

This workstream will lay out the recommendations for how to govern and manage the MT program as well as how external interfaces should be handled through all phases. Alternative organizational frameworks for implementing the various elements of the MT system will be enumerated, researched, and evaluated so that ultimate policy decisions have objective bases. This evaluation will also feed into the ***Financial & Economic*** workstream, as it has important implications for costs of the MT system. The choice of organizational framework also goes hand-in-hand with the ***Procurement*** workstream.

4.10 Operational

This workstream will define the core processes of the operations of the MT scheme in first a preliminary CONOPS that will later refined and finalized in the CONOPS. These items will form the foundations for both the design and operating manuals to be used by the various entities involved in the MT scheme, whether for day-to-day operations, handling of collections, education, compliance and enforcement, or other aspects.

- Initial reading: An essential but previously overlooked aspect of the MT operations is to determine how an initial odometer reading will be obtained for participants in the scheme. An answer to this question must be developed that fits within the broader policy and legal framework, including minimizing disruption of users and protecting privacy, for example.
- Roles and responsibilities: Roles and responsibilities will be defined for each of the agents participating in the operations of the MT scheme. This relates to the ***Organizational Framework*** and ***Financial*** workstreams. These will be defined for the entire range of operations, from identification of MT participants to depositing and auditing of the highway trust fund. A clear process for the operations will include descriptions of the users, DMV, CSPs, ODOT and/or private partners participating in tax collection, other ODOT divisions, Treasury, and enforcement agencies.
- Interrelationships: Relationships between ODOT and other government entities (e.g., Treasury), both internal and external (other states involved in MT reciprocal agreements) as well as third parties will be carefully defined.
- Business rules: Development of operational manuals for all business rules and procedures for the program. Essentially the comprehensive

operational policy for all products and services, including interfaces with users, contractors and other government agencies.

- Enforcement: The anticipated enabling legislation for mileage taxation will likely include detailed sections regarding enforcement procedures (explicit links with the ***Policy*** and ***Legal*** workstreams). It will be necessary to develop processes that respond to these legal requirements while interfacing with stakeholders including the ***DMV***, law enforcement, and justice elements. Precise protocols for responding to MT collection problems will need to be consistent with laws and procedures already in place.
- Compliance targets: The costs of enforcement must be traded off against revenues. A "minimum" compliance target will be set. Beyond that, cost/revenue scenarios will be built that illustrate the marginal costs/revenues associated with various compliance levels (e.g., how much does it cost to go from 80 to 90% compliance vs. how much additional revenue would that generate). This will help ODOT to determine its desired compliance targets.
- Out-of-state users: Although out-of-state users will not be included in the early stages of the mileage tax, it is critical to develop a plan for incorporating them into later stages. European-style vignette systems with pre- and post-pay options are possible models, while a longer-term vision perhaps includes regional agreements with neighboring states.

4.11 Communications

Like the ***Policy*** workstream, communications and outreach will be ongoing and will cut across most of the other workstreams. This workstream involves developing and executing a strategy for communications with and outreach to legislators, members of ODOT and other areas of government, third-party ODOT partners, automakers, third party service providers, technology providers, and the general public. ODOT staff will be responsible for the lion's share of outreach to stakeholders as well as organization of any industry forums. The strategy should define several areas:

- Interfaces/relationships: Define how the MT program team will interface with each stakeholder group.
- Information sharing: Through what channels and by what processes will information be shared with stakeholder groups?
- Incorporating feedback: Feedback from the communications and outreach must be delivered to the appropriate workstreams for incorporation into further development of policy and technical characteristics.

One of the critical aspects of the Communications workstream is to design an outreach program to educate users and potential future users about the mileage tax, its purpose and objectives, and how it functions. This has important links to

the education, enforcement and compliance aspects of the ***Operational*** workstream in the CONOPS. It involves designing a two-way communications strategy with the public to provide information and Q&A. The strategy should be appropriately timed/phased and responsive to policy and legal considerations.

4.12 Risk Analysis

Risk analysis is an ongoing workstream that is responsive to developments in other works streams such as ***Legal***, ***Communications***, and ***Organizational Framework***. Drawing on input from these and other workstreams, a running inventory of risks and threats to MT development and implementation will be logged, described, and analyzed. Solutions to these risks will be proposed by ODOT and the consulting team and discussed in periodic workshops organized and led by ODOT. Decisions about how to respond to various risks ultimately will be made by the project team. The process of identifying and analyzing risks will be outlined, and a timeline for workshops and responses will be proposed as part of this Strategic Program Plan.

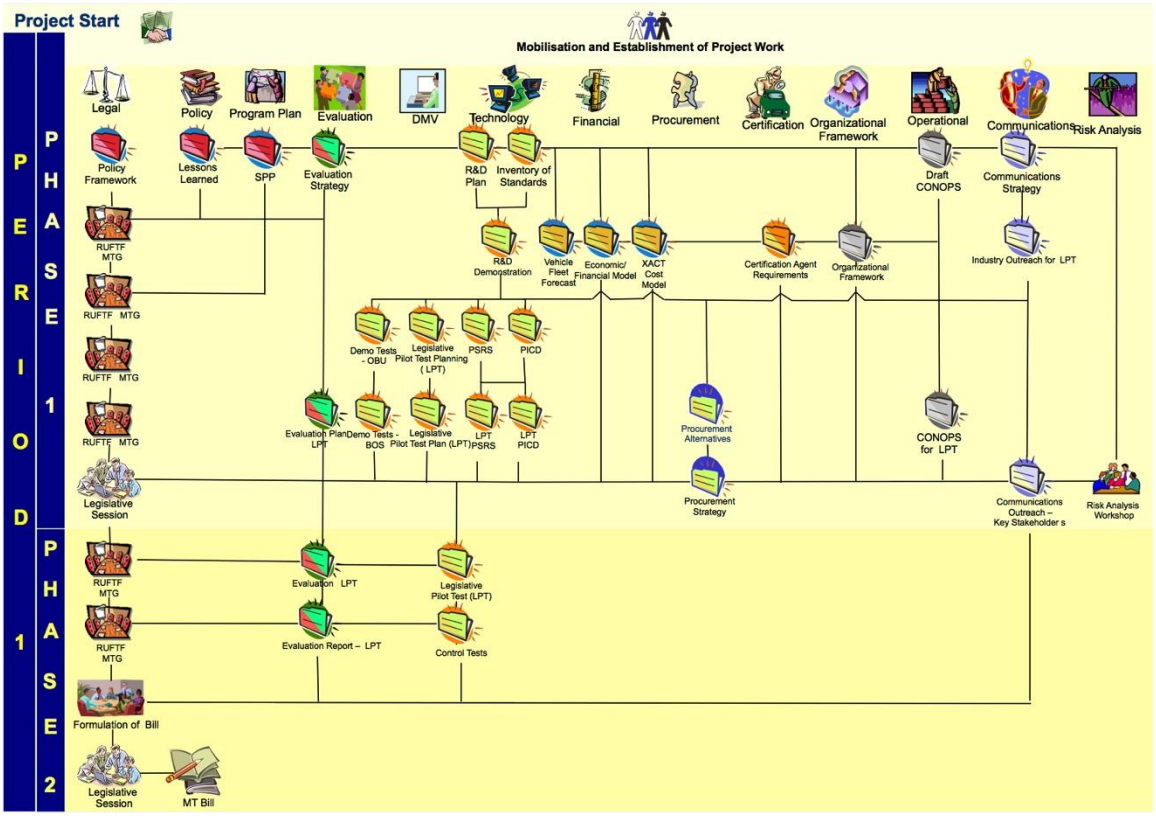
Appendix 1: Strategic Program Plan Phasing Details

Period One

Period one comprises the establishment of the MT program based on H.B. 2138 (which was passed and signed into law during the 2011 legislative session), guidance form the RUFTF Committee and the development of functional concepts through legislative pilot and select testing in phase 2. The development of concepts of operations, operational scenarios, cost and financial data, an organizational framework, and supporting technologies to meet the guidance of the Road User Fee Task Force are the foci of period one, in support of the ultimate objective of providing policy guidance that will culminate in the passage of enabling legislation. Period one is divided into two phases: concept design (May 2011 to September 2012) and concept testing (October 2012 to June 2013). Each is described below.

Shown below in Figure 12 is an illustration of the period one task relationships.

Figure 12: Period one task relationships



Appendix 1-1: Concept Design and Demonstration Phase (May 2011 – September 2012)

PURPOSE: Phase 1 is focused on the development and preparation of information for RUFTF to consider in the restructuring of H.B. 2388, 2011, for future legislative sessions. The lessons learned and experience of the interaction of the proponents and opponents to aspects of the H.B. 2328, 2011, are captured in Task 4, Policy Framework and summarized in Chapter 2 of this SPP. Using that experience, the multiple workstreams under this SPP will provide information, options and data for discussion between now and the end of the short legislative session in 2012. R&D with its internal demonstration testing are formulated to help gain insight and develop practical scenarios that have been concepted in the preliminary CONOPS (Task 2 of WOC1). In parallel, the refinement of standards (Task 6) and the Evaluation Strategy (Task 8) will be used to build a preliminary SRS and ICD to ensure an open system architecture model is employed in accordance with the state ITS architecture and the directives of RUFTF, H.B. 2138, and H.B. 2328, 2011. Information and education will be guided by the draft Public Information Plan (Task 7) to ensure feedback from various key stakeholders and the larger audience, both state and national. A special communications event, the Industry Forum, will be conducted to establish communications with interested commercial companies who wish to supply hardware, software and services. Additionally, financial, transactional and operational cost models will be developed in the stage to aggregate the data and experience to ensure that a focused transactional model of the system is targeted right from the start of the project to ensure the goals of efficiency and effectiveness. Each of these tasks is discussed in greater detail below, organized by workstream.

Legal

There are many avenues for legal and regulatory input that can impact the MT program, sometimes in unexpected and/or unintended ways. As the concepts are developed in phase 1, legal counsel will work with RUFTF and the OIPP. The project team will provide input and information to support legal review of subjects that are demanded.

Legislative/Policy

During phase 1, this workstream will consist of interaction and guidance of the RUFTF Committee who, by H.B. 2138, are mandated to guide and direct the program.

The project team will work through the guidance of the Director of OIPP to develop information, options and data on the MT system to assist the RUFTF members in refining the legislative/policy concepts to be embodied into a redrafted bill for the 2012 short session of the Oregon legislature assembly and, more likely, for the 2013 long session.

Feeding into this workstream are a variety of other workstreams. Economic and transaction costs models will be developed to provide insights to the cost implications of the various policy alternatives. An Evaluation Strategy will be developed that will be used to guide the monitoring of pilot programs initially and operations of the MT system in the future. A range of alternative organizational frameworks will be developed and evaluated. Forecasts will be produced of the growth of the vehicle fleet by subset (e.g., EVs and PHEVs). The demonstration and evaluation of the preliminary SRS and Preliminary ICD together with the preliminary CONOPS scenarios will be presented and reviewed with RUFTF to ensure continual oversight of the activities conducted in phase 1.

In additional, the lessons learned and experiences of New Zealand's road user charging system and approaches to VRUC in Europe will be developed and presented to inform policy choices during Phase 1. Developments in the region, in other states and at the federal level will also be presented to RUFTF in phase 1 so that a complete understanding of the proposed MT system, other VRUC systems, and related issues is imparted to members.

Evaluation

The Evaluation Strategy, developed as part of phase 1, also identifies several activities to conduct during phase 1. These activities correspond with period 1A of the Evaluation Strategy. Specifically, activities include the following:

- Evaluate demonstrations: Each metric will be linked to a data source as the basis for measurement. This will require development of measurement methodologies such as surveys or linkages with other existing ODOT measurements.
- Re-adjust and re-write evaluation criteria: Based on input from RUFTF and the evaluation conducted of the demonstrations, the evaluation criteria will be re-written and modified in preparation of the pilot testing to be conducted in phase 2. The final evaluation criteria will be reviewed and approved by RUFTF.
- Write an evaluation plan for evaluation of the legislative pilot and select tests in phase 2.
- Update RUFTF on the revised Evaluation Strategy: The final evaluation criteria will be reviewed and approved by RUFTF.

DMV

The DMV maintains a database of motor vehicles in Oregon. It will be necessary to analyze, as the MT concepts and scenarios are developed and tested in the demonstrations, to continually assess and involve the DMV to study the impacts and requirements that may exist in the system design.

Initial specific work will be to baseline the existing DMV records and files, and investigate the level of detail that can be provided. Based on preliminary discussions during workshops, the level of detail in the DMV files is minimal, and creative thinking will be required to address the early program needs to identify, record, update and process data flows between the MT system and DMV.

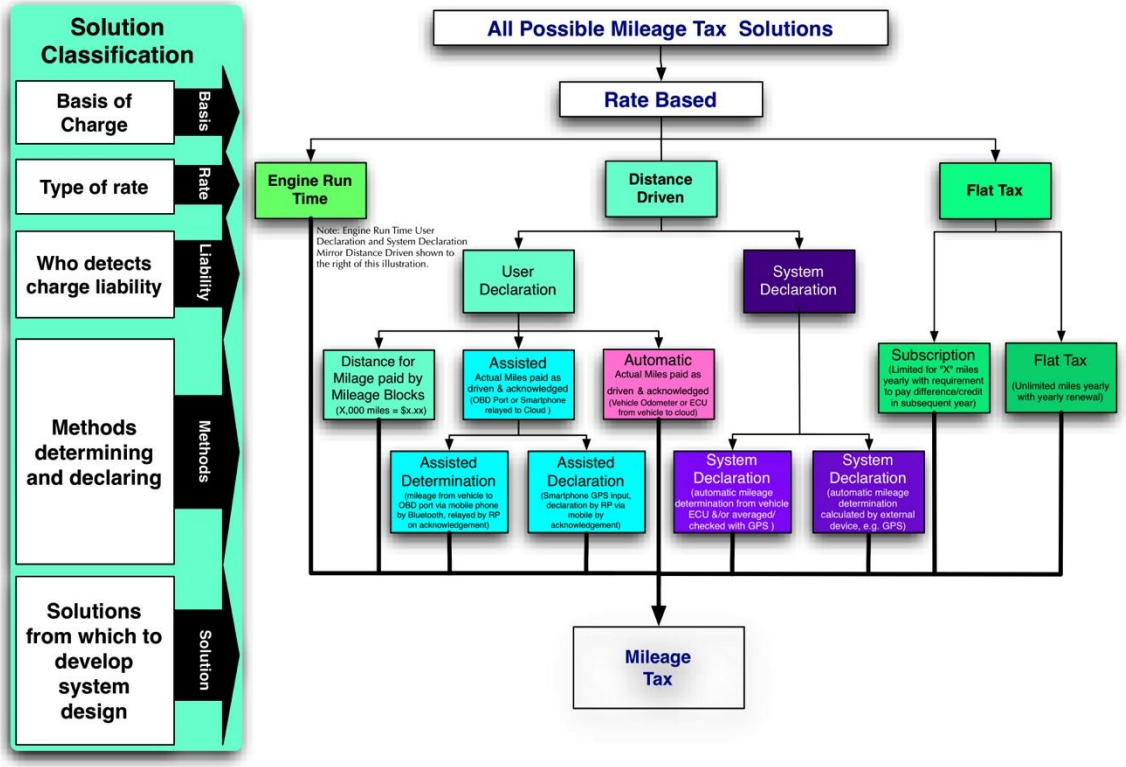
Other than this baselining and understanding, there will be minimum if no work with DMV during Phase 1 or Phase 2 of the program.

Technology

There are several logical approaches to a mileage tax technical solution. These are shown in Figure 13 below. The diagram indicates three major types of rate, charging by time, charging by distance driven and a flat tax approach. Charging by engine or vehicle operational time is not a part of this project. The focus of the current policy is charging by distance driven. This can be logically done by either a user declaration or an automatic system declaration of the distance driven. Furthermore, the flat tax approach can be either a flat tax or a subscription method where the responsible person for paying the road usage tax pays in increments rather than a one-time tax. The flat tax is currently addressed by RUFTF and is part of H.B. 2328, 2011, in concept, and it will be determined by RUFTF and the formulation of the new bill to include it or how it may be implemented. Currently, there are considerations of a subscription, but no determination to include such a concept.

The technology approach will address the methods in determining and declaring the mileage tax. These will be explored in R&D and tested and evaluated in pilot testing to determine the relative success of the several approaches. The final determination will be made by RUFTF and incorporated into the new policy formulation for legislative consideration.

Figure 13: Logical solutions for consideration for the mileage tax system



The most promising of the approaches shown above will be the focus of technology activities in phase 1 is demonstration (demo) and legislative pilot testing. Demo testing will involve a small number of vehicles equipped with OBUs driven by ODOT employees, and be immediately followed by legislative pilot testing and controlled testing. The main purpose of demo testing is to prepare & debug the system to be used in the pilot testing. The main purposes of pilot testing are the following:

- To determine and demonstrate technical consequences of policy options; and
- To demonstrate the capability of technically implementing the system so that automakers join.

There are two main tasks in the R&D plan:

1. Document Preliminary System Requirements Specification (PSRS) and Preliminary Interface Control Document (ICD) for legislative pilot
2. Develop demo hardware and perform research & development.

The first task begins the systems engineering process approach. In the first task the team will compose preliminary system requirements specifications (PSRS) for each of the major system components (OBU, transactions processor, and responsible party (RP) account management, and mileage tax accounting) and a preliminary interface control document (PICD) for the two main system interfaces (OBU to transaction processer, and transaction processer to account management.). These documents will be developed rapidly, and provide documentation of a starting point for the prototype development team to begin its development. In a later task, the team will develop a test strategy and test cases to test the OBU.

The next group of activities is the research and development of the demo OBU, including the development of the demo OBU in 6 generations:

OBU version 1 – non-location based mileage counting: The project team shall create a prototype (single demonstration OBU) for non-location based mileage using the OBDII port as it is specified in the PSRS and the PICD for the OBU. The project team shall unit test the components as build-out of the components occurs and document bench-test and vehicle-test results. The project team shall create documentation of the unit and installation instructions. Non-location-based mileage counting is the default operation for the legislative pilot.

OBU version 2 – version 1 + fuel usage calculations from OBDII data: The project team shall determine options for determining fuel consumption (this information is needed because fuel tax credits or refunds will be based on fuel actually consumed). The project team shall research fuel consumptions measures available from OBDII port. The project team shall update OBU version 1 to include algorithms for fuel usage calculations. Changes to the OBU shall be limited to OBU code changes unless a hardware fault is found that prevents successful implementation of the fuel consumption functionality. The project team shall test the unit, and document the results. The project team shall determine a recommended option and update the demonstration OBU, test the results and write a report that shall document the approach, its apparent effectiveness and accuracy and recommendations. If this task demonstrates the feasibility of providing refunds for fuel usage based on OBDII data, this functionality will be demonstrated in the legislative pilot.

OBU version 3 – version 2 + wireless communications: The project team will incorporate a wireless means of transmitting data to an internet-based server to the OBU. This wireless means may be a cellular modem or Wi-Fi or other wireless technology. The choice of wireless technology will be determined as part of PSRS and PICD development. The OBU will use a this wireless technology to transmit vehicle miles traveled and other desired data to a database on the target server. After any defects are resolved, the project team shall produce up to ten (10) units.

OBU version 4 – version 3 + GPS location-based calculations + Bluetooth

communications enabled: The project team shall examine the advantages and disadvantages of prominent algorithms used to determine the actual VMT. This evaluation shall include the consideration of whether VMT calculation should include map matching (snapping location points to a map) or if VMT should be computed directly from data points. This analysis shall also indicate the different hardware requirements for the two alternatives (map-matching vs. non map-matching) and the different bandwidth requirements (e.g., to update maps on a "thick-client" OBU). The project team shall also estimate capital and operating costs for supporting OBUs running these systems. The project team will research GPS location-based calculations. In addition, to enable the demo OBU to be utilized in conjunction with third-party devices, the project team shall enable the GPS-location based measurement using a third-party device such as an Android phone via the Bluetooth software. Utilizing the OBU in conjunction with a third-party device allows it to act as a means of fraud detection—it can ensure that the third-party device is active whenever a vehicle is moving. Bluetooth technology is employed because it is the de facto standard among mobile devices today; however, the use of Bluetooth in the demo should not limit the technology of the future systems used by ODOT—Bluetooth should not become a system requirement, nor should it impact system requirements in any way. The project team shall update OBU version 3 to include Bluetooth communications with a smart-phone (e.g. Android) device and GPS calculations. This task shall utilize third party devices by industry in response to the published PICD, if any have been submitted. If no devices have been provided by industry, then the project team shall implement a basic VMT measurement system with a smart-phone device. The system shall leverage off-the-shelf applications to the extent possible. The project team shall test the unit, and document the results. Based on prototype results, the project team shall create recommendations for changes to the PSRS and PICD for the OBU. If third-party industry devices are provided by industry for the legislative pilot, this functionality may be demonstrated in the legislative pilot. Also, if this task demonstrates the feasibility of performing GPS location-based using the hardware developed, this functionality will be demonstrated in the legislative pilot.

OBU version 5 – security hardware to detect and discourage user tampering of the OBU: The OBU must detect and discourage user tampering. The project team shall create hardware that will fulfill needs for power requirements, possible infrequent vehicle use, out-of-state vehicle use, and the impact of false positive detections. The research will include prototyping security designs. The project team will design, develop, and prototype security hardware for the OBU to detect and discourage user tampering. The project team shall update OBU version 4, to include security hardware. The project team shall test the unit, and document the results. Based on prototype results, the project team shall create recommendations for changes to the PSRS and PICD for the OBU.

OBU version 6 – security and encryption software: OBU software must protect message privacy: OBUs must be authenticated by the central system (transactions processor, taxing authority, and account management systems)

and messages must be transmitted securely (encrypted. This will likely employ a public key infrastructure (PKI) security system. The project team will implement the chosen software for OBU authentication and message encryption on the OBU.

In a separate task in support of OBU version 5 the team will research hardware issues related to the OBU. In this task, the team will research the following hardware topics and determine the available solutions and advantages/disadvantages of each:

- OBU status display options (some indicator of OBU health/connectivity).
- Tamper detection/fraud resistance in the OBU.
- OBU mounting: at the OBDII port, or at another location, with a Bluetooth connection to a dongle in the OBDII port, or built into the vehicle outside of the cockpit and hardwired into the OBDII port. The team will consider both factory and retrofit scenarios, and will also consider tamper detection and fraud resistance as mentioned in the previous bullet.
- Power source.
- Connectors for dongles needed to support the OBU, including splitters for multiple dongles.
- Exterior antennas needed for the OBU (possible with 5.9 GHz DSRC and GPS).

In a separate workstream, the team will support the procurement of a demo transactions processor, a mileage tax accounting system, and at least two responsible party account management system. The team will recommend the most effective solution that meets the PSRS requirements. However, the team will strongly favor a ‘cloud’-based solution for the flexibility/future adaptability that it provides.

The transactions processor server/service will have the following functions:

1. Receive and process OBU MT transactions via wireless internet transmitted in conformance with the PICD.
2. Archive data on transactions.
3. Apply the tax.
4. Route them to the user accounts server via wired internet.

The mileage tax accounting server/service will have the following functions:

1. Maintaining the master charge of accounts,
2. Receiving information from DMV regarding electric vehicles registered in the state and sharing this information with RP account management),

3. Receiving account information and payments from RP account management,
4. Ensuring that the tax payments ultimately end up in the state treasury.

The responsible party account management server/service will have the following functions:

1. Maintain user accounts.
2. Receive transactions from the transactions server.
3. Update user accounts based on the transactions.
4. Issue simple invoicing and billing statements.

A later task will include the preparation of as-built specifications for the demo units, including hardware and software architecture.

Later tasks will also include the execution of the demo (and in phase 2 legislative pilot testing). In demo testing, the team will execute the test cases created in task 2 to determine performance of the OBU, the procured transactions processor, responsible party account management system, and taxing accounting systems. ODOT employees will have the OBUs in their vehicles with which to collect data while driving. The team will analyze the data collected to complete this task.

The team will also develop a plan for the LPT to be conducted in phase 2. These plans will cover topics such as recruitment of participants, installation of OBUs, support of participants during testing, data collection, and data analysis

A final technology task includes detailed investigation of several major taxing authority and account management properties. These activities will provide input to the procurement of a systems integrator that will occur during phase 2, the pilot system development. The properties to investigate are the following:

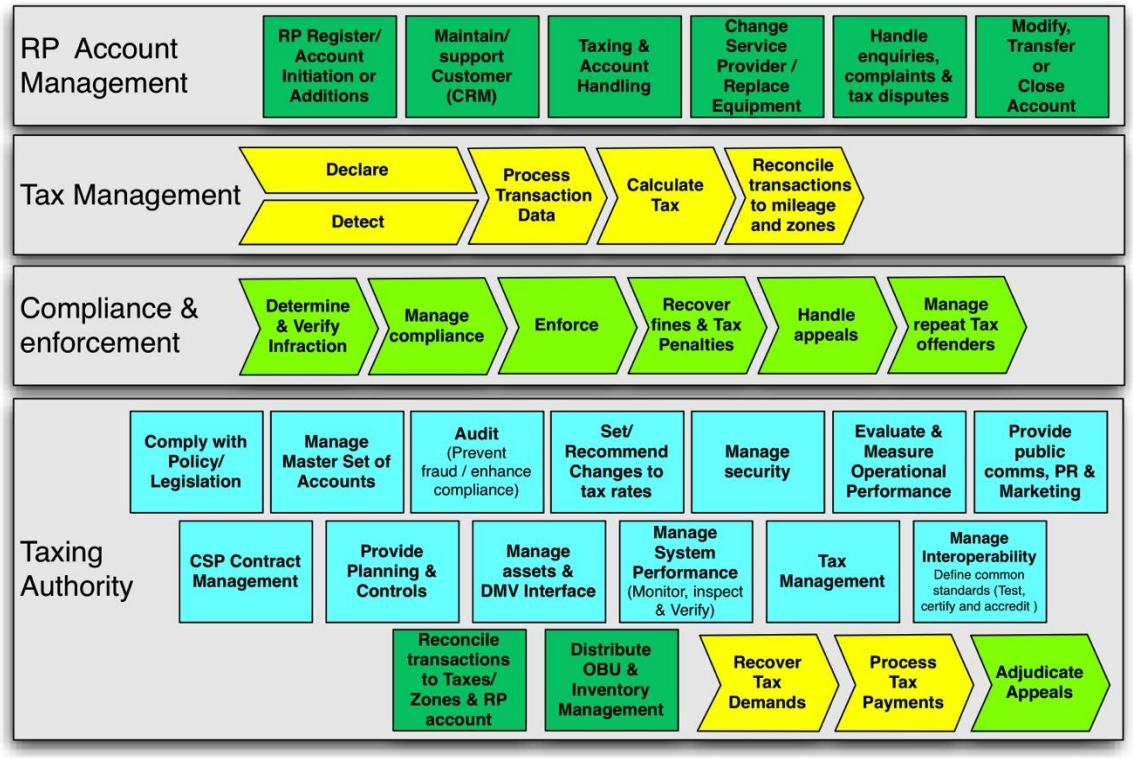
- System architecture—investigate how the system will be physically structured—will it include field/roadside installations or be centralized—and how the system will interface with other existing internal and external systems.
- Payments—investigate the most efficient ways for ODOT to process payments
- User to system interface—investigate how users will be able to manage their accounts, and otherwise interface with the ODOT system
- Back office system—investigate the best design of the back office system.

A functional diagram of the various components and functions belonging to each component of the major taxing authority, account management, taxing management, compliance and enforcement are shown in the figure below. These functions will each be explored and investigated as part of the phase 1 and

phase 2 activities and be incorporated into the preliminary CONOPS which will be used for the legislative pilot test.

The functions shown below in the following figure indicate the functions that must be serviced and staffed in the various portions of the overall mileage tax system. The operational framework will look at how each will be staffed and this parallel work will provide both costs and operational considerations. The proof of concept pilot test will also address several of these areas and costs and issues will be evaluated and assessed during the legislative pilot testing.

Figure 14: Logical functions embodied in the mileage tax system design and phase 1 and phase 2 work



Financial and Economic Analysis

The phase 1 activities for the financial and economic analysis workstream will be the focused on the development of an economic cost model and a transaction cost model, which will be required to estimate and simulate costs of the MT system. Both of these models will work together to understand and provide cost insights into the future design and operational aspects of the overall project, using as an input a vehicle fleet forecast as well as an organizational framework. Understanding the cost drivers will be essential in phase 1 because they can be used to understand which parameters influence cost-effectiveness and efficiency.

The key parameters and their sensitivities can then be reported and used by RUFTF in making sound policy decisions at this critical early stage.

The following sub-tasks are planned:

- *Task 1: MT operations cost model schema*: Develop a schema of the MT operations cost model. The schema will include a list and description of all of the model's key elements, including: a list of input variables and the basis for their inclusion in the model, a list of key outputs of interest and their basis for inclusion, and description of functions (e.g., mathematical operations) used to compute outputs. The schema will be presented graphically as a "model architecture" flowchart, and each key element as well as interfaces to the transactional cost model will be described in text. The schema shall be flexible and adaptable, meaning that it will be able to accommodate changes in the lists of input variables, values of input variables, and list of outputs of interest.
- *Task 2: MT transactional cost model schema:* Develop a schema of the MT transactional cost model. The schema will include a list and description of all of the model's key elements, including: a list of input variables and the basis for their inclusion in the model, a list of key outputs of interest and their basis for inclusion, and description of functions (e.g., mathematical operations) used to compute outputs. The schema will be presented graphically as a "model architecture" flowchart, and each key element as well as interfaces to the operations cost model will be described in text. The schema shall be flexible and adaptable, meaning that it will be able to accommodate changes in the lists of input variables, values of input variables, and list of outputs of interest.
- *Task 3: Detailing of processes and aggregation into a transaction cost model*: Based on the preliminary draft operational concepts, this sub-task builds detail, corresponding processes and associated categories of costs for each operational process that build costs associated with each process and aggregated into a transactional cost model. This task is the detailing of each process in a manner to identify the costs associated with each procedure. The output will be process charts for each type of operation so that when aggregated, the overall operational costs per transaction can be identified and compared. The work will ensure that processes that cannot be detailed at this time (e.g. enforcement) are identified and handled at a macro level until a future time when the procedures can be translated to a process flow diagram.
- *Task 4: Build the MT operational cost model*: Build the MT operational cost model based on the approved MT operational cost model schema (task 1).
- *Task 5: Build the transactional cost model*: Build the transactional cost model based on transactional cost schema (task 2) and the preliminary draft operational concepts process flow diagrams (sub-task 3). The key

variables will be inputs from the vehicle fleet estimates and the organizational framework model for operational staffing levels

- *Task 6: Develop a user guide for the model*: A user guide will be written that explains in simple and clear terms how to use the operations cost model alone and how to use the operations cost model together with the transactional cost model. The models will also be demonstrated through workshops with ODOT staff using the user guide as a basis for the instruction. In addition, scenarios will be developed and run to illustrate the entry of input data variables and the generation of outputs.

The Economic/Financial workstream will require supporting tasks in phase 1: projections of fleet size over time (described below) and organizational framework.

Projections of fleet size over time. This portion of the workstream will lay out the estimated number of EVs, PHEVs, hybrids and high-efficiency internal combustion engine (ICE) vehicles by number and percentage of the Oregon vehicle fleet between 2015 and 2030 in major year projects in 2015, 2020, 2025 and 2030. While this extends beyond the time horizon of the SPP, the projections are necessary to support a number of tasks and projects in the body of work currently undertaken by the OIPP for the MT program. For example, these four key data points provide input to staffing requirements necessary to run the organization, to manage the accounts, and to handle the transaction load envisaged in the CONOPS scenarios. Additionally, the ramp-up during the transition phase (phase 4) will need to be estimated to properly address early year operational needs of the organizational framework. Finally, this work task should also address other high efficiency vehicles that may be candidates for future expansion of the system. For example, hybrid vehicles may be considered as well as high efficiency internal combustion engine (ICE) vehicles whose MPG rating exceeds the CAFE standards. Several steps are foreseen in the completion of this task:

- *Task 1*: Report that outlines the approach, sources of data and the outline of the model to be constructed.
- *Task 2*: Data collection and construct of the actual model with preliminary results in a draft final report.
- *Task 3*: Completion of the model and delivery of both the model and the final report.

The financial workstream relates importantly to other workstreams, including ***Policy*** (rate setting and vehicles to include), ***Procurement*** and ***Organizational Framework*** (costs), ***Technology*** (costs), and ***Compliance*** (lost revenues due to evasion).

Procurement

Phase 1 activities in procurement will be focused on the preparations for the procurement activities and implementation strategy in period two. The outreach to interested manufacturing companies for development of on-board units that meet the standards developed in phase 1 will need to be started in the latter part of phase 1 for the follow-on phase 2 work (concept testing). Development of the service contract for the interested commercial companies wishing to participate in the legislative pilot and select testing in phase 2 will be done by the Service Area 1 prime contractor.

Certification

This workstream will focus on developing a certification process for various elements of the MT system, specifically technology. As defined in the preliminary CONOPS, the certification entity will be an independent contractor working for ODOT to assess and determine the interoperability of system components and the configuration management of the same. The role of the certification entity will be researched and documented in phase 1. The report will be used to define and agree on the scope the certification entity. The report will be written based on certification processes in other industries (e.g. commercial electronics industry) and international examples where a certification function is employed to ensure interoperability. Note that this will be accomplished in conjunction with the ***Organizational Framework*** workstream during phase 1.

Organizational Framework

This is a major workstream for phase 1, when recommendations will be made regarding the organization of ODOT divisions relative to the Mileage Tax (MT) program as well as how external interfaces should be handled. It feeds into several other workstreams and the ability to inform RUFTF and legislators how the system will operate. It is assumed in the CONOPS and other base-level documents, but needs to be specifically decided within ODOT. Essentially this task involves mapping functions of the MT system against options for their management. The organizational functional design will be sculpted out of existing and known organizations that currently exist nationally and internationally. This relates importantly to the ***Procurement*** and ***Financial and Economic Analysis*** workstreams, and must be accomplished early to provide the framework necessary to assess operational costs.

This task is also fed by the other early tasks (namely, the vehicle fleet projection, which provides key information needed to scale the functional organization and cost implications). There are several tasks in the completion of this workstream under phase 1. Each is described below.

- *Task 1: Construct a functional organizational structure*. The work begins with the creation of a functional diagram of the proposed organizational framework within which the MT system will operate, including the following sub-tasks.

- The organizational framework depicted will be a complete, standalone organization with all the functional groupings necessary to operate and maintain a MT system. It will be based on known organizational structures from existing RUC entities, both government owned and operated and commercial companies, both domestically and internationally. The structure will specifically draw upon the previous work identifying such a structure in Task 9 (Lessons Learned from other VRUC Systems). In addition, it will be cross-referenced against other RUC structures that exist – for example, functional diagrams of state toll road organizations and public transit organizations whose mission is to collect, process and handle user accounts through transaction processing, manage customer relations and maintain standard technology components to handle the collection of transactions.
- Comparative cost data from both government and commercial operations who handle transaction processing for the supply of services will be collected. Cost data and staffing data will be collected, where available, in order to provide ODOT with comparable costs and input into the cost model being developed under the ***Financial and Economic Analysis*** workstream. The cost estimate for a commercial operation will be estimated and modeled.
- In addition, a special report will be written to address the certification entity (CE). The roles and responsibilities of a CE will be detailed and provided for clarity and understanding of how the CE fits into the open system architecture. The report will also interview and cross-reference the CE role against other operational CE's that exist for other RUC programs around the world. Costs and organizational data will also be collected from these comparative organizations.
- Several alternatives for how the functional organizational framework could be provided will be developed. This will include several possible implementation paths and identification of the differences between each alternative for consideration. Examples from global and national sources will be identified in support of each alternative option proposed in the report.

- *Task 2: Interviews and assessment of ODOT divisions*. This task will involve interviews and assessments of the ODOT divisions. It will be a two-part task, with each part performed in parallel:
  - *Part A:* Interview and analyze each alternative with the resources and capabilities of each department. The initial analysis will be a functional review to determine what resources to perform the Mileage Tax functions and access capabilities that are available in the each departmental area.
  - *Part B:* Build a functional organizational model comparative matrix to illustrate the "fit" with each department. The analysis of each

department and alternative will be done using a Harvey Ball scale for each required function in a matrix format. The assessment will stem from subjective judgment but be based on the interviews and capabilities identified.
    - *Part C:* Review the results of the functional organizational model through a series of workshops with ODOT.
- *Task 3: Develop a pros and cons matrix for each alternative and narrow the alternatives to two or three alternatives for estimating cost impacts.* The assessment matrix generated and reviewed in Task 2 above will be further reviewed. From the matrix, the most likely departmental fit will be assessed and the alternatives will be reduced to the top two to four alternatives. These will be addressed and further analyzed to determine the pros and cons of each alternative in order to rank each in respect to the functional organization. The ranking and order of the alternatives will be reported and presented to ODOT/OIPP for their review and concurrence.
- *Sub Task 4: Cost analysis of alternative organizational frameworks*. This task includes an analysis of the top ranked alternatives for the organizational frameworks, and cost estimations will be generated to provide greater insight and consideration of the options to ODOT/OIPP. An organization functional model will be built which has the ability to add variable staffing levels to determine the size of each functional alternative as well as the ability to cost each level of resource in accordance with the ODOT job-skill level ratings. The model will use the output from the other workstreams being conducted in parallel (namely, fleet estimates). The comparative analysis will address the pros and cons of each alternative (from task 3) in addition to a financial analysis of each alternative. ODOT/OIPP will select an organizational framework based on review and consideration of the report by ODOT senior management and the RUFTF committee.

Operational

The key activity related to the Operational workstream in phase 1 will be the development of a preliminary CONOPS. The preliminary CONOPS will also be further reduced to include those operational processes that will be used in the legislative pilot and select testing.

The Operational focus will also be expressed in the parallel activities on the ***Organizational Framework,*** which will look at the ODOT decision on whether to proceed within ODOT or whether to contract out certain elements of the MT system.

Communications and Outreach

During phase 1, ODOT will identify several draft public messages about the MT system that could be tested formally (through structured focus groups) or informally (e.g., by surveying stakeholders, obtaining feedback from knowledgeable and unfamiliar legislative staff and elected officials). At a minimum, these messages should address the following concerns:

- Privacy;
- Policy objectives; and
- Confidence in the system.

With a clear understanding of how these messages will resonate, ODOT will be poised to make informed decisions regarding potential "tag lines" and core messages that can be delivered in all outreach efforts.

The identified messages regarding the MT are primarily intended to touch or impact key audiences. The phase 1 audience members can be broken into one of three types. Audiences include the following:

- Electric Vehicle and Plug-in Hybrid user associations;
- Automobile Manufacturers and their associations;
- Experts and academia;
- Oregon stakeholders; and
- National stakeholders.

The messages will be developed and presented to each audience by ODOT staff in a way that the audience understands and will motivate it to support the project. To achieve these goals, it will be important to implement several communications tools at a consistent volume, particularly in conjunction with relevant and timely events. The recommended communications tools fall in to the following four categories:

- Refine key messages;
- Prepare media content;
- Develop and leverage media relationships; and
- Leverage current events.

Another task will be the development of an MT system brand. Identifying and utilizing both messaging and visual tools may accomplish this:

- A consistent tagline should be selected to convey ODOT's MT mission. As noted above, some further message testing should be conducted to optimize messages for the audiences and purposes described.
- Logos and fonts should be developed to ensure consistency and enhance recognition.

Collateral material highlighting basic facts, policy views and program objectives will be instrumental in increasing awareness with some audience members. Concepts of the following materials will be considered with ODOT and created for review and approval:

- MT program pamphlet for handout at stakeholder meetings.
- MT program white paper for handout at meetings with elected officials.
- Short MT program video for YouTube and use in presentations.
- MT program PowerPoint presentation for use in presentations.

An ODOT website, particularly with a separate page dedicated to the MT program, will be created to further utilize and achieve the project goals. The site can be expanded (or an alternate site formed) to showcase MT FAQs, success stories and milestones.

A streamlined process for drafting and issuing press releases will also be developed to ensure timely reactions to events.

Throughout phase 1, the communications team with ODOT will develop strategic relationships with the local press. Similarly, cultivating relationships with national reporters may help to generate interest in —and advance awareness of—the MT. Similarly, cultivating relationships with national reporters may help to generate interest in —and advance awareness of—VRUC.

As opportunities arise in the course of phase 1 timeframe, messages with strategic events will be linked to the MT program and specific audiences. For example:

- Federal surface transportation reauthorization.
- Federal surface transportation spending debates.
- Legislative events

Relevant local events and project milestones will also be leveraged to amplify MT messages as well as build relationships between ODOT and strategic stakeholders and members of the media.

The Communications workstream should incorporate information and policies from other workstreams in order to ensure that all information and messages communicated are accurate. For example, system cost estimates from the ***Financial*** workstream as well as policies developed under the ***Operational*** workstream should be reviewed and incorporated as appropriate into Communications materials.

Education and outreach will also play a major role in the overall compliance and enforcement strategy As such, proposed compliance and enforcement approaches developed in phase 1 from the ***Operational*** workstream should feed into the Public Information Plan.

Lastly, social media tools, such as Facebook and Twitter, may also be utilized to grow the grassroots response capabilities. For example, social media tools can be used to provide a source of information for stakeholders and other interested

parties. By creating a way to connect to stakeholders and provide them regular intelligence that is appropriate and relevant for them, and by casting a net for stories of MT system success, these sites provide a way to organize a broader, more potent MT system support base.

Risk Analysis

Before the end of Phase 1, a risk analysis workshop will be organized and led by ODOT with participation by the consulting team. Drawing on input from these and other workstreams, ODOT will log, describe, and analyze a running inventory of risks and threats to MT system development and implementation. Special emphasis will be put on the legislative pilot and select testing. Mitigation to these risks will be proposed in periodic workshops. Attention to risks will be part of every project meting and internalized.

Appendix 1-2: Concept Testing Phase (September 2012 – June 2013)

PURPOSE: The purpose of phase 2 is contingent on whether enabling legislation for an MT system is passed in the 2012 short session of the Oregon legislative assembly. If not, then the MT system will be redefined and continually refined through the legislative pilot and select tests. The objective during this phase continues to be focused on support of development of policy culminating in the passage of enabling MT legislation. In addition, in Phase 2, ODOT will:

- Develop a good communications interface with commercial companies interested in participating in the legislative pilot and select testing;
- Start building a core understanding for the organizational model and pilot test industry-built OBU hardware and software;
- Develop relationships for potential CSPs and start the thought process for a procurement; and,
- Continue to maintain communications with industry, automakers, business and public on progress and continue to build support and deflect or neutralize opposition.

Legal

There are continued information and resolution of legal and regulatory inputs through the continued development of options and information developed in phase 2. The Project team will continue to provide input and information to support Legal review of subjects that are demanded, especially in the time frame just prior to and during the legislative review of any potential bill.

Legislative/Policy

It is not likely that MT legislation will be adopted during the 2012 “short session” of the Oregon legislature; instead, it will likely be deferred to the 2013 full legislative session. As such, this workstream will continue through phase 2. RUFTF will continue its activity to advise the legislature, provide policy direction to ODOT/OIPP, and draft new legislation. This workstream will gain additional data and information from ongoing activities in all other workstreams of phase 2. As this workstream cuts across all others, it will be essential to continue monitoring the legislative situation and providing input to RUFTF based on the findings and developments of the other workstreams in an iterative fashion.

Evaluation

Several activities are identified for evaluation in phase 2, which corresponds to period 1B of the Evaluation Strategy:

- Evaluate the legislative pilot and select testing and write an evaluation report;
- Review the entire Evaluation Strategy with input from phase 2; and
- Update RUFTF on the evaluation report published for phase 2 evaluation and the changes recommended on the Evaluation Strategy for the operational phase.

DMV

Initial specific work to baseline the existing DMV records and files and investigate the level of detail that can be provided will be advanced in Phase 2. The further testing of preliminary CONOPS scenarios, including interface procedures with DMV, will be considered but not actually tested. Instead, the data will be arranged and simulated through a response generator to simulate DMV. The response generator will be programmed to react exactly like DMV in response to queries and responses to information. The scenario testing will help demonstrate any problems or issues not foreseen in the CONOPS Scenario or preliminary data received from DMV. By advancing the scenarios at an early stage, work-around procedures and other measures can be documented to ensure future operations can be completed successfully.

Technology

The major technology activities during phase 2 involve the execution and data analysis of extensive vehicle pilot testing using OBUs developed during phase 1 and pilot OBUs procured with the RFI at the beginning of phase 2. These pilot tests constitute the second phase of the rolling pilot (the first being demonstrations in phase 1, and the third being field tests in phase 3). The team will design these pilot tests to verify the CONOPS and conform with any other policy guidance received in the interim. They will employ the taxing authority and account management system developed during phase 1.

The R&D team will perform thorough data analysis on the data generated during the pilot tests in order to characterize OBU performance, to determine any other refinements needed in OBU design, and to prepare for the final set of rolling pilot testing (field tests) in phase 3 of the project.

In addition to pilot testing activities, the team will perform further research on topics as needed based on the results of the research in phase 1.

The pilot testing will be subject to evaluation in accordance with an evaluation plan developed under the ***Evaluation*** workstream at the end of phase 1.The evaluation criteria will be based on the previous evaluation criteria used on the previous pilot study conducted by ODOT as well as criteria specified in H.B. 2138 and by RUFTF.

Financial and Economic Analysis

There are no phase 2 activities envisioned for the economic and financial analysis unless needed to fulfill demands of the legislative process. Otherwise, these activities are expected to resume in phase 3.

Procurement

Phase 2 activities in procurement will be focused on the potential alliance contracting for both equipment suppliers and a transaction processs and RP account management system integrator. Based on the results of the legislative ilot and select tests, the procurement approach for both of these procurements will be evaluated and decided in light of the procurement strategy report written in Phase 1. With multiple suppliers, at least one leader and one follower can be envisaged for the hardware supplier. A single back office system integrator will either be selected or a BOT alliance contracting procurement will be formulated. The BOT option is closely related to the decision taken in the procurement strategy and the ***Organizational Framework*** workstream by ODOT during phase 1. This is a critical workstream which will allow for a clearer picture of the procurement approach leading into phase 3.

Certification

This workstream will use the phase 1 report to engage with potential certification entities. No actual certification will be performed but the commercial partners selected will provide hardware, software and services in accordance with the PICD and PSRS and preliminary CONOPS for participation in the phase 2 legislative pilot and select testing.

Secondly, the results from working with the certification during the testing will be further developed with Procurement for the drafting of a procurement for the services of a certification entity in phase 3.

Organizational Framework

This decision taken for the organizational framework at the end of phase 1 will determine the tasks to be performed in phase 2 in this workstream.

If an internal department is to be tasked or developed around the MT system, then elements of that department should be assigned to the project team in

phase 2 to help evaluate procedures and scenarios in the preliminary CONOPS and testing of those procedures in the legislative pilot and select tests.

Operational

The key activity related to the Operational workstream in phase 2 will be the evaluation of the preliminary CONOPS processes determination to be part of the legislative pilot and select testing. Both the in-vehicle and tax authority functions of transaction processing and RP account management will be evaluated along with support services for enforcement/compliance and DMV processes.

Communications and Outreach

As with other previous workstreams, the level of effort required for the communications plan depends on the passage of enabling legislation. If legislation is passed in the short session, the basic communications plan will be largely put in place in phase 1 and exercised in phase 2. If, however, legislation is not passed until the 2013 session, many elements will have to be developed later in phase 2. In either case, a reassessment of the communications needs and the phase 1 program will be done at the start of phase 2 in order to refine it, fix any problems identified in phase 1, and determine an increase or decrease in the communication and outreach activities.

Secondly, the stakeholder and key stakeholder communications and messaging will be assessed for its effectiveness and message delivery. Modifications and reshaping of messages will be done by ODOT staff to fine tune and refresh the approach with each stakeholder group.

Collateral material highlighting basic facts, policy views and program objectives that have changed and the resulting information from the demonstrations and pilot testing will be instrumental in increasing awareness with some audience members. Concepts of the following materials will be reconsidered with ODOT and created for review and approval:

- MT program pamphlet for handout at stakeholder meetings.
- MT program white paper for handout at meetings with elected officials.
- Short MT program video for YouTube and use in presentations.
- MT program PowerPoint presentation for use in presentations.

The ODOT website will be refreshed and updated regularly with project information. The site can be expanded (or an alternate site formed) to showcase MT program FAQs, success stories and milestones.

As with phase 1 activities, the communications team will develop material and information on how enforcement will be performed in order to keep the public informed about requirements and potential compliance measures.

As opportunities arise in the course of the phase 2 timeframe, messages with strategic events will be linked to the MT program and specific audiences. For example:

- Federal surface transportation reauthorization;
- Federal surface transportation spending debates; and
- Legislative events.

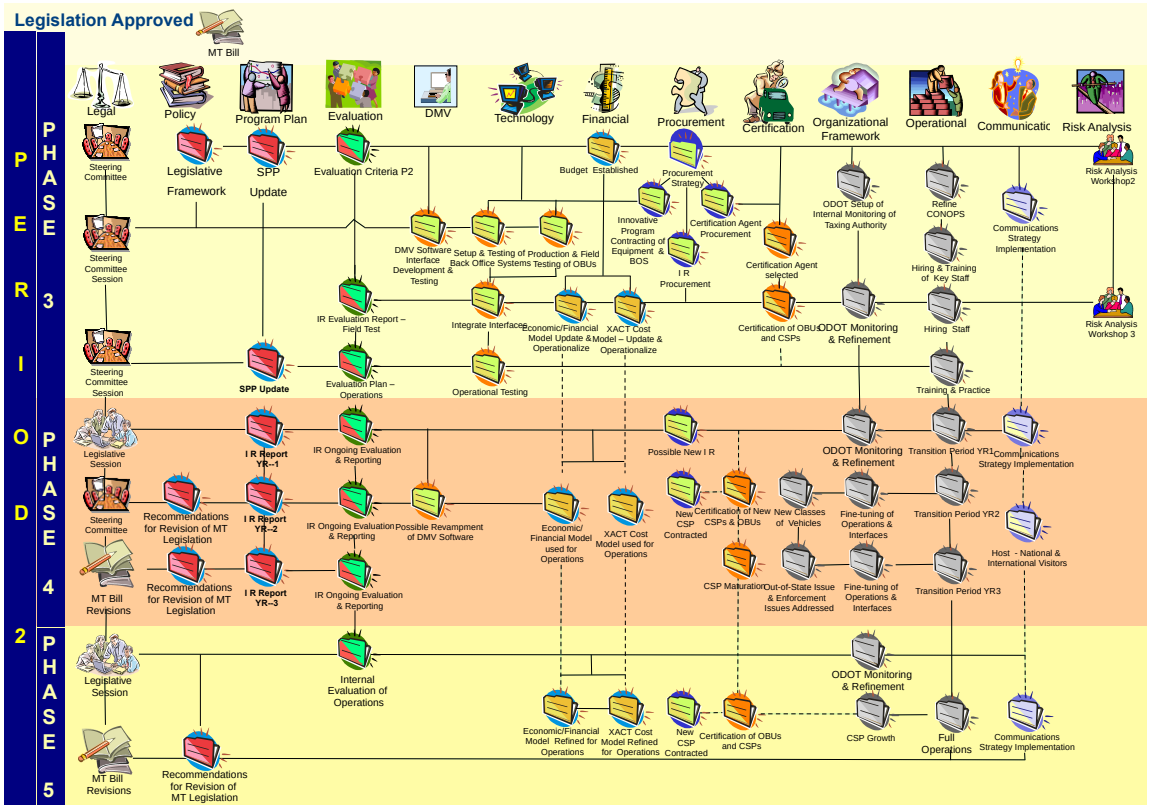
Risk Analysis

Risks will be assessed and updated during Phase 2. No further risk analysis will be done during phase 2.

Period Two

Period two consists of phases 3, 4, and 5. This period begins with the assumed passage of a mileage tax bill in the 2013 legislative session. The phases of activities transition the project from a development project to an operational reality. The operations are divided into a “transition” period of three years where the initial deployment of the system begins in July of 2015 and gains momentum to full operations in July of 2018. The activities of Period Two are illustrated in Figure 14 below and discussed by phase in the below sections.

Figure 15: Period two is focused on the pre-operational activities that lead to a start of mileage Tax collection in July of 2015 and a transition to full operations in July of 2018



Appendix 1-3: Pre-Operational Phase (July 2013 – June 2015)

PURPOSE: Field testing of the end-to-end system and build-up of the taxing authority. Refine business case with known costs. Contract for certification entity, evaluation, fabrication of OBUs and service contracts for initial set of CSPs. Begin communications to explain benefits of the system and getting people ready for the system going live in July 2015. Communications/PR works to continue building support and deflecting or neutralizing opposition. Communications builds to the start date of July 2015. Evaluation is awarded for preparing independent evaluation contract for first three years of operations, the transition stage of the project. Bring on initial service providers and certification entity.

Legal

Any legal work will be interpretations of specific mandates in the legislation for this phase 3. As a result of end-to-end system testing, some system aspects may need to be addressed for full compliance with the law.

Legal issues of privacy protection and empowerment of the CSPs and certification entity may be one area to be address. While contractual, the issues also have legal implications.

Legislative/Policy

It is assumed that in phase 3, the enabling legislation for the MT system is passed and the program is designing the system around the mandates embedded in the legislation, including modifications to some system elements where necessary in reaction to new policy guidance. A legislative policy framework is established at the start of phase 3 to help provide a good understanding of the provisions contained in the legislation, both direct and indirect work tasks.

Evaluation

The phase 3 evaluation activities are part of the transition from period 1 to period 2 as described in the Evaluation Strategy (spanning periods 1A, 2A, and 2B). Activities to be detailed in an evaluation plan for phase 3 include the following:

- OIPP to begin procurement of an independent reviewer (IR) (period 1C evaluation).
- IR to review the evaluation criteria and changes from phases 1-3 for full understanding of the requirements expected.
- Evaluate field tests by IR and write report.
- Develop evaluation plan for periods 2A (evaluation of operations) and 2B (evaluation of greater economic indicators) (period 2 of the Evaluation

Strategy corresponds with period two of the SPP, which includes phases 3, 4, and 5): After dry run and practice evaluation of the operational staff, the IR will make any recommendations for changes to the evaluation criteria reviewed and evaluated. OIPP will consider and either accept or reject the recommendations to be included in evaluation plan for periods 2A and 2B.

- Update RUFTF on the evaluation report to be published by the IR for evaluation and any changes recommended on the Evaluation Strategy for final approval.

DMV

In phase 3, all links and interfaces with DMV will be established and coordination with the DMV staff for operational procedures will be written in the DMV procedures manuals.

Any communications or network links into the DMV system will be established, tested and certified.

Software interfaces to the DMV system will be written and tested.

Technology

The selection of equipment suppliers will need to be accomplished early in phase 3 to allow sufficient time for the production and production testing of the OBUs and associated equipment and software.

Early production models will be necessary to further test any scenarios or changes to scenarios. These units will also be required to test and develop system functionality as the operational system is built to support the commencement data.

It is assumed that the selected manufacturing company will perform all environmental and EMI testing and document the results to indicate that the units passed all production measures and testing.

A number of the pre-production units will also undergo certification testing by the certification entity selected at the end of phase 2.

The transaction processing and RP account management equipment and its associated communications network and support systems will need to be tested on a function-by-function basis to ensure compliance with the prescribed scenarios.

Stress testing and load balancing will also need to be tested to ensure performance standards are met. Since the system will not have sufficient transaction flows to stress it, a transaction generator will most likely be required

to produce transactional data and simulate peak and severely heavy loading of the communications and system performance.

Data analysis of message formats and error code for on-line maintenance testing will also be performed.

Any irregularities or issues with the pre-production units noted during testing will require fixing and retesting to ensure that all equipment is fully functional for the start of operations.

Production quantities and distribution will need to be established with operations to ensure that sufficient quantities are available at least three months prior to the start of operations to ensure a smooth transition into operations on 1 July 2015.

Financial and Economic Analysis

The phase 3 activities for the economic analysis will be focused on the refinement of the economic operations model with test results and information developed with the industry participants in the legislative pilot and select tests and specifications from the pre-production units being produced in Phase 3 in accordance with the finalized SRS and ICD.

Transaction costs will also be updated with more pre-production data to better approximate the true costs of a transaction. The refined CONOPS will be used to test and evaluate each process for streamlining of costs. The results will be fed into the final CONOPS.

Both models will be transitioned over to the initial hiring of key personnel in taxing authority for continued evaluation and forecasting of both operational costs and transactional costs during the transitional and full operational phases (phases 4-5). Comparisons of pre-operational estimates and actual operational costs will be made to understand the accuracy of the forecasting and correct the variances for future modeling of costs during each successive year of the transitional period.

Procurement

Phase 3 activities in procurement will be focused on the actual alliance contracting for both equipment suppliers and the RP account management and transaction processing entities.

Extension of the phase 2 independent reviewer for ***Evaluation*** will be made, or a re-procurement of another IR will be determined, based on the assessment of performance of the IR during phase 2 evaluation. If a new IR is contracted, time must be allowed for the IR to familiarize with the evaluation criteria and possibly run mock evaluations on the taxing authority during pre-operational training and familiarization.

Certification

If the decision is to outsource or employ BOT for the organizational framework, then three major tasks will be required. These are:

1. The testing, assessment and evaluation of the preliminary CONOPS scenarios to determine the viability of each scenario and the procedures required to support them. The result of these verified procedures will be to compile a procurement document of functional requirements and performance metrics to be used to assess the tenders and ultimately the performance of the contractor once selected.

2. The operational cost model will be used with sensitivity testing to determine estimates of operational costs to measure and support the bidding process.

3. The operational cost model and transaction cost modeling will be used to estimate initial and follow-on year costs to determine realistic performance metric and cost saving targets to incorporate into the contract and contract negotiations to ensure a cost effective alliance partner is selected.

The certification entity will begin testing the certification process on the pre-production units ensures that certification testing is fully operational in phase 3.

Work on certification for any CSPs that enter the market may be underway as early as six months prior to the commencement date to ensure that CSPs are prepared to sell and market their services to owners of EVs and PHEV vehicles.

Organizational Framework

During Phase 3, the taxing authority will be hired, trained and ready to start their operational mission on or before 1 July 2015.

Management and supervisors will be recruited first and staff as late as possible, as long as sufficient time is left for training and familiarization with the system functions.

The OIPP will need to build an internal monitoring and assessment team to review and monitor performance of the taxing authority. The independent reviewer will be used to perform the evaluations and publish yearly reports on the performance of the MT operations. Any polling or surveys to support this work will also have to be reviewed and sample size and survey material reviewed prior to use.

Operational

The key activity related to the Operational workstream in phase 3 will be refinement and finalization of the CONOPS. This will begin at the beginning of phase 3 and be finalized when the initial staff are hired for the Taxing Authority. The building and integrating of the system processes and the hiring of first key staff will follow the finalized CONOPS for the establishment and staffing of the rest of the operational staff.

Training and practicing operational scenarios will be performed in sufficient time to ensure a highly trained and motivated staff prior to the commencement day of operations.

Interface with DMV and enforcement staff will be stressed to ensure full cooperation and familiarization with each other.

Evaluation of the operations will be dry run and practiced so that the management and staff are fully aware of their critical success factors and performance metrics.

Finally, the CONOPS will be finalized and adopted with all the latest data, information and scenario modifications of phase 3.

The pre-operational phase will also be used to procure and outfit the enforcement staff or install the enforcement equipment. This equipment will need to be checked, tested and verified that it is operational. Key aspects of enforcement in this phase are:

- The selected enforcement regime will use the enforcement system that is installed and verified. Dry run enforcement exercises will be run and the enforcement staff trained and practiced prior to the commencement of operations.
- Compliance targets. Compliance targets will be used to measure the effectiveness of enforcement units. Data will be collected and reviewed during training and practice to ensure that all enforcement units understand the metric and compliance targets.
- Out-of-state users. Any determination to charge out-of state vehicles will need to be taken early in phase 3 to ensure the procedures and processes are incorporated into the operations. Otherwise, it will continue to be assessed as a potential future change to the system when actual experience is gained and quantification of the revenue and problem impact can be assessed. This aspect is also dependent on directives contained in MT-related legislation.

Communications and Outreach

In phase 3, the communications plan will step up efforts and build to the commencement date. Stakeholder information and dissemination will address

new avenues such as TV and radio spots to inform the public and ensure that all EV and PHEV drivers are aware of their responsibilities prior to the commencement of operations on 1 July 2015.

Secondly, the stakeholder and key stakeholder communications and messaging will be used to disseminate messages and information about the user choice options and the policy.

Collateral material highlighting basic facts, policy views and program objectives will change to an operational message and information. This includes:

- MT program pamphlet for handout at DMV centers and car dealerships.
- Short MT program video for driver responsibilities on YouTube and use in presentations.
- MT program PowerPoint presentations outlining how the system will work, including enforcement.

Educational material and communications to stakeholders will increase as the commencement date draws nearer, including regular refreshment and updating of the ODOT website with project information as well as development of materials and information to be distributed to EV and PHEV drivers.

Risk Analysis

At the beginning of phase 3, a second risk analysis workshop will be organized and led by ODOT with participation by the consulting team. This risk analysis workshop will use the acquired knowledge accumulated during phase 2 to refine the risks and mitigation measures to the overall program. Special attention to the risk analysis will be made to:

- Assess risks involved in the current recommendations being made by RUFTF to the Oregon legislature regarding MT legislation (if applicable);
- Assess risks to transition the program to operations; and
- Assess the risk to the overall program and the operational aspects of the upcoming phase.

Appendix 1-4: Transition Phase (July 2015 – June 2018)

PURPOSE: Start operations and grow functionality over three-year transition period. Evaluate operations and provide results and recommendations to RUFTF for improving system performance. Expand upon basic system to handle growing number of vehicles. Evaluate next tranche of vehicles to possibly be mandated into the system (hybrids and very high efficiency ICE-vehicles [>40 MPG vehicles]). Certified service providers offer growing list of value added services. System incrementally grows and focuses on efficiency of operations. Communications continues to inform, deflect and neutralize any opposition. Communications also promotes and sells the system to the public and business in the state. Communications starts to handle crises management as opposition appears.

Legal

Any legal policy work in phase 4 will be associated with the legislation to change sections of the law or add new provisions to the law governing the MT system.

In addition, any changes to expand the system to other vehicles will require taxing authority or ODOT staff to support definitions for this work.

Legislative/Policy

During phase 4, it is assumed that the independent ***Evaluation*** of the taxing authority will produce sufficient statistics and performance measurements to identify any policy issues or shortcomings not envisaged in the drafting of the legislation. Additionally, compliance and enforcement will be measured against actual data and any issues will surface in the evaluation report.

In addition, it is assumed that revenue and cost allocation will present the contribution of the mileage tax and the impact of high efficiency vehicles on the state highway trust fund revenues in the 2015 to 2018 time period.

The impact of the two points above may provide incentive for RUFTF and Oregon legislators to draft and consider legislation to fix any operational or compliance issues with the legislation. These changes can be documented and the cost model can approximate the costs and benefits of the changes in real dollar terms to help support any measures recommended or advocated.

Secondly, the success of the system may encourage the expansion of the system to other high efficiency vehicles. Drawing on the earlier work done in phase 1 and phase 2, the refresh of data using current (2015-2018) figures will indicate which vehicle classes should be considered, but a starting point will be those with fuel efficiency at or above the CAFE Standard of 54.5 miles per gallon by 2025. This will generally be the rest of the hybrid vehicle fleet and the high-efficiency internal combustion engine (ICE) vehicles such as the Ford Fiesta, an ICE, which in 2011 terms is rated at 42 MPG.

Evaluation

With the MT program expected to go operational in July 2015, phase 4 evaluation activities correspond with periods 2A and 2B of the Evaluation Strategy:

- OIPP to continue to evaluate performance of the independent reviewer (IR).
- IR to continually review the evaluation criteria, but for year-to-year consistency, no changes are expected.
- IR will make yearly recommendations for changes to the system based on the evaluation report published by the IR.
- The evaluation team will brief both legislators and RUFTF on a yearly basis on the published evaluation report.

DMV

In phase 4, the major change in DMV may be growing concern over the accuracy and the flexibility of the IT systems to support the MT.

Changes to the existing software and system may be difficult or nearly impossible. Considering that the system will be 4-6 years older and both computer hardware and software will advance in that time period, the case to revamp and replace the entire DMV system may be at a critical stage.

The above may be exacerbated by changes to scenarios and expansion of the vehicle fleet.

Technology

Technology changes are not envisaged during phase 4 other than those to support system changes and expansion of the system. The original system installed should be sufficiently robust and have expansion capabilities to handle the growth in transactions and operational needs.

Where technology may change is the OBU supplied by CSPs. Through certification, CSPs are expected in this time frame to have sufficient experience

to better understand their customers and their needs. During this time period, these are expected to grow in number and complexity. This will most likely necessitate CSPs filing for new OBUs through the certification process.

Financial and Economic Analysis

Operational and transactional cost models will be used for operations in phase 4. Analysis from these models will provide actual cost data to support any recommended changes or impact of adding vehicles to the system.

Procurement

No procurement activities are foreseen for phase 4.

Certification

The certification entity will actively be engaged certifying OBUs and vehicle hardware and applications to interoperate with the system during phase 4.

CSPs are expected to be actively engaged with the certification entity in submissions of new hardware and software and configuration management of older equipment that is being upgraded with new components or software.

Due to competition for customers and price sensitivities, CSPs will actively be engaged in lowering their unit costs for services and equipment while enhancing their service offering to the market.

Organizational Framework

During phase 4, the taxing authority will continually assess and refine itself to be more cost effective and efficient in its operations.

Due to increased numbers of vehicles in the program, transactional costs will drop and efficiencies in the operations will contribute to the drop in transaction costs.

Management will actively identify areas or needs to be addressed by changes in the legislation.

OIPP will need to continue monitoring the organization and its performance. The evaluation reports will be used to update and brief legislators and the communications plan will use the annual reports to inform other states and the federal government on the MT system.

It is expected that both national and international parties will visit to be briefed and see the system in operations. This will most like create a chain reaction with other states who will want to follow suit.

As part of the evaluation, polling or surveys to support will continue in phase 4 to monitor the public perception and attitudes to the MT system. This information will also be shared and used with legislators in expanding or modifying the system for greater public acceptance.

Operational

The key activity related to the Operational workstream in phase 4 will be the fine-tuning of the system, procedures and staff functions.

The operational metrics and evaluations will measure the taxing authority internally and externally. The aim will be greater cost efficiency and operational effectiveness.

Decrease in operating costs and transactional fees are both expected and part of the yearly metrics for the taxing authority.

Interface with DMV and enforcement staff will be fully exercised and the three organizations are expected to work well together. The procedures and processes designed for enforcement will be executed. Recommendations and changes will be made to increase compliance and decrease enforceable events.

Communications and Outreach

In phase 4, the communications will primarily maintain a steady stream of information about the system and manage any issues or problems that may arise. Mitigation of issues will be an operational issue executed by the internal communications staff supporting the organization.

Material for external stakeholders will primarily be the annual evaluation reports, overview pamphlets, and PowerPoint presentations that can be downloaded from the MT program web site.

The PR/Communications staff will manage national and international visits and visitors to see the system.

Risk Analysis

There are no risk analysis activities in phase 4 other than as part of any operational changes or expansions of the system. These will be conducted on an as needed basis by the taxing authority and reviewed by ODOT.

Appendix 1-5: Full Operational Year (July 2018 – June 2019)

PURPOSE: First full year of operation. Evaluation is handed over to internal staff and yearly evaluation reports are published by ODOT, not independent evaluators. New tranche of vehicles added and study continues for next batch of high efficiency vehicles to be mandated into scheme. CSPs continue to grow while any new technology is first certified and then put into play. CSPs grow business in other states in region and define service plans customized for individual groups of users. System continues to refine itself and new legislation is sought to help improve efficiency and enforcement. Communications focus on investigation of other vehicle fleet classes for addition to the system by RUFTF and recommended to legislation. Communications continues to support market support and information while handling any crises that my jump up.

Legal

Any legal work will be associated with changes to sections of the law or addition of new provisions to the law(s) governing the mileage tax.

In addition, any changes to expand the system to other vehicles will require taxing authority or ODOT staff to support definitions for this work.

Legislative/Policy

The primary legislative and policy functions in phase 5 will be to monitor the continued progress of the MT operations through statistics and performance measurements to identify any policy issues or shortcomings not envisaged in the drafting of the legislation. Additionally, compliance and enforcement will be measured against actual data and any issues will surface in the yearly evaluation report produced by ODOT and the taxing authority.

In addition, it is assumed that revenue and cost allocation will present the contribution of the mileage tax and the impact of high efficiency vehicles on the state highway trust fund revenues in each yearly time period.

Other vehicle fleet groups may be added to the MT system as determined by the legislature and the financial needs of the State.

Evaluation

In Phase 5, the independent reviewer will transition the evaluation to an internal team which will focus on performance evaluation of the taxing authority. These activities correspond with period 2A and 2B of the Evaluation Strategy.

DMV

No change in the operational years other than the DMV system and software to support the MT system. Due to increased revenue produced by the MT to the state highway trust fund, sufficient funds may be generated to pay for a DMV system upgrade.

Technology

Technology changes are not envisaged in phase 5 other than those to support system changes and expansion of the system. The original system installed should be sufficiently robust and have expansion capabilities to handle the growth in transactions and operational needs.

Where technology may change is the OBU supplied by CSPs. Through certification, CSPs are expected in this time frame to have sufficient experience to better understand their customers and customize their service plans for greater customer satisfaction.

As the system grows, new CSPs may enter the market for both state and regional business. If other states follow the Oregon MT example, the market will expand and new CSPs will be encouraged to challenge the early adopters in providing MT accounts.

Financial and Economic Analysis

In phase 5, operational and transactional cost models will be used for operations on a yearly basis. They will most likely be upgraded and integrated directly with daily operational data streams from the system. This will provide instant analysis and performance measurement.

Analysis from these models will provide actual cost data to support any recommended changes or impact of adding vehicles to the system.

Procurement

No procurement activities are foreseen for phase 5.

Certification

In Phase 5, the certification entity will actively be engaged certifying OBUs and vehicle hardware and applications to interoperate with the system. The role of the certification may evolve to be a regional role as other neighboring states may introduce MT systems.

Organizational Framework

Due to increased numbers of vehicles in the program, transactional costs will drop and efficiencies in the operations will contribute to the drop in transaction costs during phase 5.

Management will actively identify areas or needs to be addressed by changes in the legislation in order to ensure greater efficiency and cost effectiveness.

The OIPP will monitor the organization and its performance.

Operational

The key activity related to the Operational workstream in phase 5 will be the fine-tuning of the system, procedures and the staff functions.

Procedures and processes designed previously, including procedures for enforcement and compliance, will be executed during phase 5. Recommendations and changes will be made to increase compliance and decrease enforceable events as technology changes.

As other neighboring states introduce MT systems, the out-of-state issue disappears and mutual agreements between states will share data and cross-collect MT taxes for each other.

It is also expected that the federal government through the number of states adopting MT systems, will enter the fray to attempt to standardize the approach across all states and territories.

Communications and Outreach

In Phase 5, the communications will primarily maintain a steady stream of information about the system and manage any issues or problems that may arise. Mitigation of issues will be an operational issue executed by the internal communications staff supporting the organization.

Risk Analysis

There are no risk analysis activities in phase 5 other than as part of any operational changes or expansions of the system. These will be conducted on an as needed basis by the taxing authority and reviewed by ODOT.

Appendix 2: Workstreams

Appendix 2-1: Legal

Period 1:

Phase 1
There are many avenues for legal and regulatory input that can impact the MT program, sometimes in unexpected and/or unintended ways. As the concepts are developed in phase 1, legal counsel will work with RUFTF and the OIPP. The project team will provide input and information to support Legal review of subjects that are demanded.

Phase 2
There are continued information and resolution of legal and regulatory inputs through the continued development of options and information developed in phase 2. The Project team will continue to provide input and information to support Legal review of subjects that are demanded, especially in the time frame just prior to and during the legislative review of any potential bill.

Period 2:

Phase 3
Any legal work will be interpretations of specific mandates in the legislation for this phase 3. As a result of end-to-end system testing, some system aspects may need to be addressed for full compliance with the law.

Legal issues of privacy protection and empowerment of the CSPs and certification entity may be one area to be address. While contractual, the issues also have legal implications.

Phase 4
Any legal policy work in phase 4 will be associated with the legislation to change sections of the law or add new provisions to the law governing the MT system.

In addition, any changes to expand the system to other vehicles will require taxing authority or ODOT staff to support definitions for this work.

Phase 5

Any legal work will be associated with changes to sections of the law or addition of new provisions to the law(s) governing the mileage tax.

In addition, any changes to expand the system to other vehicles will require taxing authority or ODOT staff to support definitions for this work.

Appendix 2-2: Legislative/Policy

Period 1:

Phase 1

During phase 1, this workstream will consist of interaction and guidance of the RUFTF Committee who, by H.B. 2138, are mandated to guide and direct the program.

The project team will work through the guidance of the Director of OIPP to develop information, options and data on the MT system to assist the RUFTF members in refining the legislative/policy concepts to be embodied into a redrafted bill for the 2012 short session of the Oregon legislature assembly and, more likely, for the 2013 long session.

Feeding into this workstream are a variety of other workstreams. Economic and transaction costs models will be developed to provide insights to the cost implications of the various policy alternatives. An Evaluation Strategy will be developed that will be used to guide the monitoring of pilot programs initially and operations of the MT system in the future. A range of alternative organizational frameworks will be developed and evaluated. Forecasts will be produced of the growth of the vehicle fleet by subset (e.g., EVs and PHEVs). The demonstration and evaluation of the preliminary SRS and Preliminary ICD together with the preliminary CONOPS scenarios will be presented and reviewed with RUFTF to ensure continual oversight of the activities conducted in phase 1.

In additional, the lessons learned and experiences of New Zealand's road user charging system and approaches to VRUC in Europe will be developed and presented to inform policy choices during Phase 1. Developments in the region, in other states and at the federal level will also be presented to RUFTF in phase 1 so that a complete understanding of the proposed MT system, other VRUC systems, and related issues is imparted to members.

Phase 2

It is not likely that MT legislation will be adopted during the 2012 "short session" of the Oregon legislature; instead, it will likely be deferred to the 2013 full legislative session. As such, this workstream will continue through phase 2. RUFTF will continue its activity to advise the legislature, provide policy direction to ODOT/OIPP, and draft new legislation. This workstream will gain additional data and information from ongoing activities in all other workstreams of phase 2. As this workstream cuts across all others, it will be essential to continue monitoring the legislative situation and providing input to RUFTF based on the findings and developments of the other workstreams in an iterative fashion.

Period 2:

Phase 3

It is assumed that in phase 3, the enabling legislation for the MT system is passed and the program is designing the system around the mandates embedded in the legislation, including modifications to some system elements where necessary in reaction to new policy guidance. A legislative policy framework is established at the start of phase 3 to help provide a good understanding of the provisions contained in the legislation, both direct and indirect work tasks.

Phase 4

During phase 4, it is assumed that the independent ***Evaluation*** of the taxing authority will produce sufficient statistics and performance measurements to identify any policy issues or shortcomings not envisaged in the drafting of the legislation. Additionally, compliance and enforcement will be measured against actual data and any issues will surface in the evaluation report.

In addition, it is assumed that revenue and cost allocation will present the contribution of the mileage tax and the impact of high efficiency vehicles on the state highway trust fund revenues in the 2015 to 2018 time period.

The impact of the two points above may provide incentive for RUFTF and Oregon legislators to draft and consider legislation to fix any operational or compliance issues with the legislation. These changes can be documented and the cost model can approximate the costs and benefits of the changes in real dollar terms to help support any measures recommended or advocated.

Secondly, the success of the system may encourage the expansion of the system to other high efficiency vehicles. Drawing on the earlier work done in phase 1 and phase 2, the refresh of data using current (2015-2018) figures will indicate which vehicle classes should be considered, but a starting point will be those with fuel efficiency at or above the CAFE standard of 54.5 miles per gallon by 2025. This will generally be the rest of the hybrid vehicle fleet and the high-efficiency internal combustion engine (ICE) vehicles such as the Ford Fiesta, an ICE, which in 2011 terms is rated at 42 MPG.

Phase 5

The primary legislative and policy functions in phase 5 will be to monitor the continued progress of the MT operations through statistics and performance measurements to identify any policy issues or shortcomings not envisaged in the drafting of the legislation. Additionally, compliance and enforcement will be measured against actual data and any issues will surface in the yearly evaluation report produced by ODOT and the taxing authority.

In addition, it is assumed that revenue and cost allocation will present the contribution of the mileage tax and the impact of high efficiency vehicles on the state highway trust fund revenues in each yearly time period.

Other vehicle fleet groups may be added to the MT system as determined by the legislature and the financial needs of the state.

Appendix 2-3: Evaluation

Period 1:

Phase 1

The Evaluation Strategy, developed as part of phase 1, also identifies several activities to conduct during phase 1. These activities correspond with period 1A of the Evaluation Strategy. Specifically, activities include the following:

- Evaluate demonstrations: Each metric will be linked to a data source as the basis for measurement. This will require development of measurement methodologies such as surveys or linkages with other existing ODOT measurements.
- Re-adjust and re-write evaluation criteria: Based on input from RUFTF and the evaluation conducted of the demonstrations, the evaluation criteria will be re-written and modified in preparation of the pilot testing to be conducted in phase 2. The final evaluation criteria will be reviewed and approved by RUFTF.
- Write an evaluation plan for evaluation of the legislative pilot and select tests in phase 2.
- Update RUFTF on the revised Evaluation Strategy: The final evaluation criteria will be reviewed and approved by RUFTF.

Phase 2

Several activities are identified for evaluation in phase 2, which corresponds to period 1B of the Evaluation Strategy.

- Evaluate the legislative pilot and select testing and write an evaluation report;
- Review the entire Evaluation Strategy with input from phase 2; and
- Update RUFTF on the evaluation report published for phase 2 evaluation and the changes recommended on the Evaluation Strategy for the operational phase.

Period 2:

Phase 3

The phase 3 evaluation activities are part of the transition from period 1 to period 2 as described in the Evaluation Strategy (spanning periods 1A, 2A, and 2B). Activities to be detailed in an evaluation plan for phase 3 include the following:

- OIPP to begin procurement of an independent reviewer (IR) (period 1C evaluation).
- IR to review the evaluation criteria and changes from phases 1-3 for full understanding of the requirements expected.
- Evaluate field tests by IR and write report.

- Develop evaluation plan for periods 2A (evaluation of operations) and 2B (evaluation of greater economic indicators) (period 2 of the Evaluation Strategy corresponds with period two of the SPP, which includes phases 3, 4, and 5): After dry run and practice evaluation of the operational staff, the IR will make any recommendations for changes to the evaluation criteria reviewed and evaluated. OIPP will consider and either accept or reject the recommendations to be included in evaluation plan for periods 2A and 2B.
- Update RUFTF on the evaluation report to be published by the IR for evaluation and any changes recommended on the Evaluation Strategy for final approval.

Phase 4

With the MT program expected to go operational in July 2015, phase 4 evaluation activities correspond with periods 2A and 2B of the Evaluation Strategy:

- OIPP to continue to evaluate performance of the independent reviewer (IR).
- IR to continually review the evaluation criteria, but for year-to-year consistency, no changes are expected.
- IR will make yearly recommendations for changes to the system based on the evaluation report published by the IR.
- The evaluation team will brief both legislators and RUFTF on a yearly basis on the published evaluation report.

Phase 5

In phase 5, the independent reviewer will transition the evaluation to an internal team which will focus on performance evaluation of the taxing authority. These activities correspond with period 2A and 2B of the Evaluation Strategy.

Appendix 2-4: DMV

Period 1:

Phase 1

The DMV maintains a database of motor vehicles in Oregon. It will be necessary to analyze, as the MT concepts and scenarios are developed and tested in the demonstrations, to continually assess and involve the DMV to study the impacts and requirements that may exist in the system design.

Initial specific work will be to baseline the existing DMV records and files, and investigate the level of detail that can be provided. Based on preliminary discussions during workshops, the level of detail in the DMV files is minimal, and creative thinking will be required to address the early program needs to identify, record, update and process data flows between the MT system and DMV.

Other than this baselining and understanding, there will be minimum if no work with DMV during Phase 1 or Phase 2 of the program.

Phase 2

Initial specific work to baseline the existing DMV records and files and investigate the level of detail that can be provided will be advanced in Phase 2. The further testing of preliminary CONOPS scenarios, including interface procedures with DMV, will be considered but not actually tested. Instead, the data will be arranged and simulated through a response generator to simulate DMV. The response generator will be programmed to react exactly like DMV in response to queries and responses to information. The scenario testing will help demonstrate any problems or issues not foreseen in the CONOPS Scenario or preliminary data received from DMV. By advancing the scenarios at an early stage, work-around procedures and other measures can be documented to ensure future operations can be completed successfully.

Period 2:

Phase 3

In phase 3, all links and interfaces with DMV will be established and coordination with the DMV staff for operational procedures will be written in the DMV procedures manuals.

Any communications or network links into the DMV system will be established, tested and certified.

Software interfaces to the DMV system will be written and tested.

Phase 4

In phase 4, the major change in DMV may be growing concern over the accuracy and the flexibility of the IT systems to support the MT.

Changes to the existing software and system may be difficult or nearly impossible. Considering that the system will be 4-6 years older and both computer hardware and software will advance in that time period, the case to revamp and replace the entire DMV system may be at a critical stage.

The above may be exacerbated by changes to scenarios and expansion of the vehicle fleet.

Phase 5

No change in the operational years other than the DMV system and software to support the MT system. Due to increased revenue produced by the MT to the state highway trust fund, sufficient funds may be generated to pay for a DMV system upgrade.

Appendix 2-5: Technology

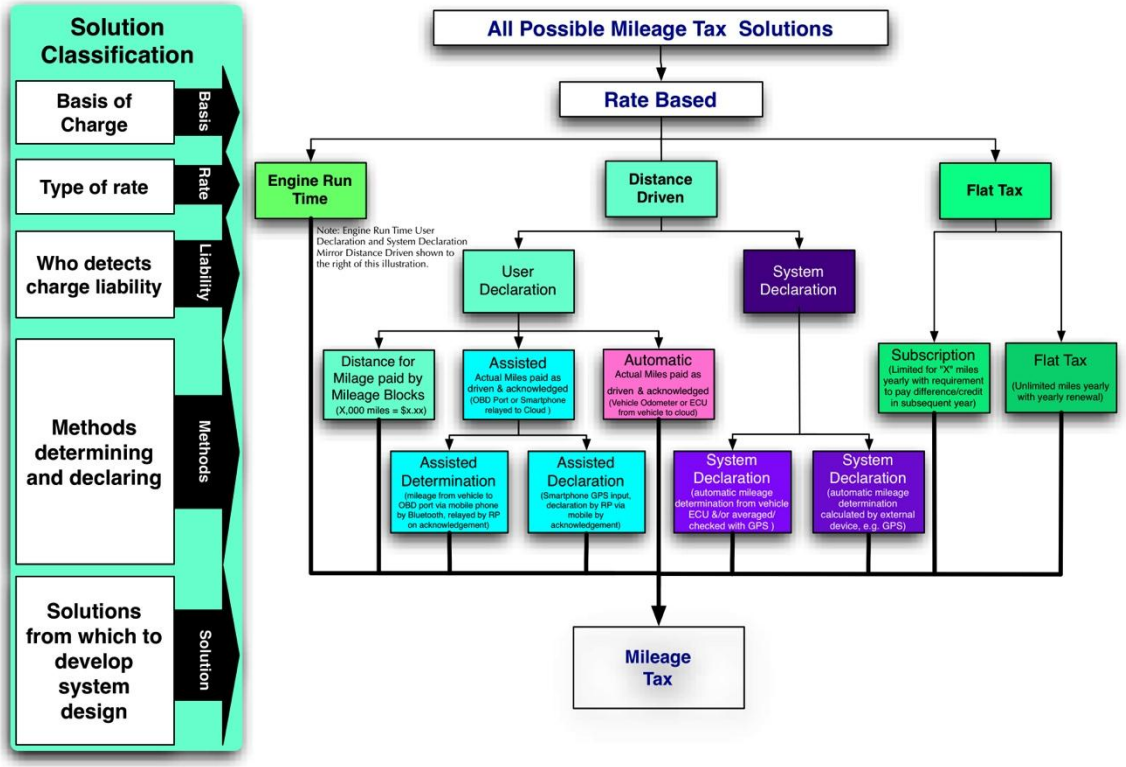
Period 1:

Phase 1

There are several logical approaches to a mileage tax technical solution. These are shown in Figure 16 below. The diagram indicates three major types of rate, charging by time, charging by distance driven and a flat tax approach. Charging by engine or vehicle operational time is not a part of this project. The focus of the current policy is charging by distance driven. This can be logically done by either a user declaration or an automatic system declaration of the distance driven. Furthermore, the flat tax approach can be either a flat tax or a subscription method where the responsible person for paying the road usage tax pays in increments rather than a one-time tax. The flat tax is currently addressed by RUFTF and is part of H.B. 2328, 2011, in concept, and it will be determined by RUFTF and the formulation of the new bill to include it or how it may be implemented. Currently, there are considerations of a subscription, but no determination to include such a concept.

The technology approach will address the methods in determining and declaring the mileage tax. These will be explored in R&D and tested and evaluated in pilot testing to determine the relative success of the several approaches. The final determination will be made by RUFTF and incorporated into the new policy formulation for legislative consideration.

Figure 16: Logical solutions for consideration for the mileage tax system



The most promising of the approaches shown above will be the focus of technology activities in phase 1 is demonstration (demo) and legislative pilot testing. Demo testing will involve a small number of vehicles equipped with OBUs driven by ODOT employees, and be immediately followed by legislative pilot testing and controlled testing. The main purpose of demo testing is to prepare & debug the system to be used in the pilot testing. The main purposes of pilot testing are the following:

- To determine and demonstrate technical consequences of policy options; and
- To demonstrate the capability of technically implementing the system so that automakers join.

There are two main tasks in the R&D plan:

- Document Preliminary System Requirements Specification (PSRS) and Preliminary Interface Control Document (ICD) for legislative pilot
- Develop demo hardware and perform research & development.

The first task begins the systems engineering process approach. In the first task the team will compose preliminary system requirements specifications (PSRS) for each of the major system components (OBU, transactions processor, and responsible party (RP) account management, and mileage tax accounting) and a preliminary interface control document (PICD) for the two main system interfaces (OBU to transaction processer, and transaction processer to account management.). These documents will be developed rapidly, and provide documentation of a starting point for the prototype development team to begin its development. In a later task, the team will develop a test strategy and test cases to test the OBU.

The next group of activities is the research and development of the demo OBU, including the development of the demo OBU in 6 generations:

OBU version 1 – non-location based mileage counting: The project team shall create a prototype (single demonstration OBU) for non-location based mileage using the OBDII port as it is specified in the PSRS and the PICD for the OBU. The project team shall unit test the components as build-out of the components occurs and document bench-test and vehicle-test results. The project team shall create documentation of the unit and installation instructions. Non-location-based mileage counting is the default operation for the legislative pilot.

OBU version 2 – version 1 + fuel usage calculations from OBDII data: The project team shall determine options for determining fuel consumption (this information is needed because fuel tax credits or refunds will be based on fuel actually consumed). The project team shall research fuel consumptions measures available from OBDII port. The project team shall update OBU version 1 to include algorithms for fuel usage calculations. Changes to the OBU shall be limited to OBU code changes unless a hardware fault is found that prevents successful implementation of the fuel consumption functionality. The project team shall test the unit, and document the results. The project team shall determine a recommended option and update the demonstration OBU, test the results and write a report that shall document the approach, its apparent effectiveness and accuracy and recommendations. If this task demonstrates the feasibility of providing refunds for fuel usage based on OBDII data, this functionality will be demonstrated in the legislative pilot.

OBU version 3 – version 2 + wireless communications: The project team will incorporate a wireless means of transmitting data to an internet-based server to the OBU. This wireless means may be a cellular modem or Wi-Fi or other wireless technology. The choice of wireless technology will be determined as part of PSRS and PICD development. The OBU will use a this wireless technology to transmit vehicle miles traveled and other desired data to a database on the target server. After any defects are resolved, the project team shall produce up to ten (10) units.

OBU version 4 – version 3 + GPS location-based calculations + Bluetooth

communications enabled: The project team shall examine the advantages and disadvantages of prominent algorithms used to determine the actual VMT. This evaluation shall include the consideration of whether VMT calculation should include map matching (snapping location points to a map) or if VMT should be computed directly from data points. This analysis shall also indicate the different hardware requirements for the two alternatives (map-matching vs. non map-matching) and the different bandwidth requirements (e.g., to update maps on a "thick-client" OBU). The project team shall also estimate capital and operating costs for supporting OBUs running these systems. The project team will research GPS location-based calculations. In addition, to enable the demo OBU to be utilized in conjunction with third-party devices, the project team shall enable the GPS-location based measurement using a third-party device such as an Android phone via the Bluetooth software. Utilizing the OBU in conjunction with a third-party device allows it to act as a means of fraud detection—it can ensure that the third-party device is active whenever a vehicle is moving. Bluetooth technology is employed because it is the de facto standard among mobile devices today; however, the use of Bluetooth in the demo should not limit the technology of the future systems used by ODOT—Bluetooth should not become a system requirement, nor should it impact system requirements in any way. The project team shall update OBU version 3 to include Bluetooth communications with a smart-phone (e.g. Android) device and GPS calculations. This task shall utilize third party devices by industry in response to the published PICD, if any have been submitted. If no devices have been provided by industry, then the project team shall implement a basic VMT measurement system with a smart-phone device. The system shall leverage off-the-shelf applications to the extent possible. The project team shall test the unit, and document the results. Based on prototype results, the project team shall create recommendations for changes to the PSRS and PICD for the OBU. If third-party industry devices are provided by industry for the legislative pilot, this functionality may be demonstrated in the legislative pilot. Also, if this task demonstrates the feasibility of performing GPS location-based using the hardware developed, this functionality will be demonstrated in the legislative pilot.

OBU version 5 – security hardware to detect and discourage user tampering of the OBU: The OBU must detect and discourage user tampering. The project team shall create hardware that will fulfill needs for power requirements, possible infrequent vehicle use, out-of-state vehicle use, and the impact of false positive detections. The research will include prototyping security designs. The project team will design, develop, and prototype security hardware for the OBU to detect and discourage user tampering. The project team shall update OBU version 4, to include security hardware. The project team shall test the unit, and document the results. Based on prototype results, the project team shall create recommendations for changes to the PSRS and PICD for the OBU.

OBU version 6 – security and encryption software: OBU software must protect message privacy: OBUs must be authenticated by the central system (transactions processor, taxing authority, and account management systems)

and messages must be transmitted securely (encrypted. This will likely employ a public key infrastructure (PKI) security system. The project team will implement the chosen software for OBU authentication and message encryption on the OBU.

In a separate task in support of OBU version 5 the team will research hardware issues related to the OBU. In this task, the team will research the following hardware topics and determine the available solutions and advantages/disadvantages of each:

- OBU status display options (some indicator of OBU health/connectivity).
- Tamper detection/fraud resistance in the OBU.
- OBU mounting: at the OBDII port, or at another location, with a Bluetooth connection to a dongle in the OBDII port, or built into the vehicle outside of the cockpit and hardwired into the OBDII port. The team will consider both factory and retrofit scenarios, and will also consider tamper detection and fraud resistance as mentioned in the previous bullet.
- Power source.
- Connectors for dongles needed to support the OBU, including splitters for multiple dongles.
- Exterior antennas needed for the OBU (possible with 5.9 GHz DSRC and GPS).

In a separate workstream, the team will support the procurement of a demo transactions processor, a mileage tax accounting system, and at least two responsible party account management system. The team will recommend the most effective solution that meets the PSRS requirements. However, the team will strongly favor a ‘cloud’-based solution for the flexibility/future adaptability that it provides.

The transactions processor server/service will have the following functions:

- Receive and process OBU MT transactions via wireless internet transmitted in conformance with the PICD.
- Archive data on transactions.
- Apply the tax.
- Route them to the user accounts server via wired internet.

The mileage tax accounting server/service will have the following functions:

- Maintaining the master charge of accounts,
- Receiving information from DMV regarding electric vehicles registered in the state and sharing this information with RP account management),

- Receiving account information and payments from RP account management,
- Ensuring that the tax payments ultimately end up in the state treasury.

The responsible party account management server/service will have the following functions:

- Maintain user accounts.
- Receive transactions from the transactions server.
- Update user accounts based on the transactions.
- Issue simple invoicing and billing statements.

A later task will include the preparation of as-built specifications for the demo units, including hardware and software architecture.

Later tasks will also include the execution of the demo (and in phase 2 legislative pilot testing). In demo testing, the team will execute the test cases created in task 2 to determine performance of the OBU, the procured transactions processor, responsible party account management system, and taxing accounting systems. ODOT employees will have the OBUs in their vehicles with which to collect data while driving. The team will analyze the data collected to complete this task.

The team will also develop a plan for the LPT to be conducted in phase 2. These plans will cover topics such as recruitment of participants, installation of OBUs, support of participants during testing, data collection, and data analysis

A final technology task includes detailed investigation of several major taxing authority and account management properties. These activities will provide input to the procurement of a systems integrator that will occur during phase 2, the pilot system development. The properties to investigate are the following:

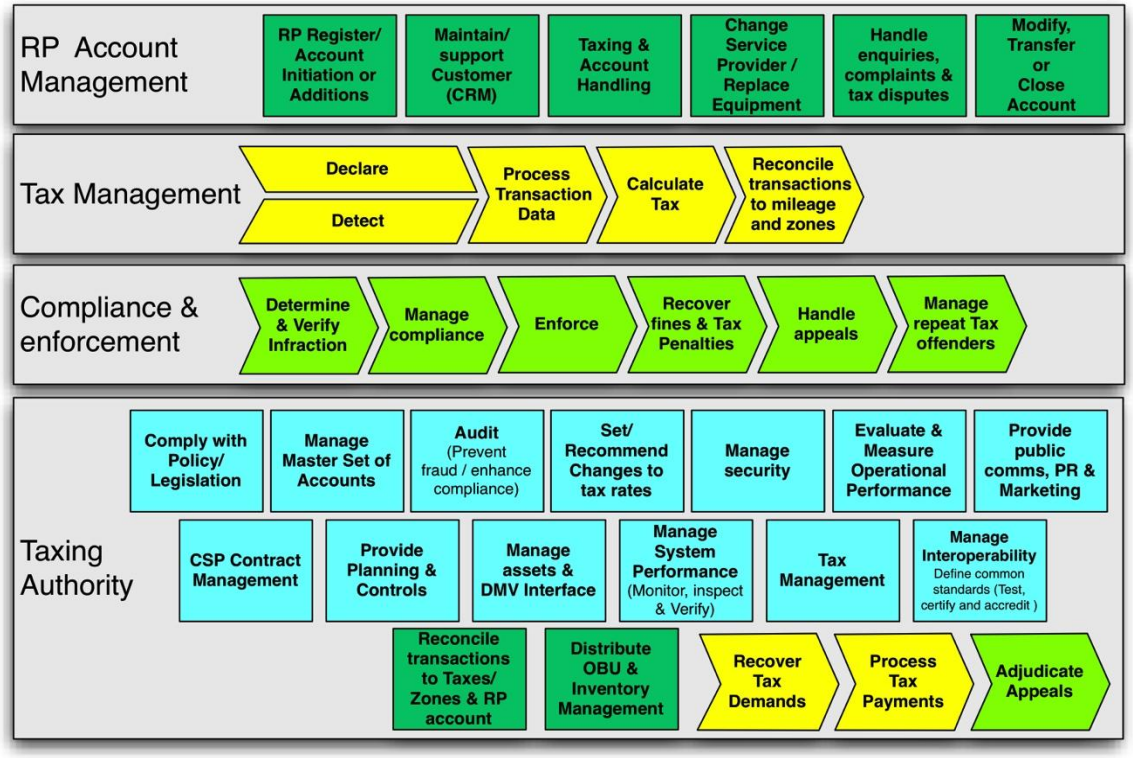
- System architecture—investigate how the system will be physically structured—will it include field/roadside installations or be centralized—and how the system will interface with other existing internal and external systems.
- Payments—investigate the most efficient ways for ODOT to process payments
- User to system interface—investigate how users will be able to manage their accounts, and otherwise interface with the ODOT system
- Back office system—investigate the best design of the back office system.

A functional diagram of the various components and functions belonging to each component of the major taxing authority, account management, taxing management, compliance and enforcement are shown in the figure below. These

functions will each be explored and investigated as part of the phase 1 and phase 2 activities and be incorporated into the preliminary CONOPS which will be used for the legislative pilot test.

The functions shown below in the following figure indicate the functions that must be serviced and staffed in the various portions of the overall mileage tax system. The operational framework will look at how each will be staffed and this parallel work will provide both costs and operational considerations. The proof of concept pilot test will also address several of these areas and costs and issues will be evaluated and assessed during the legislative pilot testing.

Figure 17: Logical functions embodied in the mileage tax system design and phase 1 and phase 2 work



Phase 2

The major technology activities during phase 2 involve the execution and data analysis of extensive vehicle pilot testing using OBUs developed during phase 1 and pilot OBUs procured with the RFI at the beginning of phase 2. These pilot tests constitute the second phase of the rolling pilot (the first being demonstrations in phase 1, and the third being field tests in phase 3). The team will design these pilot tests to verify the CONOPS and conform with any other policy guidance received in the interim. They will employ the taxing authority and account management system developed during phase 1.

The R&D team will perform thorough data analysis on the data generated during the pilot tests in order to characterize OBU performance, to determine any other refinements needed in OBU design, and to prepare for the final set of rolling pilot testing (field tests) in phase 3 of the project.

In addition to pilot testing activities, the team will perform further research on topics as needed based on the results of the research in phase 1. The pilot testing will be subject to evaluation in accordance with an evaluation plan developed under the ***Evaluation*** workstream at the end of phase 1. The evaluation criteria will be based on the previous evaluation criteria used on the previous pilot study conducted by ODOT as well as criteria specified in H.B. 2138 and by RUFTF.

Period 2:

Phase 3

The selection of equipment suppliers will need to be accomplished early in phase 3 to allow sufficient time for the production and production testing of the OBUs and associated equipment and software.

Early production models will be necessary to further test any scenarios or changes to scenarios. These units will also be required to test and develop system functionality as the operational system is built to support the commencement data.

It is assumed that the selected manufacturing company will perform all environmental and EMI testing and document the results to indicate that the units passed all production measures and testing.

A number of the pre-production units will also undergo certification testing by the certification entity selected at the end of phase 2.

The back office equipment and its associated communications network and support systems will need to be tested on a function by function basis to ensure compliance with the prescribed scenarios.

Stress testing and load balancing will also need to be tested to ensure performance standards are met. Since the system will not have sufficient transaction flows to stress it, a transaction generator will most likely be required to produce transactional data and simulate peak and severely heavy loading of the communications and system performance.

Data analysis of message formats and error code for on-line maintenance testing will also be performed.

Any irregularities or issues with the pre-production units noted during testing will require fixing and retesting to ensure that all equipment is fully functional for the start of operations.

Production quantities and distribution will need to be established with operations to ensure that sufficient quantities are available at least three months prior to the start of operations to ensure a smooth transition into operations on 1 July 2015.

Phase 4

Technology changes are not envisaged during phase 4 other than those to support system changes and expansion of the system. The original system installed should be sufficiently robust and have expansion capabilities to handle the growth in transactions and operational needs.

Where technology may change is the OBU supplied by CSPs. Through certification, CSPs are expected in this time frame to have sufficient experience to better understand their customers and their needs. During this time period, these are expected to grow in number and complexity. This will most likely necessitate CSPs filing for new OBUs through the certification process.

Phase 5

Technology changes are not envisaged in phase 5 other than those to support system changes and expansion of the system. The original system installed should be sufficiently robust and have expansion capabilities to handle the growth in transactions and operational needs.

Where technology may change is the OBU supplied by CSPs. Through certification, CSPs are expected in this time frame to have sufficient experience to better understand their customers and customize their service plans for greater customer satisfaction.

As the system grows, new CSPs may enter the market for both state and regional business. If other states follow the Oregon MT example, the market will expand and new CSPs will be encouraged to challenge the early adopters in providing MT accounts.

Appendix 2-6: Financial and Economic Analysis

Period 1:

Phase 1

The phase 1 activities for the financial and economic analysis workstream will be the focused on the development of an economic cost model and a transaction cost model, which will be required to estimate and simulate costs of the MT system. Both of these models will work together to understand and provide cost insights into the future design and operational aspects of the overall project, using as an input a vehicle fleet forecast as well as an organizational framework. Understanding the cost drivers will be essential in phase 1 because they can be used to understand which parameters influence cost-effectiveness and efficiency. The key parameters and their sensitivities can then be reported and used by RUFTF in making sound policy decisions at this critical early stage.

The following sub-tasks are planned:

- *Task 1: MT operations cost model schema*: Develop a schema of the MT operations cost model. The schema will include a list and description of all of the model's key elements, including: a list of input variables and the basis for their inclusion in the model, a list of key outputs of interest and their basis for inclusion, and description of functions (e.g., mathematical operations) used to compute outputs. The schema will be presented graphically as a "model architecture" flowchart, and each key element as well as interfaces to the transactional cost model will be described in text. The schema shall be flexible and adaptable, meaning that it will be able to accommodate changes in the lists of input variables, values of input variables, and list of outputs of interest.
- *Task 2: MT transactional cost model schema:* Develop a schema of the MT transactional cost model. The schema will include a list and description of all of the model's key elements, including: a list of input variables and the basis for their inclusion in the model, a list of key outputs of interest and their basis for inclusion, and description of functions (e.g., mathematical operations) used to compute outputs. The schema will be presented graphically as a "model architecture" flowchart, and each key element as well as interfaces to the operations cost model will be described in text. The schema shall be flexible and adaptable, meaning that it will be able to accommodate changes in the lists of input variables, values of input variables, and list of outputs of interest.

- *Task 3: Detailing of processes and aggregation into a transaction cost model*: Based on the preliminary draft operational concepts, this sub-task builds detail, corresponding processes and associated categories of costs for each operational process that build costs associated with each process and aggregated into a transactional cost model. This task is the detailing of each process in a manner to identify the costs associated with each procedure. The output will be process charts for each type of operation so that when aggregated, the overall operational costs per transaction can be identified and compared. The work will ensure that processes that cannot be detailed at this time (e.g. enforcement) are identified and handled at a macro level until a future time when the procedures can be translated to a process flow diagram.
- *Task 4: Build the MT operational cost model*: Build the MT operational cost model based on the approved MT operational cost model schema (sub-task 1).
- *Task 5: Build the transactional cost model*: Build the transactional cost model based on transactional cost schema (task 2) and the preliminary draft operational concepts process flow diagrams (task 3). The key variables will be inputs from the vehicle fleet estimates and the organizational framework model for operational staffing levels
- *Task 6: Develop a user guide for the model*: A user guide will be written that explains in simple and clear terms how to use the operations cost model alone and how to use the operations cost model together with the transactional cost model. The models will also be demonstrated through workshops with ODOT staff using the user guide as a basis for the instruction. In addition, scenarios will be developed and run to illustrate the entry of input data variables and the generation of outputs.

The Economic/Financial workstream will need several supporting tasks in phase 1: projections of fleet size over time (described below) and organizational framework.

Projections of fleet size over time. This portion of the workstream will lay out the estimated number of EVs, PHEVs, hybrids and high-efficiency internal combustion engine (ICE) vehicles by number and percentage of the Oregon vehicle fleet between 2015 and 2030 in major year projects in 2015, 2020, 2025 and 2030. While this extends beyond the time horizon of the SPP, the projections are necessary to support a number of tasks and projects in the body of work currently undertaken by the OIPP for the MT program. For example, these four key data points provide input to staffing requirements necessary to run the organization, to manage the accounts, and to handle the transaction load envisaged in the CONOPS scenarios. Additionally, the ramp-up during the transition phase (phase 4) will need to be estimated to properly address early year operational needs of the organizational framework. Finally, this work task should also address other high efficiency vehicles that may be candidates for future expansion of the system. For example, hybrid vehicles may be considered

as well as high efficiency internal combustion engine (ICE) vehicles whose MPG rating exceeds the CAFE standards. Several steps are foreseen in the completion of this task:

- *Task 1*: Report that outlines the approach, sources of data and the outline of the model to be constructed.
- *Task 2*: Data collection and construct of the actual model with preliminary results in a draft final report.
- *Task 3*: Completion of the model and delivery of both the Model and the final report.

The financial workstream relates importantly to other workstreams, including ***Policy*** (rate setting and vehicles to include), ***Procurement*** and ***Organizational Framework*** (costs), ***Technology*** (costs), and ***Compliance*** (lost revenues due to evasion).

Phase 2

There are no phase 2 activities envisioned for the economic and financial analysis unless needed to fulfill demands of the legislative process. Otherwise, these activities are expected to resume in phase 3.

Period 2:

Phase 3

The phase 3 activities for the economic analysis will be focused on the refinement of the economic operations model with test results and information developed with the industry participants in the legislative pilot and select tests and specifications from the pre-production units being produced in Phase 3 in accordance with the finalized SRS and ICD.

Transaction costs will also be updated with more pre-production data to better approximate the true costs of a transaction. The refined CONOPS will be used to test and evaluate each process for streamlining of costs. The results will be fed into the final CONOPS.

Both models will be transitioned over to the initial hiring of key personnel in taxing authority for continued evaluation and forecasting of both operational costs and transactional costs during the transitional and full operational phases (phases 4-5). Comparisons of pre-operational estimates and actual operational costs will be made to understand the accuracy of the forecasting and correct the variances for future modeling of costs during each successive year of the transitional period.

Phase 4

Operational and transactional cost models will be used for operations in phase 4. Analysis from these models will provide actual cost data to support any recommended changes or impact of adding vehicles to the system.

Phase 5

In phase 5, operational and transactional cost models will be used for operations on a yearly basis. They will most likely be upgraded and integrated directly with daily operational data streams from the system. This will provide instant analysis and performance measurement.

Analysis from these models will provide actual cost data to support any recommended changes or impact of adding vehicles to the system.

Appendix 2-7: Procurement

Period 1:

Phase 1

Phase 1 activities in procurement will be focused on the preparations for the procurement activities and implementation strategy in period two. The outreach to interested manufacturing companies for development of on-board units that meet the standards developed in phase 1 will need to be started in the latter part of phase 1 for the follow-on phase 2 work (concept testing). Development of the service contract for the interested commercial companies wishing to participate in the legislative pilot and select testing in phase 2 will be done by the Service Area 1 prime contractor.

Phase 2

Phase 2 activities in procurement will be focused on the potential alliance contracting for both equipment suppliers and a transaction processs and RP account management system integrator. Based on the results of the legislative ilot and select tests, the procurement approach for both of these procurements will be evaluated and decided in light of the procurement strategy report written in Phase 1. With multiple suppliers, at least one leader and one follower can be envisaged for the hardware supplier. A single back office system integrator will either be selected or a BOT alliance contracting procurement will be formulated. The BOT option is closely related to the decision taken in the procurement strategy and the ***Organizational Framework*** workstream by ODOT during phase 1. This is a critical workstream which will allow for a clearer picture of the procurement approach leading into phase 3.

Period 2:

Phase 3

Phase 3 activities in procurement will be focused on the actual alliance contracting for both equipment suppliers and the RP account management and transaction processing entities.

Extension of the phase 2 independent reviewer for ***Evaluation*** will be made, or a re-procurement of another IR will be determined, based on the assessment of performance of the IR during phase 2 evaluation. If a new IR is contracted, time must be allowed for the IR to familiarize with the evaluation criteria and possibly run mock evaluations on the taxing authority during pre-operational training and familiarization.

Extension of the phase 2 independent reviewer for ***Evaluation*** will be made, or a re-procurement of another IR will be determined, based on the assessment of performance of the IR during phase 2 evaluation. If a new IR is contracted, time

must be allowed for the IR to familiarize with the evaluation criteria and possibly run mock evaluations on the taxing authority during pre-operational training and familiarization.

Phase 4
No procurement activities are foreseen for phase 4.

Phase 5
No procurement activities are foreseen for phase 5.

Appendix 2-8: Certification

Period 1:

Phase 1

This workstream will focus on developing a certification process for various elements of the MT system, specifically technology. As defined in the preliminary CONOPS, the certification entity will be an independent contractor working for ODOT to assess and determine the interoperability of system components and the configuration management of the same. The role of the certification entity will be researched and documented in phase 1. The report will be used to define and agree on the scope the certification entity. The report will be written based on certification processes in other industries (e.g. commercial electronics industry) and international examples where a certification function is employed to ensure interoperability. Note that this will be accomplished in conjunction with the ***Organizational Framework*** workstream during phase 1.

Phase 2

This workstream will use the phase 1 report to engage with potential certification entities. No actual certification will be performed but the commercial partners selected will provide hardware, software and services in accordance with the PICD and PSRS and preliminary CONOPS for participation in the phase 2 legislative pilot and select testing.

Secondly, the results from working with the certification during the testing will be further developed with Procurement for the drafting of a procurement for the services of a certification entity in phase 3.

Period 2:

Phase 3

If the decision is to outsource or employ BOT for the organizational framework, then three major tasks will be required. These are:

1. The testing, assessment and evaluation of the preliminary CONOPS scenarios to determine the viability of each scenario and the procedures required to support them. The result of these verified procedures will be to compile a procurement document of functional requirements and performance metrics to be used to assess the tenders and ultimately the performance of the contractor once selected.

2. The operational cost model will be used with sensitivity testing to determine estimates of operational costs to measure and support the bidding process.

4. The operational cost model and transaction cost modeling will be used to estimate initial and follow-on year costs to determine realistic performance metric and cost saving targets to incorporate into the contract and contract negotiations to ensure a cost effective alliance partner is selected.

The certification entity will begin testing the certification process on the pre-production units ensures that certification testing is fully operational in phase 3.

Work on certification for any CSPs that enter the market may be underway as early as six months prior to the commencement date to ensure that CSPs are prepared to sell and market their services to owners of EVs and PHEV vehicles.

Phase 4

The certification entity will actively be engaged certifying OBU and vehicle hardware and applications to interoperate with the system during phase 4.

CSPs are expected to be actively engaged with the certification entity in submissions of new hardware and software and configuration management of older equipment that is being upgraded with new components or software.

Due to competition for customers and price sensitivities, CSPs will actively be engaged in lowering their unit costs for services and equipment while enhancing their service offering to the market.

Phase 5

In Phase 5, the certification entity will actively be engaged certifying OBUs and vehicle hardware and applications to interoperate with the system. The role of the certification may evolve to be a regional role as other neighboring states may introduce MT systems.

Appendix 2-9: Organizational Framework

Period 1:

Phase 1

This is a major workstream for phase 1, when recommendations will be made regarding the organization of ODOT divisions relative to the mileage tax (MT) program as well as how external interfaces should be handled. It feeds into several other workstreams and the ability to inform RUFTF and legislators how the system will operate. It is assumed in the CONOPS and other base-level documents, but needs to be specifically decided within ODOT. Essentially this task involves mapping functions of the MT system against options for their management. The organizational functional design will be sculpted out of existing and known organizations that currently exist nationally and internationally. This relates importantly to the ***Procurement*** and ***Financial and Economic Analysis*** workstreams, and must be accomplished early to provide the framework necessary to assess operational costs.

This task is also fed by the other early tasks (namely, the vehicle fleet projection, which provides key information needed to scale the functional organization and cost implications). There are several tasks in the completion of this workstream under phase 1. Each is described below.

- *Task 1: Construct a functional organizational structure*. The work begins with the creation of a functional diagram of the proposed organizational framework within which the MT system will operate, including the following sub-tasks.
    - The organizational framework depicted will be a complete, standalone organization with all the functional groupings necessary to operate and maintain a MT system. It will be based on known organizational structures from existing RUC entities, both government owned and operated and commercial companies, both domestically and internationally. The structure will specifically draw upon the previous work identifying such a structure in Task 9 (Lessons Learned from other VRUC Systems). In addition, it will be cross-referenced against other RUC structures that exist – for example, functional diagrams of state toll road organizations and public transit organizations whose mission is to collect, process and handle user accounts through transaction processing, manage customer relations and maintain standard technology components to handle the collection of transactions.
    - Comparative cost data from both government and commercial operations who handle transaction processing for the supply of services will be collected. Cost data and staffing data will be collected, where available, in order to provide ODOT with comparable costs and input into the cost model being developed under the ***Financial and Economic Analysis*** workstream. The

cost estimate for a commercial operation will be estimated and modeled.
    - In addition, a special report will be written to address the certification entity (CE). The roles and responsibilities of a CE will be detailed and provided for clarity and understanding of how the CE fits into the open system architecture. The report will also interview and cross-reference the CE role against other operational CE's that exist for other RUC programs around the world. Costs and organizational data will also be collected from these comparative organizations.
    - Several alternatives for how the functional organizational framework could be provided will be developed. This will include several possible implementation paths and identification of the differences between each alternative for consideration. Examples from global and national sources will be identified in support of each alternative option proposed in the report.
- *Task 2: Interviews and assessment of ODOT divisions.* This task will involve interviews and assessments of the ODOT divisions. It will be a two-part task, with each part performed in parallel:
    - *Part A:* Interview and analyze each alternative with the resources and capabilities of each department. The initial analysis will be a functional review to determine what resources to perform the Mileage Tax functions and access capabilities that are available in the each departmental area.
    - *Part B:* Build a functional organizational model comparative matrix to illustrate the "fit" with each department. The analysis of each department and alternative will be done using a Harvey Ball scale for each required function in a matrix format. The assessment will stem from subjective judgment but be based on the interviews and capabilities identified.
    - *Part C:* Review the results of the functional organizational model through a series of workshops with ODOT.
- *Task 3: Develop a pros and cons matrix for each alternative and narrow the alternatives to two or three alternatives for estimating cost impacts.* The assessment matrix generated and reviewed in task 2 above will be further reviewed. From the matrix, the most likely departmental fit will be assessed and the alternatives will be reduced to the top two to four alternatives. These will be addressed and further analyzed to determine the pros and cons of each alternative in order to rank each in respect to the functional organization. The ranking and order of the alternatives will be reported and presented to ODOT/OIPP for their review and concurrence.
- *Task 4: Cost analysis of alternative organizational frameworks*. This task includes an analysis of the top ranked alternatives for the organizational frameworks, and cost estimations will be generated to provide greater insight and consideration of the options to ODOT/OIPP. An organization

functional model will be built which has the ability to add variable staffing levels to determine the size of each functional alternative as well as the ability to cost each level of resource in accordance with the ODOT job-skill level ratings. The model will use the output from the other workstreams being conducted in parallel (namely, fleet estimates). The comparative analysis will address the pros and cons of each alternative (from task 3) in addition to a financial analysis of each alternative. ODOT/OIPP will select an organizational framework based on review and consideration of the report by ODOT senior management and RUFTF.

Phase 2

This decision taken for the organizational framework at the end of phase 1 will determine the tasks to be performed in phase 2 in this workstream.

If an internal department is to be tasked or developed around the MT system, then elements of that department should be assigned to the project team in phase 2 to help evaluate procedures and scenarios in the preliminary CONOPS and testing of those procedures in the legislative pilot and select tests.

Period 2:

Phase 3

During phase 3, the taxing authority will be hired, trained and ready to start their operational mission on or before 1 July 2015.

Management and supervisors will be recruited first and staff as late as possible, as long as sufficient time is left for training and familiarization with the system functions.

The OIPP will need to build an internal monitoring and assessment team to review and monitor performance of the taxing authority. The independent reviewer will be used to perform the evaluations and publish yearly reports on the performance of the MT operations. Any polling or surveys to support this work will also have to be reviewed and sample size and survey material reviewed prior to use.

Phase 4

During phase 4, the taxing authority will continually assess and refine itself to be more cost effective and efficient in its operations.

Due to increased numbers of vehicles in the program, transactional costs will drop and efficiencies in the operations will contribute to the drop in transaction costs.

Management will actively identify areas or needs to be addressed by changes in the legislation.

OIPP will need to continue monitoring the organization and its performance. The evaluation reports will be used to update and brief legislators and the communications plan will use the annual reports to inform other states and the federal government on the MT system.

It is expected that both national and international parties will visit to be briefed and see the system in operations. This will most like create a chain reaction with other states who will want to follow suit.

As part of the evaluation, polling or surveys to support will continue in phase 4 to monitor the public perception and attitudes to the MT system. This information will also be shared and used with legislators in expanding or modifying the system for greater public acceptance.

Phase 5

Due to increased numbers of vehicles in the program, transactional costs will drop and efficiencies in the operations will contribute to the drop in transaction costs during phase 5.

Management will actively identify areas or needs to be addressed by changes in the legislation in order to ensure greater efficiency and cost effectiveness.

The OIPP will monitor the organization and its performance.

Appendix 2-10: Operational

Period 1:

Phase 1

The key activity related to the Operational workstream in phase 1 will be the development of a preliminary CONOPS. The preliminary CONOPS will also be further reduced to include those operational processes that will be used in the legislative pilot and select testing.

The Operational focus will also be expressed in the parallel activities on the ***Organizational Framework,*** which will look at the ODOT decision on whether to proceed within ODOT or whether to contract out certain elements of the MT system.

Phase 2

The key activity related to the Operational workstream in phase 2 will be the evaluation of the preliminary CONOPS processes determination to be part of the legislative pilot and select testing. Both the in-vehicle and tax authority functions of transaction processing and RP account management will be evaluated along with support services for enforcement/compliance and DMV processes.

Period 2:

Phase 3

The key activity related to the Operational workstream in phase 3 will be refinement and finalization of the CONOPS. This will begin at the beginning of phase 3 and be finalized when the initial staff are hired for the Taxing Authority. The building and integrating of the system processes and the hiring of first key staff will follow the finalized CONOPS for the establishment and staffing of the rest of the operational staff.

Training and practicing operational scenarios will be performed in sufficient time to ensure a highly trained and motivated staff prior to the commencement day of operations.

Interface with DMV and enforcement staff will be stressed to ensure full cooperation and familiarization with each other.

Evaluation of the operations will be dry run and practiced so that the management and staff are fully aware of their critical success factors and performance metrics.

Finally, the CONOPS will be finalized and adopted with all the latest data, information and scenario modifications of phase 3.

The pre-operational phase will also be used to procure and outfit the enforcement staff or install the enforcement equipment. This equipment will need to be checked, tested and verified that it is operational. Key aspects of enforcement in this phase are:

- The selected enforcement regime will use the enforcement system that is installed and verified. Dry run enforcement exercises will be run and the enforcement staff trained and practiced prior to the commencement of operations.
- Compliance targets. Compliance targets will be used to measure the effectiveness of enforcement units. Data will be collected and reviewed during training and practice to ensure that all enforcement units understand the metric and compliance targets.
- Out-of-state users. Any determination to charge out-of state vehicles will need to be taken early in phase 3 to ensure the procedures and processes are incorporated into the operations. Otherwise, it will continue to be assessed as a potential future change to the system when actual experience is gained and quantification of the revenue and problem impact can be assessed. This aspect is also dependent on directives contained in MT-related legislation.

Phase 4

The key activity related to the Operational workstream in phase 4 will be the fine-tuning of the system, procedures and staff functions.

The operational metrics and evaluations will measure the taxing authority internally and externally. The aim will be greater cost efficiency and operational effectiveness.

Decrease in operating costs and transactional fees are both expected and part of the yearly metrics for the taxing authority.

Interface with DMV and enforcement staff will be fully exercised and the three organizations are expected to work well together. The procedures and processes designed for enforcement will be executed. Recommendations and changes will be made to increase compliance and decrease enforceable events.

Phase 5

The key activity related to the Operational workstream in phase 5 will be the fine-tuning of the system, procedures and the staff functions.

Procedures and processes designed previously, including procedures for enforcement and compliance, will be executed during phase 5. Recommendations and changes will be made to increase compliance and decrease enforceable events as technology changes.

As other neighboring states introduce MT systems, the out-of-state issue disappears and mutual agreements between states will share data and cross-collect MT taxes for each other.

It is also expected that the federal government through the number of states adopting MT systems, will enter the fray to attempt to standardize the approach across all states and territories.

Appendix 2-11: Communications

Period 1:

Phase 1

During phase 1, ODOT will identify several draft public messages about the MT system that could be tested formally (through structured focus groups) or informally (e.g., by surveying stakeholders, obtaining feedback from knowledgeable and unfamiliar legislative staff and elected officials). At a minimum, these messages should address the following concerns:

- Privacy;
- Policy objectives; and
- Confidence in the system.

With a clear understanding of how these messages will resonate, ODOT will be poised to make informed decisions regarding potential "tag lines" and core messages that can be delivered in all outreach efforts.

The identified messages regarding the MT are primarily intended to touch or impact key audiences. The phase 1 audience members can be broken into one of three types. Audiences include the following:

- Electric Vehicle and Plug-in Hybrid user associations;
- Automobile Manufacturers and their associations;
- Experts and academia;
- Oregon stakeholders; and
- National stakeholders.

The messages will be developed and presented to each audience in a way that the audience understands and will motivate it to support the project. To achieve these goals, it will be important to implement several communications tools at a consistent volume, particularly in conjunction with relevant and timely events. The recommended communications tools fall in to the following four categories:

- Refine key messages;
- Prepare media content;
- Develop and leverage media relationships; and
- Leverage current events.

Another task will be the development of an MT system brand. Identifying and utilizing both messaging and visual tools may accomplish this:

- A consistent tagline should be selected to convey ODOT's MT mission. As noted above, some further message testing should be conducted to optimize messages for the audiences and purposes described.
- Logos and fonts should be developed to ensure consistency and enhance recognition.

Collateral material highlighting basic facts, policy views and program objectives will be instrumental in increasing awareness with some audience members. Concepts of the following materials will be considered with ODOT and created for review and approval:

- MT program pamphlet for handout at stakeholder meetings.
- MT program white paper for handout at meetings with elected officials.
- Short MT program video for YouTube and use in presentations.
- MT program PowerPoint presentation for use in presentations.

An ODOT website, particularly with a separate page dedicated to the MT program, will be created to further utilize and achieve the project goals. The site can be expanded (or an alternate site formed) to showcase MT FAQs, success stories and milestones.

A streamlined process for drafting and issuing press releases will also be developed to ensure timely reactions to events.

Throughout phase 1, the communications team with ODOT will develop strategic relationships with the local press. Similarly, cultivating relationships with national reporters may help to generate interest in —and advance awareness of—the MT. Similarly, cultivating relationships with national reporters may help to generate interest in —and advance awareness of—VRUC.

As opportunities arise in the course of phase 1 timeframe, messages with strategic events will be linked to the MT program and specific audiences. For example:

- Federal surface transportation reauthorization.
- Federal surface transportation spending debates.
- Legislative events

Relevant local events and project milestones will also be leveraged to amplify MT messages as well as build relationships between ODOT and strategic stakeholders and members of the media.

The Communications workstream should incorporate information and policies from other workstreams in order to ensure that all information and messages communicated are accurate. For example, system cost estimates from the ***Financial*** workstream as well as policies developed under the ***Operational*** workstream should be reviewed and incorporated as appropriate into Communications materials.

Education and outreach will also play a major role in the overall compliance and enforcement strategy As such, proposed compliance and enforcement

approaches developed in phase 1 from the ***Operational*** workstream should feed into the Public Information Plan.

Lastly, social media tools, such as Facebook and Twitter, may also be utilized to grow the grassroots response capabilities. For example, social media tools can be used to provide a source of information for stakeholders and other interested parties. By creating a way to connect to stakeholders and provide them regular intelligence that is appropriate and relevant for them, and by casting a net for stories of MT system success, these sites provide a way to organize a broader, more potent MT system support base.

Phase 2

As with other previous workstreams, the level of effort required for the communications plan depends on the passage of enabling legislation. If legislation is passed in the short session, the basic communications plan will be largely put in place in phase 1 and exercised in phase 2. If, however, legislation is not passed until the 2013 session, many elements will have to be developed later in phase 2. In either case, a reassessment of the communications needs and the phase 1 program will be done at the start of phase 2 in order to refine it, fix any problems identified in phase 1, and determine an increase or decrease in the communication and outreach activities.

Secondly, the stakeholder and key stakeholder communications and messaging will be assessed for its effectiveness and message delivery. Modifications and reshaping of messages will be done by ODOT staff to fine tune and refresh the approach with each stakeholder group.

Collateral material highlighting basic facts, policy views and program objectives that have changed and the resulting information from the demonstrations and pilot testing will be instrumental in increasing awareness with some audience members. Concepts of the following materials will be reconsidered with ODOT and created for review and approval:

- MT program pamphlet for handout at stakeholder meetings.
- MT program white paper for handout at meetings with elected officials.
- Short MT program video for YouTube and use in presentations.
- MT program PowerPoint presentation for use in presentations.

The ODOT website will be refreshed and updated regularly with project information. The site can be expanded (or an alternate site formed) to showcase MT program FAQs, success stories and milestones.

As with phase 1 activities, the communications team will develop material and information on how enforcement will be performed in order to keep the public informed about requirements and potential compliance measures.

As opportunities arise in the course of the phase 2 timeframe, messages with strategic events will be linked to the MT program and specific audiences. For example:

- Federal surface transportation reauthorization;
- Federal surface transportation spending debates; and
- Legislative events.

Period 2:

Phase 3

In phase 3, the communications plan will step up efforts and build to the commencement date. Stakeholder information and dissemination will address new avenues such as TV and radio spots to inform the public and ensure that all EV and PHEV drivers are aware of their responsibilities prior to the commencement of operations on 1 July 2015.

Secondly, the stakeholder and key stakeholder communications and messaging will be used to disseminate messages and information about the user choice options and the policy.

Collateral material highlighting basic facts, policy views and program objectives will change to an operational message and information. This includes:

- MT program pamphlet for handout at DMV centers and car dealerships.
- Short MT program video for driver responsibilities on YouTube and use in presentations.
- MT program PowerPoint presentations outlining how the system will work, including enforcement.

Educational material and communications to stakeholders will increase as the commencement date draws nearer, including regular refreshment and updating of the ODOT website with project information as well as development of materials and information to be distributed to EV and PHEV drivers.

Phase 4

In phase 4, the communications will primarily maintain a steady stream of information about the system and manage any issues or problems that may arise. Mitigation of issues will be an operational issue executed by the internal communications staff supporting the organization.

Material for external stakeholders will primarily be the annual evaluation reports, overview pamphlets, and PowerPoint presentations that can be downloaded from the MT program web site.

The communications staff will manage national and international visits and visitors to see the system.

Phase 5

In phase 5, the communications will primarily maintain a steady stream of information about the system and manage any issues or problems that may arise. Mitigation of issues will be an operational issue executed by the internal communications staff supporting the organization.

Appendix 2-12: Risk Analysis

Period 1:

Phase 1

Before the end of Phase 1, a risk analysis workshop will be organized and led by ODOT with participation by the consulting team. Drawing on input from these and other workstreams, ODOT will log, describe, and analyze a running inventory of risks and threats to MT system development and implementation. Special emphasis will be put on the legislative pilot and select testing. Mitigation to these risks will be proposed in periodic workshops. Attention to risks will be part of every project meting and internalized.

Phase 2

Risks will be assessed and updated during Phase 2. No further risk analysis will be done during phase 2.

Period 2:

Phase 3

At the beginning of phase 3, a second risk analysis workshop will be organized and led by ODOT with participation by the consulting team. This risk analysis workshop will use the acquired knowledge accumulated during phase 2 to refine the risks and mitigation measures to the overall program. Special attention to the risk analysis will be made to:

- Assess risks involved in the current recommendations being made by RUFTF to the Oregon legislature regarding MT legislation (if applicable);
- Assess risks to transition the program to operations; and
- Assess the risk to the overall program and the operational aspects of the upcoming phase.

Phase 4

There are no risk analysis activities in phase 4 other than as part of any operational changes or expansions of the system. These will be conducted on an as needed basis by the taxing authority and reviewed by ODOT.

Phase 5

There are no risk analysis activities in phase 5 other than as part of any operational changes or expansions of the system. These will be conducted on an as needed basis by the taxing authority and reviewed by ODOT.

Appendix 3: Matrix of Evolution of H.B. 2328, 2011, with Cross Reference to Workstreams

H.B. 2328, 2011 Version / Parameters	Introduced Version	Version A	Version B	Corresponding Workstream (Link to SPP) and CONOPS
Definitions	Electric motor vehicle, highway, lessee, plug-in hybrid electric motor vehicle, and registered owner	unchanged	unchanged	Legislative, Communications, Economic Analysis, Operational
VRUC (Mileage Tax)	EV and PHEV owners or lessees	Non-EV and Non-PHEV users can opt-in, up to 5k participants	EV and PHEV owners or lessees (non-EV participants no longer allowed)	Legislative, Communications
	0.6 cents per mile	1.43 cents per mile	0.85 cents per mile until July 1, 2018, at which time rate increases to 1.56	Legislative, Economic Analysis
	-----	-----	Option for $300/year fee in lieu of mileage tax (this option expires on July 1, 2018)	Legislative, Economic Analysis, Operational
	Miles driven by vehicle dealers are exempted	unchanged	unchanged	Legislative
Methods of reporting VMT	DOT shall establish methods for identifying and charging	Added definition of "open systems"	unchanged from A	Technology, Organizational Framework, Certification, Procurement
	Criteria for ODOT to consider: accuracy, privacy, adaptability, installation, safety, tamper-resistance	unchanged	Added ease & cost of compliance for responsible persons and cost efficiency of administration for the state	Technology, Legislative
	At least one undifferentiated charging option required	unchanged	unchanged	Legislative, Risk Analysis
	May require electronic odometer readings to be reported by the users	unchanged	unchanged	Technology, Operational
	ODOT to establish standards for vehicle location technology for detecting in vs. out-of-state	removed and replaced with language that requires establishment of open standards for identifying and reporting miles	unchanged from A	Technology, Organizational Framework, Certification, Operational
Collection by ODOT	ODOT shall collect MT	unchanged	unchanged	Legislative, Communications, Operational
Private property refund	Miles driven on private property can be refunded (within 15 months)	unchanged	unchanged	Technology, Organizational Framework, Certification, Operational
Investigation of refunds	ODOT can audit refund requesters to prevent fraud	unchanged	unchanged	Risk Analysis, Economic Analysis, Operational
Allocation	50% state, 30% counties, 20% cities	unchanged	unchanged	Legislative, Economic Analysis

H.B. 2328, 2011 Version / Parameters	Introduced Version	Version A	Version B	Corresponding Workstream (Link to SPP) and CONOPS
Reporting	Responsible persons must equip and report	unchanged	unchanged	Legislative, Communications, Economic Analysis, Operational
	Assume all miles are Oregon unless otherwise stated by owner	unchanged	unchanged	Legislative, Communications, Economic Analysis, Operational
	Pay by 5th of each month unless otherwise arranged	unchanged	ODOT will develop reporting/billing cycle period options for responsible persons based on effort to user, MT amount owed, cost to users of reporting and paying, and cost to department of collecting	Legislative, Communications, Economic Analysis, Operational
	Refunds as credits to future charges	unchanged	unchanged	Legislative, Communications, Economic Analysis, Operational
Penalty for delinquent payment	10% of charge due (can be waived if found to be reasonable cause and without intent to avoid)	$25 for first delinquent payment, $50 for any delinquent payment thereafter (waivers still allowed)	removed, to be revisited	Legislative, Communications, Economic Analysis, Operational
	0.0329% daily interest	unchanged	removed, to be revisited	Legislative, Communications, Economic Analysis, Operational
	Overpayments credited with 0.0329% daily interest	unchanged	removed, to be revisited	Legislative, Communications, Economic Analysis, Operational
Charge as lien	MT charges are equivalent to a lien	removed	removed, to be revisited	Legislative, Communications, Economic Analysis, Operational
Collection by seizure and sale of motor vehicle	ODOT can seize and sell vehicles that are delinquent in paying MT, with various reporting/notification requirements	removed	removed, to be revisited	Legislative, Communications, Economic Analysis, Operational
Collection of delinquent obligation; warrant	Warrants can be issued against delinquent account holders (individuals) and sell real and personal property	unchanged	removed, to be revisited	Legislative, Communications, Economic Analysis, Operational
Collection agency	ODOT can use a collection agency for delinquent charges	unchanged	removed, to be revisited	Legislative, Communications, Economic Analysis, Operational
Uncollectable obligation	After 2 years, uncollected payments are assigned to the Secretary of State	unchanged	removed, to be revisited	Legislative, Communications, Economic Analysis, Operational
Audit	ODOT can audit user reports of mileage	unchanged	removed, to be revisited	Legislative, Communications, Economic Analysis, Operational
Failure to report	If a user fails to report, ODOT can estimate and assess a charge based on available information	unchanged	removed, to be revisited	Legislative, Communications, Economic Analysis, Operational

H.B. 2328, 2011 Version / Parameters	Introduced Version	Version A	Version B	Corresponding Workstream (Link to SPP) and CONOPS
Reassessment	Users can appeal charges and seek a reassessment within 30 days	unchanged	removed, to be revisited	Legislative, Communications, Economic Analysis, Operational
Appeal to circuit court	Users can appeal reassessment findings to circuit court within 60 days	unchanged	removed, to be revisited	Legislative, Communications, Economic Analysis, Operational
Time limit on assessments	3 years	unchanged	removed, to be revisited	Legislative, Operational
Privacy	Investigations of users are to be private	unchanged	removed, to be revisited	Legislative, Communications, Economic Analysis, Operational
Prohibitions	User misrepresentation, fraud, or deliberate attempts to mislead with respect to any section of the bill are not allowed	unchanged	The prohibition applies to much less activity since the penalty provisions have been removed. Any prohibition violated constitutes a Class A traffic violation	Legislative, Communications, Economic Analysis, Operational
Privacy	-----	-----	All personally identifiable data collected under the program must be kept private (except to ODOT staff, the users themselves, banks, contractors, and others involved in the MT). Aggregate data can be used for research/planning purposes but no personally identifiable information is allowed to be kept	Legislative, Communications, Technology, Operational
Penalties	Violations of provisions = class A traffic violation	unchanged	Mileage reporting fraud, fraudulent refund request procedures, and tampering with the device are class A violations	Legislative, Communications, Economic Analysis, Operational
Tampering penalty	Knowing operation of a vehicle with a non–operational metering device and/or tampering with the device to reduce the number of miles reported is a class A traffic violation	unchanged	unchanged	Legislative, Communications, Economic Analysis, Risk Analysis, Operational
Proof of MT payment prior to registration	ODOT can refuse to renew vehicle registration for unpaid persons, unless they were not the ones who accrued the charges	removed	unchanged from A	Legislative, Communications, Operational
Suspension of driving privileges	-----	ODOT can suspend driving privileges of anyone who refuses to pay	removed, to be revisited	Legislative, Communications, Economic Analysis, DMV, Operational

H.B. 2328, 2011 Version / Parameters	Introduced Version	Version A	Version B	Corresponding Workstream (Link to SPP) and CONOPS
Amendments to 319.280 (gas tax refunds)	PHEV users are entitled to a gas tax refund, applied as a credit to the MT	PHEV users get a gas tax refund, applied as a credit or estimated based on vehicle class	unchanged	Legislative, Communications, Economic Analysis, DMV, Operational
Amendments to 319.550 (licensing requirements for visitors)	-----	OR users' licenses not required for visitors (<30 days) who use fuel for PHEVs	unchanged	Legislative, Communications, Economic Analysis, DMV, Operational
Emblem	-----	ODOT can provide an emblem for participating "use fuel" vehicles (intended for Diesel PHEVs)	unchanged	Communications, Operational
Amendments to 319.665 (fuel tax collection)	-----	Fuel sellers not required to collect fuel taxes on vehicles participating in the MT (intended to apply to Diesel PHEVs)	unchanged	Communications
Amendments to 319.831 (fuel tax refunds)	PHEV users can apply for a gas tax refund, applied as a credit to the MT	unchanged	unchanged	Evaluation, Communications, Economic Analysis, Operational
Amendments to 367.802 ("transportation project" definition)	Expanded to include collection of MT	Slight language change, from "VRUC established in section 2" to "VRUC imposed under section 2"	unchanged	Evaluation
Amendments to 807.250 (hardship permit eligibility)	-----	ODOT may not issue hardship permits to anyone whose driving privileges have been suspended under this act	removed, to be revisited	Legislative, Operational
Rules	ODOT shall adopt rules to implement this law	unchanged	unchanged	Legislative, Communications, Economic Analysis, DMV
Operative date	January 1, 2014	unchanged	changed to July 1, 2015	Legislative, Technology, Procurement, Communications, Operational
Model year	This law first applies to 2014 model year cars	unchanged	changed to 2016 model year cars and specified that it applies only to EVs and PHEVs; after July 1, 2018, all model year EVs and PHEVs are included	Legislative, Technology, Procurement, Communications, Operational

H.B. 2328, 2011 Version / Parameters	Introduced Version	Version A	Version B	Corresponding Workstream (Link to SPP) and CONOPS
Report	-----	ODOT shall report on likelihood of implementation by operative date before October 1, 2012	Added a second interim report date of October 1, 2014	Legislative, Technology, Procurement, Communications, Operational
Amendments to 184.843 (RUFTF)	-----	-----	Directs RUFTF to: • examine MT implementation progress, • examine impact of MT on EV and PHEV market penetration, • examine potential to apply MT to hybrids and other emerging technology vehicles; and • make recommendations to the legislature on options for voluntary participation in MT instead of fuel tax, adding out-of-state users to MT program, improve MT compliance	Legislative, Technology, Procurement, Communications, Operational

Appendix 4: Text of H.B. 2138

Enrolled
House Bill 2138

Introduced and printed pursuant to House Rule 12.00. Presession filed (at the request of Governor John A. Kitzhaber for Department of Transportation)

CHAPTER .....

AN ACT

Relating to transportation; creating new provisions; and amending ORS 184.843, 367.802, 801.208, 807.031, 807.100, 809.407, 809.413 and 809.415.

Be It Enacted by the People of the State of Oregon:

SECTION 1. ORS 801.208 is amended to read:

801.208. (1) "Commercial motor vehicle" means a motor vehicle or combination of motor vehicles **and vehicles** that:

(a) Has a gross combination weight rating [*or actual gross combination weight*] of 26,001 pounds or more, [*whichever is greater,*] inclusive of a towed unit or a combination of towed units, with a gross vehicle weight rating [*or actual gross vehicle weight*] of more than 10,000 pounds[, *whichever is greater*];

(b) Has a gross vehicle weight rating [*or actual gross combination weight*] of 26,001 pounds or more[, *whichever is greater*];

(c) Is designed to transport 16 or more persons, including the driver; or

(d) Is of any size and is used in the transportation of hazardous materials.

(2) Notwithstanding subsection (1) of this section, the term "commercial motor vehicle" does not include the following:

(a) An emergency fire vehicle being operated by firefighters as defined in ORS 652.050;

(b) Emergency vehicles being operated by qualified emergency service volunteers as defined in ORS 401.358;

(c) A motor home used to transport or house, for nonbusiness purposes, the operator or the operator's family members or personal possessions; or

(d) A recreational vehicle that is operated solely for personal use.

SECTION 2. ORS 807.100 is amended to read:

807.100. **(1)** A vehicle that may be operated only by the holder of a commercial driver license **or permit** may be operated only when **proof of medical qualification, in a form** [*a medical certificate*] approved by the Department of Transportation, is in the [*licensee's*] **person's** immediate possession [*and has been issued within two years prior to the date of operation of the vehicle*]. The holder of a commercial driver license **or permit** who does not have **proof of medical qualification as** [*a medical certificate*] required by this section may exercise driving privileges granted by a Class C license.

(2) The department may not issue or renew a commercial driver license or permit and may cancel a commercial driver license or permit if the person does not submit to the de-

partment, in a form approved by rule, proof of medical qualification to operate a commercial motor vehicle by such a date as required by rule by the department.

(3) A person is entitled to administrative review under ORS 809.440 when the department does not issue or renew a commercial driver license or permit under this section or cancels a commercial driver license or permit under this section.

(4) To the extent possible, rules adopted by the department under this section should be uniform with any applicable federal regulations related to commercial driver license medical qualifications.

SECTION 3. ORS 809.407 is amended to read:

809.407. (1) The driver of a commercial motor vehicle is subject to suspension of the driver's commercial driver license upon conviction of any of the following **offenses**:

(a) Failure to stop for a railroad signal in violation of ORS 811.455.

(b) Failure to follow rail crossing procedures for high-risk vehicles in violation of ORS 811.460.

(c) Obstructing a rail crossing in violation of ORS 811.475.

(d) Failure of the operator of a commercial motor vehicle to slow down and check that tracks are clear of an approaching train in violation of ORS 811.462.

(2) Upon receipt of a record of conviction for an offense described in subsection (1) of this section, the Department of Transportation shall suspend the convicted person's commercial driver license for the following periods of time:

[*(a) Sixty days, upon receipt of a first record of conviction.*]

[*(b) One hundred and twenty days, if commission of a second offense and the conviction for a separate offense occur within a three-year period.*]

[*(c) One year, if commission of a third or subsequent offense and two or more convictions for separate offenses occur within a three-year period.*]

(a) Sixty days if:

(A) The conviction is the person's first conviction of an offense described in subsection (1) of this section; or

(B) The date the person committed an offense described in subsection (1) of this section is not within three years of the date the person committed another offense, as described in subsection (1) of this section and for which there was a conviction.

(b) One hundred and twenty days if:

(A) The conviction is the person's second conviction of an offense described in subsection (1) of this section;

(B) The date the person committed the second offense is within three years of the date the person committed another offense, as described in subsection (1) of this section and for which there was a conviction; and

(C) The convictions arose out of separate incidents.

(c) One year if:

(A) The conviction is the person's third or subsequent conviction for an offense described in subsection (1) of this section;

(B) The date the person committed the latest offense is within three years of the dates the person committed two or more other offenses, as described in subsection (1) of this section and for which there were convictions; and

(C) The convictions arose out of separate incidents.

(3) A person is entitled to administrative review under ORS 809.440 of a suspension under this section.

SECTION 4. ORS 809.413 is amended to read:

809.413. The Department of Transportation shall suspend the commercial driver license of a person when the department receives a record of conviction, notification or notice described in this section. A person is entitled to administrative review under ORS 809.440 of a suspension under this section. The department shall suspend the commercial driver license when the department receives:

(1) A record of conviction under ORS 811.700 or 811.705 of failure to perform the duties of a driver while operating a motor vehicle or a commercial motor vehicle. A conviction described under this subsection shall result in:

(a) A suspension for a period of one year if:

(A) The person has not previously been convicted of an offense described in ORS 809.404 or had a commercial driver license suspended as described in ORS 809.404; and

(B) The person was not driving a commercial motor vehicle containing a hazardous material at the time of the offense.

(b) A suspension for a period of three years if:

(A) The person has not previously been convicted of an offense described in ORS 809.404 or had a commercial driver license suspended as described in ORS 809.404; and

(B) The person was driving a commercial motor vehicle containing a hazardous material at the time of the offense.

(c) Suspension of the commercial driver license for the lifetime of the person if the person has previously been convicted of an offense described in ORS 809.404 or had a commercial driver license suspended as described in ORS 809.404.

(2) A record of conviction of a crime punishable as a felony involving the operation of a motor vehicle or a commercial motor vehicle, other than the felony described in subsection (3) of this section. A conviction described under this subsection shall result in:

(a) A suspension for a period of one year if:

(A) The person has not previously been convicted of an offense described in ORS 809.404 or had a commercial driver license suspended as described in ORS 809.404; and

(B) The person was not driving a commercial motor vehicle containing a hazardous material at the time of the offense.

(b) A suspension for a period of three years if:

(A) The person has not previously been convicted of an offense described in ORS 809.404 or had a commercial driver license suspended as described in ORS 809.404; and

(B) The person was driving a commercial motor vehicle containing a hazardous material at the time of the offense.

(c) Suspension of the commercial driver license for the lifetime of the person if the person has previously been convicted of an offense described in ORS 809.404 or had a commercial driver license suspended as described in ORS 809.404.

(3) A record of conviction of a crime punishable as a felony that involves the manufacturing, distributing or dispensing of a controlled substance, as defined in ORS 475.005, and in which a motor vehicle or commercial motor vehicle was used. A conviction described under this subsection shall result in a lifetime suspension of the person's commercial driving license.

(4) A record of conviction for driving a commercial motor vehicle while, as a result of prior violations committed while operating a commercial motor vehicle, the commercial driver license of the driver had been suspended or revoked. A conviction described under this subsection shall result in:

(a) A suspension for a period of one year if:

(A) The person has not previously been convicted of an offense described in ORS 809.404 or had a commercial driver license suspended as described in ORS 809.404; and

(B) The person was not driving a commercial motor vehicle containing a hazardous material at the time of the offense.

(b) A suspension for a period of three years if:

(A) The person has not previously been convicted of an offense described in ORS 809.404 or had a commercial driver license suspended as described in ORS 809.404; and

(B) The person was driving a commercial motor vehicle containing a hazardous material at the time of the offense.

(c) Suspension of the commercial driver license for the lifetime of the person if the person has previously been convicted of an offense described in ORS 809.404 or had a commercial driver license suspended as described in ORS 809.404.

(5) A record of conviction of any degree of murder, manslaughter or criminally negligent homicide resulting from the operation of a commercial motor vehicle or assault in the first degree resulting from the operation of a commercial motor vehicle or aggravated vehicular homicide or aggravated driving while suspended or revoked. A conviction described under this section shall result in:

(a) A suspension for a period of one year if:

(A) The person has not previously been convicted of an offense described in ORS 809.404 or had a commercial driver license suspended as described in ORS 809.404; and

(B) The person was not driving a commercial motor vehicle containing a hazardous material at the time of the offense.

(b) A suspension for a period of three years if:

(A) The person has not previously been convicted of an offense described in ORS 809.404 or had a commercial driver license suspended as described in ORS 809.404; and

(B) The person was driving a commercial motor vehicle containing a hazardous material at the time of the offense.

(c) Suspension of the commercial driver license for the lifetime of the person if the person has previously been convicted of an offense described in ORS 809.404 or had a commercial driver license suspended as described in ORS 809.404.

(6) A record of conviction of a serious traffic violation if the [*conviction*] **date the person committed the violation** occurred within three years of **the date the person committed another** [*a previous conviction for a*] serious traffic violation **for which there is a record of conviction** and if the [*convictions*] **violations** arose out of separate incidents. A suspension under this subsection shall be:

(a) For a period of 60 days if the conviction is the person's second conviction for a serious traffic violation **and the person committed both serious traffic violations** within [*the*] **a** three-year period.

(b) For a period of 120 days if the conviction is the person's third or subsequent conviction for a serious traffic violation **and the person committed three or more serious traffic violations** within [*the*] a three-year period. A suspension imposed under this paragraph shall be consecutive to any other suspension imposed for a serious traffic violation.

(7) Notification that a person violated an out-of-service order issued under ORS 813.050 or has violated any other out-of-service order or notice. Notification under this subsection may include, but not be limited to, a record of conviction and a record of a determination by a state or federal agency with jurisdiction to make a determination that the person has violated an out-of-service order or notice. A suspension under this subsection shall be:

(a) Except as provided in paragraph (b) of this subsection, for a period of 180 days if the notification relates to the person's first violation of an out-of-service order or notice.

(b) For a period of one year if the notification relates to the person's first violation of an out-of-service order or notice and the person committed the violation while transporting hazardous materials required to be placarded or while operating a motor vehicle designed to transport 16 or more persons, including the driver.

(c) Except as provided in paragraph (d) of this subsection, for a period of three years if the notification relates to a second or subsequent violation of an out-of-service notice or order that occurred within a 10-year period.

(d) For a period of five years if the notification relates to a second or subsequent violation of an out-of-service notice or order that occurred within a 10-year period and the person committed the violation while transporting hazardous materials required to be placarded or was operating a motor vehicle designed to transport 16 or more persons, including the driver, regardless of the load or kind of vehicle involved in the prior violation.

(8) Notification from the Federal Motor Carrier Safety Administration that a person in this state who holds a commercial driver license in this state has been disqualified from operating a commercial motor vehicle and that the disqualification is due to a determination that the driving of that person constitutes an imminent hazard. A suspension under this subsection shall be made immediately and for the period prescribed by the Federal Motor Carrier Safety Administration, except that:

(a) Notwithstanding any disqualification hearings conducted by the Federal Motor Carrier Safety Administration, a suspension under this subsection is subject to a post-imposition hearing under ORS 809.440.

(b) Notwithstanding the period of suspension prescribed by the Federal Motor Carrier Safety Administration, a suspension under this subsection may not exceed one year.

(9) Notification from another jurisdiction that the person failed to appear on a citation for a traffic offense or for a violation in the other jurisdiction that, if committed in this state, would be grounds for suspension under ORS 809.220, and the person held a commercial driver license or was operating a commercial motor vehicle at the time of the offense. A suspension under this subsection:

(a) Shall end upon the earliest of 10 years from the date of suspension or upon notification by the other jurisdiction that the person appeared.

(b) Shall be placed on the person's driving record regardless of whether another jurisdiction places the suspension on the person's driving record.

(c) May not be for a person's failure to appear on a parking, pedestrian or bicyclist offense.

(10) Notification from another jurisdiction that the person failed to pay a fine or obey an order of the court on a citation for a traffic offense or for a violation in the other jurisdiction that, if committed in this state, would be grounds for suspension under ORS 809.415 (4), and the person held a commercial driver license or was operating a commercial motor vehicle at the time of the offense. A suspension under this subsection:

(a) Shall end upon the earliest of 10 years from the date of suspension or upon notification by the other jurisdiction that the person paid the fine or obeyed the order of the court.

(b) Shall be placed on the person's driving record regardless of whether another jurisdiction places the suspension on the person's driving record.

(c) May not be for a person's failure to pay a fine or obey an order of the court on a parking, pedestrian or bicyclist offense.

(11) Notice of a conviction in another jurisdiction of an offense that, if committed in this state, would be grounds for the suspension of the person's commercial driver license. The period of suspension under this subsection shall be the same as would be imposed on the person if the conviction were for an offense committed in this state. As used in this subsection, "conviction" means an unvacated adjudication of guilt, a determination that a person has violated or failed to comply with the law in a court of original jurisdiction or authorized administrative tribunal, an unvacated forfeiture of bail or collateral deposited to secure the person's appearance in court, a plea of guilty or nolo contendere accepted by the court, the payment of a fine or court cost or the violation of a condition of release without bail, regardless of whether or not the penalty is rebated, suspended or probated.

(12) Notification from another jurisdiction that a person who is a resident of this state and who holds a commercial driver license has had commercial driving privileges suspended or revoked in another jurisdiction for reasons that would be grounds for suspension of the person's commercial driver license in this state. The period of suspension under this subsection shall be the same as would be imposed on the person if the violation were committed in this state.

SECTION 5. ORS 809.415 is amended to read:

809.415. (1)(a) The Department of Transportation shall suspend the driving privileges of a person who has a judgment of the type described under ORS 806.040 rendered against the person if the person does not settle the judgment in the manner described under ORS 809.470 within 60 days after its entry.

(b) A suspension under this subsection shall continue until the person does one of the following:

(A) Settles the judgment in the manner described in ORS 809.470.

(B) Has an insurer that has been found by the department to be obligated to pay the judgment, provided that there has been no final adjudication by a court that the insurer has no such obligation.

(C) Gives evidence to the department that a period of seven years has elapsed since the entry of the judgment.

(D) Receives from the court that rendered the judgment an order permitting the payment of the judgment in installments.

(c) A person is entitled to administrative review under ORS 809.440 of a suspension under this subsection.

(2)(a) The department shall suspend the driving privileges of a person who falsely certifies the existence of a motor vehicle liability insurance policy or the existence of some other means of satisfying financial responsibility requirements or of a person who, after certifying the existence of a motor vehicle liability insurance policy or other means of satisfying the requirements, allows the policy to lapse or be canceled or otherwise fails to remain in compliance with financial responsibility requirements.

(b) Notwithstanding paragraph (a) of this subsection, the department may suspend under this subsection only if proof of compliance with financial responsibility requirements as of the date of the letter of verification from the department under ORS 806.150 is not submitted within 30 days after the date of the mailing of the department's demand under ORS 806.160.

(c) A suspension under this subsection shall continue until the person complies with future responsibility filings.

(3)(a) The department shall suspend the driving privileges of a person who fails to comply with future responsibility filings whenever required under the vehicle code or fails to provide new proof for future responsibility filings when requested by the department.

(b) A suspension under this subsection shall continue until the person complies with future responsibility filings.

(c) A person whose initial obligation to make future responsibility filings is not based upon a conviction or other action by a court is entitled to a hearing under ORS 809.440 prior to a suspension under this subsection. A person whose obligation to make future responsibility filings is based upon a conviction or other action by a court is entitled to administrative review under ORS 809.440 of a suspension under this subsection. A person whose suspension under this subsection is based on lapses in filing after the initial filing has been made is entitled to administrative review under ORS 809.440.

(4)(a) The department shall suspend driving privileges when provided under ORS 809.416. The suspension shall continue until the earlier of the following:

(A) The person establishes to the satisfaction of the department that the person has performed all acts necessary under ORS 809.416 to make the person not subject to suspension.

(B) Ten years from the date the suspension is imposed if the suspension is imposed for a reason described in ORS 809.416 (1) or (2) or five years from the date the suspension is imposed if the suspension is imposed for the reason described in ORS 809.416 (3).

(b) A person is entitled to administrative review under ORS 809.440 of a suspension under this subsection.

(5) Upon determination by the department that a person has committed an act that constitutes an offense described in ORS 809.310, the department may suspend any driving privileges or any identification card of the person determined to have committed the act. A suspension under this subsection shall continue for a period of one year.

(6) Upon determination by the department that a person has submitted false information to the department for the purpose of establishing or maintaining qualification to operate a commercial motor vehicle or hold a commercial driver license, the department may suspend the commercial driver license or the person's right to apply for a commercial driver license. A suspension under this subsection shall continue for a period of one year.

SECTION 6. ORS 807.031 is amended to read:

807.031. This section describes the type of driving privileges granted by the various licenses issued by this state. Licenses are established by class with the highest class being Class A commercial. Each class of license grants driving privileges for that class and for all lower classes. A license does not grant driving privileges for which an endorsement is required. The following licenses grant the driving privileges described:

(1) A Class A commercial driver license authorizes a person to operate any vehicle or combination of vehicles except that the person may not operate any vehicle for which an endorsement is required unless the person obtains the endorsement.

(2) A Class B commercial driver license authorizes a person to operate any single vehicle and to tow a vehicle that is not in excess of 10,000 pounds gross vehicle weight rating [*or actual gross weight*]. The person may not operate any vehicle for which an endorsement is required unless the person obtains the endorsement.

(3) A Class C commercial driver license authorizes a person to operate:

(a) Any vehicle that is designed to transport 16 or more persons, including the driver, if the gross vehicle weight rating [*or actual gross weight*] of the vehicle is less than 26,001 pounds and the person has the proper endorsement to operate a vehicle described in this paragraph;

(b) Any vehicle that is used in the transportation of hazardous materials if the gross vehicle weight rating [*or actual gross weight*] of the vehicle is less than 26,001 pounds and the person has the proper endorsement; and

(c) Any vehicle that may be operated by the holder of a Class C license.

(4) A Class C driver license authorizes a person to operate any vehicle for which a commercial driver license is not required except that the person may not operate any vehicle for which an endorsement is required unless the person obtains the endorsement.

(5) A restricted Class C license authorizes a person to operate a moped or to operate under one of the permits described in ORS 807.200 as constituting a restricted Class C license. The person may not operate any vehicle for which an endorsement is required or be granted any endorsements for the license.

SECTION 7. ORS 184.843 is amended to read:

184.843. (1) There is created the Road User Fee Task Force.

(2) The purpose of the task force is to develop a design for revenue collection for Oregon's roads and highways that will replace the current system for revenue collection. The task force shall consider all potential revenue sources.

(3) The task force shall consist of 12 members, as follows:

(a) Two members shall be members of the House of Representatives, appointed by the Speaker of the House of Representatives.

(b) Two members shall be members of the Senate, appointed by the President of the Senate.

(c) Four members shall be appointed by the Governor, the Speaker and the President acting jointly. In making appointments under this paragraph, the appointing authorities shall consider individuals who are representative of the telecommunications industry, of highway user groups, of the Oregon transportation research community and of national research and policy-making bodies such as the Transportation Research Board and the American Association of State Highway and Transportation Officials.

(d) One member shall be an elected city official, appointed by the Governor, the Speaker and the President acting jointly.

(e) One member shall be an elected county official, appointed by the Governor, the Speaker and the President acting jointly.

(f) Two members shall be members of the Oregon Transportation Commission, appointed by the chairperson of the commission.

(4)(a) The term of a legislator appointed to the task force is four years except that the legislator ceases to be a member of the task force when the legislator ceases to be a legislator. A legislator may be reappointed to the task force.

(b) The term of a member of the task force appointed under subsection (3)(c) of this section is four years and the member may be reappointed.

(c) The term of a member of the task force appointed under subsection (3)(d) or (e) of this section is four years except that the member ceases to be a member of the task force when the member ceases to be a city or county elected official. A city or county elected official may be reappointed to the task force.

(d) The term of a member of the Oregon Transportation Commission appointed to the task force is four years except that the member ceases to be a member of the task force when the member ceases to be a member of the commission. A member of the commission may be reappointed to the task force.

(5) A legislator appointed to the task force is entitled to per diem and other expense payments as authorized by ORS 171.072 from funds appropriated to the Legislative Assembly. Other members of the task force are entitled to compensation and expenses as provided in ORS 292.495.

(6) The Department of Transportation shall provide staff to the task force.

(7) The task force shall study alternatives to the current system of taxing highway use through motor vehicle fuel taxes. The task force shall gather public comment on alternative approaches and shall make recommendations to the Department of Transportation and the Oregon Transportation Commission on the design of pilot programs to be used to test alternative approaches. The task force may also make recommendations to the department and the commission on criteria to be used to evaluate pilot programs. The task force may evaluate any pilot program implemented by the department and report the results of the evaluation to the Legislative Assembly, the department and the commission.

(8) When the task force is studying alternatives to the current system of taxing highway use through motor vehicle fuel taxes and developing recommendations on the design of pilot programs to test alternative approaches under subsection (7) of this section, the task force shall:

(a) Take into consideration the availability, adaptability, reliability and security of methods that might be used in recording and reporting highway use.

(b) Take into consideration the protection of any personally identifiable information used in reporting highway use.

(c) Take into consideration the ease and cost of recording and reporting highway use.

(d) Take into consideration the ease and cost of administering the collection of taxes and fees as an alternative to the current system of taxing highway use through motor vehicle fuel taxes.

(e) Take into consideration effective methods of maintaining compliance.

(f) Consult with highway users and transportation stakeholders, including representatives of vehicle users, vehicle manufacturers and fuel distributors.

[*(8) In addition to the requirements of subsection (9) of this section, the task force shall propose to the Seventy-second Legislative Assembly options for the design of a revenue collection system for Oregon's roads and highways that would replace the current system for revenue collection.*]

(9) The task force shall report to each **odd-numbered year** regular session of the Legislative Assembly on the work of the task force, the department and the commission in designing, implementing and evaluating pilot programs.

(10) Official action by the task force requires the approval of a majority of the members of the task force.

(11) Notwithstanding ORS 171.130 and 171.133, the task force by official action may recommend legislation. Legislation recommended by the task force must indicate that it is introduced at the request of the task force. Legislative measures proposed by the task force shall be prepared in time for presession filing with the Legislative Counsel by December 15 of the year preceding a regular session of the Legislative Assembly.

SECTION 8. ORS 367.802 is amended to read:

367.802. As used in ORS 367.800 to 367.824:

(1) "Agreement" means a written agreement, including but not limited to a contract, for a transportation project that is entered into under ORS 367.806.

(2) "Private entity" means any entity that is not a unit of government, including but not limited to a corporation, partnership, company, nonprofit organization or other legal entity or a natural person.

(3) "Transportation project" or "project" means any proposed or existing undertaking that facilitates any mode of transportation in this state **or that facilitates the collection of taxes and fees as an alternative to the motor vehicle fuel taxes imposed under ORS 319.020 and 319.530**.

(4) "Unit of government" means any department or agency of the federal government, any state or any agency, office or department of a state, any city, county, district, commission, authority, entity, port or other public corporation organized and existing under statutory law or under a voter-approved charter and any intergovernmental entity created under ORS 190.003 to 190.130, 190.410 to 190.440 or 190.480 to 190.490.

SECTION 9. (1) The amendments to ORS 807.100 by section 2 of this 2011 Act apply to commercial driver licenses and permits issued or renewed on or after January 30, 2012.

(2) The amendments to ORS 809.407 and 809.413 by sections 3 and 4 of this 2011 Act apply to offenses that occur on or after the effective date of this 2011 Act.

Passed by House March 1, 2011

Repassed by House June 10, 2011

.....
Ramona Kenady Line, Chief Clerk of House

.....
Bruce Hanna, Speaker of House

.....
Arnie Roblan, Speaker of House

Passed by Senate June 8, 2011

.....
Peter Courtney, President of Senate

Received by Governor:

.....M.,....., 2011

Approved:

.....M.,....., 2011

.....
John Kitzhaber, Governor

Filed in Office of Secretary of State:

.....M.,....., 2011

.....
Kate Brown, Secretary of State

Appendix 5: Graphics

The following table cross references the graphics used in this report to the larger, fold out pages that follow.

The information below provides the cross references to the specific graphics and pages in the report to the several graphics that follow.

Graphic 1: Multi-Dimensions of the Strategic Plan

- Figure 1: The multi-dimensions of the Strategic Project Plan that shape the concepts to achieve a "tipping point" are shown Page 7

Graphic 2: SPP Overview

- Figure 2: Overview of the information flow across the entire time frame of the project Page 8

Graphic 3: PRINCE METHODOLOGY – Period 1 Activities

- Figure 3: Period one activities leading to an assumed mileage tax bill in the 2013 legislative session Page 9
- Figure 8: Period one task relationships Page 31
- Figure 12: Period one task relationships Page 53

Graphic 4: Summary GANTT Chart of Period 1 Activities

- Figure 4: Summary Gantt chart for period one activities across each respective workstream Page 10

Graphic 5: Summary GANTT Chart of Period 2 Activities

- Figure 5: Period two bar chart indicating the work flow after a legislative decision to proceed with the mileage tax Page 14

Graphic 6: PRINCE METHODOLOGY – Period 2 Activities

- Figure 6: Period two is focused on the pre-operational activities which lead to a start of mileage tax collection in July of 2015 and a transition to full operations in July of 2018 Page 15
- Figure 9: Period two task relationships Page 37
- Figure 15: Period two is focused on the pre-operational activities which lead to a start of mileage tax collection in July of 2015 and a transition to full operations in July of 2018 Page 77

Graphic 7: Detail Bar Chart of Period 1 Activities by Workstream

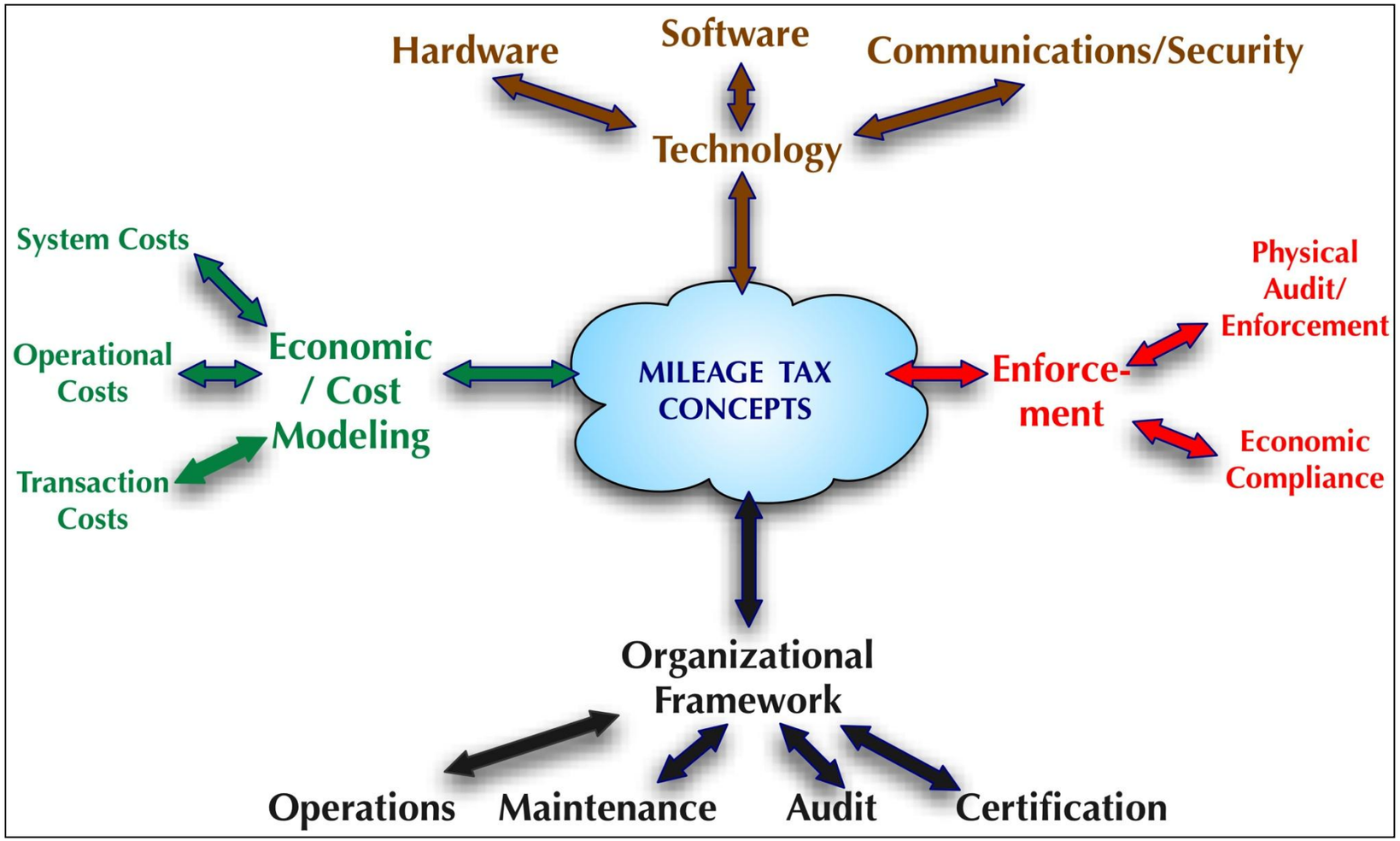
Graphic 8: Detail Bar Chart of Period 1 Activities with Associated Budget

Graphic 9: SPP Workflow and relationship to WOCs

Graphic 10: Logical solutions for mileage tax system

Graphic 11: Local functions embodied in a mileage tax system

Graphic 1: Multi-Dimensions of the Strategic Plan



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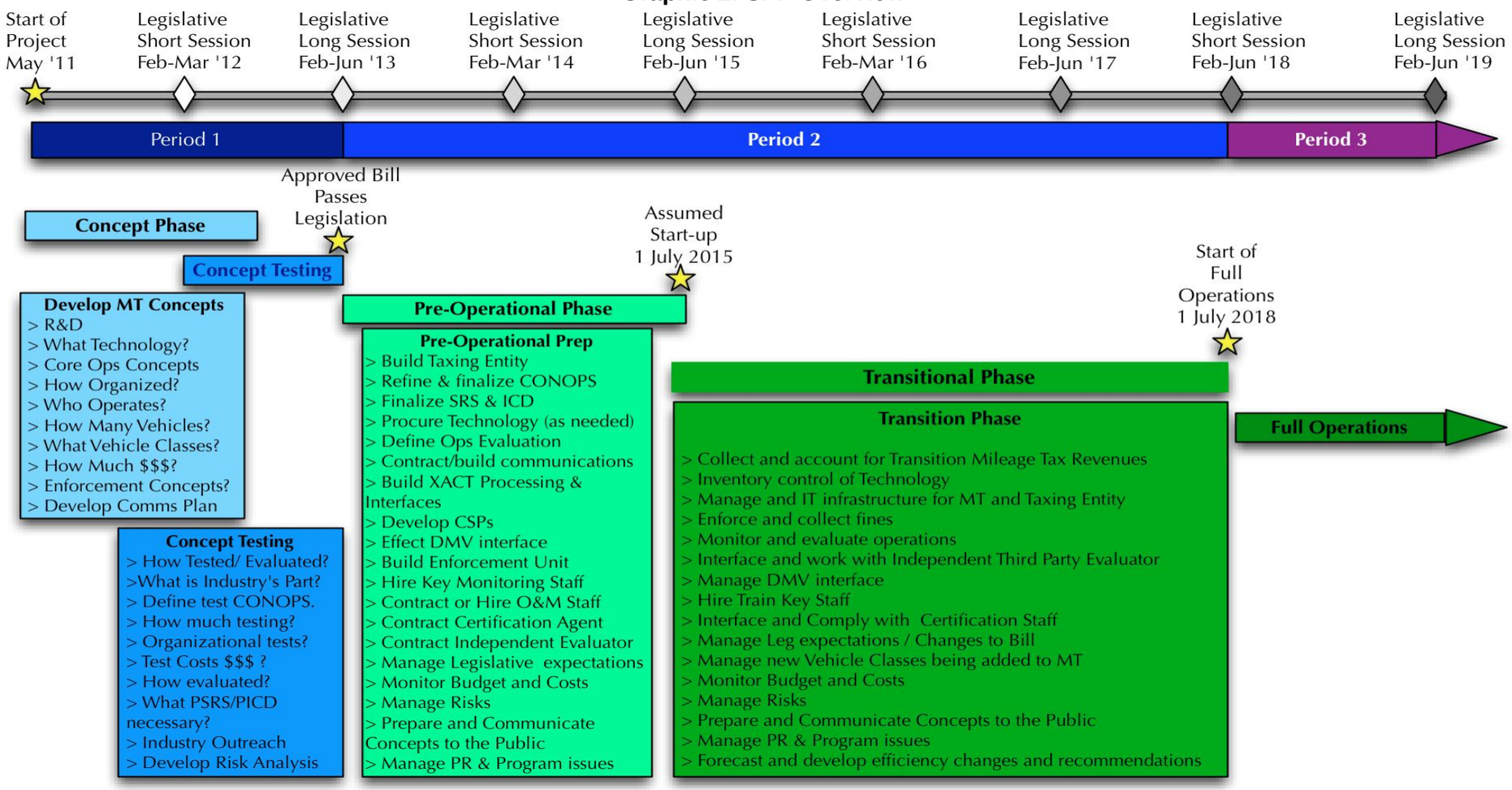
Graphic 2: SPP Overview



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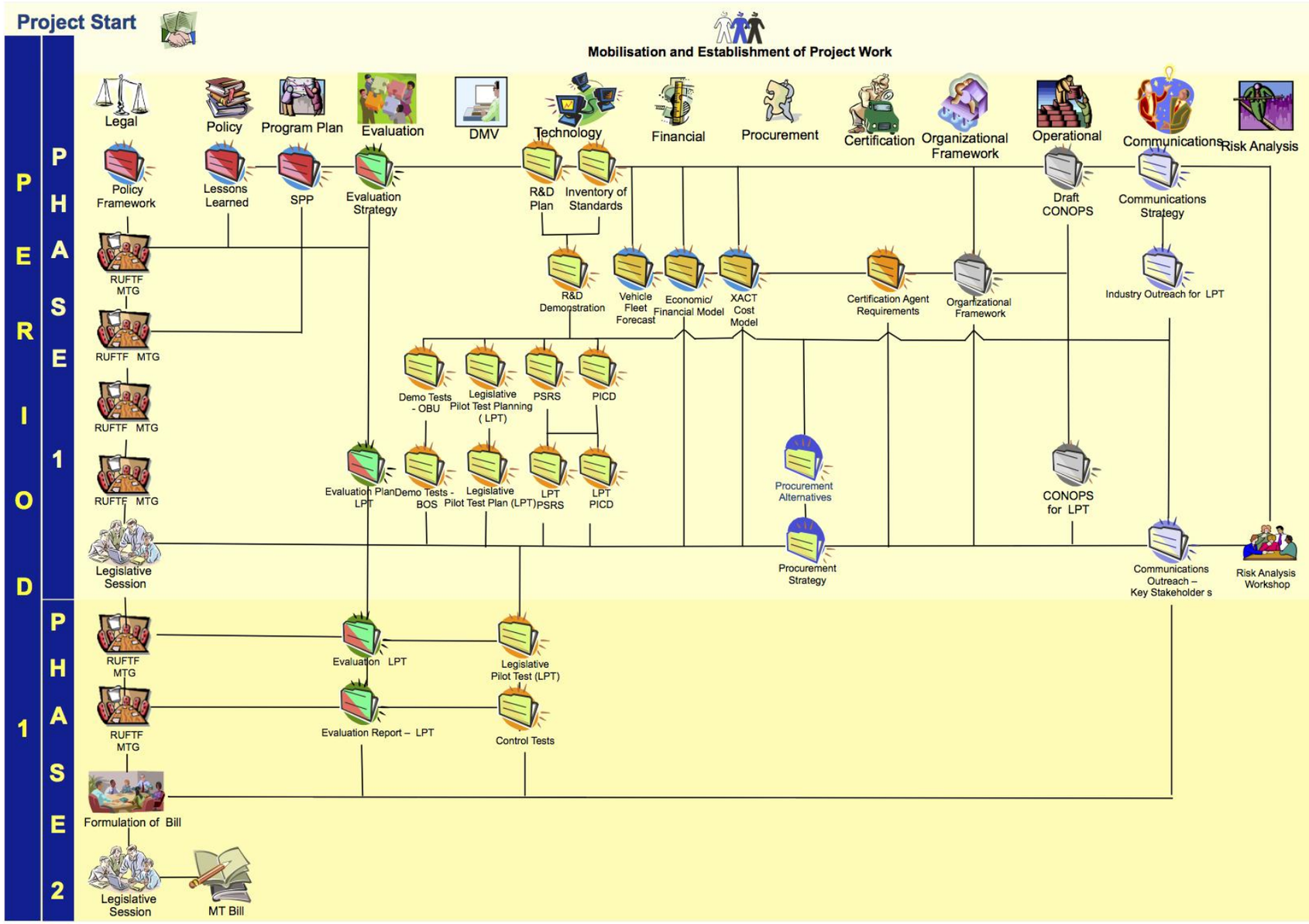
Graphic 3: PRINCE METHODOLOGY – Period 1 Activities



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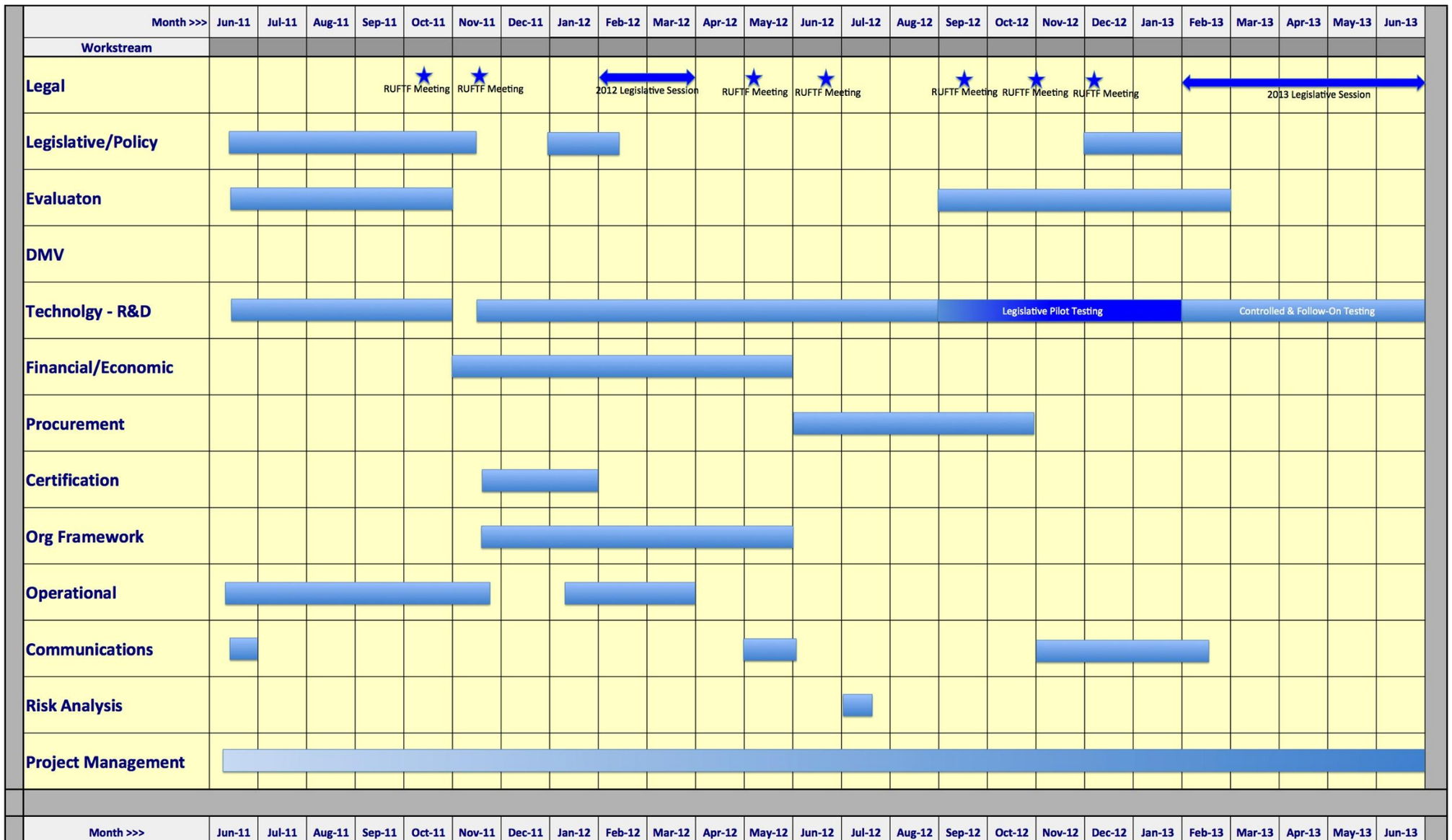
Graphic 4: Summary GANTT Chart of Period 1 Activities



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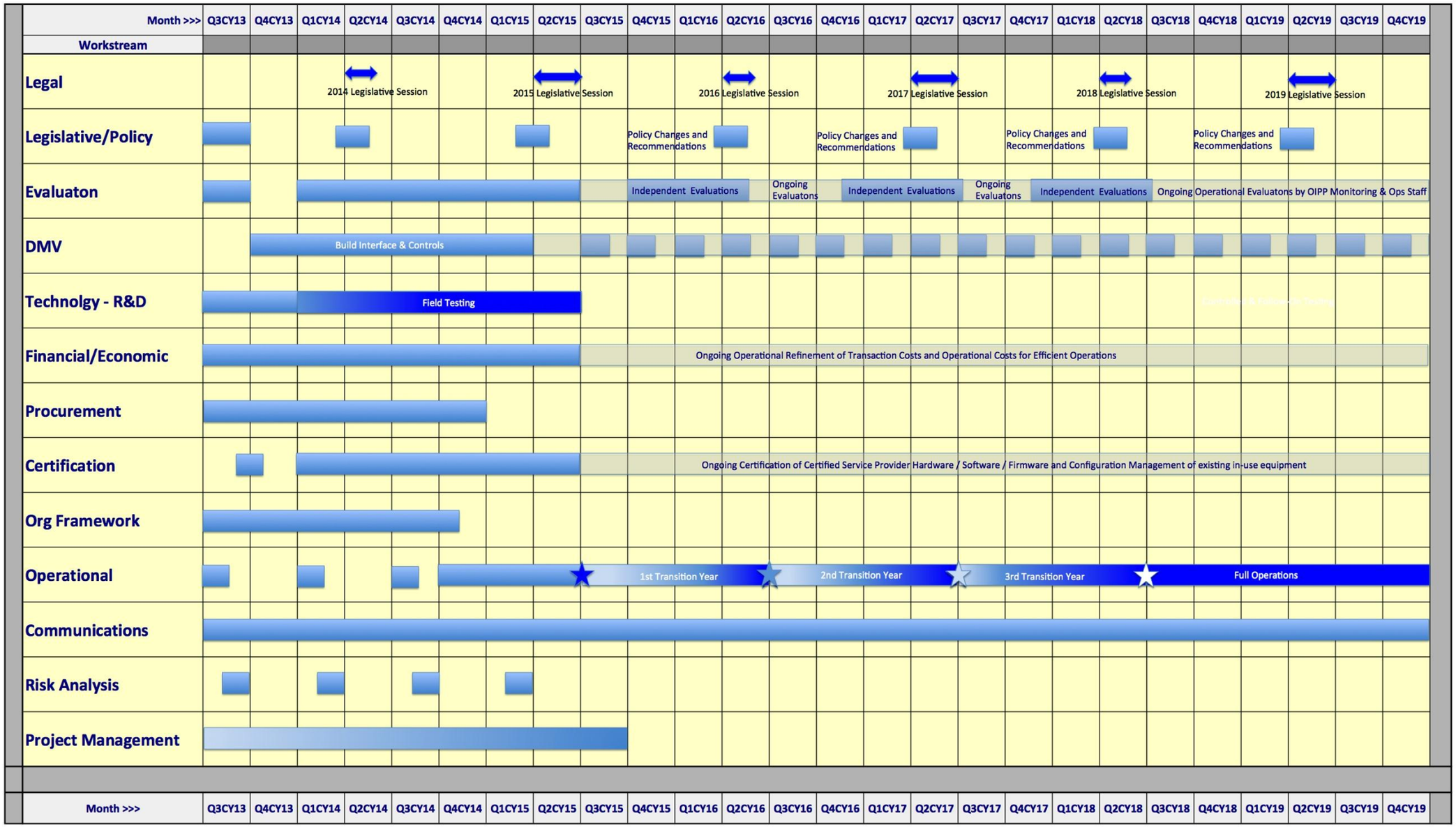
Graphic 5: Summary GANTT Chart of Period 2 Activities



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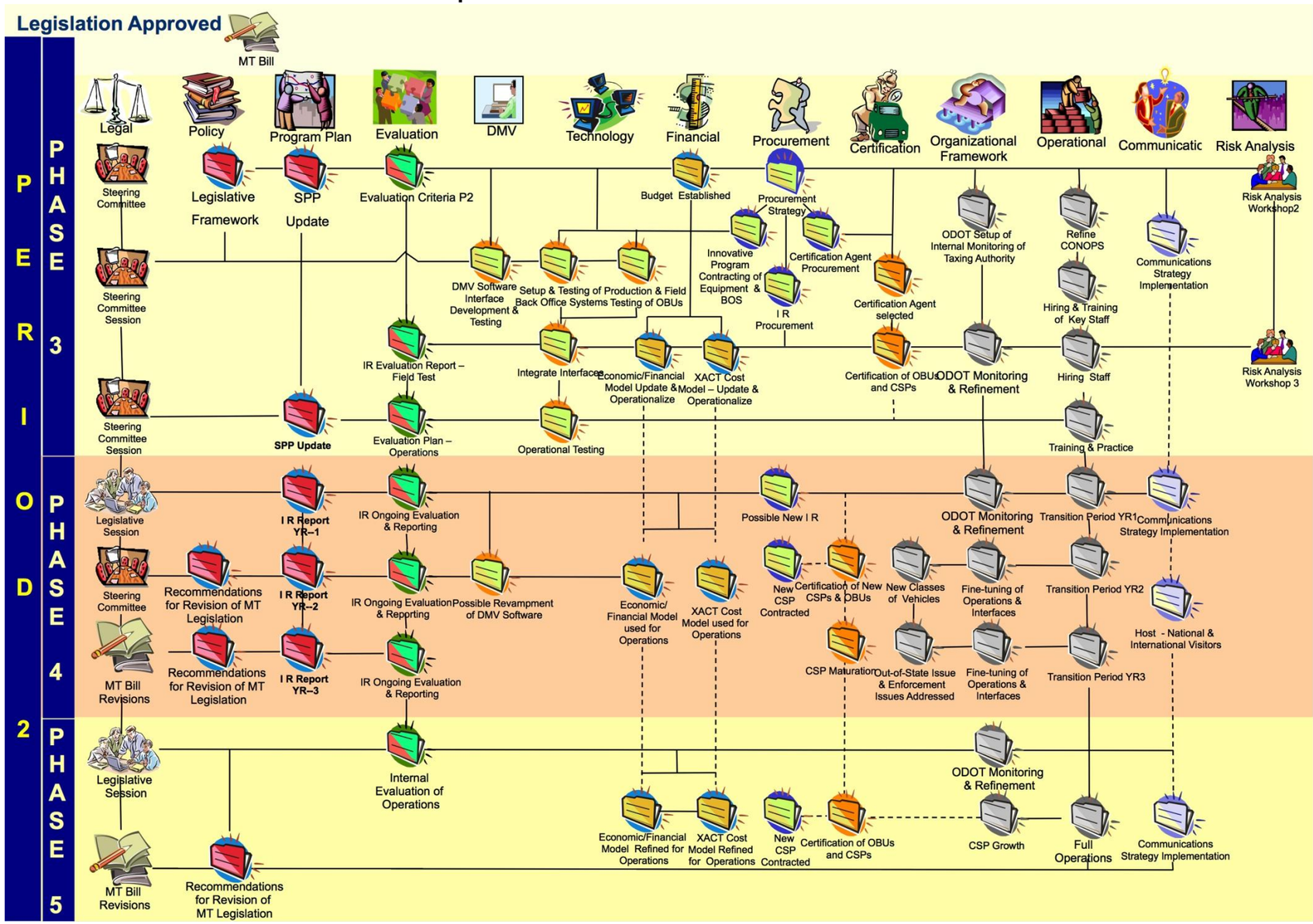
Graphic 6: PRINCE METHODOLOGY – Period 2 Activities



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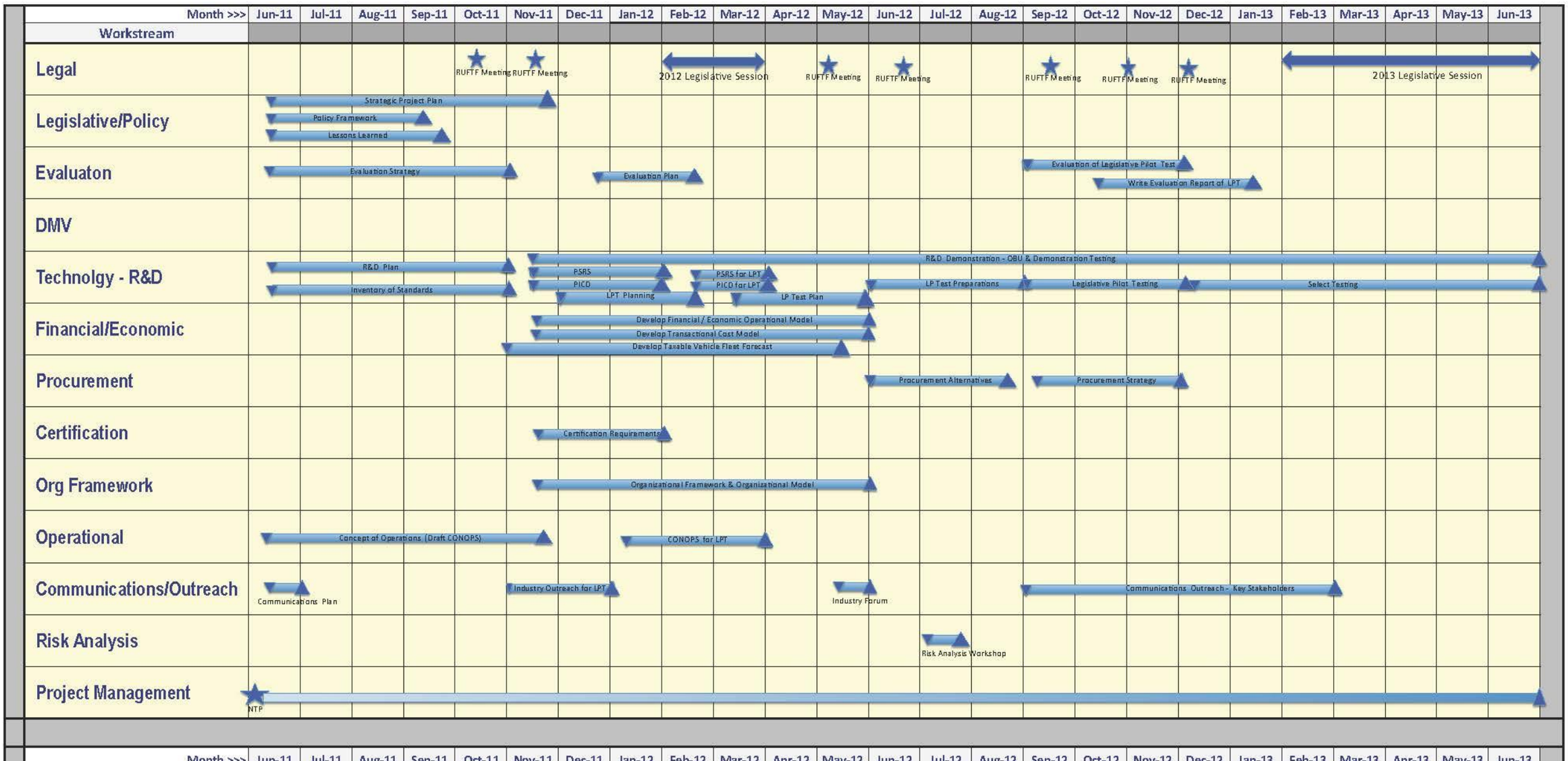
Graphic 7: Detail Bar Chart of Period 1 Activities by Workstream



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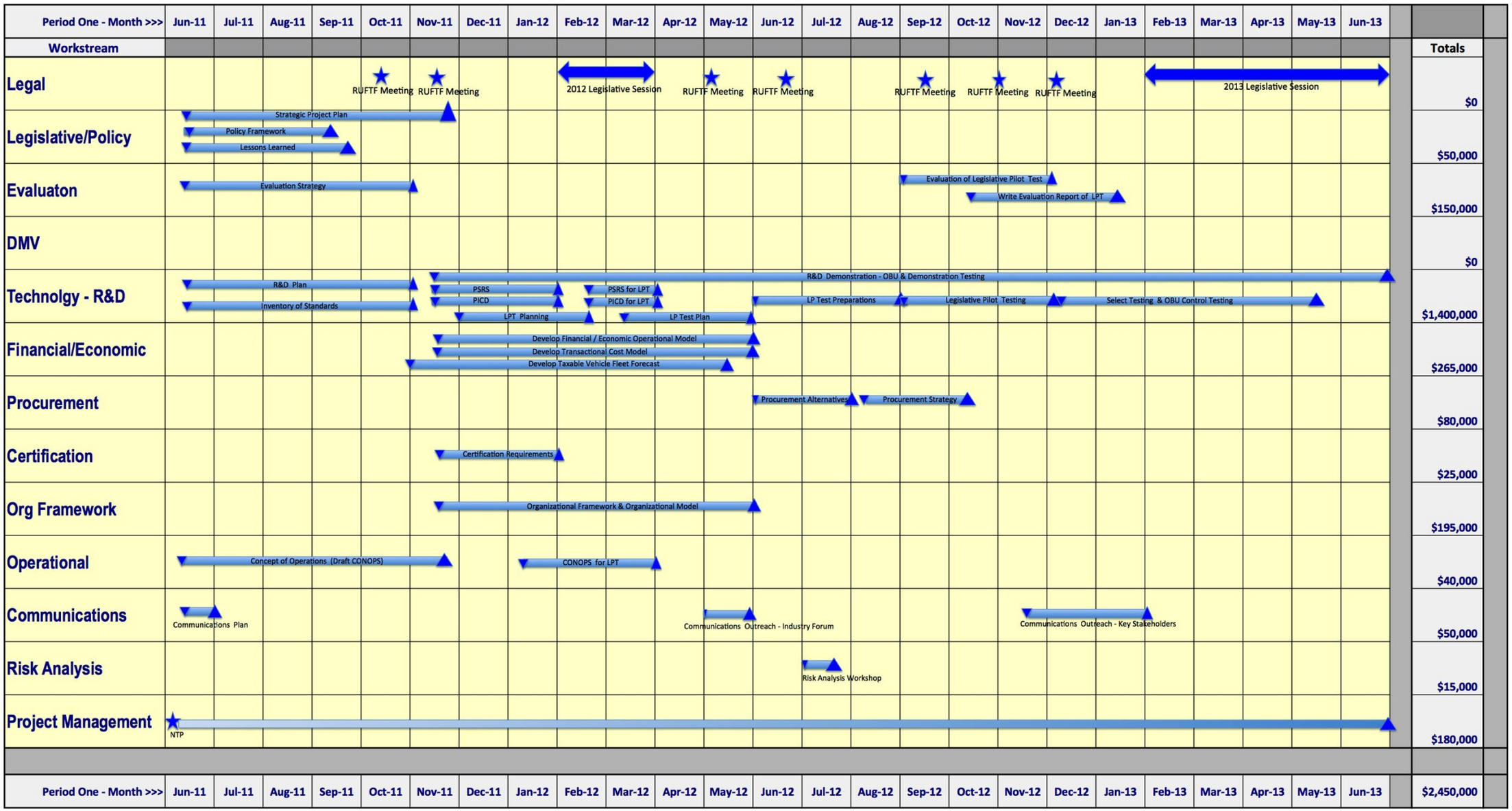
Graphic 8: Detail Bar Chart of Period 1 Activities with Associated Budget



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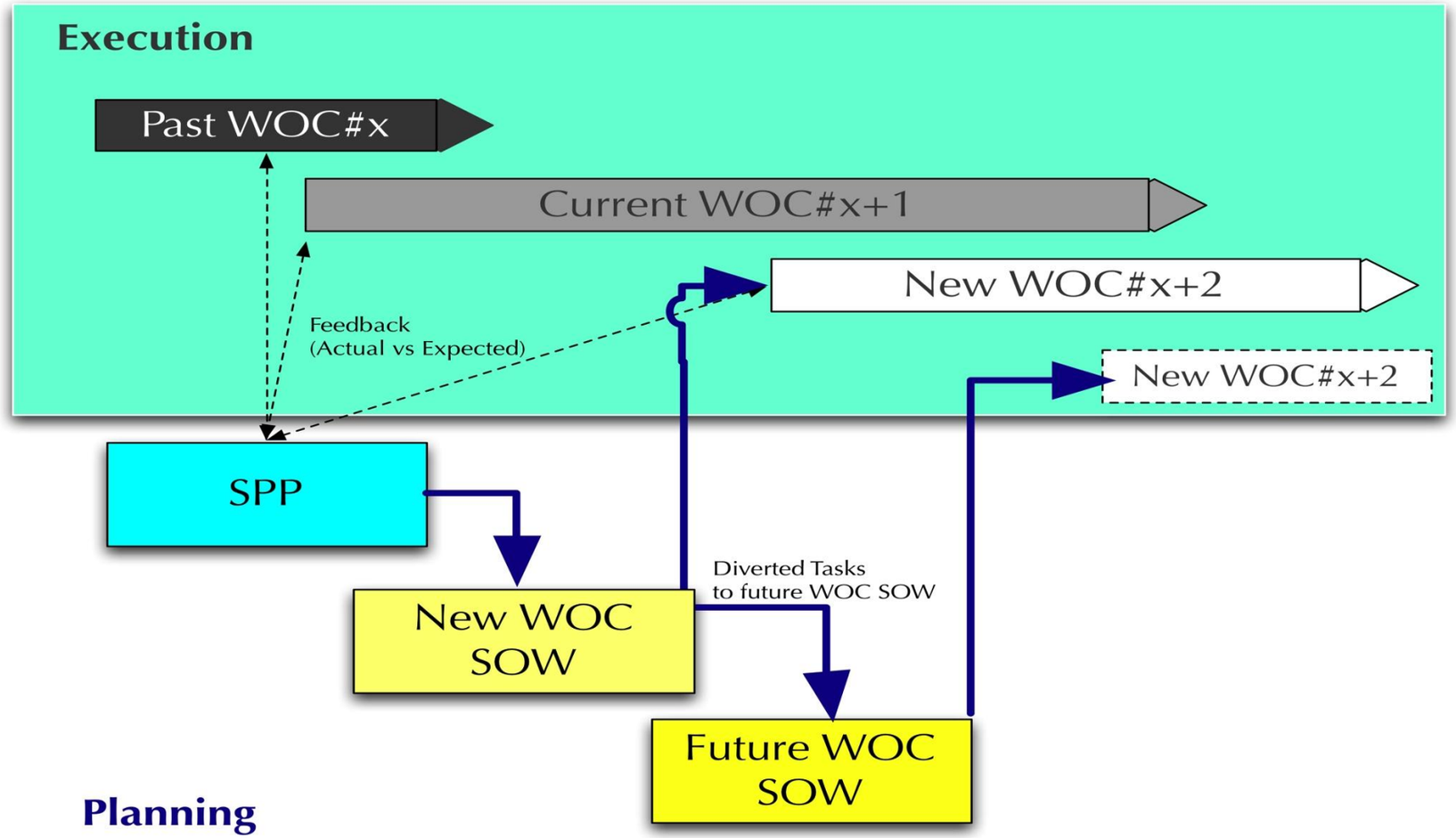
Graphic 9: SPP Workflow and relationship to WOCs



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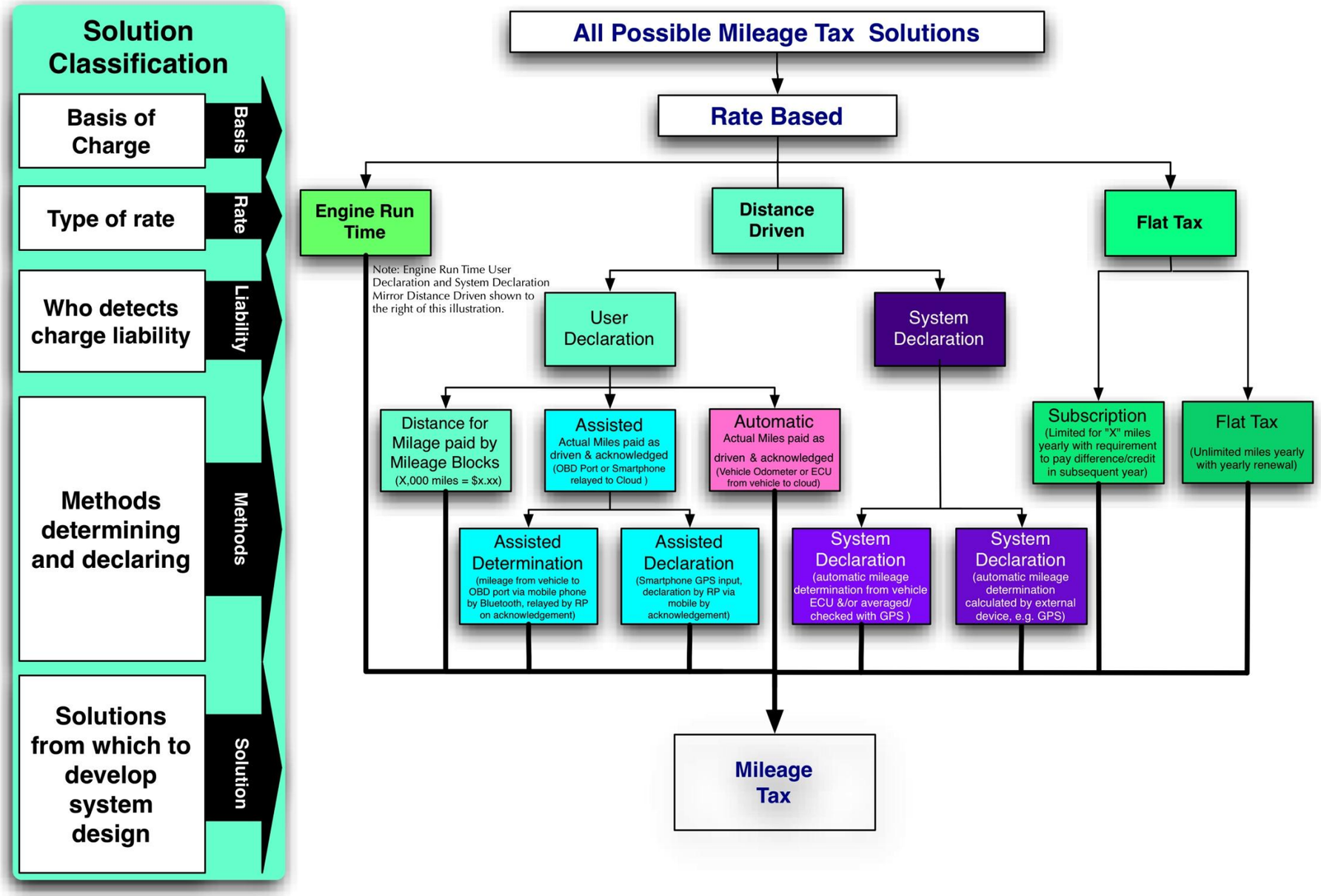
Graphic 10: Logical solutions for mileage tax system



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Graphic 11: Local functions embodied in a mileage tax system