



**OREGON DEPARTMENT OF TRANSPORTATION**

# **SUMMARY OF TRANSPORTATION ECONOMIC AND REVENUE FORECASTS**

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*Economics & Financial Analysis*

## **FOREWORD**

This summary report presents a selection of Other Funds Revenue forecasts for the Oregon Department of Transportation. It is published twice a year to assist in financial planning, the formulation of transportation budgets, and to support other decision-making activities. The forecast is consistent with the Department of Administrative Services' *Oregon Economic & Revenue Forecast (Vol. XXXV, No. 4, December 2015)* and the associated baseline macroeconomic forecast from *IHS Global Insight Inc. (GII)*.

This document is also available online at: <http://www.oregon.gov/ODOT/TD/EA/Pages/revenueforecasts.aspx> and scroll down to the "Most Recent Forecast."

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### **On the Cover:**

On our cover page of the *Forecast* report, there's a picture of the stylish and heralded "driverless" car under development by a web search-advertisement company. Driverless – or more currently "autonomous" – cars are the imagination of technology enthusiasts with the idea of virtually eliminating vehicle collisions, which do exact a tremendous cost on societies at large.

That prototypes are currently traipsing around in tests is truly a technological marvel. However, although seemingly on the cusp of the technological frontier, such concept cars have been around since the mid-1980s (Carnegie Mellon University's *NavLab* project). Without a doubt, microprocessors, sensors, and artificial intelligence ("AI") have advanced considerably since then, but the driverless prototype has been with us for over a generation already. So, the current crop of prototypes does not embody an entirely new technological concept by any means. Essentially, they are the ultimate advance in motive technology over the current "connected" cars and drivers' assisted vehicles currently coming to market. The observation that the rate of advance has been quite measured suggests the possibility that the reality of a homogeneous fleet of autonomous vehicles may be farther off than backers are proclaiming in the media. A number of factors come into play in this regard, and they represent a broad spectrum of issues spanning legal/regulatory, behavioral, and even technological elements.

Starting with an example of the last aspect, researchers have encountered some major difficulties in the current Generation 1.0 of autonomous vehicles in testing under real world conditions. In essence, they have discovered that their vehicles are programmed to work according to or within traffic rules in a predictable fashion. Conventional cars with a driver at the helm, on the other hand, do not always stay within the rules of road, creating

unpredictability for AI vehicles. Developers, as a result, are looking to launch a Gen 2 prototype that tries to operate safely in such real world conditions of not following traffic rules! This is likely to be a somewhat more formidable task than tackled in the Gen 1 versions no doubt, and could conceivably take longer to develop, given the limitless possibilities. In addition, it is well recognized that the current versions are very inhibited under a variety of bad weather conditions.

Secondly, there are a host of thorny legal and regulatory issues which present themselves. For instance, are the OEMs of driverless vehicles willing to assume even more liability in many cases? How do state driver and vehicle regulators write thorough rules required for using autonomous vehicles on public roads (and how long will it take for 50 separate entities)? So far, there is only a patchwork, at best, of *proposed* laws/rules for just 23 states, and Congress is only just now convening hearings to investigate the advent of driverless vehicles on public roads. Finally, what stances will the auto insurance industry carve out with the prospect of driverless vehicles?

Notwithstanding these hurdles, the adoption – or market penetration – of autonomous cars will rest significantly on a number of elements which been largely ignored in the media coverage. First, there is not much being said about the price point at which these vehicles will hit the commercial market. Nascent technology typically comes at a cost that will probably be beyond the financial wherewithal of all but for the high-income earning or wealthy households. Second, and collaterally, given the demand for mobility across the entire income spectrum, the fleet of light duty vehicles will likely remain very heterogeneous and for a very long time. Third, public distrust of driverless vehicles is currently quite high (75 % according to AAA). Finally, it is very unclear how car makers and their advertisers get car buyers all exhilarated about buying new models with images of occupants huddled over their scrabble game boards while plodding safely along. It would seem plausibly that some maturation with connected vehicles and advances of automatic technologies (braking, for example) will continue to be with us for quite a while before totally driverless (i.e. no steering wheel and without driver intervention) vehicles make meaningful inroads into the LDV fleet.

In the present context of the State Highway Fund Revenue Forecast, the germane issue is of course the potential revenue impacts from autonomous vehicles, if any. That is a discussion for another report down the road a ways.

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## THE REVENUE OUTLOOK IN BRIEF

The outlook for projected revenues to the State Highway Fund shows virtually little change from the prior forecast from June 2015. For example, revenues are forecast to be only \$3.3 million lower in the current 2025-2017 biennium, or about one-tenth of a percent less. For the next biennium, there is essentially no change: only \$900,000 over the two year stretch. For the two biennia combined, revenues are projected to be only \$0.6 million lower per year on average.

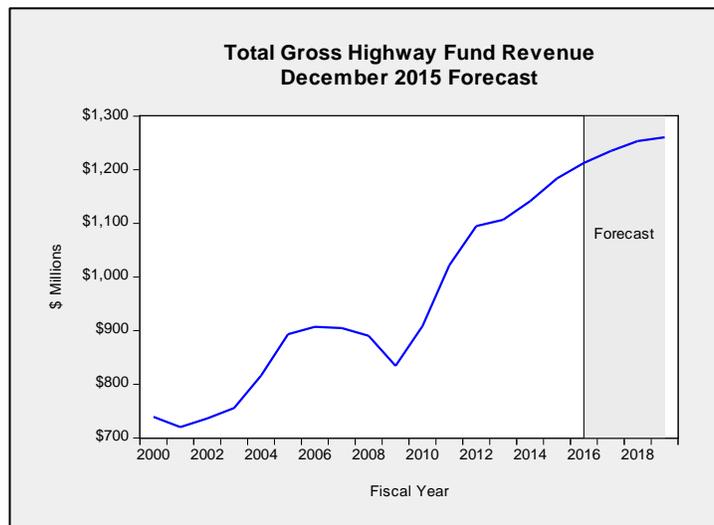
The underlying basis for this invariant forecast is shown by major revenue source in Table IB.1. DMV fee revenues are very slightly higher than before, while user tax revenues are very slightly lower. The net result is basically no change in the revenue picture.

**Table IB.1: Gross Revenues – Change from Prior Forecast**

	2015-17 BI	2017-19 BI
<b>TOTAL</b>	<b>- \$3.3 MM</b> { - 0.13 % }	<b>\$0.9 MM</b> { 0.0 % }
<b><u>DMV:</u></b>	+ \$6.2 MM { 1.0 % }	+ \$4.1 MM { 0.6 % }
<b><u>MCTD:</u></b>	- \$2.0 MM { - 0.3 % }	- \$4.5 MM { - 0.6 % }
<b><u>Fuels Tax</u></b>	- \$7.5 MM { - 1.2 % }	\$1.3 MM { 0.2 % }

The forecast is based on fundamentals, meaning that no tax increases or fee increases from changes in statutes occur in the forecast period. There have not been major increases in any user taxes or fees since the *Jobs and Transportation Act* (JTA) enacted by the Legislature in 2009.

With little change in the overall revenue forecast, forecast growth patterns going forward continue to be quite gradual. Total gross revenues are projected to rise annually at a rate of only 1.6 percent. The adjacent chart depicts this modest growth in the post-JTA years. The sources of revenue growth are, however, somewhat uneven. Fuel tax proceeds and heavy truck revenues expand at similar rates: 2.3 percent and 1.9 percent, respectively. However, driver and vehicle fee revenues



very nearly do not grow at all. These are expected to increase at only a 0.2 percent annual rate. Since driver and vehicle fee revenues are linked to the state’s demographics, the underlying growth elements here are traditionally more muted than the pace of economic activity, which drives fuel usage and freight movements and, thus, user tax revenues.

The net resources available to ODOT for maintaining/repairing and enhancing the highway network are reduced by collection and administrative costs, by dedicated transfers out of the Highway Fund, and by apportionments to counties and municipalities for their local roads. Once these are all captured, the net revenue growth diminishes to 1 percent annually. This is largely a reflection of the reality that operating costs are escalating at a faster pace than gross revenues, in lieu of any transportation funding initiatives.



What drives the revenue outlook for the Highway Fund? The revenue forecast models are based on empirical relationships that tie together a multitude of factors. These generally fall into two broad categories: demographics and the pace of economic activity by Oregon households and businesses at large. For fuel taxes and heavy truck weight-mile taxes (“usage” taxes), revenues are positively correlated with employment, personal income largely from wages and salaries, and manufacturing activity. Use tax revenues are inversely correlated with vehicle fuel efficiency and to the price of fuels (inflation adjusted). As a result of falling gas prices beyond that expected over the past year, there has been a slight boost to fuel tax revenues that augments the activity variables. Higher employment levels and rising incomes (adjusted for inflation) are the fundamental determinants of overall travel demand. Vehicle miles of travel statewide (“VMT”), as well as nationally, have been quite resilient of late in year-over-year comparisons.

Most revenue tied to fees from drivers and vehicle registrations are linked closely with Oregon’s demographic makeup. However, there are still some links to economic activity; for instance, revenues linked to title fees for new car and light truck purchases.

The revenue forecast models are directly and closely linked to the state economic forecast and to a macroeconomic forecasting service. Combined, these represent all the economic and demographic assumptions at both the state and national level that are used in producing the Highway Fund Forecast.

Presently, the Oregon employment and personal income outlook is somewhat mixed. While both are somewhat more robust of late, they still pale compared with prior economic rebounds going back nearly four decades. Nevertheless, the employment level exceeded its prior cyclical peak (1,732,000) in the second half of 2014 and currently stands at 2,018,000 as of February 2016. The statewide unemployment rate continues to set cyclical lows at 4.8 percent as of February 2016. The anticipated pace of growth in jobs diminishes, however, in the years farther out in the forecast horizon, with the caveat that the more distant forecasts are subject to somewhat more uncertainty.



The balance of the report is comprised detailed narratives on the **National Economic Outlook** and on the **Oregon Economic Outlook**. With these as backdrops, the report turns to detailed discussions of the forecast ingredients for the leading sources of revenues: **Motor Fuel Usage**, heavy truck transactions ("**Motor Carrier**"), and **Driver and Motor Vehicle** transactions ("DMV"). Finally, forecast quantities are reconstituted as revenues to the State Highway Fund in the section **Highway Fund Revenue Forecast** using current tax rates and fee schedules.

## NATIONAL ECONOMIC OUTLOOK

As has happened over the past three years, severe weather conditions in the first part of 2015 were offset by encouraging economic rebounds a quarter or two later. Also similar to the recent past, the sources of this lethargy have been the same: subpar fixed investment outlays by businesses, negative net exports, and inventory builds (goods produced but not sold, thereby piling up on shelves in warehouses). Government spending overall was about neutral to growth, as well.

The net result is that in 2015 the U. S. economy racked up an inflation-adjusted gain of only 2.5 percent over 2014. This performance stacks up to slightly over 2 percent per year since 2011, which was the second year of the economic recovery. That is roughly only one-half of a normal growth path, particularly out of such a deep trough.

With the economic downturn in the oil patch (along with the natural gas glut), the only source of momentum in the economy resides with consumer spending (predominately housing and consumer durable goods like cars, light trucks, and SUVs). However, even for this dominant source of overall aggregate demand in the economy (roughly two-thirds), consistently strong growth has been elusive. Sluggish advances in personal income no doubt come into play in this regard.

Most recently, real GDP grew at an annualized rate of only 1.4 percent in 2015QIV. Personal consumption spending contributed about 1.7 percentage points to overall growth, which was offset by a decline in business capital spending, flat government outlays overall, and net exports being a drag on growth.

Conditions on the labor market side of the economy have not been quite as subpar, although they have not been particularly stellar in comparison to past recoveries. Worker wages and salaries have been in a state of stagnation since 2006-2007.

Job gains in 2015 saw a 2.1 percent increase over 2014. This was the best advance since the recovery began in 2010. Job growth averaged about 240,000 jobs per month, although none of the peak months exceeded what was experienced in 2014 (three months in which job growth exceeded 300,000).

Job growth over the 2011-2015 span averaged 1.7 percent per year. So, the job market has been gathering a little bit of steam from that perspective. However, the quality of these jobs overall (part-time hours rather than full-time, over-qualified workers for the jobs that were taken, and stagnant compensation) still tarnishes this job recovery.

On a more refined, quarterly basis, the labor markets' improving momentum is evident as well. Year-over-year growth is now running at a 2.1 percent clip, slightly up from 1.7-1.9 percent seen in 2013-14.

In general, it is typical for employment gains to lag gains in output, as firms meet growing product and service demands by expanding hours of existing employees in lieu of new hires, by increasing capacity utilization, and creating strong productivity gains. However, total labor input (the combination of workers and hours of work – “nonfarm aggregate hours”) may have passed an inflection point of indicating weakening demand for new hires going forward, especially since the late 2014 to early 2015 timeframe. Year-over-year growth in aggregate hours is presently running at a clip

of nearly 2 percent, down somewhat from the rate of 3 to 3.5 percent attained briefly in 2014/2015. It has, however, seemingly leveled off at this rate recently.

The current rate of unemployment nationwide has dropped to 5.0 percent (March 2016) from 5.5 percent a year earlier in March 2015. Thus, only modest improvement has been made over the past 12 months on this particular labor market metric. For all of 2015, it has averaged 5.3 percent, down from 6.2 percent in the year prior. While seemingly good progress, this masks the fact that there are still a large number of people who have dropped out of the civilian labor force that would not have occurred had job prospects been better. (Retiring baby boomers, however, would be an exception to this phenomenon, and their retirement

from the labor force is having a noticeable, negative impact on the participation rate.) The comparatively low labor force participation rate of the working age population could start to reverse itself with sustained job growth at rates of 2 percent or more.

Lately there has been increasing conjecture about the recovery – and its Fed-led rebound in the stock market – being a little “long in the tooth,” and for an imminent recession to ensue shortly, albeit not harshly so. However, there are no rational laws of nature that dictate the lifespan of an economic expansion. Major changes in fundamentals, policy missteps, and black swan shocks are the customarily culprits bringing the onset of recession. In this regard, the current expansion may outlive these oracles of gloom for some time. Some subsurface labor market metrics suggest there is probably a ways for this expansion to run, barring an emergence of any of the

risks to the outlook that are itemized later in this section.

First, the worker quit rate has continued to build momentum since bottoming out in 2009-10. This has always been a reliable indicator of worker confidence about the economy. The quits percentage rate surpassed its average in early 2015, and continues to move higher at increasing rates. It has a ways to improve further before it reflects frothy exuberance. Secondly, the mix of jobs from low-wage to high-wage is becoming more evenly distributed as the job markets advance. Overall household incomes should start to accelerate as a result. This should further prop up the personal consumption sector of economy. Finally, consumer confidence in the economic outlook is strong, and stably so.

### **Continuing Developments in Crude Oil Markets and Fuel Prices**

The oil production “renaissance” described in the earlier reports has currently manifested itself in a crash of crude prices, both domestically and globally. And with the cratering of crude, gasoline and diesel prices have followed suit, much to the delight of drivers and households nationwide. However, the declines have been so substantial and rapid, that the energy sector has been slipping quickly into the doldrums for well over a year now. It had been the singularly most potent source of economic growth in the present U. S. recovery. Now, it is exacerbating already sub-par capital spending by businesses and acting as a drag on growth.

During the early fall of 2014, the predicted glut in domestic crude had driven prices down from \$107 a barrel to the low- to mid-\$80s. This represented a relative decline of roughly 25 percent, a major decline by any standard. However, the expected gluts

(domestic as well as globally) were not met with production cuts by OPEC producers and other large producers such as Russia. Such a reaction would have sacrificed market share to North American producers (U.S. oil shale and Canadian oil sands) in order to maintain prices at least at the \$75-\$80 level. (This is thought to be approximately the fiscal breakeven range for the major – and swing – producer of OPEC, Saudi Arabia.)

However, at the OPEC meeting in Vienna in late November 2014, some members (predominately Saudi Arabia) decided that market share had to be preserved. This precipitated the only market adjustment possible: a further decline in prices for all crude, essentially driving North American producers to do the production cut backs based on their higher cost structure. Domestic crude fell to \$45 per barrel, for an overall bear market move of nearly 60 percent in less than six months. It seemed half way into 2015 that prices were settling down at roughly the \$50-\$60 level, though there were some observers who were predicting further deterioration to as low as the \$25-\$30 level. With 20-20 hindsight, these observers were found to be quite prescient, with prices weakening even further to a low of \$28 per barrel (weekly average) as recently as mid-February of 2016. Prices have, however, recovered very recently to the \$36-\$38 level. So much for “peak oil” for the time being.

The upshot for the macroeconomic outlook is mainly threefold. First, and foremost, American households have received what is the equivalent of a very nice “tax cut.” Retail gas prices have declined by roughly \$1.25 per gallon to less than \$2 in many states, so far. Typical households are likely to spend \$500-\$750 less per year on motor fuels at these levels. Most of this money

will now be diverted to more discretionary spending. With roughly 120 million households in the U.S., that represents a \$75 billion stimulus to annual consumer spending. Unfortunately, these effects are proving to be somewhat elusive; consumers so far don’t seem to be spending as much of the windfall as widely expected.

Second, it has been observed that American households display a very positive correlation between fuel prices and consumer sentiment that may factor into spending decisions. Lower gas prices foster optimism and more spending, and high prices engender pessimism and more restrained spending. So, persistently low gas prices may start helping households regain more spending momentum.

The third element of the sharp decline in crude and product prices is less conducive in stimulating economic expansion. Reduced production carries with it oil-field worker layoffs. In addition, cuts in capital spending by the oil and gas exploration and production sector adversely affect the oil services industry. Slowdowns here, and in the magnitude anticipated, will dampen the pace of economic activity to some extent.

What is the probable duration for this new period of lower fuel prices and the attendant broad-base economic stimulus it represents? While that could be anyone’s guess, the short answer is that it could last at least 3 to 5 years – or until the world demand for oil grows enough to catch up with over-abundant supplies. This would not be too dissimilar to the events which began in 1985-86, and that low-price era endured until 1999. So, this was a period of cheap oil and gas that spanned 13-14 years, excluding the brief time around Operation Desert Storm in the Middle East. The outlook going forward is not likely not to be

similar to the robust rebound from the price collapse of 2008-09, for the simple reason that horizontal drilling and hydraulic fracturing were really in their nascent stages of commercial production at that time.

### **Current National Economic Outlook**

The present outlook for the nation's economy is virtually unchanged since the Summer 2015 forecast. There is a slight improvement, however, and this is largely attributable to slightly more strength in labor markets and personal incomes. In addition, there is a boost to economic activity arising from the continued, unexpected weakness in oil and gas prices. However, the net effect on this score is quite muted for the rate of growth and jobs gains overall, in contrast to the crash in oil prices that occurred in late 2014 through the first half of 2015.

The picture for job growth largely reflects the growth of economic output, but with a bit of inertia as labor markets continue to lag real output. Total non-farm employment is forecast to rise at a 1.5 percent clip in 2016, unchanged the pace from six months ago in June 2015. Job gains lose a little momentum in 2017 at a 1.4 percent rate, and, moreover, by 2018 job growth slackens to just 1.2 percent. The pattern persists farther out in the outlook at about 1 percent for 2019-2020. On average the job markets reveal growth over the 2015-2018 period of 1.5 percent, about the same as in the prior outlook.

The slightly mixed picture between economic growth and job gains would seem a bit at odds. However, they are tightly connected through worker productivity. This refers to output per work-hour; so, the connection is actually intuitive. Output growth is the combination of the growth in hours of work in the aggregate and the

growth in output per work-hour. Productivity gains have been low since 2011 but are expected to start a gradual uptrend in 2016, approaching rates of 2% going forward to 2019. As a result, real growth of only 2.5 – 3.0 percent can be attained with only having job gains of 0.5 – 1.0 percent or so. A wildcard that causes the connection to slip is what happens to business spending on equipment and structures and how that affects labor productivity. Vigorous capital spending engenders healthy productivity gains, negating the demand for works somewhat. On the other hand, weak spending softens productivity, which would necessitate more hiring, all else equal.

Of course, Oregon's economic condition is strongly connected with the nation's, and the pace of economic activity regionally is what dictates largely the usage and capacity demands placed on the state highway system and its local roads and bridges. It also has a very direct bearing on the revenues generated from fees and user taxes to maintain and enhance the state's road/bridge infrastructure. Thus, the risks to the highway revenue forecast largely reside with those at the national level, and those are themselves connected somewhat to global risks at large.

Headwinds that pose challenges to an acceleration in the economic recovery are numerous, and are largely of global origins.

- The European Union weathered the sovereign financial crisis of 2011, but monetary stimulus by the ECB is still proving to be largely inadequate in generating economic expansion and making a significant dent on unemployment levels. With stagnant economies and sporadic signs of deflation, the European Central Bank

(“ECB”) has continued with a trillion-euro quantitative easing program of its own since March 2015 (equivalent to roughly \$1.1 trillion). It is not too dissimilar to the Fed’s QE program of the past six years, the results of which are still to be determined.

- European central banks and even the Bank of Japan have turned to taking policy interest rates into negative territory. For commercial banks in Sweden, Denmark, Switzerland, the Eurozone, and in Japan, this means having to pay a premium to the central banks instead of earning some interest on reserves or short-term lending. This should logically spill over to the short-term deposits held by individuals and business. While the overall logic is to incentivize lending farther out on the maturity spectrum, this is uncharted territory for monetary policy on such a broad scale, and is not without a growing cadre of skeptics and critics, if not disbelievers. It most certainly has the potential of giving a new dimension to the expression “cash is trash.”

The continued sovereign debt crisis in Greece exacerbates the seriousness of the situation in Europe and any spillover to markets globally. How well events unfold here, and for Euro-zone as a whole, will largely set the stage for the fiscal travails in Spain and Italy, as well.

- The previous bullet point underscores a new twist in central bank coordination globally since the crisis in 2008. Rather than

collaborative and reinforcing policies, there is now a divergence in direction, although coordination is still retained. Europe and Japan are in QE mode and negative interest rates. Other countries are turning to monetary ease to stave off recession (Canada, Australia among others), while the U. S. has ended QE and is starting to normalize monetary conditions. This is new, uncharted territory with a hopefully pleasant ending, but it probably won’t be without some hiccups, at best.

- For a number of countries, currency depreciation/devaluation is becoming the growth strategy of choice. For those nations with thin capital and foreign exchange markets, the prospects for financial instability rise considerably. Collateral with this would be a strengthening U.S. dollar, which hinders our exports and impedes growth somewhat. It also tempers price inflation on our imports, which makes the Fed’s achievement of its inflation targets a little more difficult.
- There does not seem to be an end to continual flare ups – both old and new - in geo-political tensions. These pose a risk to solid economic growth globally.
- Business fixed investment spending, which has been soft the last few years, may be less robust than usual unless capacity utilization rates rise significantly, or foreign demand for our exports gains serious momentum. The last four years saw some weakness in capital goods and plant spending, and healthier growth

is not expected until well into 2016, albeit at rather subdued rates for this stage of a cyclical growth.

- It will be hard to sustain a strong recovery going forward unless the financial sector continues to mend and uncertainties mitigated. Although Fed policy had been extremely favorable on this front, the new regulations stemming from the Dodd-Frank financial industry legislation are creating a vastly different landscape for financial institutions to navigate. This has perpetuated excessive reluctance in lending practices and asset management in general which can detract from growth.
- There is the potential for policy missteps – either at the federal fiscal level or at the monetary policy level (no one is perfectly sure how the Fed’s steps to “normalization” will turn out), or both – that could create some down drafts to a sustained recovery and full employment growth.

In the aggregate, the foregoing risk factors would seem to pose a daunting challenge for the U. S. economy going forward. There are, however, some positive aspects that have been slowly building, which could help the economy attain escape velocity to stronger growth:

- With vastly improved balance sheets and modest improvement in real disposable income, households are propelling housing and, in particular, purchases of consumer durables (i.e. cars and light trucks). Both of these are significant levers in boosting growth. There are signs on both

fronts that both of these sectors still reflect signs of some pent up demand.

- There is considerably less susceptibility to derailment into a contraction should any of the negative risk factors enumerated above play out.
- Housing related activity is said to account for roughly one-seventh of total economic activity. While 2010-2012 saw improvement in this sector across all regions of the country, it had slowed down somewhat for the past three years. Affordability has been improving since mortgage rates came down from their spike in mid-2013, which emanated from the Fed’s mention of its intention of “tapering” its quantitative easing strategy. In addition, lending restrictions and sub-par income growth that served to impede the growth are slowly starting to recede.
- The balance sheets of nonfinancial corporations are heavily cash laden, and borrowing has continued to be very cheap in capital markets. Progress out of Washington D.C. to effectively repatriate foreign retained earnings would further boost these catalysts to growth.
- The renaissance in the country’s oil and natural gas sectors had rather potent consequences for the pace of economic activity and for energy prices to stimulate economic growth. Recent developments, however, may shave a little off this boost going forward, but consumer spending

should get a boost from lower energy prices..

Table 1 summarizes several national economic indicators upon which the forecasts are based. The transportation revenue forecast is consistent with Department of Administrative Services' December 2015 *Oregon Economic &*

*Revenue Forecast* and the associated baseline macroeconomic forecast from *IHS-Global Insight Inc.* (IHS-GII). In addition, detailed excerpts on the national outlook from IHS-GII, as well as the complete state economic outlook are available at the web site of the Office of Economic Analysis, <http://www.oea.das.state.or.us>.

## OREGON ECONOMIC OUTLOOK

Consistency is the theme as this forecast for Oregon's economy closely mirrors the prior forecast. Solid growth in employment and personal income has arrived and are expected to continue through 2017.

The unemployment rate, which had stagnated through much of 2014 at around 7.0 percent, started dropping towards the end of the year. The beginning of 2015 through April has seen the rate fall rapidly to 5.2 percent only to see it rise again to 6.2 percent by September as the number of unemployed increased. This increase is not necessarily a sign of any labor market problems, rather is more a result of workers re-entering the labor force and looking for jobs. Hopefully with firms increasing their hiring these people will find employment and the unemployment rate will fall again, rather than the alternative of once again dropping out of the labor force.

A long term factor and unfortunately not a positive one impacting the unemployment rate is the declining labor force. As noted in previous forecasts, the large Baby Boomer generation is entering their retirement years and leaving the labor force. This gap will present new challenges for the Oregon economy as these knowledgeable professionals move on and potentially change how they interact in Oregon's economy. However, as these individuals leave the labor force this opens up opportunities for the generations that follow.

The U.S. Bureau of Economic Analysis has recently released a new data series of quarterly GDP by state grouped by twenty one industry sectors. In Oregon, GDP advanced rapidly in the first quarter of 2015 at a 6.5 percent rate compared to a national average of 0.7 percent. In the second quarter, Oregon GDP growth slowed to 3.9 percent closely matching the national average of 3.8

percent. This solid growth should continue to position us as one of the fastest growing states.

Another sign of growth is the increase in the number of surrendered licenses. As people move into Oregon from other states they turn in their old license and get a new Oregon one. Growth stagnated during the 2009-2012 period, matching the recession nationwide and the sluggish expansion. As the economy began to recover, surrendered licenses grew by nine percent in 2013. 2014 finished even stronger at ten percent growth. Currently growth is on track to surpass 2014 growth rates and exceed the largest total number of surrendered licenses experienced during the tech boom in 1996.

Housing starts which have been growing since 2010 have stalled in 2015. Growth is expected to pick up in 2016 and continue throughout the forecast, reaching 23,000 by 2019 as population increases and underbuilding during the recession catches up. However, this does not get us close to our peak of 31,000 in 2005, which is a good sign that we're not expected to entertain another housing bubble anytime soon. But since capacity is low this could impact housing affordability from both a purchasing and rental perspective.

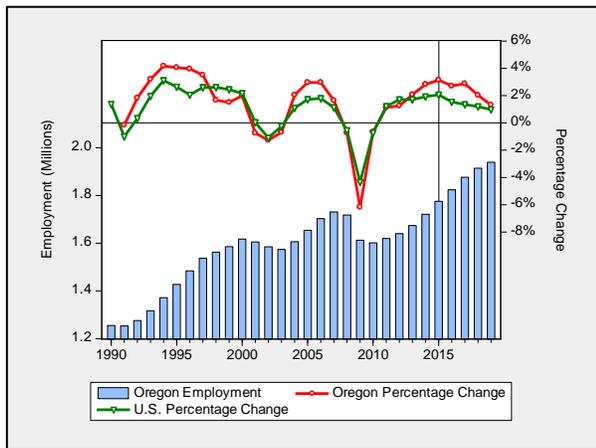
**Total Non-Farm Employment** peaked in the first quarter of 2008 at 1,738,000 and declined to 1,592,000 in the first quarter of 2010, a loss of nearly 150,000 jobs. The state's job growth resumed in the second quarter of 2010, but growth was inconsistent, albeit positive through 2012. Beginning in the first quarter of 2013 growth has consistently increased at rates exceeding 2 percent on an annualized basis reaching a high of 4.5 percent in first quarter of 2015. During the

fourth quarter of 2014 we finally recovered all the jobs lost during the recession.

Overall, Oregon’s employment growth is at the expected high of this current expansion with growth rates exceeding three percent on an annual basis. Strong growth is still expected to continue through 2017 before slowing the forecast out years.

Historically, average employment growth in Oregon is stronger than in the U.S., although during recessionary periods Oregon’s industry mix can lead to larger losses than the U.S. as a whole. While both the U.S. and Oregon have experienced negative growth in aggregate employment during 2008-2010, Oregon shed relatively more jobs throughout the recent downturn. However, Oregon’s employment growth is expected to outpace the national average throughout the forecast period. Oregon’s employment is expected to grow at an average rate of 2.4 percent through 2019, while the U.S. employment is expected to grow 1.4 percent during the same period.

**Figure 1: Oregon and U.S. Employment Trends**

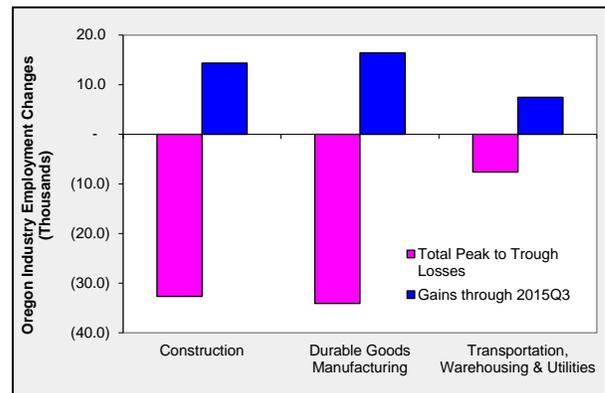


The pace of economic activity has a direct and significant influence on tax revenues derived from usage of the state highway system. A more detailed look at specific industries in Oregon can shed light on where

the strengths and weaknesses currently reside, and what the outlook is for these sectors.

Figure 2 highlights some of the industry sectors which have special significance to transportation activity. They are Construction, Durable Goods Manufacturing and Transportation, Warehousing and Utilities. As noted above, total employment losses from the peak employment in the first quarter of 2008 to trough employment in the first quarter of 2010 was a net loss of almost 150,000 jobs. While we’ve recovered those lost jobs the recovery wasn’t proportional to the industries that lost them. Half of the jobs lost over this period were in the three industries represented in the chart below. As the chart shows their gains were not proportional to their losses. Only 20 percent of the gains since the low experienced in the first quarter of 2010 have been in these three industries, with the Transportation, Warehousing and Utilities industry the only one of the three to have essentially recovered the lost jobs. This leaves a sizable gap in the other two industries going forward that is not expected to be closed over this current forecast horizon.

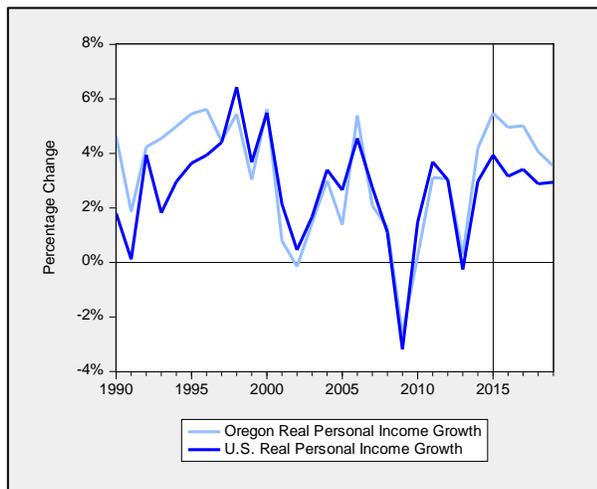
**Figure 2: Oregon Employment by Selected Sector, 2008Q1-2015Q3**



The relative growth rates projected for selected Oregon industries along with other indicators are reported in Table 2 on page eleven.

Oregon’s **real personal income** growth has rebounded mildly after experiencing declines in 2009 and 2010. Personal income, about 50 percent of which is derived from wages and salaries, was inconsistent through 2013 but growth has stabilized above 5 percent in 2015. In general, as shown in Figure 3, Oregon’s recent progress mirrors that of the U.S. Going forward, the forecast predicts growth for Oregon to outpace that of the U.S., averaging 4.4 percent through 2019 on an annualized basis, while the U.S. averages 3.1 percent, matching the gap predicted in the prior forecast.

**Figure 3: Oregon and U.S. Real Personal Income Growth Trends**



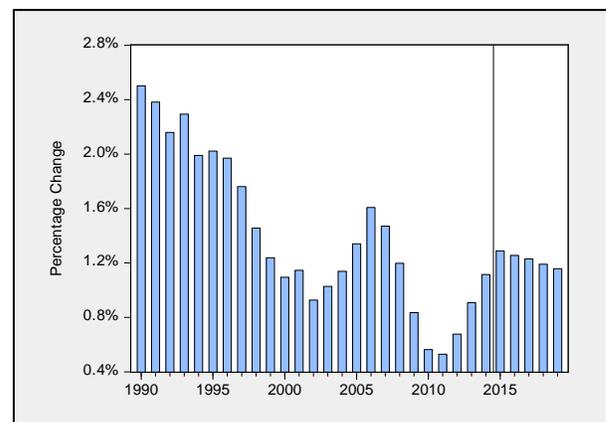
In summary, both income and employment growth have struggled coming out of the recession to gain consistent traction. However, 2013 was a turning point leading to strong growth in 2014 and 2015 in both employment and income. While the forecast is positive for both employment and income growth it appears the 2015 is expected to be the peak of our current expansion.

There are a couple risks to continued strong growth in the Oregon economy. While not exhaustive, these are a few of the risks that could pose as headwinds to growth.

- Federal fiscal policy – Uncertainty regarding federal budgets and the Highway Trust Fund despite a new federal funding authorization could mean reductions in federal staffing levels, matching funds for construction, and transfer payments. This would lead to a diminution in economic activity in the state.
- A continued slowdown in the global economy but particularly in the Chinese economy and further fallout from equity markets could soften import demand from Oregon.

Oregon’s population growth has been increasing over the last few years with an expected peak in 2015. Underlying this growth is the increase in in-migration. Going forward, population growth is expected to slow through the remainder of the forecast as net migration growth slows down as well as a continued slide in the net natural increase. Note that these rates are considerably below those experienced during the 1990’s expansion and are also lower than rates prior to the recent recession, as reflected in Figure 4. This is primarily due to the gradual slowing of the net natural increase despite an overall increasing population.

**Figure 4: Annual Growth Rate in Oregon’s Population**



**Table 1: National Economy, Percentage Change in Key Variables**

	Actual				Forecast				
	CY 11	CY 12	CY 13	CY 14	CY 15	CY 16	CY 17	CY 18	CY 19
CONSUMER PRICE INDEX (CPI)	3.1%	2.1%	1.5%	1.6%	0.0%	1.8%	2.4%	2.8%	2.4%
EMPLOYMENT	1.2%	1.7%	1.7%	1.9%	2.1%	1.5%	1.3%	1.2%	1.0%
HOUSING STARTS	4.5%	28.1%	18.4%	7.8%	11.1%	16.6%	12.2%	3.9%	3.0%
POPULATION	0.8%	0.7%	0.7%	0.7%	0.8%	0.8%	0.8%	0.8%	0.8%
REAL GROSS DOMESTIC PRODUCT (GDP)	1.6%	2.2%	1.5%	2.4%	2.5%	2.9%	3.0%	2.6%	2.5%
REAL PERSONAL INCOME	3.7%	3.0%	-0.3%	3.0%	3.9%	3.2%	3.4%	2.9%	2.9%
REAL PRICE OF GASOLINE	23.1%	1.4%	-4.3%	-5.8%	-28.4%	-0.5%	4.1%	12.9%	4.2%
UNIT SALES OF NEW AUTOMOBILES	8.1%	19.0%	4.7%	1.4%	-1.9%	0.5%	2.0%	-0.4%	-1.2%

**Table 2: Oregon Economy, Percentage Change in Key Variables**

	Actual				Forecast				
	CY 11	CY 12	CY 13	CY 14	CY 15	CY 16	CY 17	CY 18	CY 19
EMPLOYMENT--TOTAL	1.1%	1.2%	2.1%	2.8%	3.1%	2.7%	2.9%	2.0%	1.3%
EMPLOYMENT--CONSTRUCTION	1.4%	1.8%	6.1%	8.0%	2.8%	3.3%	3.2%	1.7%	0.6%
EMPLOYMENT--HIGH TECHNOLOGY MFG.	4.1%	1.6%	-1.0%	-0.4%	2.4%	-0.7%	1.4%	-0.5%	-0.3%
EMPLOYMENT--RETAIL TRADE	0.9%	1.2%	2.4%	2.4%	3.2%	2.9%	2.7%	2.4%	1.6%
EMPLOYMENT--TRANSPORTATION	2.3%	1.3%	1.5%	3.6%	3.8%	2.5%	3.1%	2.3%	1.7%
EMPLOYMENT--WHOLESALE TRADE	1.0%	1.6%	3.9%	1.3%	1.7%	2.0%	2.4%	1.5%	1.0%
EMPLOYMENT--WOOD PRODUCTS	-3.7%	2.6%	7.0%	4.0%	2.7%	1.9%	2.1%	2.0%	-1.2%
HOUSING STARTS	5.3%	35.6%	31.3%	9.4%	0.8%	22.2%	12.4%	5.7%	1.2%
POPULATION	0.6%	0.7%	0.9%	1.1%	1.3%	1.3%	1.2%	1.2%	1.2%
PORTLAND METRO CONSUMER PRICE INDEX	2.9%	2.3%	2.5%	2.4%	0.8%	1.6%	2.0%	2.3%	2.0%
REAL PERSONAL INCOME	3.1%	3.1%	0.3%	4.2%	5.5%	5.0%	5.0%	4.1%	3.5%
TIMBER HARVEST	13.1%	2.7%	12.0%	-1.7%	5.4%	11.4%	-0.4%	-0.4%	0.1%

**Table 3: Percentage Change in Transactions for Key Transportation Variables**

	Actual				Forecast				
	CY 11	CY 12	CY 13	CY 14	CY 15	CY 16	CY 17	CY 18	CY 19
MOTOR VEHICLE FUELS (GALLONS)	-1.2%	-0.5%	1.4%	1.7%	3.8%	3.2%	2.0%	1.2%	1.1%
ORIGINAL CLASS C LICENSES	0.1%	3.7%	9.7%	7.8%	9.4%	-7.7%	-0.3%	-0.2%	0.2%
PASSENGER VEHICLE REGISTRATIONS	0.7%	1.5%	0.6%	1.3%	3.3%	-0.3%	2.2%	-0.5%	1.0%
TITLE TRANSFERS	3.0%	-1.5%	2.5%	4.4%	1.5%	1.2%	1.4%	0.1%	0.0%
TRUCKING ACTIVITY (WEIGHT-MILE)	2.0%	-0.8%	3.7%	4.2%	4.2%	3.2%	2.6%	1.0%	0.6%

## **TRANSPORTATION TRANSACTIONS**

Table 3 on page eleven contains highlights of annual rates of change in a number of transactions for the major transportation variables in the current forecast. Five transportation variables are highlighted in the table, out of in excess of several hundred captured in the forecast model. The supporting narrative of the Motor Fuels, Motor Carrier, and Driver and Motor Vehicles forecasts is provided below. These are all expressed in terms of quantities or amounts of transactions; in other words in terms of physical units.

Overall, usage on the highway and road network (motor vehicle fuels and trucking activity) show somewhat stronger growth than driver and vehicle transactions (original driver licenses, passenger vehicle registrations, and titles). The reason is rather intuitive: usage has a stronger correlation to the pace of economic activity, while driver/vehicle transactions are influenced more by the state's demographics. The latter is far less dynamic than the former. The conversion of transactions into revenues involving fees and tax rates is done later in the report as the "Highway Fund Revenue Forecast."

It should be noted that the tables refer to calendar year data so as to align better with the foregoing discussions about the economic conditions for Oregon and nationally.

### **Motor Fuels Usage**

A consistent and very persistent tone in past reports has been that that fuel consumption in Oregon, and as well nationwide, has languished in the sluggish economic recovery. There has not been as a lethargic recovery in fuel demand since the recession in 1980-82, which was also an especially harsh

contraction for the state. The decline in 2008-09 was the most severe downturn in fuel use in nearly 30 years. Reduced economic activity in both instances manifested itself in reductions in travel demands for both personal and business purposes, and as a result reduced fuel use.

For calendar year 2015 taxable fuel usage increased at about a 3.8 percent clip. This is an increased rate experienced in 2014. So, both years reveal relative strength over the down years spanning 2010-2012. Fuel demand looks to have finally put in a "bottom" after 3 years of back-to-back growth. However, at these restrained rates, growth is certainly not robust, albeit signs of building momentum are starting to emerge.

On a 12-month cumulative sales basis (perhaps a more reliable metric for the fundamental pace of motor fuels usage), year-over-year comparisons suggest some gathering momentum in usage. Year-over-year, usage is running at a 3.5 percent clip. Rolling 12-month sales in the second half of 2015 rose at rates in the range of 3.2 to 3.9 percent.

These comparatively robust numbers for taxable fuel usage are confirmed by national data on vehicle miles of travel ("VMT") maintained by FHWA for the nation and, as well, for states and regions of the country. For 2015, total VMT nationwide was 3.5 percent higher than in 2014. For the individual month of January 2016, VMT nationwide was 2.0 percent above January 2015's. On a regional basis, the West Region (13 western states including Alaska and Hawaii), January 2016 was a robust 6.3 stronger, led by California. Oregon's VMT in the month was 2.3 percent higher than in

2015. This was fifth among the 13 states in the region.

A wide range of economic and demographic variables accounts for the observed behavior for fuel demand in this economic recovery. These aspects are all captured in the multivariate model developed to generate the forecast for fuel consumption in the state. Taxable fuel consumption is at the heart of the outlook for revenue going forward.

First, crude oil and gasoline prices have changed considerably since 2008, albeit they are still lower than what drivers confronted in 2008. Prices for crude oil and derived petroleum products have been elevated since early 2010, only to have crashed by over one-half since July 2014. Civil unrest the past four years in North Africa and in the Middle East spawned higher risk premiums associated with potential supply disruptions. These still remain largely in place given the current state of geopolitical tensions. Despite the volatile prices, the derived demand nature of fuel consumption strongly suggests price inelasticity for price increases as well as for price declines. Drivers demand motor fuels as an intermediate input into end pursuits such as commuting to work, to school, and for recreational/leisure/social activities. It is only fuel use largely tied to discretionary activities that is mostly impacted by changing prices at the pump..

Of course, the recent collapse in oil and fuel prices appears, at least for the time being, to put the process in reverse. The upshot for the revenue outlook is several-fold. First, and foremost, Oregon households have received a very nice “tax cut.” Retail gas prices have declined by roughly \$1.25 per gallon to the low \$2 range in many states, so far. Typical households are likely to spend \$500-\$750 less per year on motor fuels at these levels. Most of this money will now be diverted to more discretionary spending, such as for entertainment and at restaurants.

Collateral with this latter development is the observation that households display a very positive correlation between fuel prices and consumer sentiment that may factor into spending decisions. Lower gas prices foster optimism and more spending, while high prices engender pessimism and more restrained spending.

A second major factor behind the lukewarm pace of the recovery of motor fuels consumption points to the advent of alternative-fuel vehicles which may have measurably affected the overall use of gas/diesel and their growth trajectories, as well. Since manufacturers of these vehicles tout more fuel efficiency, the reasoning is that the same amount of miles of travel is accomplished with less fuel consumption. Notwithstanding the buyer subsidies created to soften the higher upfront capital costs, the market penetration of these vehicles is still comparatively nascent and relatively puny. As a result, the effect on the fuel efficiency of the entire fleet of passenger vehicles and light trucks (with roughly a median age of nearly 11 years) has been imperceptible in the short- to intermediate-term. There is probably a considerable ways to go for major strides toward greatly enhanced efficiency of the overall fleet and for a perceptible impact on fuel consumption to be accomplished. Based on our long-run analysis, this starts to occur a considerable ways beyond the horizon of our present revenue forecast (through 2021). The changing landscape of fuel efficiency standards for light vehicles is discussed in additional detail below.

Third, growth in usage at prices below peak prices may be retarded partly because drivers have been slower than usual to revert back to their short-run habits under more normal circumstances. Drivers engage in a number of steps to conserve on fuel consumption to mitigate the impact of the prior, high prices on their budgets. In the short-run – that is, the case in which the stock of vehicles is largely

fixed – these have routinely encompassed trip chaining, temporary changes to alternative modes, carpooling, and being somewhat more vigilant about maintaining higher air pressure in their vehicle tires. With the pinch at the pump being reduced considerably since mid-2008, it might be anticipated that some of these measures would be reversed and for usage to regain its growth at the historical norm of about 2-3 percent. With the overall economic backdrop and heightened consumer anxiety, however, there may be the effects of slower reversion, or even some more permanent adjustments taking hold. This has been captured embodied in the forecast equation by subtle changes in the estimated lag structure to gas prices.

As an illustration of the latter point, we have only to go back to the estimated models of 6 or 7 years ago. Then, the more dominant price effects manifested themselves with a lag of one to two quarters. This indicated that drivers did not respond quickly to price changes, or that driver inertia was too much to overcome with faster adjustment. Now, recently estimated versions have a more instantaneous reaction to prices; indicating that adjustment occurs more quickly under the belief that price changes are no longer just transitory. Equally as important, however, is the result that the total response to prices is roughly the same between the two models from 7 years back to the current version. It is just that now the total impact occurs in a shorter period of time on average.

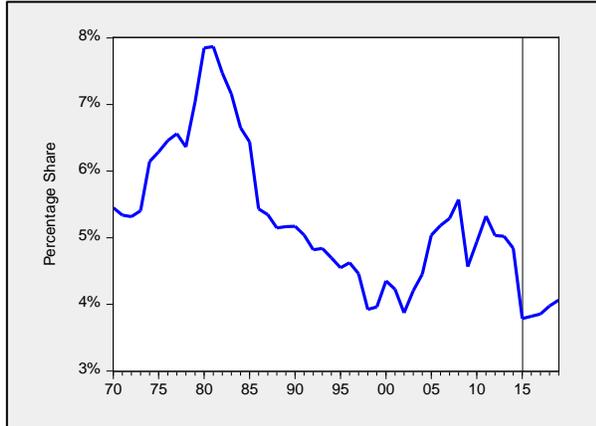
Fourth, the overall pace of economic activity in the state has a far more potent influence on gasoline and diesel fuel usage than any of the foregoing elements. Job gains disappeared in the spring of 2008, over seven years ago. As has been the mainstay outlook for the Oregon economy since – “slow recovery” – this has, however, pretty much run its course for now. Even more telling, expected job growth never attains robust rates as has typically occurred in past recoveries. The collateral variables

such as aggregate personal income and population are similarly restrained. As a consequence, the recovery in fuel consumption is slower than customary.

Fifth, it has been maintained for the past seven years that the amount that households have to devote to transportation fuels also serves to explain the shortfall in fuel consumption. In connection with record high gas prices over the 2005-2008 timeframe, the budget shares that households had to devote to energy use rose dramatically - to levels unseen since the late 1970s. The effect of this is tantamount to a tax, hampering their ability to spend on other items, particularly those of a non-essential or “luxury” nature. The result is a diminution to the production-income stream and slower economic activity than otherwise expected. Again, these responses are manifested in reduced fuel use, stemming from curtailed recreation and reduced “outside-the-home” entertainment and hospitality activities. These are more discretionary activities than are vehicle trips to work or school. Presently, and going forward, this effect will continue to pose some challenges for stronger fuel use inasmuch as the budget share is projected to remain elevated over the low levels experienced in the 1986-2002 time span. Figure 5 provides an indication of the persistent headwinds that households have encountered, and will continue to, albeit at somewhat declining levels going forward.

Again, with the collapse in crude oil and gasoline prices, we could see a return to the expenditure shares in the late ‘nineties as the data unfolds going forward.

**Figure 5: Household Budget Shares on Energy**



Sixth, and finally, there has been increasing recognition of some very broad – but slowly developing – demographic shifts that are starting to get underway. Two prominent shifts have received the bulk of attention: the aging of the population with “Boomers” leaving the work force for retirement and the advent the millennial generation. The latter covers the age group of 18 to 37 that have just entered – or are about to – young adulthood. The travel demand behavior of these two very large age cohorts may be affected by this progression. If these patterns are sufficiently different than for the overall population, then there may be implications for user tax receipts and as well as even vehicle/driver fee revenues going forward. The next section goes into additional detail on the probable extent of these impacts.

### **Millennials and Travel Demands**

The pattern of demographics, while very slow to evolve and equally slow to exert their cumulative impacts, can play a significant part in anticipating and preparing for changes in overall travel demand that transportation systems must be reasonably well equipped to handle. After all, economically efficient mobility is a cornerstone for a vigorous economy for all. Two trends have been headline news now for several years recently. These are the “Baby Boomer” and the

“Millennial” generations. Now, the former – those born between 1946 and 1964 – is definitely a demographic shift: for as this cohort ages, it’s producing an overall aging of the entire population. And with that, eventually an important impact on the composition of the civilian labor force.

On the other hand, the Millennial cohort – those born between 1981 and 2000 – doesn’t really alter the profile of the population overall and, therefore, isn’t a demographic phenomenon in the strict sense. Rather, it is the economic behavior of this generation that is really at the heart of discussions about possible impacts on transportation systems. Nevertheless, the topic of the Generation Y cohort is still very germane, but with a different slant than through demographic lenses per se.

Through surveys – some scientific and some not so – and anecdotal instances, a number of observers infer that Millennials possess a fundamentally different and, very likely, a permanent viewpoint on the need and mode for travel. Regarding the former, think of the advent of “social media.” For the latter, think of “car sharing” and, even more recently, “ride sharing.” Do these behavioral changes represent a quantum shift underway in the assessment of overall travel behavior and demand?

While some impact may be registered at the margin from behavioral differences by the Millennials (particularly if permanent), the extent of the shifts overall may be considerably overstated. First, the drop in first-time driver license issuances has not been all that precipitous: from roughly 85 percent down to 75 percent over the past several decades. So, the pattern is not a complete “on or off” event or occurrence. Quite simply, the Millennials in this regard are a fairly small portion of the entire cohort and not necessarily representative of it as a whole.

Second, the economic plight of many of the Millennials has been widely noted: burdensome student loan debt, moving back in with parents, and part-time work in lieu of better paying, full-time jobs among leading ones. These paint a picture of a financial crater holding back gains in the standard of living in the near term.

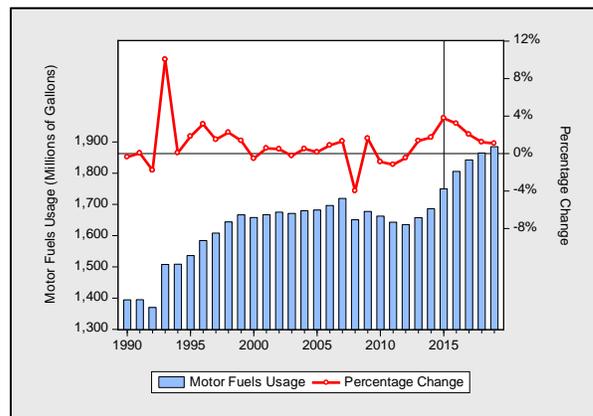
Collateral with the shaky financial conditions, meeting the mobility needs that they do have is achieved by means other than single-occupancy vehicle trips, which are most expensive but the by far most preferred mode of travel. This is traditional household budget economics: as incomes rise, most households move their mode choices away from lower cost options to automobiles. Will the transition to the traditional favorite occur with improving financial status for Millennials? Perhaps, though possibly with a slightly more muted rebound depending on the permanency of the original shifts in their behavior. Nevertheless, given the comparatively small share of Millennials under the microscope, the net effects may turn out to be more subtle than many have speculated. Recent industry reports reveal, for instance, that the share of new-car purchases has been rising for Millennials since 2010, and that they are the second-largest segment of new-car buyers in 2014 (after the Baby Boomers!).

This potential behavioral element is captured in the fuel use forecast model in the form of Oregon’s Labor Force Participation Ratio (LFPR), as tracked by the Oregon Employment Department (OED). The ratio is formed from the measure for the total civilian labor force relative to the working age population (ages 16 through 64). The estimated effect is presently small, but it indicates a little lower fuel consumption results, all else equal, as these shifts start to take place. The LFPR for Oregon is from the OED and is linked with BLS projections at the federal Department of Labor.

## The Outlook for Taxable Fuel Use

Figure 6 presents the outlook through CY21 for motor fuels sales, along with historical consumption back to CY1990. For calendar year 2016, we are forecasting usage growth of 3.2 percent, as overall economic growth becomes gradually stronger in the near term, complemented with lower fuel costs. This is down slightly from the rate of 3.8 percent in 2015. These are captured in the Figure 6, with sales remaining comparable to consumption at rates like those observed in 2004-2007.

**Figure 6: Motor Fuel Consumption**



This outlook is largely an outgrowth of the baseline state and macroeconomic forecasts. Both 2014 and 2015 witnessed healthy gains in total nonfarm employment, at rates of 2.8 and 3.3 percent, respectively. This growth represented a combined increase in payrolls on the order of over 95,000. Income gains were, however, not quite as robust, as pressure continued to restrain wage and salary increases. Going forward, job gains sustain a solid pace through 2016. Personal income growth is a little more buoyant than recent, prior forecasts. An additional boost to our forecast for taxable fuel consumption over 2015-21 continues to stem from legislation in 2007 relating to reformulated gasoline, discussed in more detail below under the heading “Effects of HB 2210.”

## **Corporate Average Fuel Economy (CAFE) Standards**

Over the past six years, there have been a number of pieces of legislation geared partly toward increasing the fuel efficiency of the fleet of light duty vehicles (passenger cars and pickups).

In the fall of 2007, Congress passed, and then-President Bush signed, new energy legislation as an outgrowth of somewhat unfavorable developments in global oil markets and concerns over anthropogenic global warming, however improbable. One component of the energy legislation dealt with the fuel efficiency of light passenger vehicles. The law required car and light truck makers to improve the miles per gallon (mpg) of vehicles under the CAFE standards to 35 miles per gallon by the year 2020. This target for overall fuel efficiency was subsequently accelerated to 2017 with more recent federal legislation in 2009.

In July of 2011, the Administration mandated a new target for the fuel efficiency of light vehicles by the year 2025, with certain milestones in the interim years. The EPA promulgated rules for implementation in August of 2012. The overall targeted standard is for 54.5 mpg for new cars and light trucks by model year (MY) 2025 (“CAFE Standards-2025”).

The recently promulgated CAFE-2025 fuel efficiency targets are a very aggressive, and perhaps an optimistic reach at ramping up the fuel efficiency of new cars and light trucks by 2025. At first glance, 54.5 mpg for new light duty vehicles in 2025 sounds like a quantum leap that would very adversely affect revenue streams needed to maintain and enhance the State Highway Network, as well as local roads and bridges. The current efficiency of new cars and light trucks in 2013, however, was only about 30 mpg, or 55 percent less. (The current fuel efficiency of the entire

existing fleet of light vehicles is about 21.4 mpg at the end of 2015.)

The effects from the legislated efficiency increase do not begin to register until well after 2021, which is the terminal year of the current forecast. The effects, therefore, do not show up in the current fuel demand forecast in any substantial way. (It will be, however, more evident in the long-range projections using a more aggregated structure. These forecasts are conducted on an as-needed basis and routinely go out 20-25 years into the future to help the Agency gauge the very long-term prospects for fuels tax and vehicle/driver fee revenues.)

## **Effects of House Bill 2001**

The 2009 Oregon Legislature passed a very broad-based, multi-modal transportation funding package, *The Jobs and Transportation Act of 2009*. A wide array of vehicle fees, both for light passenger vehicles and heavy trucks, were raised. In addition, higher use taxes from motor fuel purchases and for weight-mile taxes for heavy trucks in weight classes above 26,000 pounds were implemented. The revenue impacts of HB 2001 are more appropriately discussed in fuller detail in the section “Highway Fund Revenue Forecast” below.

Nevertheless, there is always the need to recognize the probable impacts of the gasoline tax and use fuel (diesel) tax using what was implemented January 2011, since transportation funding initiatives are again at the forefront in the 2017 Regular Session. State motor fuels taxes increased from 24 cents/gallon to 30 cents in 2011. All else equal, a hike in the fuel tax will manifest itself as a price increase at the retail pump. Since fuel demand is a derived demand – use stems from enabling activities that consumers like or need to do, not from actual consumption – the price sensitivity of fuel demand is quite low in the short-run

(“inelastic”). A fuel tax is, however, a permanent increase to retail prices, whereas “retail prices” sans taxes can fluctuate up or down depending largely on variations in the price of crude oil and from changes in margins at the refining stage, as well the seasonal mode of operations at refineries. Consumer perceptions regarding the permanency between price changes and tax increases may differ.

These distinctions may suggest that the sensitivity to a price increase stemming from a fuel tax increase may be somewhat more potent than that due to price changes based on market-based fundamentals. There is some empirical evidence that supports this thesis, although the effect is not enough to move the degree of price responsiveness out of the “inelastic” zone.

Based on these studies, coupled with the econometric estimates embodied in our forecasting equation, we gauge the likely impact from a six-cent tax increase per gallon to be quite muted. Based on present price levels as a basis for comparison, the effect is probably about a one-half of one percent reduction in fuel usage. This represents about 10 million gallons annually, compared to total annual usage on the order of 1.7 to 1.8 billion gallons. This is well within the statistical precision of the forecast model, and no special allowance for the tax change affecting usage is justified at the present time beyond what is embodied in our retail fuel price variable (which includes state and federal taxes).

### **House Bill 2210 – Ethanol Blending, 2007**

In the 2007 Regular Session, the Oregon Legislature passed House Bill 2210, the *Biofuels Bill*. Several sections of the bill pertain to the required use of ethanol as a blend with gasoline in lieu of using methyl tertiary butyl ether (“MTBE”) to make reformulated gasoline that burns cleaner and

mitigates ozone and carbon emissions. The Department of Agriculture promulgated an administrative rule (O.A.R. 603-027) to implement the legislation in the fall of 2007.

It is well understood that ethanol-blended gas is less fuel efficient than MTBE blended gas. There is considerable debate over the actual extent of lower gas mileage that drivers are likely to experience, however.

Lower fuel efficiency by the light vehicle fleet will partly manifest itself in more gallons being consumed and somewhat larger gas tax revenues. While some estimates are for as much as a 10 percent loss in efficiency, most indications are for a probable range of 2 to 5 percent loss. (On a pure BTU basis, E10 is roughly 3.8 percent lower than MTBE-blended gasoline by our calculations.) Coupled with this uncertainty over the lower mpg likely to result from E10, the staggered implementation of the bill’s requirements across the state in 2008 made an assessment of the likely effect of this new law on the State Highway Fund somewhat problematic at best.

The complete phase-in of blending across the state occurred in the final quarter of 2008. With the span since this completed implementation of the blending mandate, some empirical analysis for the efficiency impact in the context of the econometric specifications for motor fuels demand is ongoing. A somewhat broad range of models was examined, and all of them indicated that the efficiency loss is statistically significant, though not large. The results suggested a comparatively narrow range of about 1.7 to 2.2 percent more gasoline use under the blending mandate than without it. Current point estimates continue to indicate about 1.9 percent lower fuel efficiency as a result of the E10 blend.

Anecdotal evidence is mounting that drivers are detecting very little efficiency loss with

highway driving, but a drop off does seem to occur with city driving. Using the rule of thumb of 45%/55% for the highway/city mileage proportions and the 3.8 percent lower energy content in the ethanol blend, this would suggest 2.09 percent increase in fuel usage. This comports closely with the statistical findings from the past six years reported above earlier.

### **Summary Outlook for Motor Fuels Usage**

Against the backdrops of the economy and recent changes in legislation, the outlook is for consumption to grow at a somewhat steady annual average rate of 1.5 percent over the period 2015-2021, now that the 2010-2012 lull is well behind us. This pace is roughly the same as in the prior forecast, with the caveat that growth is elevated early but diminished in the out years of the forecast horizon. A large part of the growth can be attributed to the ramp up to somewhat stronger economic performance in the first half of the forecast period, especially by surpassing prior peak employment levels in early 2015. As well, drastically lower gas prices reinforce this momentum. The impacts from ethanol blending legislation (HB 2210) on light vehicle fuel efficiency will continue to bolster usage as overall volumes get larger, as well.

### **Motor Carrier**

Trucking activity and the freight industry affect the amount of revenue available to the State Highway Fund through the weight-mile tax, heavy vehicle registration fees, and other Motor Carrier fees. Changes in economic conditions within Oregon and the nation as a whole influence each of these revenue sources. In addition, state and federal legislation can impact trucking activity.

The **weight-mile tax** is the largest source of trucking-related revenue. This highway use tax applies to trucks with a gross weight over

26,000 pounds. Generally, the tax paid by a motor carrier varies with the weight of the vehicle, the number of miles traveled, and the axle configuration. The carriers generally have the option of paying on a monthly or quarterly schedule but in some cases will pay by the trip. Certain qualifying motor carriers, such as those transporting logs, wood chips and sand/gravel, may pay the highway use tax based on a flat monthly fee. The weight-mile revenue and transaction totals discussed in this report include the trip based, monthly, quarterly and “flat-fee” revenue, as well as revenues from a small number of other trip-related fees.

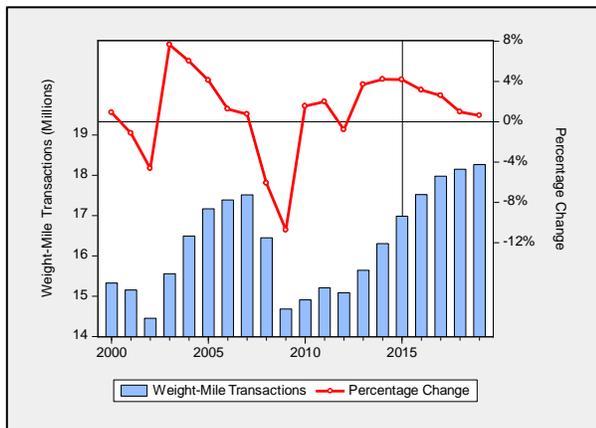
An estimate of weight-mile “transactions” provides the basis for the current forecast of weight-mile revenues. This methodology, also used for prior forecasts, constructs a measure of weight-mile transactions by normalizing revenue by the tax rate paid for a typical heavy vehicle. The forecasting model regresses the normalized weight-mile transactions on Oregon construction and durable goods employment, real fuel prices, real consumer spending on durable goods and industrial production and sales of heavy trucks to estimate weight-mile transactions.

As Figure 7 illustrates, the number of weight-mile transactions grew strongly between CY03 and CY05, averaging about 5.9 percent annual growth. Following these years of strong growth, CY06 and CY07 growth was much more modest, averaging only about 1.0 percent. As recessionary conditions struck in the second half of CY08 growth declined 6.1 percent for the year. At the height of the recession, trucking activity bottomed out in CY09 where transactions declined by 10.7 percent. The drop in consumer spending, followed by the decline in Oregon durable goods manufacturing and construction employment, were the big factors behind the large declines in truck traffic. As the economy began to weakly recover in CY10, growth in weight-mile transactions oscillated

from positive to negative as the economy expanded and then stalled. This cyclical pattern continued through 2012. In CY13, growth rebounded led by a strong third quarter for an average increase of 3.7 percent over CY12. As economic growth picked up in CY14, weight-mile followed, increasing at a 4.2 percent rate. In CY15, growth is expected to mirror that of CY14. Beyond CY15 growth is expected to slow through CY19, averaging 1.8 percent from CY16-CY19 as the economy cools, particularly employment growth.

Compared to the previous forecast, growth in CY15 is expected to slow by 0.6 percentage points while the CY16 and CY17 growth is approximately 0.4 percentage points stronger each year. Overall transaction growth is almost identical to the prior forecast from CY15-CY19, falling just 0.1 percentage points.

**Figure 7: Weight-Mile Transactions**



Other sources of heavy vehicle revenues to the State Highway Fund include **heavy vehicle registrations, permits and passes, Road Use Assessment Fees (RUAUF)**, and other fees paid by motor carriers. The current forecast methodology involves estimating the revenues of each of the largest components separately. Discussion of these revenue forecasts appears in the Highway Fund Revenue Forecast section.

## Driver and Motor Vehicles

The Driver and Motor Vehicle Services Division (DMV) is responsible for administration of driver and motor vehicle related activities. Revenues collected from the fees charged for the various DMV activities flow into the State Highway Fund, the Transportation Operating Fund and into other funds administered by ODOT divisions such as Transit and Rail. Additionally some fees net of costs are transferred to outside entities; for example, RV-related fees are transferred to the Oregon Parks and Recreation Department. Lastly, revenues remaining after transfers and costs are deducted are apportioned to cities and counties statewide for local road repair, maintenance and construction.

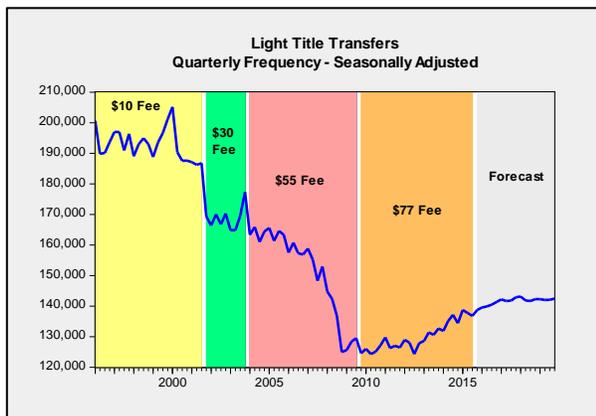
DMV activities are affected by various economic and demographic variables and provide a reflection of some very broad undercurrents in the state. The impacts of changes in population, employment, migration, and economic production are readily evident in many of the DMV data series. In general, DMV activities are more strongly affected by demographic changes rather than by economic changes, and as a result are more immune to the cyclical nature of the economy. However, severe recessions like our most recent recession do significantly impact growth in DMV transactions, both driver and vehicle related. Slowing immigration rates and tighter household budgets negatively impacted growth in new and renewal driver transactions and well as vehicle registrations and title transactions. The flip side of this is during expansions since Oregon’s employment growth typically increases faster than the nation as a whole Oregon see’s significant increases in net-migration. All else equal, this translates into increases in Class C non-commercial licenses, first Oregon titles and two-year passenger registrations as people surrender their license

when they move to Oregon and subsequently title and register their vehicles.

Due to the stabilizing influence of the state’s demographics on DMV activities, legislative changes are very evident in the different DMV series. As fees or laws change impacting access to DMV services, these effects can be seen in changes in demand. A current example is the impact of consecutive fee changes on light vehicle title transfers.

A light vehicle title transfer transaction is completed and the fee is paid when a person sells a used automobile, light truck, motorcycle, moped or light trailer and the new owner submits to DMV the change in title ownership. Figure 8 below shows the quantity of these title transactions on a seasonally adjusted quarterly basis over time, beginning in 1996 and including the forecast through 2019. The various highlighted sections represent the different total fees for a light title transaction. The data is seasonally adjusted to correct for the annual seasonal nature of the data where summer sales are naturally higher and winter sales are lower.

**Figure 8a: Light Vehicle Title Transfers Quarterly Sales Volume**



The historical fee for this transaction was \$10 extending back into the 1970’s. In 2001, the legislature passed HB 2142 increasing the fee to \$30, effective October of that year for the purpose of covering the debt service on the

first series of Highway User Tax Bonds. The impact of the fee increase was a significant decrease in the number of transactions. Prior to the fee change the average number of transactions from 1996 through the third quarter of 2001 was 193,000 per quarter and after the fee change that average dropped to 169,000 per quarter, a 12 percent decline.

Another bonding program was established in the 2003 legislative session under HB 2041 to repair and replace damaged bridges throughout the state. The legislation took effect in January of 2004. The light title transfer fee was increased to \$55, where the \$25 incremental increase in the fee was pledged to the debt service for the new bonds. This further decreased the average number of transactions per quarter to 158,000, representing an additional 7 percent decline. It is interesting to see how the change from \$10 to \$30 caused an immediate negative reaction to the fee change, whereas the change from \$30 to \$55 had a much slower impact leading up to the large recessionary impact seen in 2008 and 2009.

The 2009 legislature enacted the most recent bonding program in HB 2001 to raise funds for a number of large construction projects throughout the state. The light title transfer fee was increased \$22 in October of 2009 for a new total fee of \$77. The recession and subsequent slow recovery has had an additional impact on the demand for these transactions and combining the impact of the fee change with the recessionary impact, the average number of transactions fell to a low of 125,000 per quarter in the fourth quarter of 2009, a decrease of 19 percent over the previous levels.

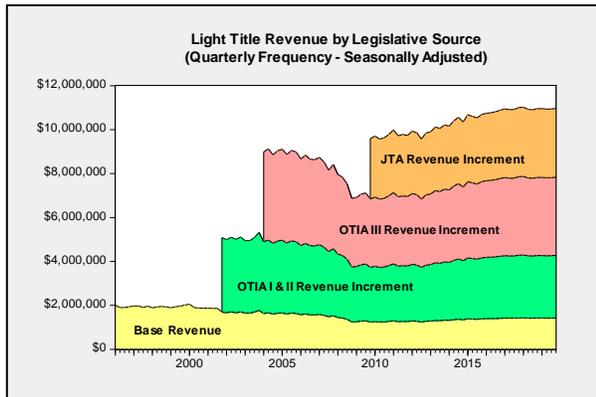
Coming out of the recession, growth stagnated during the 2010-2012 period before picking up in 2013 and continuing through 2014 and into 2015. Going forward, as the economy continues to improve and more people and vehicles enter the state, we expect

light title transactions to slowly grow from their current level of 139,000 per quarter to 142,000 by the end of 2019.

Overall the decline in transaction volumes was 35 percent, from an average of 193,000 per quarter prior to the first fee increase to 125,000 per quarter during fourth quarter of 2009. During this time the fee changed from \$10 per title to \$77 per title, an increase of 670 percent.

Figure 9 shows how the increased fees despite the decline in demand have increased revenue from about \$2 million per quarter to over \$10 million per quarter currently. However, as discussed above the impact on demand from the fee increase was negative, so as the fee increased the demand decreased. The result is that if demand was completely insensitive to the changes in price then we would have expected to see about \$5 million more revenue per quarter than we do currently, or about \$20 million more per year.

**Figure 8b: Cumulative Light Vehicle Title Transfer Revenue by Source**



The other way that legislation or policy changes can affect demand is through actions that affect access to DMV services. An example of this can found by examining the evolving laws related to non-commercial driver licenses. SB 1080, passed in 2008 and the preceding executive order which took effect in February of 2008 changed the requirements for a non-commercial driver

license. The changes required an applicant to show both proof of legal presence in the United States and a Social Security number, unless a person was not eligible for a Social Security number.

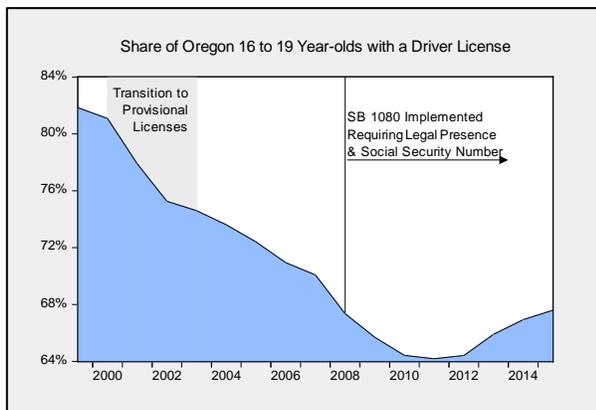
This change in the law negatively impacted sales of non-commercial licenses. Prior to implementation of SB 1080, the monthly average non-commercial license issuance rate was about 11,500. Just after implementation the recession hit amplifying the effect of the legislation dropping the average to about 9,200 per month, a drop of 20 percent. Clearly the legislation restricted access to some customers causing an immediate decline in demand. However, looking at more recent data there has been an increase in sales. Growth in sales since the prior forecast has been robust, and the current sales rate is about 12,300 per month, which eclipses the monthly average prior to SB 1080. So the combination of the economy bouncing back, people adjusting to the new normal and the increase in people moving into the state has now more than made up for the loss due to SB 1080 and the recession.

This effect can be seen in the share of young drivers getting a driver license for the first time. There has been a lot of discussion regarding the driving habits of the Millennials as referenced in the Motor Fuels Transaction section above. One way to test the validity of the hypothesis that Millennials are not driving as much as prior generations is to look at the share of young drivers with licenses. If this drops over time then the hypothesis is supported.

Figure 9 displays the share of 16 to 19 year-olds with a driver license. As the chart shows, the percentage of teens with their license has dropped significantly from a high in 1999 of 82 percent to a low in 2011 of 64 percent. Unfortunately, while this decline in license share is real, the causes of this decline are varied. Oregon passed a provisional license

law in 1999 that took effect in 2000, which required a permit, 50 hours of supervised driving and a driver training program or an additional 50 hours of supervised driving for applicants under 18. This new law created a barrier to getting a license for young drivers that did not exist previously. Similarly as discussed above, SB 1080 passed in 2008 made getting a license more difficult from the documentation perspective. Both of these laws negatively impacted licensure rates for young drivers, but even absent of these effects, rates dropped. That is until recently, when in 2013 through 2015 we are seeing rates increase. This corresponds well with the economic recovery.

**Figure 9: Cumulative Light Vehicle Title Transfer Revenue by Source**



This analysis should be taken in the context of what this license age group represents of total. In 1999 this group represented 5.9 percent of total licensed drivers, falling to a low of 4.2 percent in 2012. This represents a loss of 33,000 drivers from 1999 to 2012.

Overall, total DMV transactions declined sharply in 2008 and 2009 as the recession hit, followed by no growth in 2010 as the recession lingered and as HB 2001 was implemented. As the economy began to recover, 2011 saw positive growth, followed by stronger growth in 2012 and even stronger growth in 2013. 2014 growth was slower than 2013 but 2015 should finish stronger. Overall growth is expected to average 0.7 percent per year over the period covering 2015 through 2019, significantly less than the 1.2 percent average annual growth expected for Oregon’s population over the same period, a key driver to many DMV transactions. However, this is expected as many of the DMV transactions are valid for multiple years such as driver licenses or vehicle registrations.

## HIGHWAY FUND REVENUE FORECAST

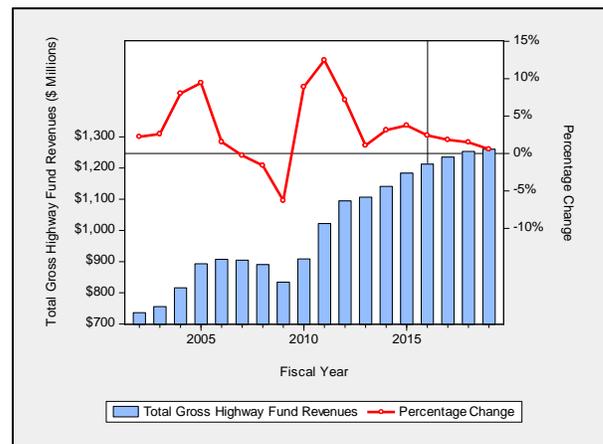
The economic backdrop underlying travel demands and freight movement in the state continues to show some signs of sustained improvement. The outlook for revenues is not materially different compared to the previous forecast, although there is a very slight decrease overall. DMV vehicle and driver fee revenues, which are driven largely by demographic changes and consumer responses to fee increases, are up slightly over from the prior forecast. Motor Carrier and Motor Fuels revenues are traditionally far more sensitive to the pace of business activity in Oregon and nationally. The forecast of Motor Carrier revenues is somewhat lower given the marginally weaker growth in the determinants of heavy trucking activity. The outlook for Motor Fuels revenues is slightly weaker on average than in the last forecast, but not materially so. Travel demands and fuel use by individuals and businesses appear to be climbing out of their lethargy in 2010-2012 period.

As is customary to point out, differences between the current and prior forecast can originate from four primary sources. First, the forecast incorporates updated data on transportation transactions used for the purpose of estimating the parameters of equations contained in the forecast model. Second, it integrates the most recent revisions to the state economic outlook. Third, the forecast takes into account changes in the national macroeconomic outlook that affect transportation revenues, but may not be directly captured in the state forecast. And fourth, incorporating the effects of new funding legislation, particularly those that are phased in over a span of time such as the HB 2001 was, can account for differences, as well.

Figure 9 shows the recent behavior of gross revenues in the current forecast out to 2021.

The forecasts for the past eight years have reflected the incremental revenue impacts of OTIA III (House Bill 2041) and other legislative initiatives passed in the 2003 Regular Legislative Session. Most of the implementation of this legislation commenced in January 2004, and the effects were fully registered by the start of FY05, as reflected by the comparatively pronounced jump in revenues shown in the figure. FY04 through FY08 reflected the robust economic conditions of that period complemented with the revenue enhancements of OTIA III. Beyond FY09, the large increases in revenues for FY10 through FY12 reflect the phased implementation of the *Jobs and Transportation Act* (HB 2001 from the 2009 Session). The final few years of the forecast converge more toward the economic and demographic fundamentals currently projected for the state.

**Figure 10: Total Gross Highway Fund Revenues**

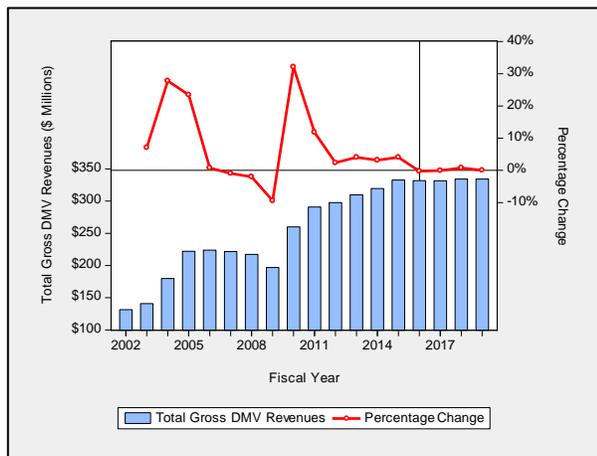


### DMV Revenues

Total gross DMV revenues are reported in row 4 of Table 4 and in Figure 10. The sharp revenue increase in FY10 and FY11 was due to the additional revenues generated from the JTA. Since that time growth has been solid as

light vehicle sales improved, along with an anticipated increase in non-commercial license renewals. In addition, stronger than anticipated increases in in-migration have continued to boost growth through FY15. Beyond FY15, growth is expected to slow considerably averaging 0.1 percent from FY16 through FY19 as the economy cools and we enter the downside of the non-commercial license renewal cyclical pattern.

**Figure 11: Total Gross DMV Revenues**



Rows 6 through 11 and 13 through 15 give the costs associated with administration of DMV, and transfers of the DMV revenues out to support JTA and OTIA projects and for other statutory purposes.

DMV program costs primarily change when personal services costs change or programs are phased in or phased out. ODOT’s approved budget for 2015-17 includes expenditure authorization for two major packages, the first phase of a DMV computer system modernization project and a project allowing DMV to accept debit and credit card payments from customers.

The larger of the two projects is the computer system upgrade. Essentially this project is to replace a system created in the 1960’s with a system using current technologies to meet customers’ expectations today. The total cost of the project is estimated to be \$90 million

spread over 10 years. During the 2015 legislative session the legislature decided to fund the project one biennial phase at a time and allocated \$30.4 million in the 2015-17 biennium. However, DMV estimates they will likely only spend \$16 million in 2015-17 so this forecast includes just the \$16 million project cost estimate. In 2017-19, estimated expenditures are expected to grow considerably to \$30 million, which drives the big increase in costs for 2017-19 in the forecast.

The smaller of the two projects add the hardware and the merchant fees to allow the use of debit and credit cards in field offices. This project has a budgeted amount of \$6.3 million in the 2015-17 biennium. DMV expects actual expenditures to be slightly less at \$4.8 million in 2015-17, increasing to \$5.8 in the 2017-19 biennium, which are the numbers used in this forecast.

Note that both these projected expenditure estimates are identical to those in the June 2015 forecast. Estimates will be updated as part of the 2017-19 budget process reflected in the June 2016 forecast.

Net DMV revenues, as represented in row 12, increased in FY15 at a 5.3 percent rate. However beyond FY15, costs primarily from the above mentioned projects increase faster than gross revenues, resulting in declining net revenues over the four remaining forecast years. Overall net revenues are expected to decline on average 3.3 percent from FY16 through FY19.

Row 5 summarizes the change in gross revenues from the previous forecast. Overall, there is an expected cumulative increase of \$13.5 million from FY15-FY19. This increase is primarily driven by stronger than anticipated in-migration, which caused the bump in FY15 revenue and is expected to carry into FY16.

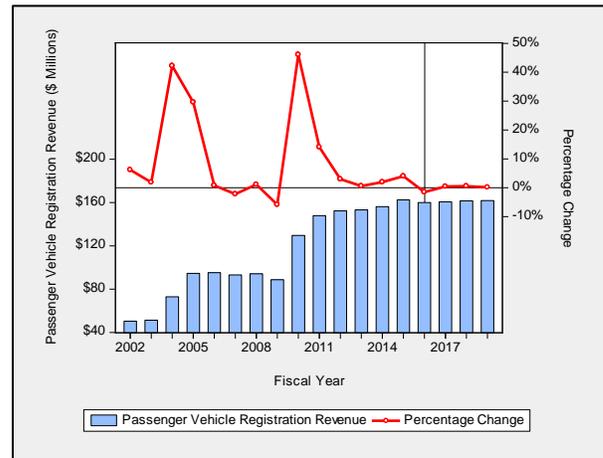
Row 9 has been added to show the incremental revenue increase from the electronic driver records sold to disseminators. The initial forecast estimated incremental revenues would average about \$5.6 million per year, and the first full fiscal year (FY13) of revenue matched that estimate. Sales softened through FY15 but are expected to grow over the next couple years reaching a \$5.7 million steady state in FY17.

Continued refinements in the estimating equations have in general increased the overall accuracy of our DMV forecasts over time. However, the 2008-2012 period covering the recession and sluggish recovery created larger forecast errors, as the models continued to predict strong recovery growth while actual growth was not strong or consistent. Since 2012, the economic recovery has picked up steam and forecasts have been closer to actual revenues and importantly back to a pattern of both over and under predicting rather than consistently over predicting.

### Vehicle Registration Revenues

The DMV revenue forecast is grouped into three major components reflecting the primary revenue sources: vehicle registrations, driver licenses, and vehicle titles. Vehicle registrations make up the dominant portion of DMV revenues, led significantly by passenger vehicle registrations, which alone account for 80 percent of vehicle registration revenues and 46 percent of all DMV revenues. Total registration revenues, as reported in row 1 of Table 4, amount to \$192.0 million in FY15, an increase of 3.3 percent over FY14. FY16 revenues are expected to equal \$188.8 million, a 1.7 percent decrease over FY15. This decrease is a product of the two year cyclical pattern in passenger registration cycle. Beyond FY16, growth is expected to be mild averaging 0.5 percent through FY19.

**Figure 12: Passenger Vehicle Registration Revenues**

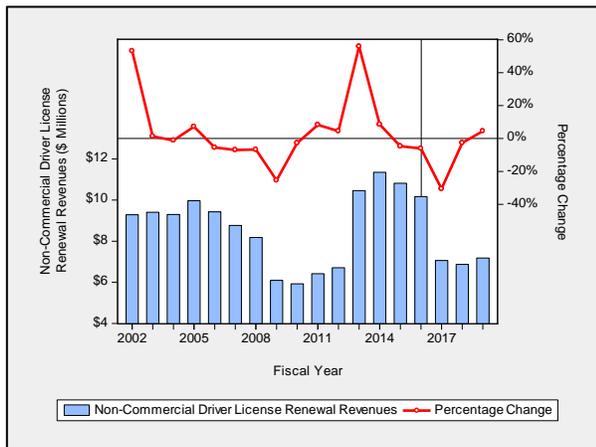


### Driver Revenues

Driver revenue includes original issuance, renewal, and replacement of commercial and non-commercial licenses and permits, testing fees and other associated fees. Revenues, as shown in row 2, totaled \$35.4 million in FY15, an increase of 2.4 percent over FY14 as original issuances of non-commercial licenses overshadowed the decline in non-commercial license renewals. FY16 through FY18 is expected to decline as new license growth stabilizes while the number of people renewing further declines. The shift from a four- to eight-year renewal cycle for commercial and non-commercial licenses is the root cause for the decline in revenue growth over the forecast. For example, the large increase in FY13 is from licenses renewed for eight years beginning in October of 2004 and expiring in October of 2012. As Figure 12 shows below, the number of eight-year renewals peaked in early 2005, and fell steadily through 2008. This is the dominant factor for the overall decline in revenues toward the end of the forecast horizon. While this cycle will continue to repeat itself into the future, growth in revenues controlling for this fluctuation will depend on the renewal rate of license holders.

As noted above, a factor weighing on the accuracy of the forecast is the non-commercial driver license renewal rate. Licenses that were issued/renewed in October of 2000 or later were issued/renewed for an eight year period instead of the previous four year period. These licenses began expiring in October of 2008. What the average renewal rate would be from this shift to an eight year cycle, was, and still is a relevant consideration. Currently the renewal rate is about 70 percent, higher than our original expectation of 63 percent and has been increasing over the last couple years. This increase could be partly related to the economic expansion as people may have a reason to renew for employment purposes. But it might also be possible that individuals unable to meet the requirements for renewal of their license after SB 1080 increased the documentation requirements in 2008 have now acquired the correct documentation and have adjusted to the new way of doing business with DMV.

**Figure 13: Non-Commercial Driver License Renewal Revenues**

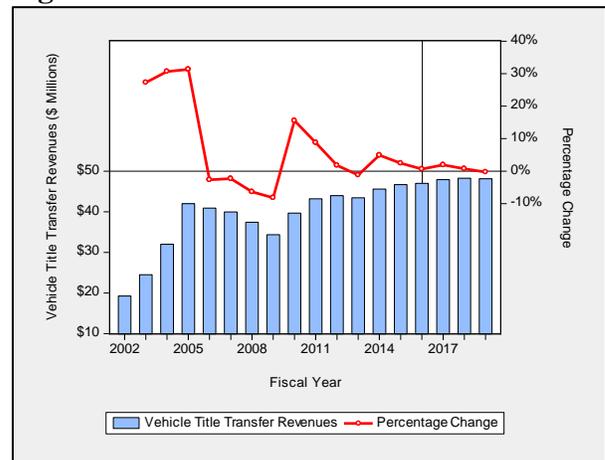


**Vehicle Title and Other Revenues**

Vehicle titles include a variety of title transactions. These span new light and heavy vehicle purchases, vehicles that are new to Oregon due to in-migration, used vehicle transactions, as well as salvage titles and all

other DMV transactions not elsewhere included such as vehicle trip permits, plate manufacturing revenue, and vehicle and driver record sales. The largest component of the titles section is title transfers, accounting for over 50 percent of revenues in this group. Revenues, as shown in row 3 of Table 4, totaled \$105.1 million in FY15, a 6.0 percent increase over FY14. FY16 revenues are expected to be \$108.3 million, a 3.1 percent increase over FY15. Increases in new, used and first time Oregon vehicle title transactions drove the strong growth in FY15 and is expected to continue in FY16, but at a slower rate. Beyond FY16 growth is expected to slow considerably averaging 0.9 percent per year.

**Figure 14: Vehicle Title Transfer Revenues**



**Table 4: Highway Fund Revenue Collected by DMV (Millions of Current Dollars)**

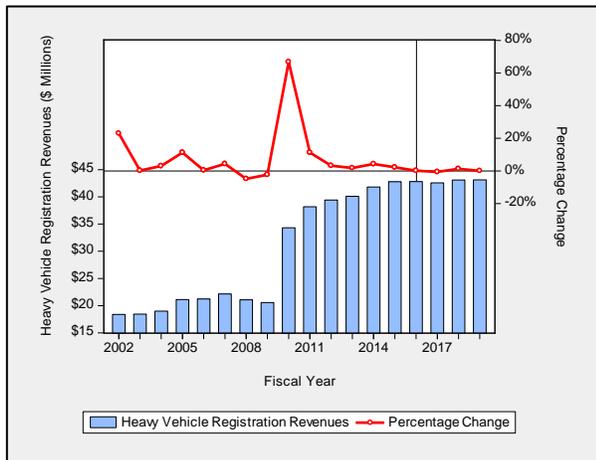
	Actual		Forecast				Actual	Forecast	
	FY 14	FY 15	FY 16	FY 17	FY 18	FY 19	BI 13-15	BI 15-17	BI 17-19
1 VEHICLE REGISTRATIONS	\$185.8	\$192.0	\$188.8	\$189.8	\$191.1	\$191.7	\$377.9	\$378.6	\$382.8
2 DRIVER LICENSES & OTHER	\$34.6	\$35.4	\$34.7	\$31.2	\$31.0	\$31.2	\$70.0	\$65.9	\$62.2
3 TITLE, PLATE & OTHER	\$99.1	\$105.1	\$108.3	\$110.5	\$112.0	\$111.3	\$204.2	\$218.8	\$223.4
4 <b>TOTAL DMV COLLECTIONS</b>	<b>\$319.6</b>	<b>\$332.5</b>	<b>\$331.8</b>	<b>\$331.5</b>	<b>\$334.1</b>	<b>\$334.2</b>	<b>\$652.1</b>	<b>\$663.3</b>	<b>\$668.3</b>
5 Change from Previous Forecast	\$0.0	\$3.1	\$4.7	\$1.5	\$2.0	\$2.1	\$3.1	\$6.3	\$4.1
6 COLLECTION/ADMINISTRATION & PROGRAM COST	(\$78.4)	(\$80.0)	(\$91.4)	(\$93.2)	(\$101.6)	(\$103.7)	(\$158.4)	(\$184.6)	(\$205.3)
7 TRAFFIC SAFETY TRANSFER	(\$0.5)	(\$0.5)	(\$0.5)	(\$0.5)	(\$0.6)	(\$0.6)	(\$1.0)	(\$1.1)	(\$1.2)
8 DEPARTMENT OF EDUCATION TRANSFER	(\$0.1)	\$0.0	(\$0.1)	\$0.0	(\$0.1)	\$0.0	(\$0.1)	(\$0.1)	(\$0.1)
9 E-GOV RECORDS INCREMENTAL REVENUE TRANSFER	(\$5.3)	(\$5.2)	(\$5.4)	(\$5.7)	(\$5.8)	(\$5.7)	(\$10.5)	(\$11.1)	(\$11.5)
11 ODOT CENTRAL SERVICES ASSESSMENT	(\$24.2)	(\$24.7)	(\$28.3)	(\$28.9)	(\$29.2)	(\$29.8)	(\$48.8)	(\$57.1)	(\$59.0)
12 <b>NET DMV REVENUE</b>	<b>\$211.1</b>	<b>\$222.2</b>	<b>\$206.1</b>	<b>\$203.2</b>	<b>\$196.8</b>	<b>\$194.4</b>	<b>\$433.3</b>	<b>\$409.3</b>	<b>\$391.2</b>
13 REVENUE SET-ASIDE TO OTIA I & II - memo	(\$7.4)	(\$7.3)	(\$7.0)	(\$6.7)	(\$6.6)	(\$6.6)	(\$14.7)	(\$13.7)	(\$13.3)
14 REVENUE PLEDGED TO OTIA III - memo	(\$75.5)	(\$78.9)	(\$80.0)	(\$81.5)	(\$82.2)	(\$82.1)	(\$154.4)	(\$161.5)	(\$164.3)
15 REVENUE DUE TO JTA (HB 2001) - memo	(\$99.7)	(\$104.1)	(\$105.7)	(\$107.6)	(\$108.6)	(\$108.6)	(\$203.8)	(\$213.3)	(\$217.2)

## Motor Carrier Revenues

The Motor Carrier Transportation Division (MCTD) collects weight-mile taxes and other heavy vehicle fees. Table 5 contains the forecast revenue detail, along with projected collection/administration costs and transfers.

Row 1 shows the amount of weight-mile and flat fee revenues collected each fiscal year. In FY15, weight-mile and flat-fee revenues totaled \$283.9 million, increasing 2.9 percent over FY14. The FY16-FY17 period is expected to continue growing solidly at 3.4 percent as employment and spending growth increases at a fairly rapid rate while fuel costs remain low. Beyond FY17 growth is expected to slow as employment growth and consumer spending slows. However, weight-mile revenues are volatile so year to year fluctuations can be large.

**Figure 15: Heavy Vehicle Registration Revenues**



Row 2 of Table 5 shows heavy vehicle registration fee revenues. The chart in Figure 14 above portrays the current forecast. It includes both International Registration Plan (IRP) registration fees paid by interstate carriers and Commercial registration fees paid by intrastate carriers. Together these heavy vehicle registration fees totaled \$42.8 million in FY15, a 2.3 percent increase over FY14. Revenues are expected to essentially remain

flat through the remainder of the forecast with one bump in growth in FY18. This positive growth seen in registrations while small is an indication of the expanding economy.

Row 3 shows the revenues from Road Use Assessment Fees (RUAF), permits, passes, and credentials such as weight receipts and cab cards. This row also includes OTIA III Local Fund fee increments from the commercial driver permits, licenses, and tests, along with weight receipts. Overall, total revenue from these heavy vehicle sources was \$10.9 million in FY15, an 11.5 percent increase over FY14. Beyond FY15, revenue is expected to drop in FY16 to about \$10.0 million and grow an average of 0.9 percent from FY17-FY19.

Row 4 reports the total gross revenues for the Motor Carrier Division and row 5 the change from the prior forecast. Overall gross revenues are expected to grow at a 1.9 percent annual rate through FY19, a 1.0 percentage point decrease than the prior forecast. Overall, the cumulative change from the prior forecast is \$5.8 million lower from FY15-FY19, or 0.3 percent. Given the volatility in weight-mile revenue this is a very small change. The reason for the stability between the two forecasts is due to the short term accuracy of the prior forecast and the lack of change in the forecasts for the exogenous model variables from the prior forecast.

Row 9 reports the revenues net of collection costs. Net revenues totaled \$298.5 million in FY15 and are expected to increase 3.2 percent in FY16 and 3.0 percent in FY17. Growth slows considerably in the final two years of the forecast, approaching almost zero growth in FY19. Collection and administration costs, as shown in rows 6 and 8, are expected to increase throughout the forecast, averaging 1.5 percent per biennia primarily from personal services and supply costs.

**Table 5: Highway Fund Revenue Collected by MCTD (Millions of Current Dollars)**

	Actual		Forecast				Actual	Forecast	
	FY 14	FY 15	FY 16	FY 17	FY 18	FY 19	BI 13-15	BI 15-17	BI 17-19
1 WEIGHT-MILE TAX	\$275.8	\$283.9	\$293.7	\$303.8	\$309.5	\$310.8	\$559.7	\$597.5	\$620.3
2 IRP & COMMERCIAL VEHICLE REGISTRATIONS*	\$41.8	\$42.8	\$42.8	\$42.6	\$43.1	\$43.1	\$84.6	\$85.4	\$86.2
3 RUAF, PERMITS, PASSES & CREDENTIALS**	\$9.5	\$10.9	\$10.0	\$10.0	\$10.2	\$10.3	\$20.3	\$20.0	\$20.4
4 <b>TOTAL MCTD COLLECTIONS</b>	<b>\$327.1</b>	<b>\$337.6</b>	<b>\$346.5</b>	<b>\$356.4</b>	<b>\$362.7</b>	<b>\$364.2</b>	<b>\$664.7</b>	<b>\$702.9</b>	<b>\$726.9</b>
5 Change from Previous Forecast	(\$0.0)	\$0.8	(\$1.2)	(\$0.8)	(\$0.9)	(\$3.6)	\$0.8	(\$2.0)	(\$4.6)
6 COLLECTION/ADMINISTRATION & PROGRAM COST	(\$29.7)	(\$30.3)	(\$30.2)	(\$30.8)	(\$31.1)	(\$31.7)	(\$60.0)	(\$61.0)	(\$62.7)
7 IFTA BUDGETED EXPENDITURES***	\$1.1	\$1.1	\$1.1	\$1.1	\$1.1	\$1.1	\$2.2	\$2.2	\$2.2
8 ODOT CENTRAL SERVICES ASSESSMENT	(\$9.7)	(\$9.9)	(\$9.2)	(\$9.4)	(\$9.5)	(\$9.7)	(\$19.5)	(\$18.6)	(\$19.2)
9 <b>NET MCTD REVENUE</b>	<b>\$288.8</b>	<b>\$298.5</b>	<b>\$308.1</b>	<b>\$317.3</b>	<b>\$323.3</b>	<b>\$323.9</b>	<b>\$587.4</b>	<b>\$625.5</b>	<b>\$647.2</b>
10 REVENUE SET-ASIDE TO OTIA I & II - memo	(\$9.3)	(\$9.3)	(\$9.4)	(\$9.5)	(\$9.6)	(\$9.5)	(\$18.6)	(\$18.9)	(\$19.1)
11 REVENUE PLEDGED TO OTIA III - memo	(\$29.0)	(\$29.9)	(\$30.6)	(\$31.3)	(\$31.9)	(\$32.0)	(\$58.9)	(\$61.9)	(\$63.8)
12 REVENUE DUE TO JTA (HB 2001) - memo	(\$76.7)	(\$78.8)	(\$80.7)	(\$82.6)	(\$84.0)	(\$84.2)	(\$155.4)	(\$163.3)	(\$168.2)

\*IRP: International Registration Plan.

\*\*RUAF: Road Use Assessment Fees.

\*\*\*IFTA: International Fuel Tax Agreement.

## Motor Fuels Tax Revenues

The Central Services Division–Financial Services Branch collects fuel tax revenues. Fuel tax collections are contained in Table 6. The fuel tax revenue forecasts continue to be reasonably accurate, once the forecasting model is evaluated for misses in the macroeconomic state economic forecasts. This is despite the price volatility in petroleum markets for nearly the past decade. While actual revenues versus forecast revenues for the past several years have been typically within about plus/minus 2 percent, the disparity has magnified somewhat with the economic and financial turbulence from late 2007 through 2011. Fortunately, the forecasts have regained better tracking performance of late, further testament that the worst of the economic contraction and volatility are hopefully behind us. Recent forecast performance has been coming in at about a 1.5 to 2.4 percent relative error.

The current forecast shows a modest drop in fuel tax revenue for FY16 from the prior forecast conducted in June 2015. It is off by \$6.0 million, or about 1.1 percent; very nearly unchanged in other words. The JTA didn't affect fuel tax revenues until mid-way through FY11 (January 2011), and the fuel tax has been unchanged since then. The new forecast has motor fuels tax revenues very nearly the same compared to the prior forecast for the years FY17 through FY21. On average, revenues are about \$1 million lower per year for the forecast interval.

Over the forecast period out to FY21, motor fuel revenues grow at an annual average pace of 1.5 percent. The June 2015 forecast had an annual average rate projected FY21 of 2.6 percent.

Collection and program administration costs for the Fuels Tax Group stay largely invariant over the forecast horizon, so net fuel tax revenues to the State Highway Fund exhibit

largely the same pattern as gross revenues. With an average annual base of approximately \$549 million over the forecast interval of FY16 to FY19, fuels tax collections generate the single largest amount of revenue for the Highway Fund, almost 45 percent before collection and program costs. Each penny of gas tax generates about \$18.3 million gross and \$17.6 million net per year in fuel tax revenue through this forecast horizon on average. The same penny of tax plus its weight-mile equivalent produces on average about \$28.5 million gross and slightly more than \$27.7 million net a year.

As is customary from past reports, it is worthwhile to put above yield statistics into a proper context. The predictive capability of the foregoing “yield” results from motor fuel taxes and weight-mile levies on heavy trucks. They are averages and are based on a 1-cent increase only. For tax increases larger than one cent per gallon (say, for example, 5 cents or more), price sensitivity effects are likely to cause a diminution in expected revenue yield. Moreover, as advanced in the motor fuels transaction narrative, sensitivities to permanent tax rate changes are most likely higher than for strict price changes. Direct analysis on a case by case basis is strongly recommended over applying “rules of thumb” in instances of more than one cent increments.

### 2013 Legislative Session

There were no initiatives in the 2015 session directed at enhancing fuel tax revenues to the extent there was in 2009. There were two, however, that do affect fuel tax revenues from 2013. The first, HB 2435 provides exemption from use-fuel excise taxes for the use of a bio-diesel (B20). The second relates to a pilot program that will launch a very significant path toward restructuring the way in which user taxes are assessed on light duty vehicles and medium heavy trucks (gross weight up to

26,001 pounds). The highlights of each are provided below.

### **HB 2435**

HB 2435 exempts vehicles up to 26,001 pounds (gross vehicle weight) from paying the use-fuel excise tax if the vehicle is fueled using B20 biodiesel (made up of 1 part bio-fuel and 4 parts traditional petro-diesel). The fuel tax rate is 30 cents per gallon for petro-diesel. While biodiesel can be formulated from a variety of feed stocks, the legislation limits it to used cooking oil, which belongs to a large group of Fatty Acid Methyl Esters (FAME's). The tax exemption is to commence January 1, 2014, and sunsets on December 31, 2019 under this legislation.

Revenue impacts from the use of B20 and its tax exempt status are still uncertain at this time, given the lack of sufficient information about the industry and supply conditions. Conservative estimates initially gauged the revenue loss of at least \$1.5 million approximately per year at this juncture. However, recent monthly data are indicating much stronger market penetration showing annual revenue losses at a rate of \$5 million annually.

It is noteworthy to recognize that light duty and medium heavy vehicles still impose the same costs on the State Highway Network, as well as on local roadways. Using B20 instead of all petro-diesel does not mitigate or avoid the system costs imposed by these two classes of vehicles. However, fuel tax revenue attributed to B20 biodiesel vehicles is eliminated. This starts to distort the revenue/cost ratio (Highway Cost Allocation Study's "equity ratios") for the light duty vehicle class and the medium heavy vehicle class, and creates a new obstacle toward meeting the State Constitutional mandate for the HCAS and setting fees and user taxes for broad vehicle classes that maintain parity

between revenues generated and cost causation.

### **SB 810 Road User Charge Pilot Project**

SB 810 institutes a road user tax based on miles driven in Oregon, rather than a fuels tax charge for gallons consumed. The bill essentially authorizes the creation of a pilot program of charging voluntary participants using the state's highway/streets network 1.5 cents per mile of travel, instead of the statutory fuel tax of 30 cents per gallon. [Oregon was the first in the nation to implement a motor fuels tax, in 1919 at 1 cent per gallon.] The bill authorizes a spending limitation to put the necessary administrative rules and supporting systems in place, beginning in the fall of 2013. The legislation directs the operational phase of the program to be up and running by July 1, 2015 – or the beginning of FY16. This would be the second half of the 2015-17 biennium. As a result there were no revenue implications for the current biennium.

The plan caps the voluntary participation at 5,000 light duty vehicles (those less than 10,001 pounds). The 5,000 participation limit is segmented into three vehicle groups: Up to 1,500 eligible vehicles with fuel efficiency capabilities below 17 miles per gallon (MPG); up to 1,500 eligible vehicles of 17 to 22 MPG; and the balance (up to 2,000) with fuel efficiencies in excess of 22 MPG. Generally, vehicles with an efficiency of less than 17 MPG would pay lower user taxes under the RUC than what would be paid under the fuels tax structure. Those with efficiencies in excess of 22 MPG would pay more under a RUC tax structure than would be incurred under the fuels tax. The RUC applies only to those miles driven in Oregon.

The revenue impacts from the up-to-5,000 participant vehicles in the program once it becomes operational in FY16 are quite muted, as well as being somewhat speculative at this

juncture. The actual revenue impacts rests ultimately on the vehicle types and comparative penetrations into three vehicle groups of eligible participants. The revenue outcome, however, is the result of two revenue streams: Those revenues that are generated by the 1.5 cents per mile road tax, and revenues foregone or not realized from reduced receipts from fuel tax payments avoided. [The exemption from paying the fuels tax can be executed by either making a request for a tax refund to ODOT for fuel taxes paid by participants, or the display of an ODOT issued emblem to be exempt from paying the tax at the point of sale.]

Simple break-even analysis indicates that participation in the pilot should skew toward lower MPG vehicles (less than 17 MPG), and away from high efficiency vehicles – subject to the cap restrictions. This would result in reduced fuel tax receipts, offset by the revenues from the mileage tax of 1.5 cents per mile. In the net, it is anticipated that lower

overall revenues would result in the program. In the first year of operation (FY16), nearly \$100,000 in user tax revenue is foregone. In the later years of the pilot, lost revenue is on the order of \$250,000 annually. [These are mostly years beyond the current forecast horizon that ends in FY19.]

SB 810 specifies a 50/30/20 apportionment of the “moneys collected from the road usage charges” to the State Highway Fund, counties, and municipalities, respectively. By itself, this would not reflect lost revenues from foregone fuel tax. The estimated gross revenue from vehicles in the RUC program is approximately \$600,000 per year in its fourth year (FY19). So, the state apportionment share would be only \$300,000 annually. Ultimately, however, the reduced fuel tax revenue would register at a lower base and lower JTA fuel tax revenues, and trickle through to slightly decreased apportionments under the traditional apportionment shares for net fuel-based tax revenue.

**Table 6: Highway Fund Revenue Collected by Financial Services Branch (Millions of Current Dollars)**

	Actual		Forecast				Actual	Forecast	
	FY 14	FY 15	FY 16	FY 17	FY 18	FY 19	BI 13-15	BI 15-17	BI 17-19
1 MOTOR FUELS TAXES	\$494.6	\$513.9	\$534.5	\$547.1	\$556.6	\$562.2	\$1,008.5	\$1,081.5	\$1,118.9
2 <b>TOTAL FSB COLLECTIONS</b>	<b>\$494.6</b>	<b>\$513.9</b>	<b>\$534.5</b>	<b>\$547.1</b>	<b>\$556.6</b>	<b>\$562.2</b>	<b>\$1,008.5</b>	<b>\$1,081.5</b>	<b>\$1,118.9</b>
3 Change from Previous Forecast	\$0.0	(\$1.9)	(\$6.0)	(\$1.5)	\$0.3	\$1.0	(\$1.9)	(\$7.5)	\$1.3
4 COLLECTION/ADMINISTRATION COST	(\$1.5)	(\$1.5)	(\$1.8)	(\$1.8)	(\$1.9)	(\$1.9)	(\$3.1)	(\$3.7)	(\$3.8)
5 ODOT CENTRAL SERVICES ASSESSMENT	(\$0.2)	(\$0.2)	(\$0.3)	(\$0.3)	(\$0.3)	(\$0.3)	(\$0.4)	(\$0.6)	(\$0.6)
6 SNOWMOBILE TRANSFER	(\$0.7)	(\$0.6)	(\$0.6)	(\$0.6)	(\$0.6)	(\$0.6)	(\$1.3)	(\$1.2)	(\$1.2)
7 CLASS I ATV TRANSFER	(\$2.9)	(\$2.9)	(\$2.7)	(\$2.7)	(\$2.7)	(\$2.7)	(\$5.8)	(\$5.5)	(\$5.4)
8 MARINE BOARD TRANSFER	(\$5.0)	(\$4.1)	(\$4.1)	(\$4.1)	(\$4.1)	(\$4.0)	(\$9.1)	(\$8.1)	(\$8.1)
9 CLASS II ATV TRANSFER	(\$1.1)	(\$1.1)	(\$1.0)	(\$1.0)	(\$1.0)	(\$1.0)	(\$2.2)	(\$2.0)	(\$2.0)
10 CLASS III ATV TRANSFER	(\$1.1)	(\$1.1)	(\$1.1)	(\$1.1)	(\$1.0)	(\$1.0)	(\$2.2)	(\$2.1)	(\$2.1)
11 CLASS IV ATV TRANSFER	(\$0.4)	(\$0.5)	(\$0.5)	(\$0.5)	(\$0.5)	(\$0.5)	(\$0.8)	(\$0.9)	(\$0.9)
12 TRANSPORTATION OPERATING FUND (TOF)	(\$5.4)	(\$5.4)	(\$5.5)	(\$5.5)	(\$5.6)	(\$5.6)	(\$10.8)	(\$11.0)	(\$11.2)
13 AVIATION TRANSFER	(\$0.1)	(\$0.1)	(\$0.1)	(\$0.1)	(\$0.1)	(\$0.1)	(\$0.2)	(\$0.2)	(\$0.2)
14 HB 2435 (2013 Session) B20 FUEL TAX EXEMPTION	(\$0.6)	(\$4.2)	(\$5.0)	(\$5.0)	(\$5.0)	(\$5.0)	(\$4.9)	(\$10.1)	(\$10.1)
15 <b>NET FSB REVENUE</b>	<b>\$475.6</b>	<b>\$492.0</b>	<b>\$511.8</b>	<b>\$524.3</b>	<b>\$533.9</b>	<b>\$539.5</b>	<b>\$967.6</b>	<b>\$1,036.1</b>	<b>\$1,073.4</b>
16 REVENUE ALLOCATION TO OTIA I & II SET-ASIDE - memo	(\$18.9)	(\$18.9)	(\$19.2)	(\$19.3)	(\$19.4)	(\$19.5)	(\$37.9)	(\$38.5)	(\$38.8)
17 REVENUE PLEDGED TO OTIA III - memo	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
18 REVENUE DUE TO JTA (HB 2001) - memo	(\$99.0)	(\$102.8)	(\$106.9)	(\$109.4)	(\$111.3)	(\$112.4)	(\$201.8)	(\$216.3)	(\$223.8)

## Highway Revenue Forecast Summary

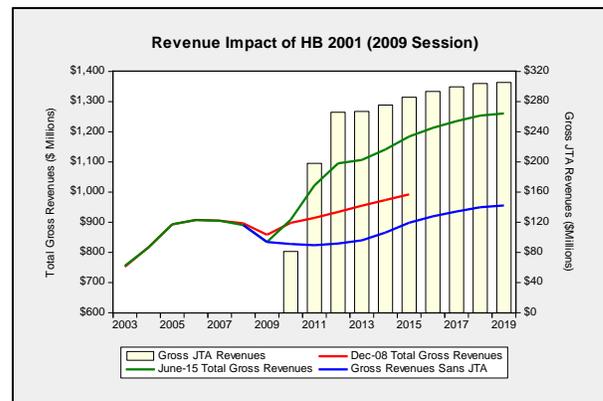
Table 7 summarizes the updated revenue forecast. For tractability, it is partitioned into two panels. The portion of the table labeled “7A” contains a consolidation of the results reported in Tables 4, 5, and 6 developed for each major division of ODOT. The portion labeled “7B” shows how the net revenues available for distribution are apportioned between counties, cities, and the State Highway Fund. A separate monthly forecast of the County/City Apportionments is available under “Highway Revenue Apportionment Forecasts” at <http://www.oregon.gov/ODOT/TD/EA/Pages/revenueforecasts.aspx>.

Figure 15 highlights the impact of the JTA revenues on the current forecast. Beginning in October of 2009 revenues from the increases in DMV fees began accruing, followed by early payment of heavy vehicle registrations in November and December of 2009. The rest of the heavy vehicle registration increases began in January 2010, totaling \$81.1 million in FY10. In October of 2010 the increase in the weight-mile, flat fee, and road user assessment fees took effect, but as with the heavy vehicle registrations, the full revenue impact was not seen the month the fees are increased. Instead a small portion of revenue received in October were the new JTA fees, while most of November and virtually all revenue from December forward were at JTA fee rates. The final piece of the JTA was the motor fuels tax increase implemented in January 2011. Total gross JTA revenues for FY11 totaled \$198.0 million, which only contained a partial year of the fuel tax increase. The first full year of JTA revenues was FY12, and revenues totaled \$265.9 million. Revenues grew slightly in FY13 totaling \$267.0 million, followed by solid

growth in FY14 totaling \$275.4 and even stronger growth in FY15 totaling \$285.7 million as the economy expanded at a quicker rate. In the forecast horizon, JTA revenues are expected to continue increasing but at a slower rate, with growth averaging 1.7 percent annually.

Also shown in Figure 15 is a comparison of the December 2015 forecast to the December 2008 forecast with the JTA revenues removed. This apples-to-apples comparison shows that the current gross highway fund forecast generated a reduced amount of revenue over the December 2008 forecast (red line), averaging \$105.4 million less per year covering the period from FY12 through FY15 when the JTA revenues are removed (blue line). This difference is driven by the anemic recovery that was not expected in 2008. Only in the last two years has growth exceeded what was predicted in 2008. We use the December 2008 forecast for comparison as it was the last forecast produced prior to the inclusion of the JTA legislation in the revenue outlook and therefore provides a useful benchmark for comparison to our current forecast.

**Figure 16: JTA Revenue Impact**



**Table 7A: Highway Fund Revenue by Fiscal Year and Biennium (Millions of Current Dollars)**

	Actual		Forecast				Actual	Forecast		
	FY 14	FY 15	FY 16	FY 17	FY 18	FY 19	BI 13-15	BI 15-17	BI 17-19	
1	TOTAL MCTD COLLECTIONS	\$327.1	\$337.6	\$346.5	\$356.4	\$362.7	\$364.2	\$664.7	\$702.9	\$726.9
2	TOTAL FSB COLLECTIONS	\$494.6	\$513.9	\$534.5	\$547.1	\$556.6	\$562.2	\$1,008.5	\$1,081.5	\$1,118.9
3	TOTAL DMV COLLECTIONS	\$319.6	\$332.5	\$331.8	\$331.5	\$334.1	\$334.2	\$652.1	\$663.3	\$668.3
4	<b>TOTAL GROSS HIGHWAY FUND</b>	<b>\$1,141.2</b>	<b>\$1,184.0</b>	<b>\$1,212.7</b>	<b>\$1,235.0</b>	<b>\$1,253.5</b>	<b>\$1,260.6</b>	<b>\$2,325.2</b>	<b>\$2,447.7</b>	<b>\$2,514.1</b>
5	COLLECTION, PROGRAMS, & TRANSFERS (incl.obligated OTIA & JTA)	(\$526.5)	(\$544.1)	(\$567.2)	(\$577.5)	(\$591.4)	(\$595.9)	(\$1,070.6)	(\$1,144.6)	(\$1,187.2)
6	<b>NET REVENUE TO HIGHWAY FUND</b>	<b>\$614.7</b>	<b>\$640.0</b>	<b>\$645.5</b>	<b>\$657.5</b>	<b>\$662.1</b>	<b>\$664.8</b>	<b>\$1,254.7</b>	<b>\$1,303.0</b>	<b>\$1,326.9</b>
7	OTIA I & II SET ASIDE - memo	\$35.6	\$35.6	\$35.6	\$35.6	\$35.6	\$35.6	\$71.2	\$71.2	\$71.2
8	DEBT SERVICE (OTIA I & II) - memo	(\$32.0)	(\$31.0)	(\$36.4)	(\$35.8)	(\$32.5)	(\$33.4)	(\$63.0)	(\$72.2)	(\$65.9)
9	OTIA III Dedicated Revenues - memo	\$97.2	\$101.1	\$103.0	\$105.2	\$106.4	\$106.4	\$198.3	\$208.2	\$212.8
10	DEBT SERVICE (OTIA III) - memo	(\$110.9)	(\$105.6)	(\$129.1)	(\$128.4)	(\$125.1)	(\$124.7)	(\$216.5)	(\$257.5)	(\$249.9)
11	JTA Total Gross Revenues - memo	\$275.4	\$285.7	\$293.3	\$299.6	\$303.9	\$305.3	\$561.1	\$592.9	\$609.2
12	JTA Allocation for Long-Range Planning and TIC Transfers - memo	(\$24.0)	(\$24.0)	(\$24.0)	(\$24.0)	(\$24.0)	(\$24.0)	(\$48.0)	(\$48.0)	(\$48.0)
13	DEBT SERVICE (JTA) - State Only - memo	(\$11.2)	(\$28.3)	(\$28.3)	(\$28.5)	(\$28.3)	(\$28.3)	(\$39.5)	(\$56.7)	(\$56.6)
14	Oregon Travel Experience Transfer - State Only - memo	(\$6.6)	(\$6.6)	(\$6.6)	(\$6.6)	(\$6.6)	(\$6.6)	(\$13.1)	(\$13.1)	(\$13.1)
15	E-GOV Records Incremental Revenue Transfer - memo	(\$5.3)	(\$5.2)	(\$5.4)	(\$5.7)	(\$5.8)	(\$5.7)	(\$10.5)	(\$11.1)	(\$11.5)
17	NET OTIA I & II REVENUE FOR DISTRIBUTION	\$3.6	\$4.6	(\$0.8)	(\$0.2)	\$3.1	\$2.2	\$8.2	(\$1.0)	\$5.3
18	NET OTIA III REVENUE FOR DISTRIBUTION - LOCAL	\$38.9	\$40.9	\$37.2	\$38.4	\$33.1	\$33.3	\$79.8	\$75.6	\$66.4
19	NET OTIA III REVENUE FOR DISTRIBUTION -STATE	(\$45.2)	(\$37.8)	(\$55.7)	(\$54.0)	(\$44.2)	(\$43.9)	(\$83.0)	(\$109.7)	(\$88.2)
20	NET JTA REVENUE FOR DISTRIBUTION - LOCAL	\$125.7	\$130.8	\$134.7	\$137.8	\$140.0	\$140.7	\$256.5	\$272.5	\$280.6
21	NET JTA REVENUE FOR DISTRIBUTION ABOVE D/S -STATE	\$53.2	\$38.8	\$40.7	\$42.2	\$43.4	\$43.8	\$92.0	\$82.9	\$87.3
22	<b>TOTAL NET REVENUE FOR DISTRIBUTION</b>	<b>\$790.9</b>	<b>\$817.3</b>	<b>\$801.7</b>	<b>\$821.7</b>	<b>\$837.5</b>	<b>\$840.9</b>	<b>\$1,608.1</b>	<b>\$1,623.4</b>	<b>\$1,678.3</b>

Note: Row and column sums may vary slightly due to rounding.

**Table 7B: Distribution of Total Net Revenues (Millions of Current Dollars)**

	Distribution Percentage	Actual		Forecast				Actual	Forecast		
		FY 14	FY 15	FY 16	FY 17	FY 18	FY 19	BI 13-15	BI 15-17	BI 17-19	
1	COUNTY APPORTIONMENT (ORS 366.739)	24.38%	\$136.5	\$142.1	\$143.0	\$145.5	\$146.4	\$147.0	\$278.6	\$288.5	\$293.3
2	SPECIAL COUNTY (ORS 366.772)		(\$0.5)	(\$0.5)	(\$0.5)	(\$0.5)	(\$0.5)	(\$0.5)	(\$1.0)	(\$1.0)	(\$1.0)
4	COUNTY APPORTIONMENT (OTIA I & II)	30.00%	\$1.1	\$1.4	(\$0.2)	(\$0.1)	\$0.9	\$0.7	\$2.5	(\$0.3)	\$1.6
5	COUNTY APPORTIONMENT (OTIA III)	25.48%	\$24.8	\$25.8	\$26.3	\$26.8	\$27.1	\$27.1	\$50.5	\$53.1	\$54.2
6	DEBT SERVICE (OTIA III)	84.07%	(\$8.2)	(\$8.2)	(\$11.9)	(\$11.6)	(\$16.6)	(\$16.4)	(\$16.3)	(\$23.6)	(\$33.0)
7	COUNTY APPORTIONMENT (OTIA III-Local)	60.00%	\$4.4	\$4.6	\$4.6	\$4.6	\$4.6	\$4.6	\$9.0	\$9.1	\$9.2
8	COUNTY APPORTIONMENT (JTA)	30.00%	\$75.4	\$78.5	\$80.8	\$82.7	\$84.0	\$84.4	\$153.9	\$163.5	\$168.4
9	<b>NET COUNTY APPORTIONMENT</b>		<b>\$233.5</b>	<b>\$243.6</b>	<b>\$241.9</b>	<b>\$247.4</b>	<b>\$245.9</b>	<b>\$246.8</b>	<b>\$477.2</b>	<b>\$489.3</b>	<b>\$492.7</b>
10	CITY APPORTIONMENT (ORS 366.739)	15.57%	\$87.2	\$90.7	\$91.3	\$92.9	\$93.5	\$93.8	\$177.9	\$184.2	\$187.3
11	SPECIAL CITY (ORS 366.805)		(\$0.5)	(\$0.5)	(\$0.5)	(\$0.5)	(\$0.5)	(\$0.5)	(\$1.0)	(\$1.0)	(\$1.0)
12	CITY APPORTIONMENT (OTIA I & II)	20.00%	\$0.7	\$0.9	(\$0.2)	(\$0.0)	\$0.6	\$0.4	\$1.6	(\$0.2)	\$1.1
13	CITY APPORTIONMENT (OTIA III)	16.99%	\$16.5	\$17.2	\$17.5	\$17.9	\$18.1	\$18.1	\$33.7	\$35.4	\$36.2
14	DEBT SERVICE (OTIA III)	15.93%	(\$1.5)	(\$1.5)	(\$2.3)	(\$2.2)	(\$3.1)	(\$3.1)	(\$3.1)	(\$4.5)	(\$6.3)
15	CITY APPORTIONMENT (OTIA III-Local)	40.00%	\$2.9	\$3.1	\$3.1	\$3.0	\$3.1	\$3.1	\$6.0	\$6.1	\$6.1
16	CITY APPORTIONMENT (JTA)	20.00%	\$50.3	\$52.3	\$53.9	\$55.1	\$56.0	\$56.3	\$102.6	\$109.0	\$112.2
17	<b>NET CITY APPORTIONMENT</b>		<b>\$155.6</b>	<b>\$162.2</b>	<b>\$162.8</b>	<b>\$166.2</b>	<b>\$167.6</b>	<b>\$168.1</b>	<b>\$317.7</b>	<b>\$329.0</b>	<b>\$335.7</b>
18	HIGHWAY DIVISION (including small City/County)	60.05%	\$336.3	\$349.9	\$352.1	\$358.4	\$360.6	\$362.0	\$686.2	\$710.6	\$722.5
19	SPECIAL COUNTY (ORS 366.772)		(\$0.3)	(\$0.3)	(\$0.3)	(\$0.3)	(\$0.3)	(\$0.3)	(\$0.5)	(\$0.5)	(\$0.5)
20	SPECIAL CITY (ORS 366.805)		(\$0.5)	(\$0.5)	(\$0.5)	(\$0.5)	(\$0.5)	(\$0.5)	(\$1.0)	(\$1.0)	(\$1.0)
21	HIGHWAY DIVISION: TOTAL (OTIA I & II)	50.00%	\$1.8	\$2.3	(\$0.4)	(\$0.1)	\$1.6	\$1.1	\$4.1	(\$0.5)	\$2.7
22	HIGHWAY DIVISION: TOTAL (OTIA III)	57.53%	\$55.9	\$58.2	\$59.3	\$60.5	\$61.2	\$61.2	\$114.1	\$119.8	\$122.4
23	DEBT SERVICE (OTIA III)	100.00%	(\$101.2)	(\$95.9)	(\$114.9)	(\$114.5)	(\$105.4)	(\$105.2)	(\$197.1)	(\$229.5)	(\$210.6)
24	STATE APPORTIONMENT (OTIA III)	0.00%	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
25	HIGHWAY DIVISION: NON-DEDICATED JTA REVENUES	48.75%	\$61.3	\$63.8	\$65.7	\$67.2	\$68.2	\$68.6	\$125.1	\$132.8	\$136.8
26	HIGHWAY DIVISION: DEDICATED JTA DEBT SERVICE	51.25%	\$64.4	\$67.1	\$69.0	\$70.6	\$71.7	\$72.1	\$131.5	\$139.6	\$143.8
27	DEBT SERVICE (JTA)		(\$11.2)	(\$28.3)	(\$28.3)	(\$28.5)	(\$28.3)	(\$28.3)	(\$39.5)	(\$56.7)	(\$56.6)
28	OREGON TRAVEL EXPERIENCE TRANSFER		(\$6.6)	(\$6.6)	(\$6.6)	(\$6.6)	(\$6.6)	(\$6.6)	(\$13.1)	(\$13.1)	(\$13.1)
29	<b>NET HIGHWAY DIVISION</b>		<b>\$400.0</b>	<b>\$409.7</b>	<b>\$395.2</b>	<b>\$406.4</b>	<b>\$422.3</b>	<b>\$424.2</b>	<b>\$809.7</b>	<b>\$801.5</b>	<b>\$846.5</b>
30	Memo: HIGHWAY MODERNIZATION PROGRAM (included in NET HIGHWAY DIVISION)		\$74.5	\$77.2	\$80.2	\$82.5	\$84.0	\$84.6	\$151.7	\$162.7	\$168.7
31	NET COUNTY APPORTIONMENT		\$233.5	\$243.6	\$241.9	\$247.4	\$245.9	\$246.8	\$477.2	\$489.3	\$492.7
32	NET CITY APPORTIONMENT		\$155.6	\$162.2	\$162.8	\$166.2	\$167.6	\$168.1	\$317.7	\$329.0	\$335.7
33	NET HIGHWAY DIVISION		\$400.0	\$409.7	\$395.2	\$406.4	\$422.3	\$424.2	\$809.7	\$801.5	\$846.5
34	<b>NET HIGHWAY FUNDS REVENUE</b>		<b>\$789.1</b>	<b>\$815.5</b>	<b>\$799.9</b>	<b>\$820.0</b>	<b>\$835.7</b>	<b>\$839.1</b>	<b>\$1,604.6</b>	<b>\$1,619.9</b>	<b>\$1,674.8</b>
35	SPECIAL COUNTY/CITY TRANSFERS TO ALLOTMENT FUND		\$1.8	\$1.8	\$1.8	\$1.8	\$1.8	\$1.8	\$3.5	\$3.5	\$3.5
36	<b>TOTAL NET REVENUES FOR DISTRIBUTION</b>		<b>\$790.9</b>	<b>\$817.3</b>	<b>\$801.7</b>	<b>\$821.7</b>	<b>\$837.5</b>	<b>\$840.9</b>	<b>\$1,608.1</b>	<b>\$1,623.4</b>	<b>\$1,678.3</b>

Note: Row and column sums may vary slightly due to rounding.