

Road User Fee Task Force Work Group Meeting Minutes – November 21, 2003

Members Present: Senator Bruce Starr, Chris Bell, Mayor Jim Torrey, Representative Alan Brown, Commissioner Randy Papé, and David Cox (ex officio).

Members Absent: Representative Joanne Verger, Commissioner John Russell, John Charles, Roger Hinshaw, John Watt, Laura Pryor, Senator Gary George.

Staff Members Participating: James M. Whitty, Jack Svadlenak, Kim Jordan, Chuck Larsen, Benny Sexton.

Presenters: David Kim, David Porter, Jack Svadlenak, Darel Capps and James Whitty.

In the absence of task force chair Senator Starr, the meeting was called to order by task force administrator James Whitty. After Mr. Whitty introduced the newest staff member to the task force, Kim Jordan, self introductions were made.

A quorum not being present, the minutes of the February 14, 2003 meeting were not approved.

Public Testimony

No public testimony was heard by the Task Force.

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Media and Public Presentations. James Whitty called the members' attention to a packet of media reports included with the meeting materials. He said that in February 2003 we were still smarting from the inequitable treatment of the Road User Fee Task Force work by the reactionary media that began the last few days of 2002. The media attention turned into a more balanced and actually favorable presentation in June 2003 in a *Wired* magazine article. The *Wired* article was about ninety percent correct and helped inform later media coverage in *Governing* magazine and *Government Technology* and local news reports with a quite balanced presentation from a "point of interest." These articles actually presented the case we have been trying to make. The good news is that the main-stream media is receiving this possibility with a positive outlook.

In January, Mr. Whitty will attend the annual Transportation Research Board Meeting to present the RUFTF work and Oregon DOT's new Innovative Partnership Program. The RUFTF project is now gaining national and international attention.

Mr. Whitty attended a Washington State Transportation Commission meeting in August and presented the work of the Road User Fee Task Force. It was the first such

presentation before another state's transportation commission. There was some balanced and positive media in the state of Washington surrounding this presentation.

Status Report of RUFTF 2003 Legislation

There were two Road User Fee bills introduced, both of which failed.

Congestion Pricing Component for Pilot Test Program (SB 83) – This bill passed the Senate but not the House of Representatives. Adjustments were made to another bill to get the minimal authority needed to allow variable pricing for the pilot program. This authority does not allow imposition of congestion pricing on anyone but volunteers may participate in variable pricing in the pilot program.

Studded Tire Use Permit (HB 2139) – Opponents insured this bill died in committee.

Mileage Fee: Report on Further Development of Concept

Introduction (James Whitty, RUFTF Administrator) – Since February 2003, RUFTF staff have met weekly to develop this concept from a practical standpoint and Mr. Whitty reviewed the work to date with the task force. The mileage fee concept meets all of the policy requirements imposed by the task force in 2002 (Note: These policy requirements are accuracy, reliability, security, technologically feasible, cover only in-state mileage, protective of privacy, affordable, seamless transition from gas tax, minimal evasion). Mr. Whitty noted the principal problem areas for meeting the policy requirements were technology, finance and administration. The final problem area that must be resolved prior to practical implementation of a mileage fee is “politics.”

Technological (David Kim, Oregon State University) – Dr. Kim provide a status report on the development of prototype technology for a vehicle miles traveled based revenue collection system. Dr. Kim reported there are a couple of different system concepts under development. Dr. Kim said, “We [OSU Technology Laboratory] are to develop a prototype system. For those that are not familiar with prototypes, if I make the analogy to automobiles, it's like developing a concept car. Our prototype is for an electronic vehicle miles traveled based revenue collection system. This is based on a pay-when-you-fuel concept. We have a lot of information on paper on how these things perform, but when you actually integrate a system, the actual system performance is really unknown. We want to learn what different types of system designs and concepts actually work.”

“There are two different technology configurations under development. A “technology configuration” is a specific system concept for implementing this vehicle miles traveled based revenue collection system. We are developing two different technology configurations. There are two different devices. One has GPS technology on board. We're going to refer to that technology configuration as the GBP technology configuration. The other technology configuration on board the vehicles is an odometer-based device to collect miles. We're going to refer to that is the odometer technology configuration.”

“With any technology configuration there are three basic functions that have to occur. The first is we have to have some way to collect miles traveled within the State of Oregon, or even within regions within the State of Oregon. The second basic function is once that data is collected on board the vehicles, there has to be a way to take that data off the vehicles and then, that leads to the third function, which is to use that data to process and charge the appropriate vehicle miles traveled based fee.”

The GPS Technology Configuration. Dr. Kim continued, “With the GPS technology configuration, for vehicle miles traveled data collection, onboard each vehicle there will be an electronic device. With the GPS technology configuration, there are the 24 satellites that are circling the Earth that provide signals that allow the device to do two things. One is to collect mileage. The second is to estimate miles within different zones. The device can be directed to just collect mileage from vehicles within the State of Oregon.”

“We have two different devices within the GPS technology configuration. The other [hybrid] device will have the GPS technology onboard, but it will only be used to tell an odometer where to direct mileage. The odometer will collect mileage and the GPS will say “send it to this region, or this region, or this region.”

“The second issue transfer of the data from the vehicles. When a vehicle drives up to a service station to purchase fuel, there will be a wireless reader on top of or very close to the fuel dispensers that a vehicle is pulling up to put fuel in. That will interface with the on-vehicle device, read the data off the vehicle and transfer it through a wireless gateway to software that will reside on the computer where the service station point-of-sale system resides.

“The third issue in this particular technology configuration is how the appropriate fee is calculated and computed? Once the data is sent to the service station point-of-sale system computer, the data is then sent through a telephone line, although there are different ways to transmit the data. The data will then be sent to a central computer that has a central database residing on it. The central computer will process the vehicle miles traveled data and send back the data required to compute the proper fee. That fee will then be incorporated into the fuel purchase.”

Question from a task force member: “Is that going to be a debit card or a credit card?”

Dr. Kim: “It could be any form of payment that you use.”

Task force member: “It could be cash?”

Dr. Kim: “It could be cash.”

Task force member: “But it’s not paid in advance. In other words you wouldn’t go and buy so many miles.”

Dr. Kim: “Right. In this case you are paying for the miles that were actually driven since the last fueling, essentially.”

Question from another task force member: “Now it’s clean, starting from scratch?”

Dr. Kim: “Yes, until you fuel again, it’s like resetting an odometer. We’re not actually doing any resetting, but you can think of it that way.”

The Odometer Technology Configuration. Dr. Kim continued, “For the odometer technology configuration, as far as mileage collection, the device on the vehicle is connected to a vehicle speed sensor to collect mileage just like modern electronic odometers do on current vehicles. One of the things, however, in this particular technology configuration that we have to incorporate into this system is [to allow for] what happens when a driver leaves Oregon. In the odometer technology configuration, we envision that at different border crossings that there will be fixed wireless communication devices so that when a vehicle drives out of Oregon, this device will instruct the on-vehicle device to shut off the mileage collection in terms of what’s being collected for Oregon miles driven. Just the opposite occurs as this vehicle re-enters Oregon. It will tell this device to start collecting Oregon miles traveled again.

“In the odometer technology configuration, the data is read off the vehicle in a similar fashion to the GPS technology configuration. When the vehicle pulls up for refueling, the on-vehicle device interfaces with the wireless reader associated with the particular dispenser, the data is read off the vehicle and sent through a wireless gateway to the service station point-of-sale system. But, in this particular technology configuration everything is going to be computed locally to determine the fee. There will not be connection to a central database. The fee will be computed within the service station point-of-sale system computer and then sent back to the point-of-sale system and added to the vehicle fuel purchase price for fee collection.”

Mr. Whitty: “You believe these technology configurations are technologically feasible, but, how about accuracy, reliability, security? How about protections of privacy?”

Dr. Kim: “In terms of accuracy, when we are talking about mileage collection, we are very sure that any of the odometer based devices are going to collect miles driven very accurately. Now, we still have to do some testing in the odometer technology configuration with how reliably the boarder devices work in terms of shutting the mileage collection on and off. As you are actually driving through the State of Oregon, the mileage collection is going to be very accurate”

“With the GPS technology configurations, if we collect mileage driven by an odometer, the mileage collection is going to be accurate. We feel that how that mileage is allocated to different buckets using the GPS technology is also going to be pretty accurate. When we talk about accurate, out of 1,000 miles, it may be off plus or minus five miles.”

“One of things we’re not sure of at this time is if we just use the GPS device to do two things – to collect the miles and to allocate that to zones – we want to do testing to see how accurate that actually is. There is conflicting data in the literature that says you can run into certain problems. One of the problems that we’re concerned with is any GPS device when it’s turned on it has to acquire a signal. It has to find out where the different satellites are before it can start collecting miles. In some cases, that can take a couple of minutes. If that happens, for a person taking many short trips then the mileage collection could potentially be inaccurate. That’s why we have two different types of on-vehicle devices in that technology configuration.”

“As far as the reliability, security and being technology feasible – it’s technologically feasible. I don’t think there is any doubt about that. It is just how well does it perform? In terms of being reliable – we have to do some testing on that. The literature states that there are many types of on-vehicle devices that have GPS technology on-board them. One such device is On Star. Those devices have proven to be very reliable.”

Dr. Porter addressed the security issue, “The security of the devices in terms of the possibility of tampering, the [prototype] devices we have will not provide the packaging necessary to put them in the engine compartment during the testing phase. Once we have the concept tested, the company we’re working with is doing research for us right now to improve the packaging so that we can install the devices so they are concealed from the user, therefore increasing the security of the on-board devices.”

Dr. Kim: “And intercepting the signals is pretty difficult.”

Question from a task force member: “What about a device that would intercept the link between the satellite and the vehicle?”

Dr. Porter: “With the GPS technology, there is no concern. The concern that may arise is when the data is transmitted from the on-vehicle device to the fixed wireless device. We are using specific inscription algorithms to avoid people capturing a signal. Besides, even if they did that, the only figure they would see is the language number. There’s no private information being transferred. It’s not like a credit card. It’s pretty secure.”

Task force member: “Is there something that could be put on the vehicle that would inhibit the reception of the link between the satellite and the vehicle so that it would not collect it?”

Dr. Porter: “That is something that we are testing in our test plan to somehow assess if someone were to put aluminum foil on top of the antenna and avoid the receiver from capturing amounts. That could be done. That is the reason why the device should be installed in the engine compartment, so that would be very difficult to do. If the device is just installed on the windshield like you see with the toll collection systems, then that would be a possibility.”

Dr. Kim: "Now in one scenario, if the device has an odometer device collecting the mileage and is using the GPS signal to allocate the different mileage to different zones, I think we have a default zone so that if it doesn't get that GPS signal, it can just be sent to one particular zone. So the mileage would still be collected in that case. If there is only GPS technology on-board, that can be an issue. If they block the signal, then the mileage collection is going to be blocked also."

Task force member: "In this system then, the information is transmitted back to the GPS satellite?"

Dr. Kim: "No."

Task force member: "The information stays with the vehicle and is transmitted whenever they refuel?"

Dr. Kim: "Yes. The next thing to talk about would be privacy. The only thing that we are going to be storing on the devices is an odometer reading. So if you thought of Oregon and the rest of the world having mileage collected on the devices, we would have an odometer reading for Oregon miles driven and an odometer reading for outside of Oregon. That is really the only thing that will be collected. As far as privacy, there won't be any location points stored on these devices or any location points transmitted. At the central database, it's not going to store anything about location. It's all going to be odometer readings. We're actually going to calculate vehicle miles traveled as the difference between odometer readings. We're not even going to be sending trip miles like you would when you reset your odometer."

Question from the audience: "Your odometer option with the device at the border to shut it off when you're outside of Oregon, is that something that is just going to be at roads or is there going to be some way of doing it anywhere?"

Dr. Kim: "I think the intention is to have the device just on the roads at border crossings."

Audience member: "Thinking as someone who would want to fool the system, if they were to go outside the border on the road and come back across a farmer's field, he's shut down."

Mr. Whitty: "At some point the evader is going to fuel up in the State of Oregon and is going to pay the gas tax. The differential isn't that big of a deal if someone wants to go off road. There will always be evaders to any revenue system. There are evaders of the gas tax now. The overwhelming majority of the people are not going to drive up to northeastern Oregon and try to find a pathway across. The number of people who would do that would be very, very small. As long as we have a redundant system, and can capture 90 percent of what we're trying to get, we are going to be OK."

Representative Alan Brown: "Couldn't that be done with GPS as opposed to having a fixed site. Couldn't the apparatus that is on the vehicle be programmed such that

whenever you reached certain GPS point, you know you were leaving Oregon so the system would shut down?”

Dr. Kim: “That is essentially what it’s doing.”

Rep. Brown: “Yes, but you have a fixed antenna you’re driving under, or something. Couldn’t that be done just with the GPS alone without anything physically put at the borders?”

Mr. Whitty: “That’s right. We still have the public sensitivity issue with the letters “GPS”. So we’re looking at both technologies. We don’t know which one could be accepted by the public. But, you’re right.”

Rep. Brown: “It wouldn’t make any difference if you went across the farmer’s field or wherever, the GPS would know where you were at.”

Mr. Whitty: “That’s right.”

Mayor Jim Torrey: “The person that would try to circumvent the gantry, in effect, is probably going to pay more gas tax than if he had gone through the gantry, because he probably didn’t have a totally full tank and so when he goes to buy the gas, he doesn’t get the advantage of having had a portion of that tank not being full.”

Dr. Porter: “Once this is in place, the gas tax doesn’t go away. The immediate reaction is, “Well, I can fool the system and go around the gantries.” But, the gas tax is still there. You can fool the system as much as you want, but you’re still being taxed.”

Pat Egan: “So the data that is being stored on-board and the data that is conveyed have nothing to do with actually where you are going, it’s simply mileage.”

Dr. Kim: “That is correct.”

Pat Egan: “Someone else after the fact might deduce that “well, you’re taking longer trips than I ever thought,” I mean, getting to the privacy stuff. As far as where you are going physically, it’s not recorded.”

Dr. Kim: “That’s right. The second thing is that the data communication off the vehicle is only short range. There isn’t any way to track or send data, let’s say, through a cell phone like they do with certain devices that have been in the media where they are actually tracking. It’s got that two-way communication ability. This [GPS technology configuration] only has very short range communication off the vehicle to the device on the fuel dispenser.”

Pat Egan: “There may be an after market or there may be some other commercial application where someone either may want to track that data or an employer for employee cars or whatever, might want to know where they are. That’s a different issue.”

Dr. Kim: "There are devices that they sell commercially that they use to do that. Where they actually store all the location points where a vehicle has been driven and download it later. But, these devices do not have that capability. In fact, we do not have the memory on these devices to store that amount of information. That was given to us as a requirement."

Brian Doherty, representative of the Western States Petroleum Association (from the audience): "Do you have any time element in the tracking information with the odometers. Is there any [tracking] over these periods of time it was driven?"

Dr. Kim: "No there isn't. That's used internally for a very short period of time to calculate the mileage because internally the device has got to know where it's at and how long it took to get from this point to this point. Then it calculates the mileage from that and that's all that's stored. Everything else is wiped out. Nothing on the device is stored as far as time. On the GPS devices, if you wanted to do congestion pricing, you can define areas like, say, downtown Portland between 4:00 and 6:00, Monday through Friday where you could say, "How many miles were accumulated in that area during those time periods." That's possible to program that in."

Mr. Doherty: "You're not doing that piece at this time, the congestion pricing piece?"

Dr. Kim: "No, we are doing that."

Mr. Doherty: "Are using time element that way?"

Dr. Kim: "Yes, that way. We're defining different zones as a combination of a geographic area and a time period."

Mr. Doherty: "What I'm getting to is someone could then identify that between 4:00 and 6:00 on a certain day and in a certain area . . ."

Mr. Whitty: "No. Between 4:00 and 6:00 during the fuel up period, you were there one of the days."

Mr. Doherty: "Somewhere between the last time you filled up and the time you're filling up now, you were in a congestion pricing zone between 4:00 and 6:00 and they don't know what day?"

Dr. Kim: "That's right."

Mr. Whitty: "Recognize that this congestion pricing is a different concept. Technologically, we're working to make sure that we have that possibility. The mileage fee and congestion pricing are not together. They are different concepts."

Mr. Doherty: “The other question that I had was why are you in the GPS going to a central system and in the odometer system only doing it point-of-sale?”

Dr. Kim: “The reason for that is just to learn how effectively it works connecting into a central system and transferring the VMT data back and then back to the service station versus doing it all locally.”

Mr. Doherty: “Either system could operate either way?”

Dr. Kim: “Yes, you could combine it either way.”

Mr. Whitty: “The Road User Fee Task Force hadn’t settled in on how exactly how it wanted the collection to happen, so we’re testing for components that can be used to support a service station collection as well as components that could be used to support a centralized system. Elements for both collection systems were developed for this test -- two devices; two-way and one-way transmission, use of a central computer and no central computer. So, we have multiple components in the test that can be put together in an number of configurations depending on the system configuration ultimately chosen.”

Dr. Kim: “One of the objectives was to learn how these different components work. But, I think we can mix and match these things to a certain degree if we find that one concept works better than the others.”

Financial (Jack Svadlenak, ODOT Economist) – Mr. Svadlenak presented the financial aspects of the mileage fee concept as a whole, as opposed to the pilot test itself. One financial component will be the installation of electronic odometers. In past meetings, the task force discussed retrofitting vehicles. Svadlenak said that retrofitting several million vehicles at \$373 per vehicle would not be cost effective. Oregon DOT is not planning to do that if the state were to implement the concept as a whole.

Oregon DOT anticipates that the on-vehicle components would be installed during vehicle manufacture and integrated into vehicle systems. Manufacturers are already installing GPS systems such as On Star. Electronic odometers and short-range systems are already being installed into vehicles. This most likely would be quite inexpensive. Incremental costs paid by consumers at the time they purchase vehicles would cost somewhere between zero and \$225.

Mr. Svadlenak estimates the non-vehicle equipment, primarily at service stations, would cost approximately \$33 million. Operating costs (a combination of auditing and telecommunications) is estimated \$1.6 million. If Oregon DOT financed this capital purchase, Svadlenak estimated the mileage fee would increase less than two percent.

Pat Egan: “So, that’s based on the number of fueling stations – period – including card lock and every flavor.”

Mr. Svadlenak: “Yes. That brings us to our conclusion – we think the mileage fee concept is affordable.”

Brian Doherty: “This \$33 million mentioned, does that include the pump device, the computer, software for interfacing the installation cost? Are all those included in the \$33 million for 1,800 stations?”

Jack Svadlenak responds: “I got that figure from OSU, but I believe the answer is yes.” Drs. Kim and Porter acknowledge this as correct.

Administration (Darel Capps, ODOT Fuels Tax Supervisor) – Mr. Capps presented the administrative aspects of the mileage fee concept. He said that in developing a tax collection method for the mileage fee, the ODOT technical advisory committee sought to address a number of key issues, including:

- Having the least impact on all sectors of the public - both industry and consumers.
- Keeping the concept as simple and straightforward as possible.
- Using technology to save administrative expense in collecting the tax, both in government and by private sector partners.
- Achieving a seamless transition that would accommodate conversion from the gas tax to the mileage fee as quickly or as slowly as the state and/or the market dictates.
- Protecting the highway fund's largest revenue stream from significant loss or evasion throughout the transition period.

Mr Capps presented the following, “Oregon currently collects the gas tax at the wholesale level. Gasoline distributors from the major oil companies to local jobbers pay ODOT \$0.24 per gallon upon the first sale of fuel in Oregon. By the time the fuel is delivered to retailers, the gas tax is already included in the cost of the fuel. [The administrative process proposed for the mileage fee concept and which we call] VMTCAR proposes no change in the current gas tax collection process. In this way, most of the revenue continues to come in via a proven collection method. Anti-evasion and compliance measures/procedures are retained. There are no changes within the wholesale distribution industry. They won’t see any change at all. It becomes an effective “back-up” to the mileage fee, both on a statewide level and at a local level. If a station experiences a power outage or anything else where the technology doesn’t work, we still have the gas tax. Therefore, it provides an effective transitional course.

At the consumer level, tax collection is straightforward and simple to understand. When VMTCAR is fully implemented, every Oregon fuel station will have the mileage fee collection technology.

- If a vehicle is equipped with the mileage fee device, it pays the mileage fee along with the fuel purchase.
- If a vehicle does not have the device, it pays the gas tax.

This process will accommodate out-of-state vehicles and all Oregon vehicles not yet equipped with the device, and will allow the state to implement the mileage fee program as rapidly or slowly as it deems necessary.

For retail gasoline sales that charge the gas tax and not the mileage fee, the station is reimbursed dollar-for-dollar by the consumer for the gas tax paid to the wholesaler. However, depending on the customer mix, sales to mileage fee customers may bring in more or less tax than the retailer paid the wholesaler in gas tax. An electronic "true-up" process will be used to make the retailer whole and/or collect mileage fees in excess of gas taxes paid to the wholesaler. Basically, if you have a mix of customers that the vehicles have a higher miles per gallon (more fuel efficiency), they would travel more miles and would probably have to pay a little more mileage fee than they would if they were paying the per gallon gas tax. If you have a customer that has a lower than average miles per gallon, they would travel less miles for those gallons and would pay a little less mileage fee than they would for the gas tax. Depending on the customer mix for a particular station, the station would collect a little more tax or a little less tax in mileage than they paid 24 cents per gallon to the wholesaler. We need to have some sort of "true-up" method.

If fuel taxes and the mileage fees collected by the station are insufficient to equal the 24 cents per gallon that the station paid, ODOT will electronically remit the amount due to the station's bank account.

If the fuel taxes and mileage fees collected by the station are in excess of the total gallons sold at 24 cents per gallon no further action is done until the end of the month. At the end of the month, a bill for any net balance due to ODOT is sent to the station. This is standard monthly reporting.

It's important to note that this process will not require retailers to report to ODOT (paperless process), nor will it require pump jockeys to handle tax funds, etc. The stations will have access to report data via their station computer to monitor their tax receivable or payable to ODOT.

- Reimbursement to the stations is done weekly for cash flow purposes, since some retailers must purchase fuel weekly.
- ODOT collects any tax due monthly, which is standard in the industry and with ODOT.

We've addressed the key issues we identified earlier. The VMTCAR administrative process for the mileage fee meets the RUFTF policy requirements.

First of all, there is a minimal burden on the private sector. There will be no change in current fuels tax payment or reporting to ODOT by the wholesale distribution industry. At the retail level, we want to include paperless reporting and payment methods. Because they will have a computer at the point-of-sale systems, they will be able to see how they are doing through the month, whether they have collected more or less. They can monitor as they go whether they are in excess VMT tax or whether ODOT would need to reimburse them. The consumer pays either the mileage fee or the fuels tax, depending on how their vehicle is equipped.

Seamless Transition - As more fuel efficient vehicles (hybrid and conventional) equipped with the mileage fee device use Oregon's highways, the mileage fee will become a larger portion of the revenue stream. As time passes, less gas tax will be collected at the wholesale level, and more will be collected via the "true-up" at the retail level. However quickly these events occur, VMTCAR provides a seamless transition allowing ODOT to:

- use experience to assess risk points in the process
- fix revenue leaks before risking a majority of the revenue stream to the mileage fee
- use this operational experience to provide more convenience to both industry and consumers; and
- develop adequate new compliance processes.

Minimal Evasion Potential - VMTCAR allows ODOT to protect the highway fund's largest revenue stream. The bulk of the revenue stream is still at the distributor level. We know about, how to operate. The less tax payers you have, the easier it is to gain compliance. Virtually 49 other states collect the gas tax this way. That is why they do it that way. They have fewer taxpayers to monitor. It's more efficient administratively.

Conversely, a smaller percentage of revenue streams is with the mileage fee "true-up". At first it will be quite small and there are far more taxpayers involved there.

Current audit procedures and multi-state anti-evasion processes are still effective. And, finally, we have to buy fuel. That will ensure ODOT and the state a pretty constant revenue stream for as long as gasoline is a component of the fuel that goes into vehicles on the road.

Tying the collection of the mileage fee to fuel purchases ensures ODOT a stable revenue stream for as long as gasoline is a component of fuel for most vehicles.

Question from a task force member: "What about diesel?"

Mr. Capps responds: "We are not specifically addressing diesel right now, but this does fit into the diesel tax law in Oregon."

Question from Senator Bruce Starr: "In the long run, how will it work with alternative fuel vehicles?"

Mr. Capps responds: "This particular process will not work at this point with alternative fuel cars that don't use gasoline at all. This assumes that almost all vehicles will use conventional fuel for at least part of their power. When it starts to turn over to where there are a lot of vehicles using alternative fuel, we'll need to rethink how we collect the tax. We don't anticipate that happening for some time."

Mr. Whitty: "Each alternative fuel currently has a fuel tax collection system. We have to develop a similar system mileage fee system for those alternative fuel tax collection systems. Until the alternative fuels reach critical mass, or until we run out of things to do, addressing those at this point is not time efficient."

Mr. Capps: “It depends on the definition of alternative fuels. Propane, compressed natural gas, anything like that, is already covered in our statutes and is generally sold somewhere at retail and we can collect the tax from those.”

Comment from Brian Doherty: “They are having vehicle that just fuel up off their natural gas system at home. There are set ups where you can fuel up of your natural gas system at home. It’s a small percentage.”

Mr. Capps: “That is true.”

Question from an audience member: “So, we’re not planning to retrofit vehicles at all? This is all going to be original equipment on the vehicle?”

Mr. Whitty: “For the pilot test, we must retrofit. But the overall current concept is that we will not retrofit existing vehicles. One thing that was not mentioned that is important is that we don’t expect to have a device in hand with which we would negotiate with the automobile manufacturers. We would have technology specifications for the GPS device because it is becoming more and more popular, for example, GPS devices to be put in new vehicles. {Task force member] Joanne Verger, last week at the Highway Users Alliance conference, indicated the auto dealers are getting more and more requests for the GPS device. She is a dealer. She knows. Ten years out, which is probably the earliest point in which we would actually implement such a thing, who knows what the number is going to be. You give them technological specifications. “We want the devices to be able to do this.” And they can add whatever they want or what the market requires.”

Question from an audience member: “Is there going to be anything required at a certain date you have to have it by this date?”

Mr. Whitty: “This is up to the legislature. If we were going to do this in Oregon, we would have to pass a bill that manufacturers must start installing these devices in newer vehicles. That’s a matter of politics.”

Question from Mayor Jim Torrey: “At some point, doesn’t there have to be a tipping point? Otherwise, cars with great mileage would simply choose never to have one of these installed and choose to take the lesser gas tax.”

Mr. Whitty: “You mean should there be a retrofit at some point? That’s probably the case. When you are dealing with the last 10 or 15 or 5 percent, at that point, the state would have to look at possibly retrofitting.”

Politics (James Whitty, RUFTF Administrator) – There are three critical elements if Oregon were ever to pass a mileage fee to replace the fuels tax. One is public acceptance. We do not know how the public will regard this. We will do media surrounding the pilot when we get started on that so the public is aware that this is underway and possibly

updates as the project develops over the two years and then following as well. This is a critical component for political acceptance in Oregon.

The other two important elements relate to the fuel distribution industry. We met with the Oregon Gasoline Dealers and the Western States Petroleum Association in August 2003 to present something similar to what we presented today to them. The information we got back is they are not particularly interested in participating in the pilot. At least, the Western States Petroleum Association said that. They said it for an interesting reason that makes some sense. They are concerned about the pilot project having a new system like this imposed on their proprietary systems.

It may be that the best way to engage the industry is not at the state level. It may be best to engage both the fuel distribution industry and automobile manufacturers at a national level where the discussion can be done at a very high level. Mr. Whitty is anticipating with the advent of the new bill and the possibility for a commission on a national level, this could happen. He is aware of and understands the challenges of trying to engage both of those industries from a state that represents about one percent of the population in the country. Before one state could actually pull this off, that state would need national support and support from many other states for this effort.

Oregon is not likely to implement the mileage fee as a law first, but we recognize that our greatest contribution is the information and the concepts we are developing that will be a part of the national discussion.

The pilot program is the next big phase on our contribution to the national program. We must do a functional test of the technology which includes assembling equipment and operational test for functionality of the equipment. Then comes the field test. We need to design the field test and an implementation plan for it. We will also need to get contractors to assist in data collection and analysis in each field test component. An evaluation will be done after the field test is complete.

Pilot Project Technology (Dr. David Porter, OSU) - “We have several technology components in our two technology configurations. When we finish our first participation with ODOT back in the summer of last year, the conclusion was that we didn’t have anything off the shelf that was able to meet the objectives of this effort. We started looking for companies and other resources that would allow us to put together a concept that would be technologically feasible. We have been able to work with several companies that are providing us with the knowledge. They are also being challenged in some ways because it’s kind of a shift in the way that we are doing things. They had technology that was close to what we wanted to do, but they never expected an application such as the one we are developing today.

“In terms of the components, we have three different kinds of on-vehicle devices. One works with only the odometer. The second one is a GPS only device. The third one as he mentioned is one that collects mileage with the odometer and then allocates a mileage fee via the GPS into zones. They are all wireless data transfer devices. They all work with

radio frequency in order to extract that information from the on-vehicle device. We have devices that will be installed at the gas station to capture information and then devices at border crossing points to turn the mileage collection on and off.”

“Integration software and communication links – I will describe that as well and the two types of databases that we are dealing with in our systems. “The integration software and communications links; that was developed by OSU. Right now, it’s kind of the brains of the system because it controls communication coming in from the different software components and then distributes that communication to the appropriate components. That piece of the puzzle might not be in place once this is deployed, but, right now, because, once again, the technology may be different or may be running in different platforms, we were forced to use the centralized component that controls the communications.

“That is completed, as well as the databases and the procuring of the central server that will be used, as I said, to test the concept of a centralized location for the storage of the data we collect.

“A critical component in our testing is to be able to perform the test plan in a scenario that is as close as possible to real life. We did a search at OSU, Chris Bell was fundamental in helping us in trying to identify locations. We were looking for a location that looked as close as possible to a gas station, so that we could simulate the operation of cars coming in, parking next to a fuel dispenser and then transferring the data – explore all the issues that come along with such a set up.

“We were fortunate enough to find a facility at OSU, the old OSU forest research lab, which used to be a former service vehicle fueling area. It looks very similar to a gas station. In fact, they had a pump that was then removed when it stopped being a place for vehicles to go and fuel.

“Now, once again, just to get closer to a simulation scenario, we purchased what is called a fuel dispenser simulator. It’s the same as a fuel dispenser that you find at a gas station. It does everything a fuel dispenser does. We have a carburetor. The only thing it doesn’t do is, obviously, dispense fuel, because we have it in one of our laboratories and that would be really bad. We are in the process, almost, to finalize the development of a test run.

“We are trying to identify user cases such as people driving out in the forest or people driving in downtown Portland where you have a lot of tall buildings that may block a signal. In terms of activation and deactivation of the devices once they cross the borders – we’re still working on that one because we don’t want our students to drive at 75 or 80 miles an hour, especially on roads that are not designed for that purpose. We are trying to develop as many user cases as we can and then install the devices and assess the performance to make sure we are within our specs.”

“We are also planning to simulate additional dispensers so we can deal with issues of interference or miscommunication and misreads.

Next steps – “We have a lot of the components that are fundamental to our system. We just have to integrate them now, also debug the system once it’s integrated to make sure we don’t have any errors. We are still working on setting up the test site. Obviously, once that is done, we can execute our test plan. We anticipate beginning our testing process by the end of December 2003.

The pilot field test - “What I would like to do now is describe the steps we are taking to move to a user testing phase in which we would like to test the technology configurations with actual drivers. We obviously don’t expect to do more than five vehicles in our prototype phase. The expectation is that we can do this user-testing phase with at least 400 vehicles. We are looking at between 400 and 500 vehicles. There are definitely some major challenges and a major task. Personally, I think identifying or the selection process of the drivers will be critical as well as the recruiting of gas stations to participate in this program.

“From a technological perspective the production of the on-vehicle devices and data transfer devices those volumes will be also fundamental. We don’t anticipate any problems in that regard. We have been talking to our different vendors in preparing them for that type of volume and they are agreeing that that is doable within our timeframe.

“The installation of the on-vehicle devices, there is a learning curve. Once that is over, the installation should be pretty easy. In fact, we are going to try that ourselves, installing the on-vehicle devices in our own vehicles. It will give us a pretty good idea how that works. We won’t want the users to do it themselves, but it is just an indication of how difficult that would be.

“Installing the equipment at the service stations, obviously that would involve some cost as well as time. Defining the concept of the central database site, if that happens to be the best scenario, then we will go ahead and do that. Otherwise, we will try to do something that is decentralized instead.

“As I mentioned before, there are no issues with the production of the on-vehicle devices at that level. As of right now, for the prototype phase, we are looking at a cost of approximately \$225 per device/vehicle. Once we move to an implementation phase the expectation is that that would drop because of the high volumes.

“We need additional packaging development. Right now, because of the development stage at which our companies are, it was not easy to develop the packaging that we need. That is something that we will be working with them for a few months exploring the challenges. They feel pretty confident that they can put together a device that could be exposed to high temperatures and humidity and moisture so that we can put it in a place is concealed from the user.

“Installation of on-vehicle devices - “The GPS devices, just because of their nature, in this case meaning, they don’t have to interface with the vehicle speed sensor, there are no

issues with installation. The only thing that it requires is power. Once they have a source of power they can be collecting miles.

“The only problem we have, as of right now, if we wanted to go with the odometer-based devices, they are vehicle specific. That is, obviously, a problem. Even if we wanted to create a device that has an interface to the OBDII on board diagnostics system, which I think most of the cars after 1996 have one. Even though there is a standard for that, still vehicle manufactures change that a little bit. They are not totally standard compliant. We need to do some additional development to come up with a universal plug-in so that once the device is in place you can just plug it in to the OBDII system or a standard vehicle speed sensor. So we are still working on those issues. It will take at least six months for that as additional development time for the companies to figure out a solution for us.

“Service station requirements – A point-of-sale system on a terminal, which most of them do have. I explained the issues with regards to the lack of standardization with some of the point-of-sale systems. At least, our capability to interface to what you see now is prevalent.

“For the pilot we expect to have data collection computers and software and as part of the technology configurations we data transfer devices and a dedicated phone line to transfer data back and forth. We understand that service stations have satellite leads and other types of data communication facilities, but for the purpose of our pilot we would like to have a dedicated phone so we can transfer data cleanly.

“In terms of doing that, in actually equipping service stations, I’m going to provide you with some cost figures to give you an indication of the level we’re looking at. The replacement of the point-of-sale system will be \$17,500 for five gas stations. It does not include the hardware. In other words, if there is no terminal, we would have to install additional hardware. We are banking on the fact they all have that already. The labor (two people working for one week) would amount to about \$8,000. That should be done during down times or overnight. The cost for the data transfer devices, this is the device that goes on the dispenser that communicates with the car and uploads the data would cost about \$235. Those devices, in turn, communicate with a centralized device at the gas station and that goes into the point-of-sale system and that costs about \$272. The installation cost for the five gas stations to support these devices would be approximately \$30,000.

Question from Dave Cox: “I didn’t see a similar cost or analysis for retrofitting the vehicles, but I can tell you that has been a real problem with other projects, trying to retrofit vehicles with GPS devices. It’s gone much slower than people anticipated. It’s been more costly than people had anticipated. I’m wondering what you are thinking. The question of what does a person do who is involved in this test when they want to sell their car. Are they restricted from selling their vehicle for the duration of the test? How are you handling that?”

Dr. Porter: “That is a good question. I don’t think I can answer the last point you made about people selling their cars. What I can tell you is that this is all retrofitting. For the user testing phase we’re going to recruit drivers and the devices will be installed on their vehicles for the duration of the test. Once that is over, then we will probably recover the devices and then the vehicles will be just the way they were before they decided to participate.”

Mr. Cox: “The instance that I am aware of was in Chicago. They had a goal of retrofitting, I think it was 5,000 vehicles with GPS devices. They found out they could only do two a day. Obviously, they don’t have that many days in their test plan.”

Dr. Porter: “I appreciate it. Maybe we are overly optimistic. I think we can do that faster. We’ll be working with them to try to identify a way to just make it a kind of a “plug and play” type of thing. Once the electronics are in place in the car, there might be some additional wiring that has to be done in the car, the device will just plug into that connection. Then we can test not only GPS, but also the odometer. Based on their figures from a labor perspective, they anticipate that taking about two hours per car. We have an opportunity to assess that with our test vehicles, so we’ll have a better idea of how many cars we can do per day.

“These are some of the costs for the dedicated phone line. The installation cost ranges between \$155 and \$650. I believe we got this from Qwest. It depends on the additional wiring that may need to be done at the gas stations. They have a monthly fee of less than \$30 per station.

“We’re still working on the central database site. We are considering a couple of sites that may eventually host the central database. One possibility is doing it at OSU. Another possibility is doing it at ODOT. If we do it at OSU, there are some licensing issues that we would need to address and we’re still addressing with Microsoft to make sure that we are not in violation of licenses.

“The service station selection – Because of the lack of integration with some of the prevalent point of sale systems, the company we are working with is not certified in some of the major oil company credit networks. They are certified with the standard credit network that handles most of the commercially available credit cards. I’ll give you an example, if you wanted to use a Chevron only credit card to purchase fuel, they are not certified in those credit networks and therefore, we cannot do it that way. If we wanted to do that, it would probably require an additional six months. They have made a commitment that if that were the case they would probably absorb the cost of going through the certification process which is a plus to the project. Right now, we’re targeting independent gas stations as a possibility for our pilot.

Summary of preliminary cost (400 vehicles, 5 service stations)

		Qty	Sub Total
On-Vehicle Devices			
Cost	\$223	400	\$89,200
Installation	\$150	400	\$60,000
Data Transfer Devices			
Dispenser	\$235	80	\$18,800
Service Station	\$272	15	\$4,080
Installation	\$6,000	5	\$30,000
Service Station			
POS System (1 terminal)	\$3,495	5	\$17,475
Installation	\$1,600	5	\$8,000
Dedicated Phone Line			
Installation	\$131	5	\$655
Operation (1 year)	\$324	5	\$1,620
		Total	\$229,830

Question from Pat Egan: “In doing my own rough calculations, it seems to me that the economic and the political challenge here ultimately is going to be, let me fast forward 10 years down the road, if it’s a flat 1.25 cents per mile and you get into a vehicle purchase, or if it’s purchasing high mileage vs. low mileage, at 24 cents a mile, I think that’s about at 20 miles per gallon that’s about your break even point. At 15 miles to the gallon, I might even consider a retrofit, because over a period of time, I might save money. At anything above 20 miles a gallon, this starts to look like a bad deal to me and for the people who, which is an interesting political dynamic, given the people who might be more likely to buy the higher mileage vehicle, they may not be in support of this.”

Mr. Whitty responds: “The Highway Users Alliance Conference a week ago – they jumped right to that issue, too. What this tells me is the rest of this makes some sense. They jumped right on the rate and the Road User Fee Task Force decided not to really develop the rate as an issue and not got into all the ramifications of choosing a flat rate vs. a graduated rate based on different factors like weight. The main reason the task force decided to do that was because it was too complex. Mostly it’s because as a political issue, it will best debated at the legislature. The task force could decide to take that issue on and make a more elaborate recommendation if they wanted to. But, those issues are really tough. They are the ones that probably stall this concept more than anything else – that is, “How do you apply the rate?”

Mr. Egan: “This is not the time or place necessarily to talk about it, but this may ultimately be the place and not the time. The reason I say that is I do think that you overcome that issue at 15 miles to the gallon. You’ve done an excellent job, I think, in developing this from the technical to identifying all the political issues. But, I think ultimately, that once you’ve proven the technical feasibility, that’s the one, politically, that is going to be the most salient. I know you know that, I’m just saying, from where I set and from where I think Senator Starr and Representative Brown would sit, that would be one of the first things on the list to consider.”

Mr. Whitty: "I would think that as we get closer to an actual bill introduction, that issue becomes all the larger. It will then be more compelling to figure out how to address it."

Senator Starr: "From my perspective, I think the real excitement that I see here is the fact that I think we've begun a conversation here in Oregon that is one that's spread across the country. The State work that we're doing here is important work that will pay dividends in the long run. There is no question that the ability of the Oregon Legislature to pass a state law that regulates how vehicle manufacturers across the world build their cars or tell the big oil companies how to collect a mileage fee is quite limited. I know that's a huge challenge and opportunity for a federal standard at some point to be enacted and at some point it has to be a place where there is a deadline out there that says every vehicle sold in America has "X" in it and this is the system that they are going to adopt. It's not a state system where you have a patchwork of how you pay for these things, but it is a national standard. I'm just thrilled at the work, the research, and the hard work that's gone into this process from Professor Kim and Professor Porter and the folks at PSU and other places."

Mr. Egan: "You all deserve a lot of credit. This is very well developed. I think you've done a great job so far."

Mr. Whitty: "The timeline for the pilot we are asking Federal Highways to shift it a bit because of recognition of practical issues such as what David Cox raised earlier. The logistics for this are difficult. The assembly of the equipment will be completed in December; the operational test – December to March. For the field test, we are in the process of contracting with a consulting firm to actually design the test and the implementation plan, which is who does what – who snaps the devices into the cars, who puts the devices into the service stations and who does the whole darn thing. We expect to begin implementing that plan in July 2004 to January 2005 with a switch on date of February 1, 2005. We talked about doing that in June of 2004. After the session ended and we looked at each other and talked through some of this, we said, "It's not possible." We could probably start, but then we would have to do it over again. Completion of the pilot would occur in January 2007 and evaluation occurring after that. That's in time for a 2007 session action if that makes sense at that time."

Mr. Egan asked how the test vehicles will be chosen, whether they would be state fleet vehicles, volunteers or anybody. Mr. Whitty said that we want to use "real" folks for the test vehicles. It would be really easy to use state fleet vehicles, but that isn't the objective. Senator Starr confirmed that we want to have real people involved. It obviously, makes it a little more challenging. Mr. Whitty said that if we run into difficulties getting service stations and people involved, we may need to back off on the preferred methods. The consulting firm that will be hired soon will help identify specific area where it might work (somewhat congested area, not as large as Portland). Professor Porter said that finding motivated drivers is going to be key in selecting them.

Mayor Torrey: “Is there any possibility for security reasons the federal government would shut off access to the GPS systems?”

Mr. Cox: “I can’t really answer that. There are two levels of GPS signals. It used to be that we could operate at the lesser level and many of these tests across the nation have been done on a lesser level. Now the government has to work from a precise level. The logical step if they were to restrict a signal would be to restrict the highest point and let us go back to what we had previously. That has been accurate enough to do many other of this type of test around the country. That’s what I think the first step would be.”

Brian Doherty: “It sounds like any of these systems in the pilot project are going to need to interface with existing point-of-sale systems. It’s not going to run separately with the service station, but it has to integrate. Obviously, whether you are going to charge the gas tax or the VMT fee and there’s no way of doing that separately. One of our concerns has been you’re getting into proprietary system. Right now, that’s the way it has to be designed in order to do that. You have to interface with the point-of-sale system.”

Mr. Whitty encouraged Mr. Doherty and the other attendees to look at what’s being done at the test site, ask questions and point out problems. He hopes to hold a future meeting in Corvallis, Oregon on the Oregon State University campus test site.

Mr. Whitty asked the task force if there were any other potential revenue sources they would like to explore. Being none, the meeting adjourned at approximately 11:45 a.m.