BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

UG 388

In the Matter of	)
	)
NW NATURAL GAS COMPANY, dba NW NATURAL,	)
	)
Request for General Rate Revision.	)
	)

OPENING TESTIMONY

OF THE

OREGON CITIZENS' UTILITY BOARD

April 17, 2020

Redacted Version

BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

UG 388

In the Matter of NW NATURAL GAS COMPANY, dba NW NATURAL, Request for General Rate Revision.	)	OPENING TESTIMONY OF THE OREGON CITIZENS' UTILITY BOARD

I. INTRODUCTION AND SUMMARY

Q. Please state your name, occupation, and business address.

A. My name is Bob Jenks. I am the Executive Director of the Oregon Citizens' Utility Board (CUB). My business address is 610 SW Broadway, Ste. 400 Portland, Oregon 97205.

Q. Please describe your educational background and work experience.

A. My witness qualification statement is found in exhibit CUB/101.

Q. Please summarize your testimony.

A. I am CUB's first witness in this case. In my testimony, I provide several policy recommendations for the Oregon Public Utility Commission ("Commission") to consider. These policy recommendations are made in response to NW Natural's ("NWN" or "the Company") direct testimony. My testimony is organized to provide the following:

- A discussion of CUB's concerns relating the size and impact of this increase.

- A recommendation that curtailment penalties associated with interruptible load that declines interruption should flow through to customers in the PGA.
- A recommendation that storage and optimization revenues should be credited to customers during the winter heating season.
- A discussion of CUB's concerns with customers funding public relations and lobbying activity relating to the public policy debate over electrification versus renewable natural gas. I recommend that NWN's "Less We Can" campaign be conducted within their traditional advertising budget. I recommend that these efforts should be scrutinized to ensure customer benefit. And, finally, I recommend that NWN should be required to disclose its fuel mix annually to customers.

II. SIZE AND IMPACT OF PROPOSED RATES

Q. NW Natural is proposing a 12 cents per therm (12% increase) for residential customers. Can you put that in historical context?

A. Yes. If approved, this would be one of the largest gas rate increases in modern Oregon history and potentially the largest that was not driven by commodity costs. Exhibit CUB/102 shows NWN's annual rate changes for residential customers since 2000. A twelve percent increase to residential customer rates would be the largest increase since 2005 when residential customers rates increased by more than 16%. But that increase was caused by increases in the commodity cost, including Hurricanes Rita and Katrina which caused the cost of gas to trade as high as $16/MMBtu.[1]

During the 2019 legislative session, NWN sent a letter to its business customers protesting the earliest version of HB 2020—the Cap-and-Invest bill—because it

[1] High Natural Gas Prices: The Basics, Federal Energy Regulatory Commission, 12-08-2005, page 2. www.ferc.gov/legal/staff-reports/high-gas-prices-1.pdf

would increase customers' rates by 11 cents per therm.[2] NWN is now proposing an even greater increase.

Q. If approved, what would the impact be on residential customers?

A. The impact would be significant. This rate hike would have been difficult before the economic fallout of COVID-19 pandemic, but as the virus causes unemployment increases on a speed and scale that has never been seen before, this increase will be unaffordable for a lot of customers.

When thinking about increases in gas costs, it is important to remember that the largest residential use of gas is for space heating, which makes customers' gas bills fluctuate seasonally. The impact on winter heating bills is much greater than the impact on average bills. The following chart demonstrates this. [3]

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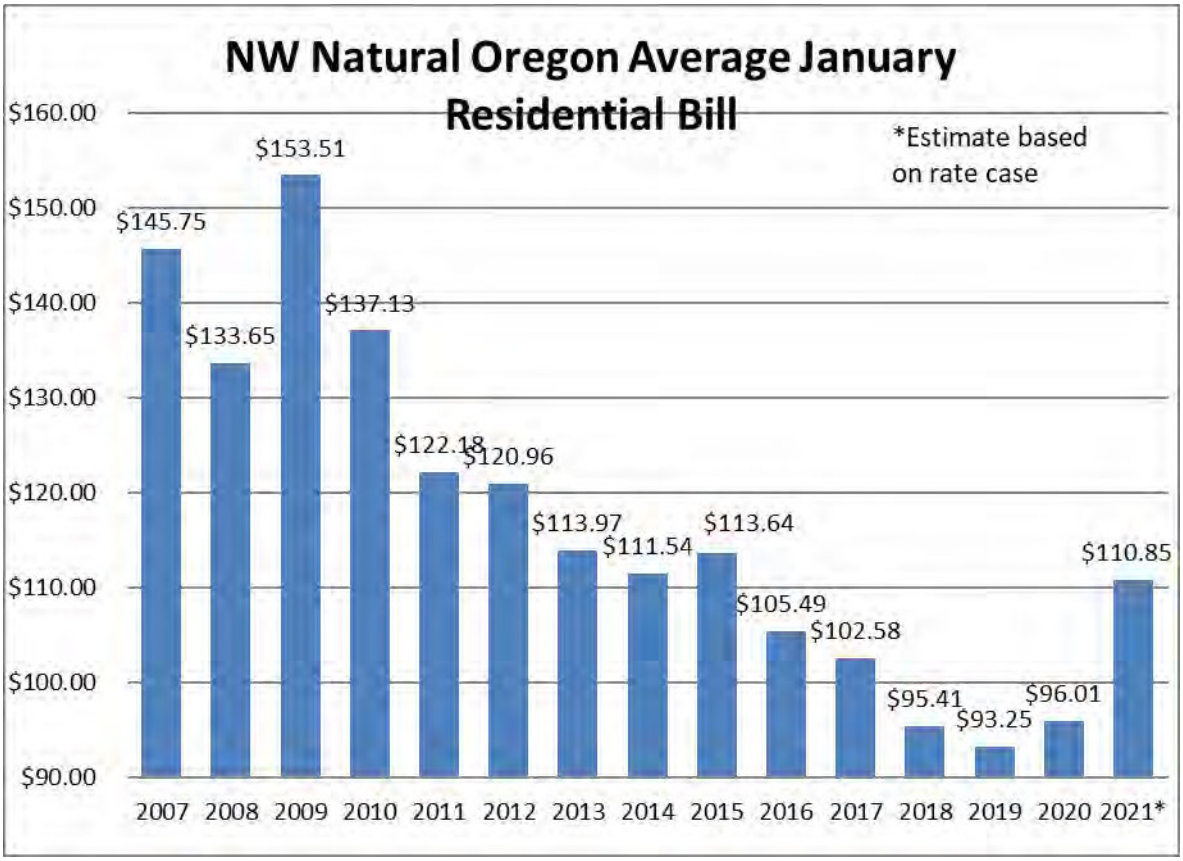
[2] CUB Exhibit 103.
[3] CUB Exhibit 104.



The winter of 2017, for example, was the seventh coldest January ever recorded in Portland.[4] That led to residential natural gas usage that was 20.8% higher for the year than 2016. The bill impact, which is what really affects customers, is a combination of the rate impact and the weather. If Oregon has a harsh winter in 2021, then the impact of this rate hike will be much exacerbated. In these challenging economic times, that may be incredibly difficult for many of NWN's customers to handle.

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[4] *Oregon's Winter of 2016-17 Won't Soon Be Forgotten*, The Oregonian (Feb. 25, 2017) *available at* www.oregonlive.com/weather/2017/02/oregons_winter_of_2016-17_wont.html.

Q. **What is the Governors' Executive Order and how does it relate to this case?**

A. CUB believes that the Governors' recent Executive Order (EO) is significant, particularly in the context of the economic challenges Oregon faces. Executive Order No. 20-04 directs state agencies to act regarding Greenhouse Gas (GHG) emissions. One section of the EO provides direction to the Commission and, in that section, Governor Brown directs the Commission to "exercise its broad statutory authority" to "mitigate energy burden experienced by utility customers."[5] Energy burden is a measurement of affordability. It looks at the cost of a household's energy, the usage of energy by the household, and the resources available to the household (income). This increase will significantly raise the cost of a household's energy at the same time as the resources available are quickly declining due to the economic fallout of COVID-19. While we cannot predict the exact weather customers will face in the future and how that will impact usage, the winter of 2021 could be difficult for many Oregon households.

Q. NWN says that without this increase their ROE will be down to 3.11%, which it states is not sufficient to maintain operations. Is this rate hike necessary?

A. Based on CUB's analysis, a more modest rate increase is justified, but not a double-digit increase. NWN's projection of 3.11% ROE is based on their test year budget, but it is likely that NWN will adjust their budget based on the outcome of this rate case. NWN has been extremely good at managing its operations to match its rates as can be seen by its stable earnings. Exhibit CUB/105 shows the Company's earnings since 2011. As can be seen in that exhibit, the Company's

[5] Oregon Executive Order 20-04, page 8.

earnings have ranged between 9.08% and 11.19% during that time. In 2018, the most recent year with a filed Results of Operations Report, NWN earned 9.86% from Oregon regulated activities.

III. CURTAILMENT PENALTIES

Q. Please summarize your recommendation.

A. When customers on interruptible tariffs refuse to allow for an interruption, the noncompliant interruptible customer is required to pay a curtailment penalty. When noncompliant interruptible customers refuse to allow for an interruption, these customers are utilizing capacity that was funded by non-interruptible natural gas customers. CUB recommends that revenues the Company receives from these curtailment penalties should be passed through to non-interruptible customers as part of the Company's annual Purchased Gas Adjustment (PGA).

Q. What are interruptible sales customers?

A. Interruptible customers, which are primarily large industrial customers and commercial customers, are NW Natural customers who receive lower priority than firm customers, and pay a reduced rate for gas service. The idea is that, in the event of a gas supply shortage, service to interruptible customers may be interrupted to ensure that firm customers' needs are met. The discount in rates interruptible customer receive can be viewed as a payment from non-interruptible customers that secures the interruptible customer's capacity when the system needs it.

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Q. How does NW Natural ensure resource adequacy for its firm gas customers?

A. NW Natural's gas load is based strongly on seasonal space and water heating load. In its Integrated Resource Plan (IRP), NWN uses a risk-based capacity planning standard designed to meet the highest demand day in any given year with 99% certainty.[6] NWN does not plan for upstream pipeline or storage capacity for interruptible customers during peak or near-peak conditions.[7] The rates charged to interruptible are discounted to account for the fact that the utility system has not acquired the capacity to serve their load on the highest demand day.

Q. What role do interruptible customers provide on the system?

A. Interruptible customers provide sheddable load. These customers be can curtailed to ensure that firm gas customers can receive natural gas. Firm customers rely on interruptible customers as a system resource. By being interrupted, these customers free up capacity that can be utilized by other customers.

Q. In the past year, have interruptible customers been curtailed?

A. Yes. There were two curtailment events in the past year. These curtailments were driven by the rupture of Enbridge pipeline on October 8, 2018 and a cold Q1 in 2019. During the first curtailment event, interruptible customers were curtailed for a single day.[8] The second curtailment event started on February 25th and lasted for nine days.[9]

[6] NWN 2018 Integrated Resource Plan, page 1.8
[7] LC 64 – Chapter 2 – Gas Requirements Forecast – Page 8 .
[8] UG 388 – NW Natural/1000/Walker/13, lines 12-16.
[9] UG 388 – NW Natural/1000/Walker/13, lines 17-20.

Q. Did all interruptible customers comply with the curtailment order in 2019 heating season? If not, what is the penalty?

A. No. If an interruptible customer does not comply with a curtailment order, the customer is charged a curtailment penalty. At the time of this testimony, the penalty is $10 per therm.[10]

Q. What happens to the revenue from curtailment penalties?

A. It is retained by the Company.

Q. Are you proposing including revenue from curtailment penalties in the test year?

A. No, that would be inappropriate. I agree with the Company that miscellaneous revenues related to curtailment penalties are rare and unexpected and should be excluded from the test year.

Q. Do you agree that revenue associated curtailment penalties should be retained by the Company?

A. No. I propose that curtailment penalties' revenues be excluded from Miscellaneous Revenues and tracked into NW Natural's PGA. When interruptible customers decline interruption, they are using capacity (pipeline or interstate transportation) that was paid for by non-interruptible customers. They are leaning on the system after receiving benefits from committing to not to lean on the system. The firm customers who fund the capacity are subsidizing their service and should be credited with the curtailment penalty revenue. This change appropriately matches the benefits with the costs.

[10] Northwest Natural Gas Company PUC OR.25 Fifth Revision of Sheet C-1.

IV. STORAGE AND OPTIMIZATION CREDITS

Q. Please summarize your recommendation.

A. CUB recommends that credits for Schedule 185 and 186 be provided to customers in January, rather than provided to customers in June. These credits reflect the customers' share of revenue from Interstate Storage and Transportation (Schedule 185) and Optimization of regulated assets (Schedule 186).

Q. How does the Company pass back interstate storage revenue to Oregon customers?

A. The Company provides customers a credit for Schedule 185 and 186 on June bills of core customers.

Q. When should the interstate storage revenues be passed back to Oregon Customers?

A. CUB recommends that the interstate storage revenues be passed back to customers in the month of January. NWN's load is seasonal with much of the load consisting of space heating. Providing the credit in June when space heating costs are largely non-existent does little to help customers manage bills. Providing the credit in the winter will align it with the winter heating season and high bills.

Q. Why should this change be made?

A. This change will help customers manage their energy burden by offsetting their highest bills which some customers struggle to pay. Exhibit CUB/106 shows NWN's residential shutoffs between August 2018 and January 2020. From July through December, less than 1000 customers per month are shut off. The number of shut-offs increases in January to more than 1000 customers and remains high

through June, with the peak in May. In the period from January through June of 2019 more than 8000 customers lost service. It makes more sense to provide this credit to customers before they are disconnected, then providing it in June after most disconnections have already happened. The exhibit also shows that customers in January-March are more likely to reconnect in seven days or less, than are customers in May-August. This makes sense. Households have trouble going without gas service in the winter, but in the summer gas is not as essential and some customers who are shut off in the late Spring can wait to have their gas reconnected. Applying credits in June may miss these customers.

Q. When should this change be effective?

A. This change should be effective after the rate effective date. There are two ways to implement this. The easiest would be for NWN to hold onto the credit next June, utilizing it for its own credit needs from June to January before passing back to customers with interest in January. The second would be to calculate the credit on a different cycle. Today it is a calendar year, with the credit the following June. It could instead be calculated on a July – June basis and provided the following January.

V. RENEWABLE GAS VERSUS ELECTRIFICATION

Q. What is your recommendation with regards to renewable gas versus electrification?

A. I recommend that NWN should be required to fit its "Less We Can" campaign in its traditional advertising budget, that its efforts should face scrutiny and oversight,

and that it should be required to disclose its fuel mix annually through a bill insert and on their website.

Q. Please explain.

A. There is a debate about whether the best way to decarbonize the economy is to electrify buildings, including space heating or whether to use renewable natural gas and hydrogen to reduce emissions from the gas supply. This is a broad public policy debate that pits the interests of electric utilities versus the interests of gas utilities. CUB's primary concern is that customers should not be called upon to fund advertising and outreach efforts by either to influence the outcome of this policy debate. Customers are captive of monopoly utilities. It is not hard to imagine gas utilities asking customers to fund lobbying and public relations expenditures to push for RNG and/or hydrogen arguing that it is in the interest of gas customers because it will spread out the costs of existing infrastructure investments and keep rates affordable; while simultaneously electric utilities asking customers to fund lobbying and public relations expenditures to push for electrification, arguing that it is in the interest of electric customers because it will spread out the costs of existing infrastructure investments and keep rate affordable. Since many Oregonians are customers of both an electric and gas utility, this amounts to asking us to fund both sides of the debate. Doing so would be inappropriate.

Q. Does this mean that you are opposing investment in RNG?

A. No. Investment in RNG will reduce GHG emissions, which is consistent with SB 98 and the Governor's recent EO 20-04. All utilities should be focusing on reducing emissions. CUB's concern is the competing lobbying and public relations

efforts. RNG and hydrogen will both likely be important to future energy needs. However, I am unsure how it will be utilized. NWN envisions that by 2050, 30% of the gas that flows through its system is RNG.[11] There are other studies of how to decarbonize the economy that argue that RNG and hydrogen are needed but should be utilized for transportation (including air and sea) and for critical peaks on the electric system. CUB supported cap-and-trade legislation that would have placed a declining cap on carbon emissions and established a trading system for carbon allowances. In theory, this would allow economic efficiency to determine the best use of RNG within the constrained carbon budget of the state.

Q. Are you supportive of NWN's "Less We Can" campaign?

A. CUB is tracking the Company's communications around its "Less We Can" campaign. Currently, there are aspects of it that we are supportive of that we believe help educate customers, but there are aspects that seem more focused on bolstering NWN's corporate image. Educating customers about the opportunities to invest in energy efficiency is an important role for a utility. Renewable natural gas is more expensive than convention gas, so educating customers about the role of renewable natural gas and the impacts of bringing it onto the system is responsible. On the other hand, attempting to create an image of a company that is providing a clean renewable product to its customers, when that is not necessarily the case, is problematic. Currently there is no RNG flowing through NWN's gas pipeline to end-use customers. At this time, NWN sells a product that is entirely fossil fuels. In NWN's testimony, it claims that in Oregon approximately 50% of electricity is

[11] UG 388 – NW Natural/100/Anderson/8.

generated using coal and natural gas[12] (ODOE says Oregon's electric fuel supply is 45% from coal and natural gas) and it discusses its goal to create "carbon savings equivalent to 30%" of 2015 emissions by 2035.[13] The 2020 fuel mix of electric utilities is not comparable to the 2035 goals of a natural gas utility because by 2035, there will not be any coal in Oregon's electric fuel mix.

Q. What do you recommend with regards to RNG and electrification?

A. I recommend three things. The first is that the Company be required to fit the "Less We Can" into its normal advertising budget. CUB witnesses Sudeshna Pal and William Gehrke will expand on this in CUB/300. Second, the Commission and stakeholders should keep a close eye on this effort to ensure that customers' funds are being utilized for activities that are beneficial to customers and not primarily aimed at improving the Company's corporate image. Third, to ensure that customers receive good accurate information, the Commission should require that NWN disclose it actual fuel mix – specifically the percentages of renewable and non-renewable gas that it sells to retail customers in its standard product – on an annual basis through bill insert and on its web page.

VI. CONCLUSION

Q. Can you describe the testimony provided by other witnesses in this case?

A. Two other witnesses provide testimony around NW Natural's request for a general rate revision.

[12] UG 388 – NW Natural/100/Anderson/9.
[13] UG 388 – NW Natural/100/Anderson/Page 6

William Gehrke, Economist, provides testimony about the Company's proposed corporate headquarters relocation and other revenue requirement issues in CUB/200.

Sudeshna Pal and William Gehrke, Economists, provide testimony on the Company's proposed recovery for advertising expenses in CUB/300.

Q. Does this conclude your testimony?

A. Yes it does.

WITNESS QUALIFICATION STATEMENT

NAME: Bob Jenks

EMPLOYER: Oregon Citizens' Utility Board of Oregon

TITLE: Executive Director

ADDRESS: 610 SW Broadway, Suite 400
Portland, OR 97205

EDUCATION: Bachelor of Science, Economics
Willamette University, Salem, OR

EXPERIENCE: Provided testimony or comments in a variety of OPUC dockets from the 1990s to 2020. , including UE 88, UE 92, UM 903, UM 918, UE 102, UP 168, UT 125, UT 141,
UE 115, UE 116, UE 137, UE 139, UE 161, UE 165, UE 167, UE 170, UE 172, UE 173, UE 207, UE 208, UE 210, UE 233, UE 246, UE 283, UG 152, UM 995, UM 1050, UM 1071, UM 1147, UM 1121, UM 1206, UM 1209, UM 1355, UM 1635, UM 1633, and UM 1654. Participated in the development of a variety of Least Cost Plans and PUC Settlement Conferences. Provided testimony to Oregon Legislative Committees on consumer issues relating to energy and telecommunications. Lobbied the Oregon Congressional delegation on behalf of CUB and the National Association of State Utility Consumer Advocates.

Between 1982 and 1991, worked for the Oregon State Public Interest Research Group, the Massachusetts Public Interest Research Group, and the Fund for Public Interest Research on a variety of public policy issues.

Change in Residential Gas Rates Oregon

year	NWN	% change from previous year	usage	% change from previous year
2018	0.99	0.00%	607	-13.04%
2017	0.99	-9.17%	698	20.76%
2016	1.09	-8.40%	578	6.45%
2015	1.19	2.59%	543	-9.20%
2014	1.16	6.42%	598	-9.94%
2013	1.09	-0.91%	664	4.57%
2012	1.1	-5.98%	635	-7.57%
2011	1.17	-4.88%	687	11.89%
2010	1.23	-10.22%	614	-11.01%
2009	1.37	3.79%	690	-3.09%
2008	1.32	-6.38%	712	2.74%
2007	1.41	0.00%	693	3.74%
2006	1.41	11.90%	668	-0.15%
2005	1.26	16.67%	669	0.00%
2004	1.08	11.34%	669	0.30%
2003	0.97	-3.00%	667	-7.49%
2002	1	5.26%	721	-1.90%
2001	0.95	18.75%	735	-5.41%
2000	0.8		777	

NWN Letter to customer
Dear Customer,

Last week, the Oregon legislature introduced a cap and trade proposal (HB 2020) to establish an economy-wide cap on greenhouse gas emissions. Click **HERE** to review a copy of the bill.

As for other utility rate increases, we have a responsibility to let you know about the potential rate increase your business may see as a result of the proposed legislation.

As it currently stands, businesses like yours could see a 40% increase ($0.11 cents more per therm) for the cost of natural gas cost on the first day that the legislation goes into effect in 2021. The bill impact from the legislation will increase to $0.38 cents per therm by 2030. For context, that additional amount is more than the overall cost per therm that you pay for natural gas today (currently, the weighted average cost of gas is $0.246).

NW Natural understands our state's desire to address the climate imperative and the importance of doing so. However, we believe any effective cap and trade program must be fair to our customers.

Given that sales of natural gas to our residential and business customers account for only 5% of Oregon's total greenhouse gas emissions, we believe this current proposal has unacceptably high bill impacts and is unreasonably punitive to our customers.

In the coming weeks, NW Natural will urge legislators to make changes that will lessen the severity of the rate impact of this program. We will keep you informed about the results of those discussions, and the potential rate impacts on your business. We welcome any questions you may have at this point.

NW Natural®

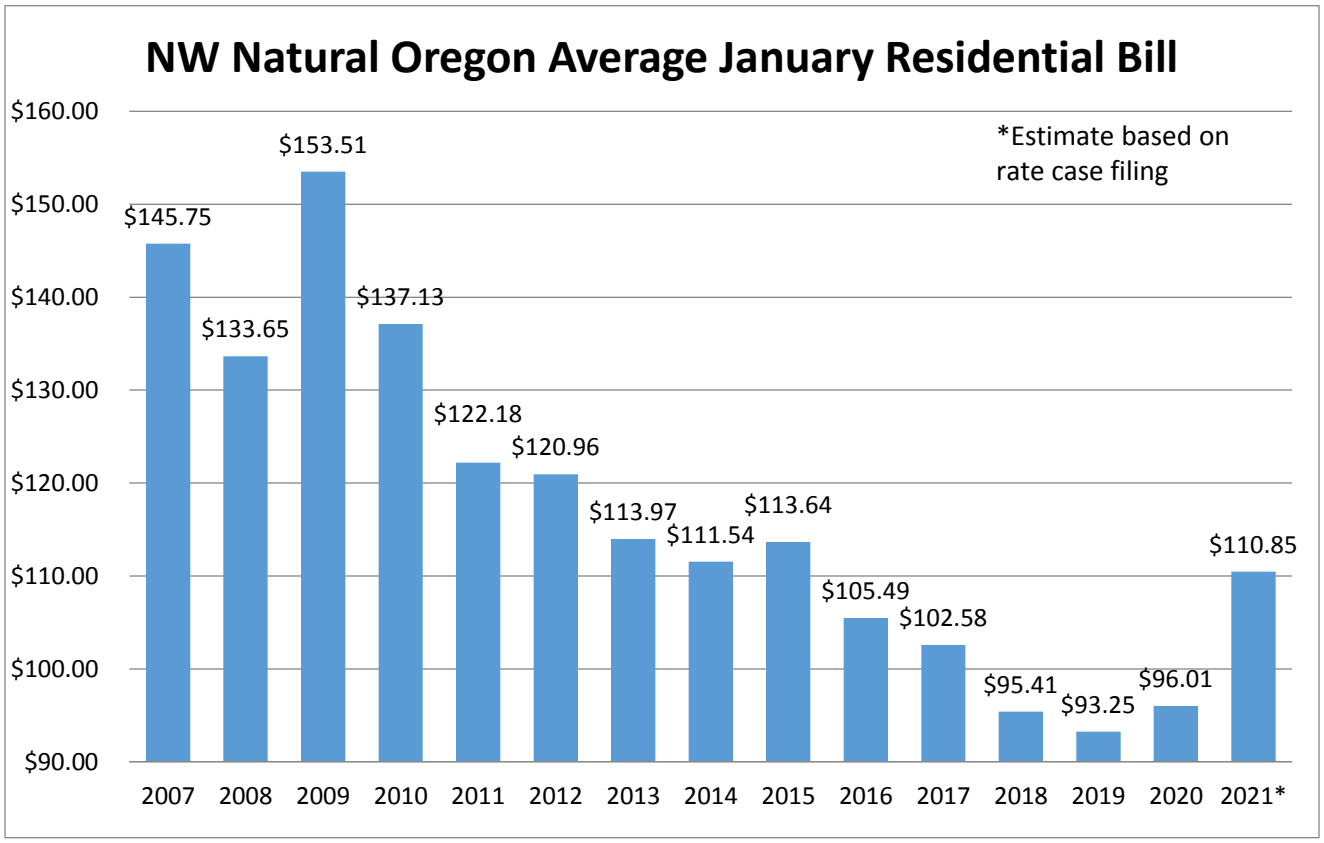
Rates & Regulatory Affairs
UG 388
2020 OR General Rate Revision
Data Request Response

Request No.: UG 388 CUB DR 1

1. Refer to UG 388/NW Natural/100/ Anderson/ Page 17 chart titled "NW Natural Oregon Average Residential Bill", please create a similar chart with the average residential January bills.

Response:

Please see the chart below and "UG 388 CUB DR 1 NWN Attachment 1" for the average January residential bill using the January use per residential customer of 104.25 therms as calculated in the UG 388 volume forecast, described in Exhibit 1100.



NWN Oregon Earnings

Not inlcuding optimization*	with optimization
9.51%	9.86%
9.00%	9.26%
8.84%	9.08%
9.18%	9.38%
9.17%	9.38%
9.51%	
10.08%	
11.19%	

source: Results of Operations Reports

Shutoff Numbers- NW Natural

		NWN	% of Accounts	Number receiving Energy Asstistance	Reconnect same or next day	Reconnect 2-7 days	reconnect > 7	%>7 days
August	2018	805	0.135%	79	182	202	421	52.30%
September	2018	555	0.093%	53	165	14	376	67.75%
October	2018	507	0.085%	44	167	147	193	38.07%
November	2018	478	0.080%	41	214	138	126	26.36%
December	2018	531	0.088%	40	215	137	179	33.71%
January	2019	1181	0.196%	90	536	320	325	27.52%
Febuary	2019	1046	0.173%	63	494	272	280	26.77%
March	2019	1519	0.251%	107	587	435	497	32.72%
April	2019	1487	0.245%	114	494	408	585	39.34%
May	2019	1704	0.281%	152	505	420	779	45.72%
June	2019	1354	0.223%	103	366	320	668	49.34%
July	2019	997	0.165%	97	235	222	540	54.16%
August	2019	653	0.108%	57	140	156	357	54.67%
September	2019	579	0.095%	70	182	155	242	41.80%
October	2019	434	0.071%	40	164	126	144	33.18%
November	2019	455	0.075%	48	217	99	139	30.55%
December	2019	742	0.120%	51	332	181	229	30.86%
January	2020	1120	0.183%	80	477	300	343	30.63%

January -- March	29.70%
May -August	50%

Redacted Version

BEFORE THE

PUBLIC UTILITY COMMISSION OF OREGON

UG 388

OPENING TESTIMONY

OF THE

OREGON CITIZENS' UTILITY BOARD

EXHIBIT 200

Redacted Version

I. INTRODUCTION AND SUMMARY

Q. Please state your name, occupation, and business address.

A. My name is William Gehrke. I am an Economist with the Oregon Citizens' Utility Board (CUB). My business address is 610 SW Broadway, Ste. 400 Portland, Oregon 97205.

Q. Please describe your educational background and work experience.

A. My witness qualification statement is found in exhibit CUB/201.

Q. Please summarize your testimony.

A. In my testimony, I discuss the outcome of CUB's review of NW Natural's (NWN or the Company) proposed corporate relocation to 250 Taylor. After reviewing the evidence that has been placed on the record thus far in the proceeding, CUB finds the Company's decision to move to 250 Taylor to be reasonable. I also provide various adjustments to the Company's requested revenue requirement in this proceeding.

Q. How is your testimony organized?

A. My testimony is organized in the following sections:

I. Introduction and Summary;

II. Corporate Headquarters Relocation to 250 Taylor;

III. Employee Compensation;

IV. Consumer Price Index-West Inflation from the Test Year;

V. Capital Project in Service Dates;

VI. HB 3427 Corporate Activity Tax;

VII. Horizon Program O&M Deferred Accounting Application;

VIII. Compressed Natural Gas (CNG) Vehicles.

II. CORPORATE HEADQUARTERS RELOCATION TO 250 TAYLOR

Q. Please summarize your testimony on this issue.

A. After thoroughly reviewing the record and various data responses in this proceeding, CUB believes the Company's decision to move forward with the decision to move its corporate headquarters (HQ) from One Pacific Square to 250 Taylor was reasonable. CUB has found that the Company has sufficiently documented its decision-making process to move forward with the 250 Taylor relocation.

Q. What was your strategy for reviewing the prudence of the Company's headquarter decision?

A. CUB reviewed the Company's due diligence materials that concluded moving to 250 Taylor was in the best interest of the Company and its customers.

Q. What other information did you review?

A. CUB reviewed the monthly minutes and presentations conducted by the HQ Steering Committee from 2014 to 2020. CUB also reviewed the analysis and presentations conducted by Cushman & Wakefield and Leland Consulting group.[1] Additionally, CUB reviewed the terms of the Company's lease.[2]

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[1] UG 388 – CUB/202.
[2] UG 388 – NW Natural/Pipes/504.

Q. Prior to its review of the Company's documentation, what issues did CUB want to analyze?

A. CUB was specifically interested in analyzing the following issues:

1. In OPUC Docket No. UP 400, NW Natural, CUB, the Alliance of Western Energy Consumers (AWEC), and Oregon Public Utility Commission Staff (Staff) agreed to defer and record as a benefit 50% of the benefits associated with the sale of Block 24 to Lan Su Chinese Garden as an offset to the Company's rate base in this general rate case. CUB wanted to confirm that the credit had been appropriately applied to rate base.

2. CUB wanted to evaluate the reasonableness of the Company's seismic concerns with its Headquarters.

3. CUB wanted to confirm that the Company's site selection was a reasonable option for customers and that the other options examined would not have been a better selection.

Q. Did the Company include the benefit from the Block 24 sale in its filed rate case?

A. Yes. The Company has correctly included it as a credit to the tenant improvements the Company made at 250 Taylor.[3]

Q. The Company cites seismic resilience as one of the key attributes sought in its move. What concerns did CUB initially have about earthquake preparedness?

[3] UG 388 – NW Natural/500/Pipes/Page 42, lines 17-18.

A. CUB was initially concerned about seismic readiness being used to justify a new capital investment. Under rate of return regulation, NW Natural's shareholders profit off of additional capital investments. However, CUB found the Company's testimony about [redacted] to be compelling.[4] [redacted].[5] [redacted].[6]

Q. What additional concerns did CUB have the Company's headquarters?

A. CUB was expecting the Company to come out the headquarters selection process with a self-build headquarters option, which would provide the Company with the opportunity to ratebase a large capital investment.

Q. Did the Company select a self-build headquarters option?

A. No. The Company will not earn a rate of return on its new headquarters. The Company will lease 250 Taylor for a term of twenty years with two additional options on the lease. Based on the Company's financial analysis in 2017, 250 Taylor was the least cost option compared to the three other buildings selected in testimony.[7] Based on the information reviewed by CUB, at this time it appears that NW Natural made a reasonable decision in selecting 250 Taylor as NW Natural's corporate headquarters. CUB looks forward to reviewing other parties' testimony

[4] UG 388 – NW Natural/500/Pipes/Page 14, lines 1-3.
[5] UG 388 – NW Natural/500/Pipes/Page 13, lines 10-15.
[6] UG 388 – CUB/203.
[7] UG 388 – NW Natural/Pipes/504.

and continuing to analyze the prudence of the Company's move throughout this proceeding.

III. EMPLOYEE COMPENSATION

Q. What issues is CUB raising in regards to NWN's employee compensation?

A. First, CUB expresses support for the wage and salary model utilized by the Staff of the Public Utility Commission of Oregon (Staff). Second, CUB raises issues associated with the Company's proposed recovery of expenses related to pay-at-risk compensation.

Q. Please summarize CUB's position on the Staff wage and salary model.

A. In past general rate cases, Staff has used a wage and salary model to benchmark Company non-union wages and salaries. Union wages are not included in the model because negotiations are conducted at arm's length. The wage and salary model is a longstanding Staff policy. CUB has reviewed Staff's wage and salary model in the past LDC general rates cases.[8] Aligning with standard regulatory practice, the Commission has historically allowed utilities to recover prudently incurred costs necessary for the provision of utility service. Through this lens, CUB has found that Staff's wage and salary model is reasonable and provides an incentive to the utility to minimize labor costs prior to a general rate case. CUB supports the use of Staff's wage and salary model in this proceeding.

Q. Please summarize the Company's position on pay-at-risk compensation.

A. The Company is seeking to recover all expenses associated with pay-at-risk compensation in its revenue requirement. The Company is challenging the

[8] *See, e.g.,* UG 344 – Staff/100/Gardner/29, lines 4-8.

Commission's longstanding policy of disallowing 100% of officer pay-at-risk compensation, 50% of non-officer pay-at-risk compensation, and 75% percent of incentives that are based on financial performance measures. The Company argues that pay-at-risk compensation is a component of total compensation and is essential to attract and retain employees. NW Natural also asserts that pay-at-risk compensation is designed to incentivize efficiencies that benefits the utility's provision of safe and reliable service. The Company argues that the Commission's policy to disallow at-risk pay prevents it from fully recovering its operations and maintenance (O&M) costs.[9] The Company also asserts that pay-at-risk compensation is necessary to compete for employees and meet pay expectations of the workforce.

Q. What is CUB's response to the Company's arguments that pay-at-risk compensation is necessary to compete for employees and meet pay expectations of the workforce?

A. A NW Natural employee should be indifferent between receiving compensation through base pay versus base pay and pay-at-risk compensation. NW Natural's pay-at-risk is component of total compensation. If NW Natural were to remove pay-at-risk to base-pay compensation, the employee could still receive total compensation. In the Company most recent bargaining unit (BU) negotiations, the Company eliminated its at-risk compensation programs for BU, and moved that portion of Compensation to base pay.

///

[9] UG 388 – NW Natural/700/Rogers/15, lines 1-12.

Q. Does at risk compensation provide value to shareholders?

A. Yes. The Company's shareholders receive value from its employees being compensated with Company stock. Despite not being allowed to recover the cost of at-risk compensation from ratepayers, NW Natural has continued to offer at-risk compensation to its employees. The Commission's policy of disallowing at-risk compensation is a longstanding policy. CUB would like to note that the Commission does not control how the Company operates its business. Instead, the Commission is able to direct what is recoverable from customers.

Q. What was the result of the Board of Directors' vote on executive compensation?

A. The Company's Board of Directors approved advisory executive at-risk compensation.[10] The Company's SEC proxy makes it publically available to all investors in NW Natural that at-risk compensation is generally not recoverable from ratepayers. This means that the Company's Board of Directors approved executive compensation even though it was known to not be recoverable in rates.

Q. Why would the Company's Board of Directors approve an expense the Company has not been allowed to recover from ratepayers?

A. As mentioned, the Company's shareholder receive value from its employees being compensated with Company stock. According to the Company in its most recent proxy statement, NWN's compensation policy "[u]se[‘s] performance-based and stock based compensation tools with metrics that correlate to shareholder value."[11] The Company also uses its at risk program to incentive ownership of Company

[10] NW Natural's 2020 Proxy Page 64.
[11] NW Natural's 2020 Proxy Page 25.

stock. The Company provides ownership guidelines of NW Natural Stock for executive officers of NW Natural. For example, the CEO of NW Natural is required to own 4 times their base salary in NW Natural stock, with five years of working at the Company. It is not appropriate for ratepayers to fund executive officer's purchase of NW Natural stock to meet ownership guidelines. CUB does not believe these costs are essential for the provision of utility service.

Q. What impact does including pay-at-risk compensation in rates have on a utility's cost recovery?

A. In Oregon, rates are set on an annual basis. The inclusion of pay-at-risk compensation in rates would benefit the Company's shareholders. A majority of the NW Natural's at-risk compensation is tied to the Company's net income or return on equity. For example, let's assume that NW Natural was unable to meet the financial goals set by at-risk compensation and at-risk compensation is included in rates. Under this scenario, the Company would be to recover the cost of the pay-at-risk compensation from customers, without providing the cost of the incentive to employees.

Q. What is the impact of removing pay-at-risk incentives from the test year in alignment with the Commission prior policy?

A. This would result in a removal of $5.089 million in O&M expense and $2.9 million in capital costs.

Q. Is there another issue related to pay-at risk compensation?

A. Yes. It is CUB's understanding that the Company has been capitalizing executive compensation overtime between general rate cases. While CUB does not have a

position on this issue at this time, we are investigating it and would like to address the issue after further discovery. CUB is interested in retaining Commission policy regarding pay-at-risk incentives equally to capitalized at-risk incentives.

IV. CONSUMER PRICE INDEX-WEST INFLATION FROM THE TEST YEAR

Q. How were test year non-payroll O&M costs treated by the Company?

A. With some exceptions, the Company adjusted non-payroll O&M base year costs using West Region Urban CPI. The Company used a forecast from the Oregon Office of Economic Analysis ("OEA") from its September 2019 Oregon Economic and Revenue.

Q. What is CUB's proposal regarding the West Region Urban CPI escalator?

A. CUB proposes that the most recently released forecast of West Region Urban CPI by the OEA be used to escalate generic non-payroll O&M costs. OEA released a forecast in February 2020 which updated expected CPI-W inflation in 2020 and 2021. CUB is proposing to use this updated index in order to provide a more accurate forecast. The updated year-over-year escalation factor is 2.4% for 2020 and 2.0% for 2021.[12]

Q. What is the revenue requirement impact of this adjustment?

A. This adjustment reduces the filed O&M expense by $162,000 compared to the Companies initial filed case.

V. CAPITAL PROJECT IN SERVICE DATES

Q. What capital projects does the Company seek recovery for in this case?

A. The Company is seeking to add to two categories of capital projects to its ratebase.

[12] UG 388 – CUB/204.

The first category of capital expenditures are all capital expenditures made since the Company's last rate case that will be used and useful as of November 1, 2020, which is the rate effective date for this general rate case. The Company is seeking to recover these capital expenditures, less the accumulated depreciation since the capital investment is placed into service.

The second category of capital expenditures the Company is seeking cost recovery for will be completed during the Test Year (i.e., after the requested rate effective date in this proceeding). The test year in this case is from November 1, 2020 to October 31, 2021.

Q. Do you agree with the Company's approach to plant additions?

A. No. While I am not an attorney, it is my understanding that the inclusion of plant additions expected to be in service in the future is not compliant with the used and useful standard. To CUB, if a capital project is not forecasted to be in service by the rate effective date, the plant associated with the capital project should not be included in rates. It is CUB's understanding that allowing plant additions past the rate effective date would not be compliant with ORS 757.355. This is a legal issue which will be more fully articulated in briefing.

Q. What is CUB's proposal on this issue?

A. CUB recommends that NW Natural be required to measure rate base as of the rate effective data of November 1, 2020. Additionally, CUB asks the Company to file an officer attestation for any projects forecast to cost over $1,000,000 and to be

completed by October 31, 2020. In the event that a project is not due to be completed by October 31, 2020, these projects should be removed from rate base for the purposes of calculating rates. Once the net plant is removed from rate base, depreciation expense needs to be reduced to account for a reduction in plant. CUB does not have a specific dallor impact with this adjustment at this time.

VI. HB 3427 CORPORATE ACTIVITY TAX

Q. What is the corporate activity tax?

A. During the 2019 Oregon Legislative session, the Oregon legislature passed HB 3427 and 2164, which imposed a new Oregon State tax called the corporate activity tax (CAT) on businesses that would have more than $1 million in Oregon taxable commercial activity. The tax came into effect on January 1, 2020. It is CUB's understanding that NW Natural is subject to this tax.

Q. What is the liability associated with the CAT?

A. A company's liability is a floor of $250 plus a 0.57 percent of taxable commercial activity in excess of $1.0 million on a calendar year basis.

Q. What does the company estimate to be the liability associated with the CAT?

A. The Company estimates a liability of 2.5 million associated with the Oregon Corporate Activity Tax.

Q. What is the rate effective date for this general rate case?

A. The Company is seeking to update its margin rates on October 1st, 2020.

Q. What is the status of the Oregon Department of Revenue's rulemaking process for the Corporate Activity Tax?

A. The Oregon Department of Revenue (ODOR) began the formal rulemaking process on April 1, 2020. The ODOR is in the process of converting 16 temporary administrative rules into permanent rules and adopting a new permanent rule. The ODOR expects to have the rulemaking process completed by the end of June 2020.

Q. What should be done with the Company's estimate of CAT?

A. As an initial placeholder, CUB proposes that the Company include the 2.5 million liability in margin rates. Later this year, CUB is open to this number being updated once final rules for the CAT has been established.

Q. Why is CUB proposing for NW Natural to increase its base rates?

A. On December 23, 2019, NW Natural filed for a deferral of the corporate activity tax. CUB does not object to the Company filing a deferral for CAP expense. However, CUB would prefer to get this expense out of ongoing deferred accounting and into base margin rates. We believe this general rate case proceeding is the proper venue to do so.

VII. HORIZON O&M DEFERRED ACCOUNTING APPLICATION

Q. What is the Horizon program?

A. NW Natural's Horizon program is a seven-year, two-phase initiative to upgrade its technology architecture. In the first phase, the Company is upgrading its Enterprise Resource Planning (ERP) software.[13] NW Natural's legacy ERP program (SAP ERP Central Component) is reaching the end of its useful life. [14] The second phase

[13] UG 388 – NW Natural/600/Downing/6, lines 4-5.
[14] UG 388 – NW Natural/600/Downing/8, lines 1-5.

involves upgrading and replacing the Company's Customer Information Systems (CIS) platform.[15]

Q. How has NW Natural historically recovered the costs associated its ERP software?

A. In the past, the Company has recovered enterprise software as capital investments, where the return on and return of the investment is recovered over the life of the asset.

Q. What is the "Cloud Computing"?

A. Cloud computing is the delivery of IT services over the internet. These services can include data storage, databases, networking, or software. Under a cloud computing model, a customer can use a group of datacenters to perform an information technology task.

Q. How has NW Natural recovered the expenses of large enterprise information technology programs?

A. NW Natural has recovered the costs of enterprise software as capital investments, where the return on and return of the investments is recovered over the life of the asset.

Q. What has NW Natural indicated about its upcoming IT projects?

A. According to the Company, some of the programs associated with the Company's Horizon program will likely contain cloud computing services.

Q. How would NW Natural pay for cloud computing services?

[15] UG 388 – NW Natural/600/Downing/6, lines 15-18.

A. Under the Company's proposal, the Company would incur a subscription expense on an annual basis in order to pay for cloud solutions. Since these costs are O&M expenses, the Company is only allowed to a return of the cloud computing expenses.

Q. When does the Company anticipate completing the its ERP upgrade program?

A. The Company anticipates having is new ERP program enter service in 2022.

Q. Is NW Natural seeking cost recovery for the Horizon project as part of this rate case?

A. No.[16]

Q. When does the Company anticipate completing the its ERP upgrade program?

A. The Company is suggesting that it will likely file a deferred account application to track the incremental O&M associated with Horizon program for later inclusion in rates.

Q. Has the Company provided a cost estimate for the Horizon project?

A. No. The Company is unable to provide a cost estimate at this time.[17]

Q. What would be the impact of the Commission authorizing a deferral for O&M expense prior to amortization?

A. Under established Commission precedent, a deferral would allow the utility to earn its authorized rate on return (AROR) on O&M expense prior to amortization.[18]

[16] UG 388 – NW Natural/600/Downing/7, lines 5-12.
[17] UG 388 - NW Natural/ 600/Downing/12, lines 12-16.
[18] *In re Public Utility Commission of Oregon Staff Request to Open an Investigation Related to Deferred Accounting,* OPUC Docket No. UM 1147, Order No. 05-1070 (Oct. 5, 2005).

Essentially, the Company would be earning a profit stream on O&M expense incurred until the expense can be included in margin rates. Currently, the Company estimates deploying the first phase of the Horizon program in 2022 and will not begin the second phase until the first phase is completed.[19]

Q. What is CUB recommendation regarding the Company's proposal to issue a deferral for incremental O&M expense?

A. CUB would oppose the Company amortizing a deferral for incremental O&M expense. Between general rate cases, NW Natural bears the risk—and reward—of cost variations. While the Company has not provided a cost estimate associated with incremental O&M, it is possible that the Company's authorized earnings established in a general rate case would be sufficient to cover expenses its seeks to defer at a later date. CUB is also concerned that a deferral application for this expense may not meet the legal parameters to be granted by the Commission, but this is an issue that can be addressed at a later date when total costs are known and the Company files for amortization.

VIII. COMPRESSED NATURAL GAS (CNG) VEHICLES

Q. Does CUB has an adjustment on the Company's investment in CNG Vehicles?

A. Not at this time. However, CUB is still reviewing the Company's historical and projected investment in CNG Vehicles and may propose an adjustment in later testimony.

///

[19] UG 388 – NW Natural/600/Downing/12, lines 6-9.

Q. Does this conclude your testimony?

A. Yes it does.

WITNESS QUALIFICATION STATEMENT

NAME: William Gehrke

EMPLOYER: Oregon Citizens' Utility Board

TITLE: Economist

ADDRESS: 610 SW Broadway, Suite 400
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EDUCATION: MS, Applied Economics
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BS, Economics
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EXPERIENCE: Provided testimony or comments in several Oregon Commission dockets. Worked as an Economist for the Florida Department of Revenue. Worked as Utility Analyst at the Florida Public Service Commission, providing advice on rate cases and load forecasting. Attended the Institute of Public Utilities Annual Regulatory Studies program in 2018. This witness has written testimony and participated on the following Oregon Public Utility Commission dockets: UG 344, UG 346, UG 366 and UM 2026.

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OPS EVALUATION PROJECT STEERING COMMITTEE

PREPARED FOR:

NW NATURAL

2016 July 25

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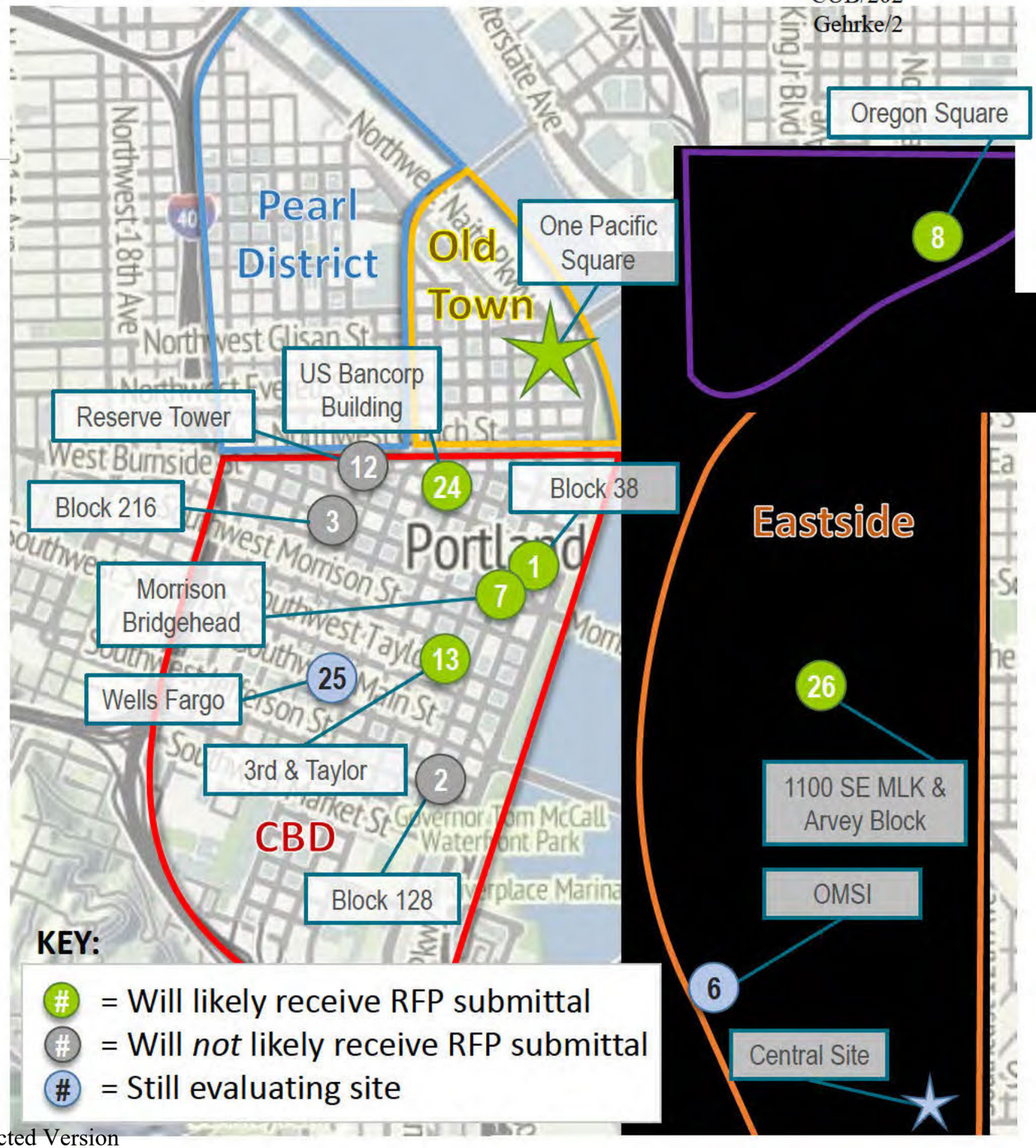
RFP Responses

Update on RFP's

- Interested Properties
- Those "on the fence"
- Reason for not responding



Scoring Matrix

Terms

- Initial space, term, size and TI's
- Rental rates, free rent, annual obligation
- Additional options: Rights of renewals and termination (etc.)

EXISTING LOCATION ONE PACIFIC SQUARE	3RD & TAYLOR	BLOCK 38	MORRISON BRIDGEHEAD PROJECT	OREGON SQUARE	½ BLOCK 1100 SE MLK AND FULL "ARVEY BLOCK"	US BANCORP BUILDING
						
220 NW 2nd Ave. Portland, OR 97209	SW 3rd Avenue and SW Taylor St. Portland, OR 97204	SW 2nd Avenue & SW Washington St. Portland, OR 97204	West End of the Morrison Bridge Portland, OR 97204	827 NE Oregon St. Portland, OR 97232	1100 SE MLK and 1005 SE Grand Portland, OR 97214	200 SW Fifth Ave. Portland, OR 97204

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Scoring Matrix

Building Characteristics

- Building flexibility
- Parking (ratio and access)
- Bike parking, exercise room (+locker room)
- Building seismic requirements
- Emergency generator power / UPS capabilities
- Building security
- On-site building amenities (food and retail services)

Scoring Matrix

Building Characteristics *(continued)*

- Recreation nearby
- Hospitality/wellness center
- Ability to accommodate growing space needs (space utilization, total # of floors, and floor plate SF
- Zoning
- Floor to Area Ratio
- Environmental

Scoring Matrix

Locational Characteristics

- Ingress/Egress
- Neighborhood amenities (restaurants, services, recreation)
- MAX and public transit
- Personal and property safety
- Seismic (accessibility to site)
- Parking nearby

Misc.

- Developer risk

Seismic Summary from KPFF

# SITE	SITE NAME	LOCATION	LIQUEFACTION	LATERAL SPREADING	GROUNDWATER < 20 FEET	FLOOD HAZARD AREA	Accessible*
1	Block 38	2nd & SW Washington (Entrance to the Ankeny Blocks)	Possible	NO	Less Than 20' BGS	NO	TBD
7	Morrison Bridgehead: Block #16	SW 2nd (At the foot of the Morrison Bridge)	Possible	NO	Less Than 20' BGS	NO	TBD
8	Oregon Square	827 NE Oregon St.	NO	NO	NO	NO	TBD
13	3rd & Taylor	SW 3rd and Taylor	NO	NO	NO	NO	TBD
24	US Bancorp	200 SW Fifth Ave.	NO	NO	YES	NO	TBD
26	1100 SE MLK (Full Block) and "Arvey Block"	2 plats: 1100 SE MLK and 1005 SE Grand	NO	NO	NO	NO	TBD
Central	Clinton Corner (Inner Eastside Property)	904 SE Division St.	NO	NO	NO	NO	TBD
OPS	Current Old Town Location	220 NW 2nd Ave.	Possible	Probable	Less Than 20' BGS	YES	TBD

Note:
* for access if the assumptions is that a seismic event is significant enough to damage bridges over the Willamette to downtown from the east side then also Front Street/Naito Parkway would be damaged by lateral spread/liquefaction, then the only access to downtown would be US 26/US 30

Detailed Timeline Update

Next Steps and Action Items

DETAILED TIMELINE ENCORPORATING ESTIMATED CRITICAL DATES WHEN NW NATURAL FEEDBACK IS REQUIRED

Phase 2: Qualify, Evaluate, and Rank

RFP Process

A. GBD and KPFF "Kick-off"
B. GBD Onboarding
C. KPFF/LL Seismic OPS Meeting
D. Developer RFPs Due (7/22/16)
E. Draft Matrix/Analysis of RFP Results
F. Draft Counter RFP Responses

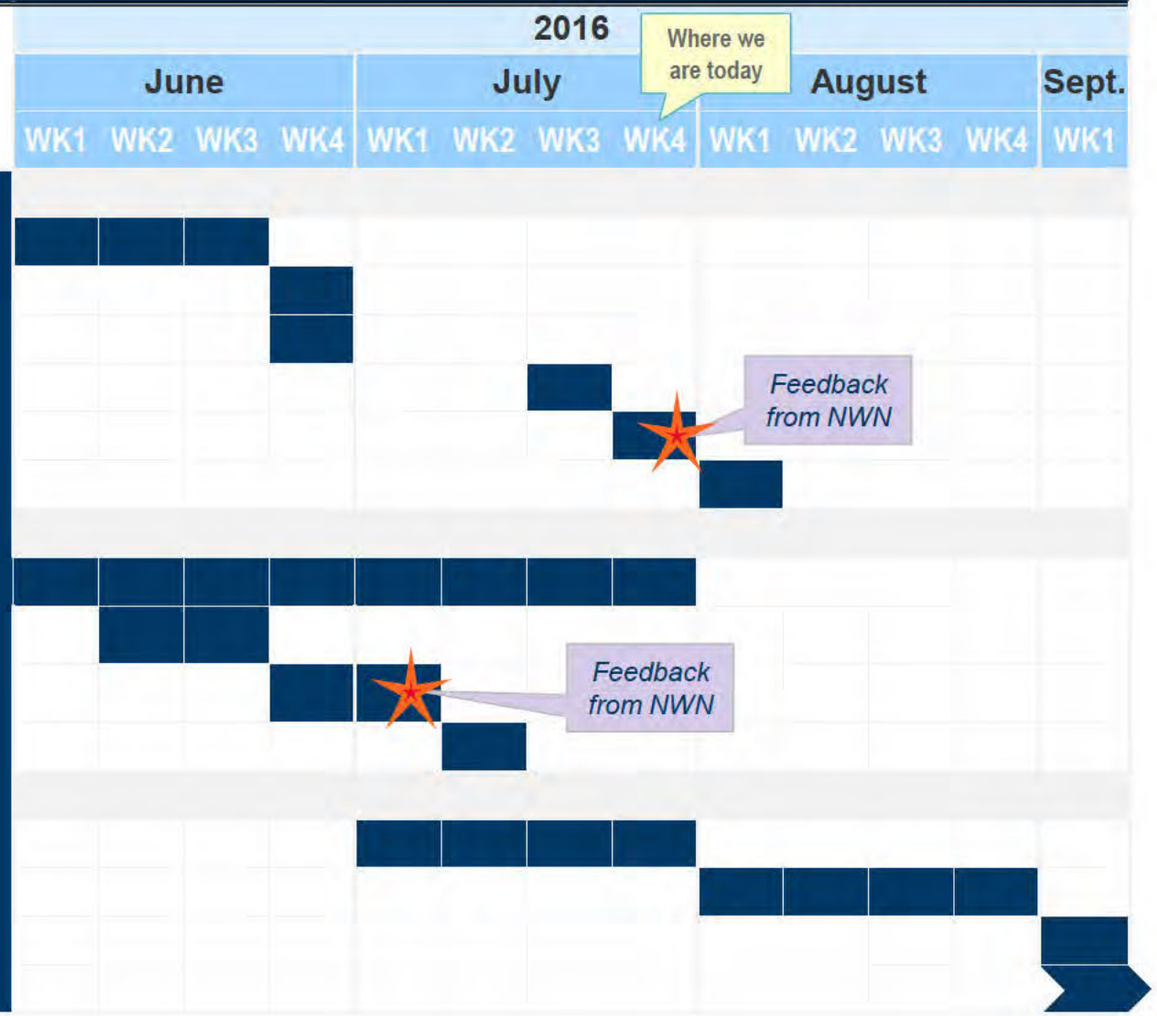
Site Evaluation & Analysis

A. Evaluate all properties (Using Phase I Criteria)
B. Initial Seismic Evaluation Feedback on All Properties (KPFF)
C. Detailed Seismic Evaluation and Recommendations (KPFF)
D. Finalized Site Assessments Delivered to NWN

Test Fit(s) Process

A. Begin & Review Test Fits (GBD)
B. Feedback/Adjustments for Preferred Sites
C. Test Fits Completed to a Stage Enabling Pricing

Next Phase: Site/Building Selection Process & Strategy



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OPS EVALUATION PROJECT STEERING COMMITTEE

PREPARED FOR:

NW NATURAL

2016 August 30

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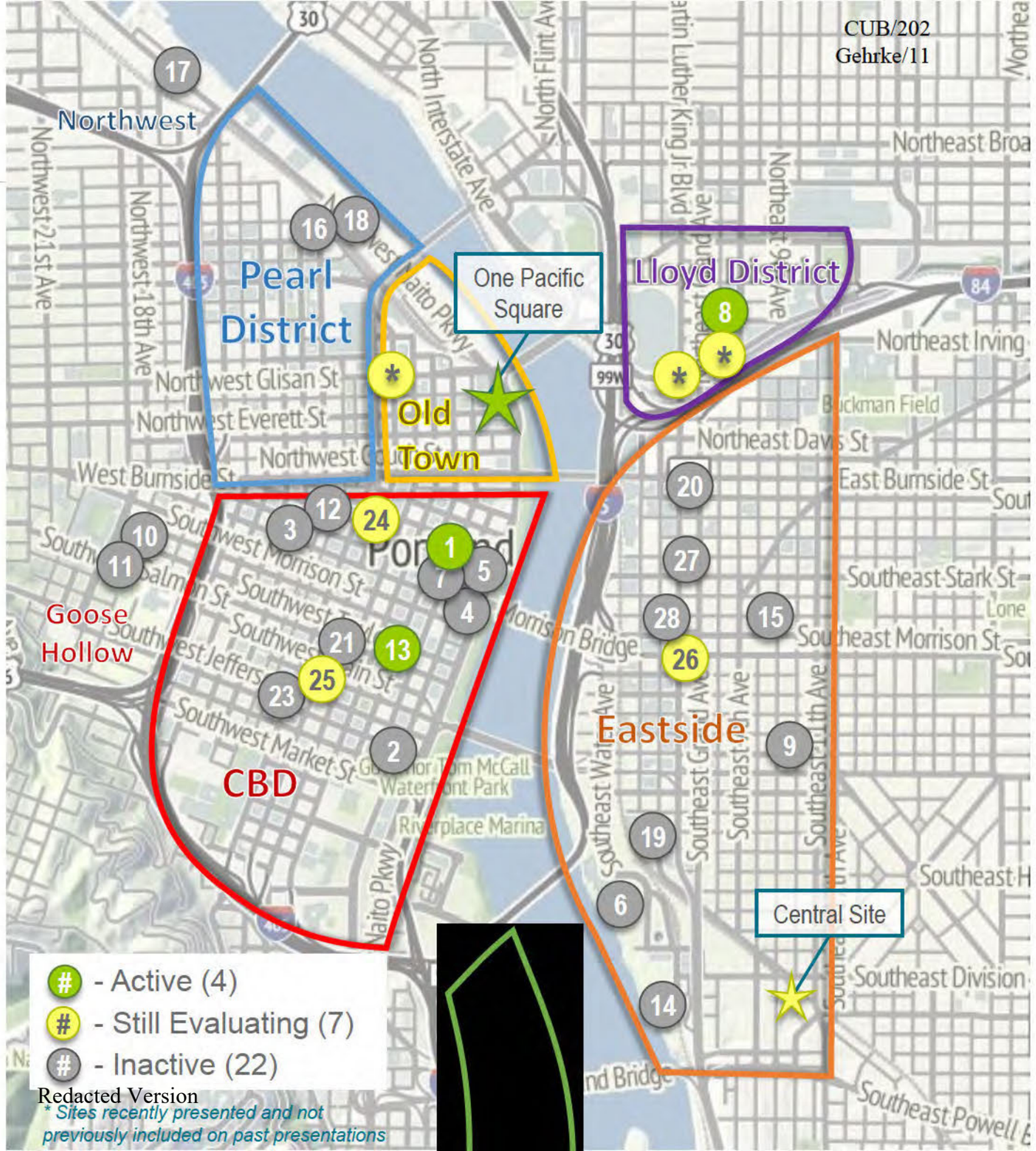
RFP Status Update

As of August 30, 2016

- Two groups are getting pricing and waiting for test fits to be completed
- Opportunities emerged:
  - Block R
  - 320 NE Lloyd
  - Metro Building (size issue)
- Inactive and currently under evaluation:
  - Wells Fargo (potential response)
  - US Bancorp (providing response)
  - Arvey Block (may move forward, still pending)



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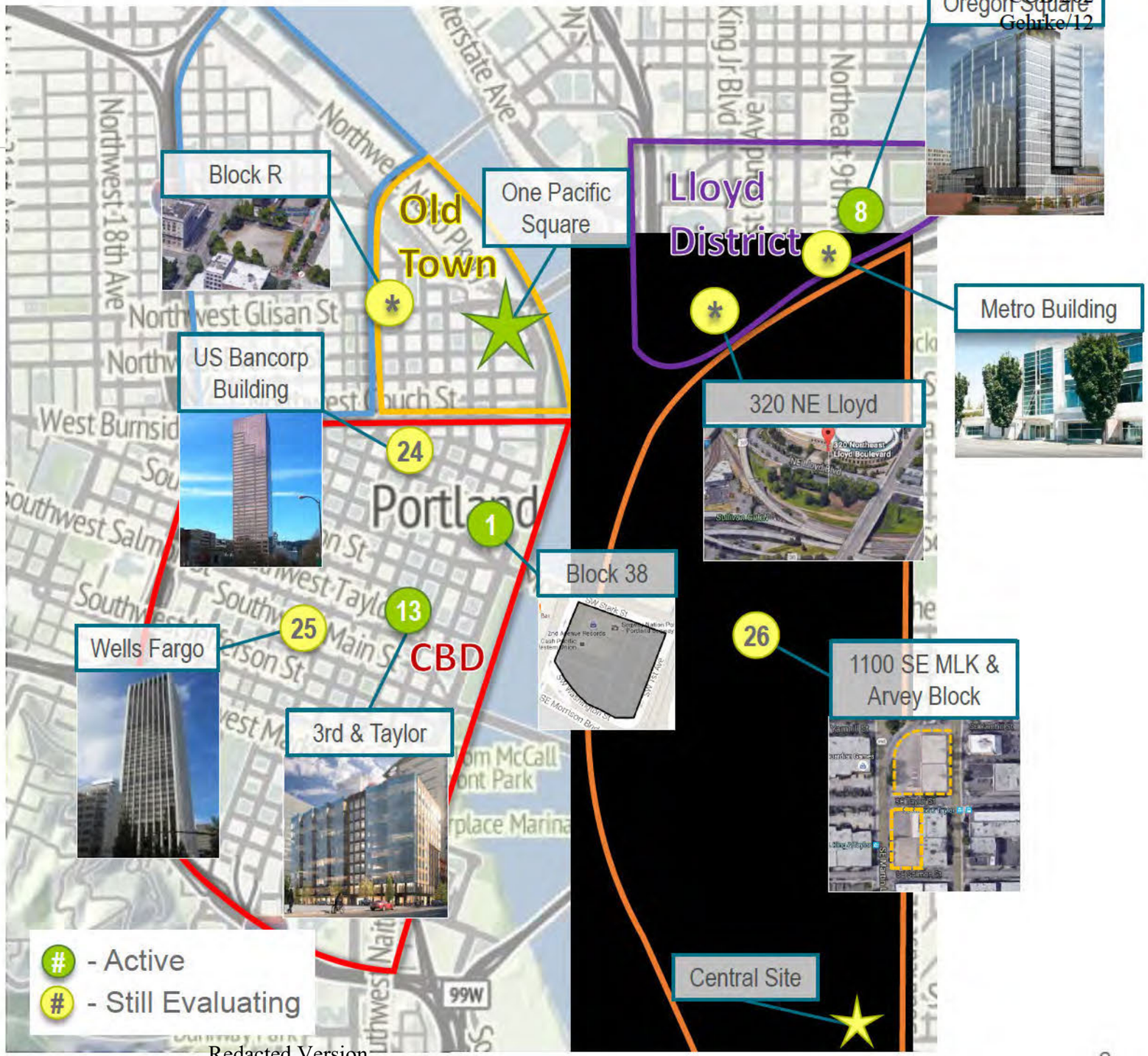
Site Tours Coming Up

As of August 30, 2016



Central Site Update

- Phase 1 evaluation underway
  - Meeting with Zidell for environmental feedback
  - Conceptual site plan
  - Development cost estimate
  - Run lease / purchase models for comparison
- Assumptions
  - Operations center – immediate occupancy design
  - Corporate center – operational design
  - NWN would utilize Developer for project
  - Parking would be at market rate for employees
  - Plan includes space for tech team to support emergency response
  - Current plan includes Appliance center / market rent
- Phase 2 (if needed)
  - Further define concept
  - Develop environmental options
  - Structural / foundation design options
  - Prepare for potential meeting with ODEQ

Central Site: Building Massing

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Test Fit Update

One Pacific Square

- Test fit and scope narrative are complete
- Total requirement is approximately 185,000rsf (currently 170,000rsf)
- Landlord is currently developing a cost for the tenant improvements

3rd & Taylor

- Test fit and scope narrative are complete
- Total requirement is approximately 170,000rsf (excludes mail center)
- Landlord is currently developing a cost for the tenant improvements

Oregon Square

- Test fit underway (complete 9/7)

Block 38

- Test fit mobilizing this week (complete 9/16)

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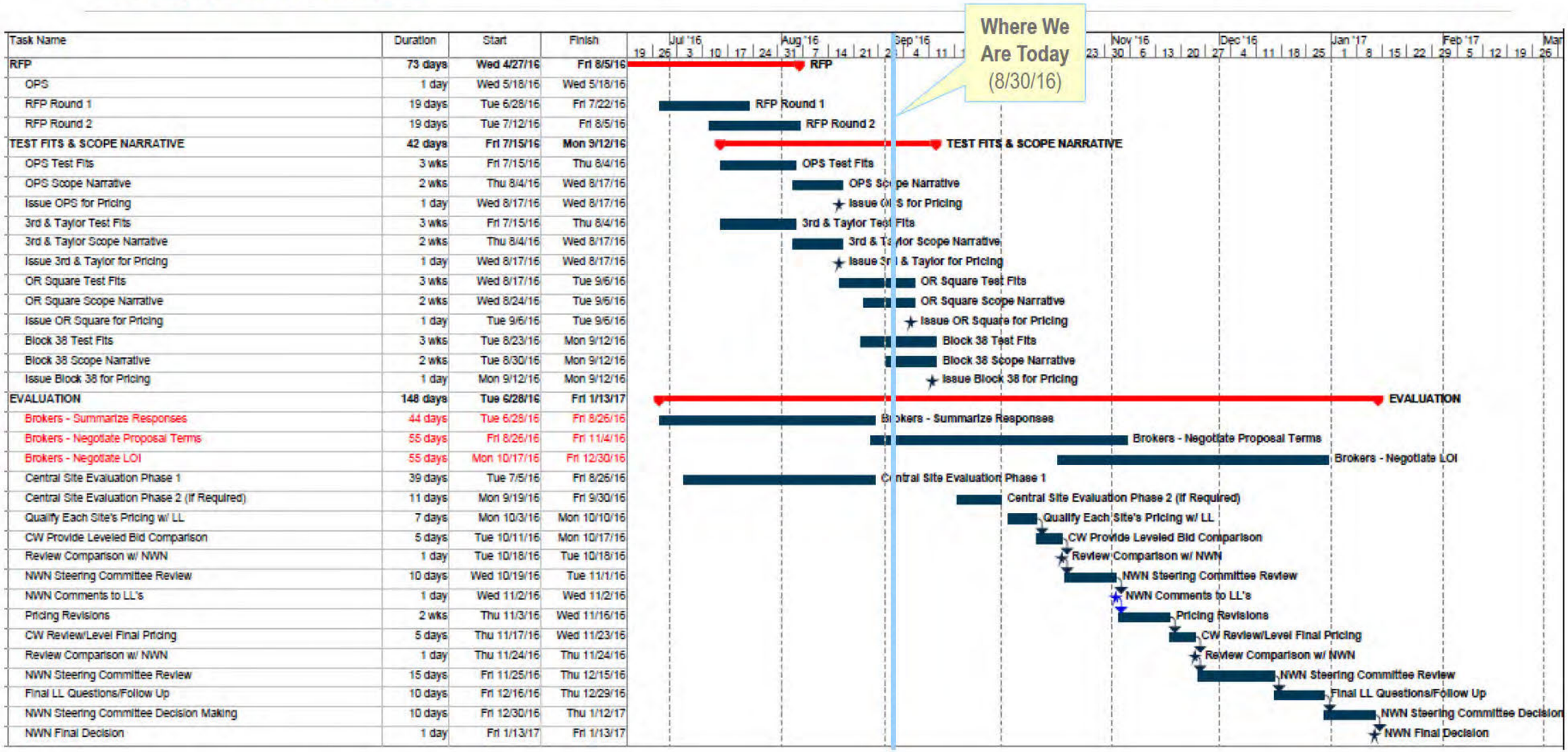
Workplace Guiding Principles Subcommittee

- AGA / SOS - HQ space planning survey
  - 9 responses received as of 8/26 (see handout)
  - Recent restack / renovations downsized W/S & offices, added collaboration space
  - PGE downsizing, no offices except for officers. Together on one floor
- Recommendations for next steering committee meeting
- HQ office tours completed:
  - Daimler, Vestas, PGE & Integra (Photos on Q drive / file folder WPGP HQ)
- Opportunities for further discussion / evaluation
  - Data room right sizing
  - Mail / printing room right sizing
  - Storage space right sizing
  - Files – expedite ECM project (retain consultant to assist us)

Timeline Update

Next Steps and Action Items



Task Name	Duration	Start	Finish
RFP	**73 days**	**Wed 4/27/16**	**Fri 8/5/16**
OPS	1 day	Wed 5/18/16	Wed 5/18/16
RFP Round 1	19 days	Tue 6/28/16	Fri 7/22/16
RFP Round 2	19 days	Tue 7/12/16	Fri 8/5/16
TEST FITS & SCOPE NARRATIVE	**42 days**	**Fri 7/15/16**	**Mon 9/12/16**
OPS Test Fits	3 wks	Fri 7/15/16	Thu 8/4/16
OPS Scope Narrative	2 wks	Thu 8/4/16	Wed 8/17/16
Issue OPS for Pricing	1 day	Wed 8/17/16	Wed 8/17/16
3rd & Taylor Test Fits	3 wks	Fri 7/15/16	Thu 8/4/16
3rd & Taylor Scope Narrative	2 wks	Thu 8/4/16	Wed 8/17/16
Issue 3rd & Taylor for Pricing	1 day	Wed 8/17/16	Wed 8/17/16
OR Square Test Fits	3 wks	Wed 8/17/16	Tue 9/6/16
OR Square Scope Narrative	2 wks	Wed 8/24/16	Tue 9/6/16
Issue OR Square for Pricing	1 day	Tue 9/6/16	Tue 9/6/16
Block 38 Test Fits	3 wks	Tue 8/23/16	Mon 9/12/16
Block 38 Scope Narrative	2 wks	Tue 8/30/16	Mon 9/12/16
Issue Block 38 for Pricing	1 day	Mon 9/12/16	Mon 9/12/16
EVALUATION	**148 days**	**Tue 6/28/16**	**Fri 1/13/17**
Brokers - Summarize Responses	44 days	Tue 6/28/16	Fri 8/26/16
Brokers - Negotiate Proposal Terms	55 days	Fri 8/26/16	Fri 11/4/16
Brokers - Negotiate LOI	55 days	Mon 10/17/16	Fri 12/30/16
Central Site Evaluation Phase 1	39 days	Tue 7/5/16	Fri 8/26/16
Central Site Evaluation Phase 2 (If Required)	11 days	Mon 9/19/16	Fri 9/30/16
Qualify Each Site's Pricing w/ LL	7 days	Mon 10/3/16	Mon 10/10/16
CW Provide Leveled Bid Comparison	5 days	Tue 10/11/16	Mon 10/17/16
Review Comparison w/ NWN	1 day	Tue 10/18/16	Tue 10/18/16
NWN Steering Committee Review	10 days	Wed 10/19/16	Tue 11/1/16
NWN Comments to LL's	1 day	Wed 11/2/16	Wed 11/2/16
Pricing Revisions	2 wks	Thu 11/3/16	Wed 11/16/16
CW Review/Level Final Pricing	5 days	Thu 11/17/16	Wed 11/23/16
Review Comparison w/ NWN	1 day	Thu 11/24/16	Thu 11/24/16
NWN Steering Committee Review	15 days	Fri 11/25/16	Thu 12/15/16
Final LL Questions/Follow Up	10 days	Fri 12/16/16	Thu 12/29/16
NWN Steering Committee Decision Making	10 days	Fri 12/30/16	Thu 1/12/17
NWN Final Decision	1 day	Fri 1/13/17	Fri 1/13/17

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OPS EVALUATION PROJECT STEERING COMMITTEE

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Status Update

- Evaluation based on NW Natural Criteria
- Toured remaining sites
- Active properties
- Continue to evaluate Central
- Tenant Improvement test fits and pricing are continuing
- Counter proposals should be sent out to the active buildings in two weeks

Status Update

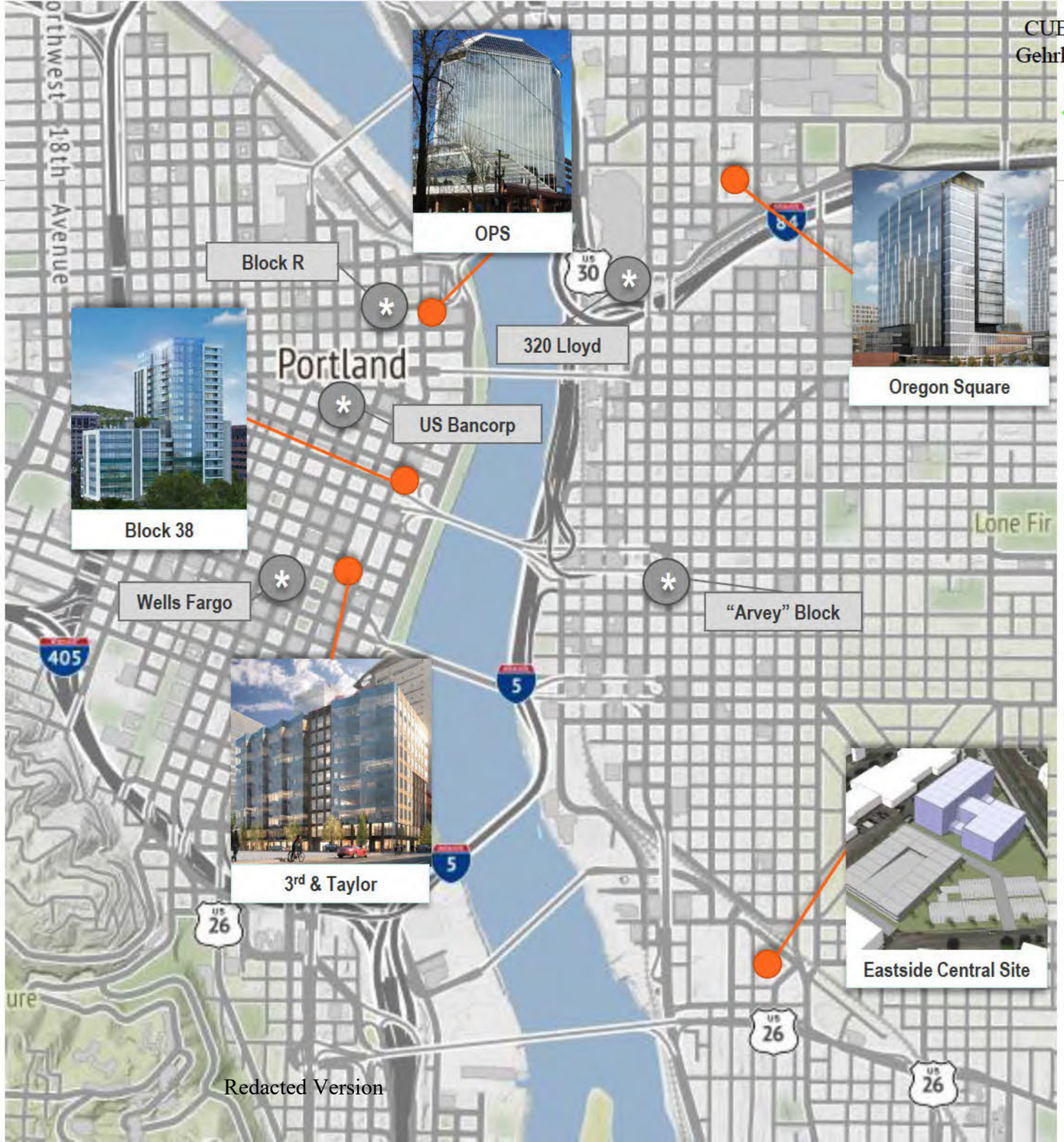
Next Steps

Next Step	Completion Date (Estimated)
Meeting with developers of active sites	October
Continuing to evaluate central site	TBD
Continuing to develop Workplace Guiding Principals	October
Meeting with PUC	November 1
Analyze and present findings to NW Natural	November
Continuing the collection of information on the various options	End of November
NW Natural to make a decision on preferred option	December
Develop and implement final execution strategy	December/January

Updated Sites

Five sites to focus on

Confirmation of previous evaluation



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RFP Outline Information

RFP Highlights

Estimated Annual Rental Rates	(Rentable Square Footage)*(Est. Year 1 NNN Rent + OpEx) *Note: Rates shown include 15 year rental rate options*
Summary of Qualitative Scoring	
Parking	Available parking made to NW Natural on-site and with partnering garages and cost
Seismic	If Liquefaction and Lateral Spread is possible as well as accessing the site after an event
Safety	Evaluates the personal and property crime as well as preserved safety
Amenities	Access to restaurants, coffee and retail as well as parks/greenspaces. Considers future development trends.
Accessibility (access without Parking)	Accounts for the MAX and public transit within walking distance
Site Tour Ranking	To be completed*
Additional Considerations	The nuances and site characteristics not captured above
*Information Forthcoming	How well NW Natural fits in the building

One Pacific Square (Current Location)

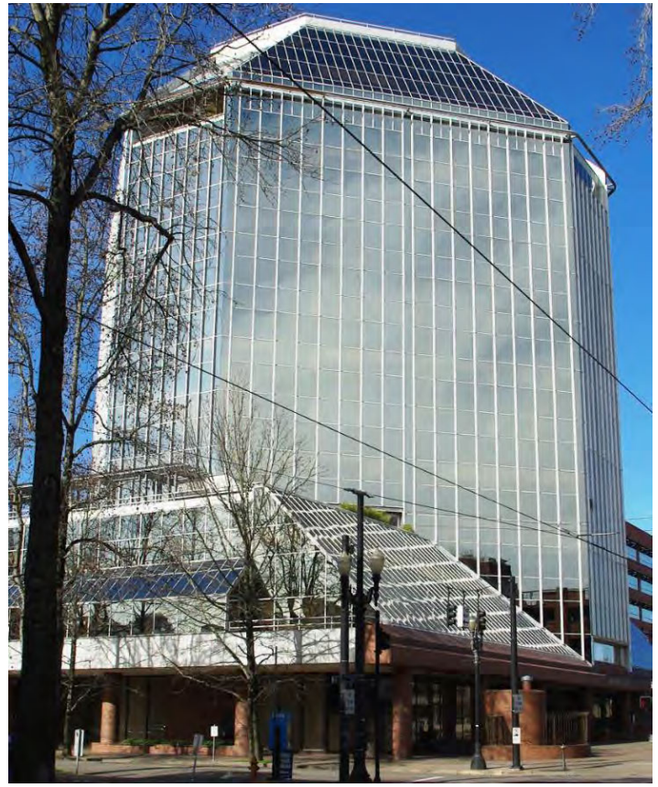
RFP Highlights

Estimated Annual Rental Rate

$7,222,658 *(201,863 RSF*$35.78 fs)*

Summary of Qualitative Scoring

- Parking
- Seismic
- Safety
- Amenities
- Accessibility
  - Average Site Tour Ranking Score: TBD
  - Additional Considerations:
    - Seismic concerns for current location, including liquefaction and access after an event. TI build out and seismic upgrades would cause displacement for staff.



3rd & Taylor

RFP Highlights

Estimated Annual Rental Rate

$8,789,470 *(187,010 RSF*$47.00 fs)*

Summary of Qualitative Scoring

- Parking
- Seismic
- Safety
- Amenities
- Accessibility
  - Average Site Tour Ranking Score: TBD
  - Additional Considerations
    - Single tenant building, does not account for IT/Mailroom and there is limited room for growth in space (maxed out at 175,000 RSF)

Block 38

RFP Highlights

Estimated Annual Rental Rate

$8,716,345 *(180,500 RSF*$48.29)*

Summary of Qualitative Scoring

- Parking
- Seismic
- Safety
- Amenities
- Accessibility
  - Average Site Tour Ranking Score: TBD
  - Additional Considerations
    - Part of a larger mixed use development.

Oregon Square

RFP Highlights

Estimated Annual Rental Rate

$8,630,560 *(~167,000 RSF*$51.68)*

Summary of Qualitative Scoring

- Parking
- Seismic
- Safety
- Amenities
- Accessibility
  - Average Site Tour Ranking Score: TBD
  - Additional Considerations:
    - Ability to accommodate and secure all parking in the building.

Central Eastside Site

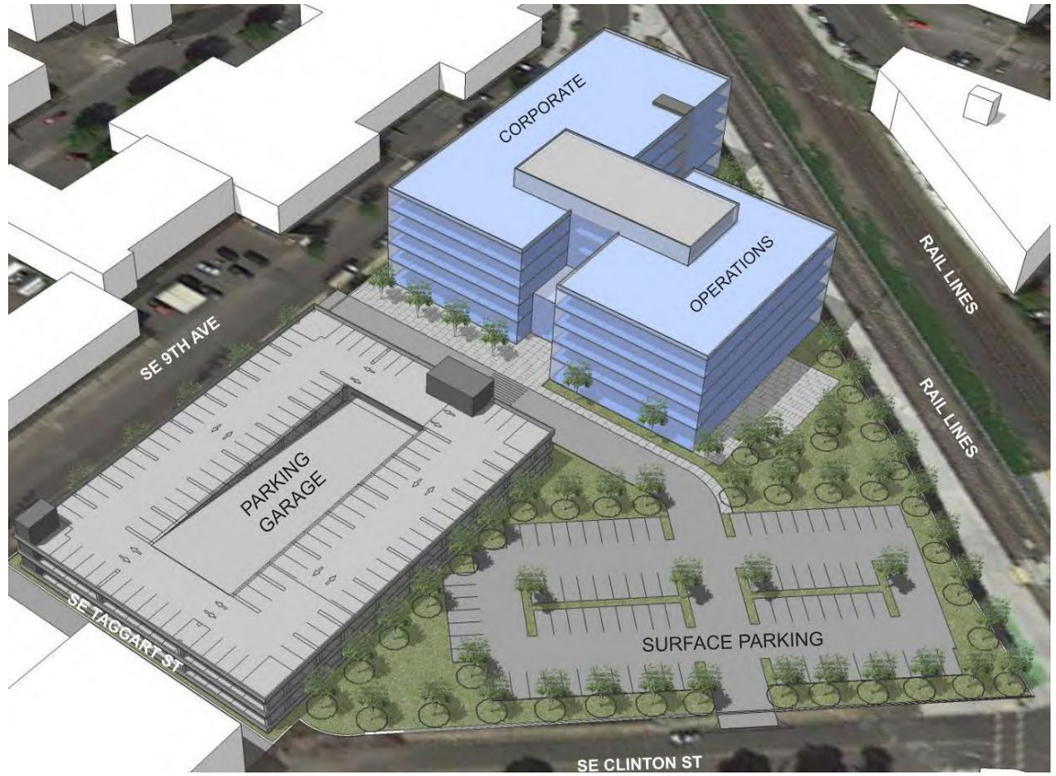
RFP Highlights

Estimated Annual Rental Rate

$TBD

Summary of Qualitative Scoring

- Parking
- Seismic
- Safety
- Amenities
- Accessibility
  - Average Site Tour Ranking Score: TBD
  - Additional Considerations
    - Environmental considerations as well as potential zoning/master plan approval.



Redacted Version

Summary Matrix

	One Pacific Square	3rd & Taylor	Block 38	Oregon Square	Central Eastside Site
Image/Rendering					
Estimated Annual Rental Rate (+OpEx)	$7,222,658	$8,789,470	$8,716,345	$8,630,560	$TBD
Parking					
Seismic					
Safety					
Amenities					
Accessibility					
Average Tour Ranking	TBD	TBD	TBD	TBD	TBD
Additional Considerations	Seismic and safety	Size able to accommodate growth	Mixed-use development	Accommodates all parking needs in building	Phase 1 Evaluation Feedback Pending

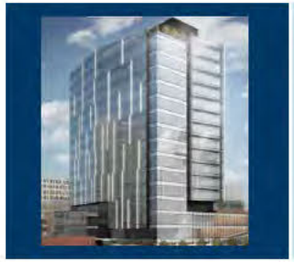
Test Fit Updates

One Pacific Square

- Test fit completed
- Pricing has been received and needs to be evaluated

3rd & Taylor

- Test fit completed
- Landlord is currently developing a cost for the tenant improvements



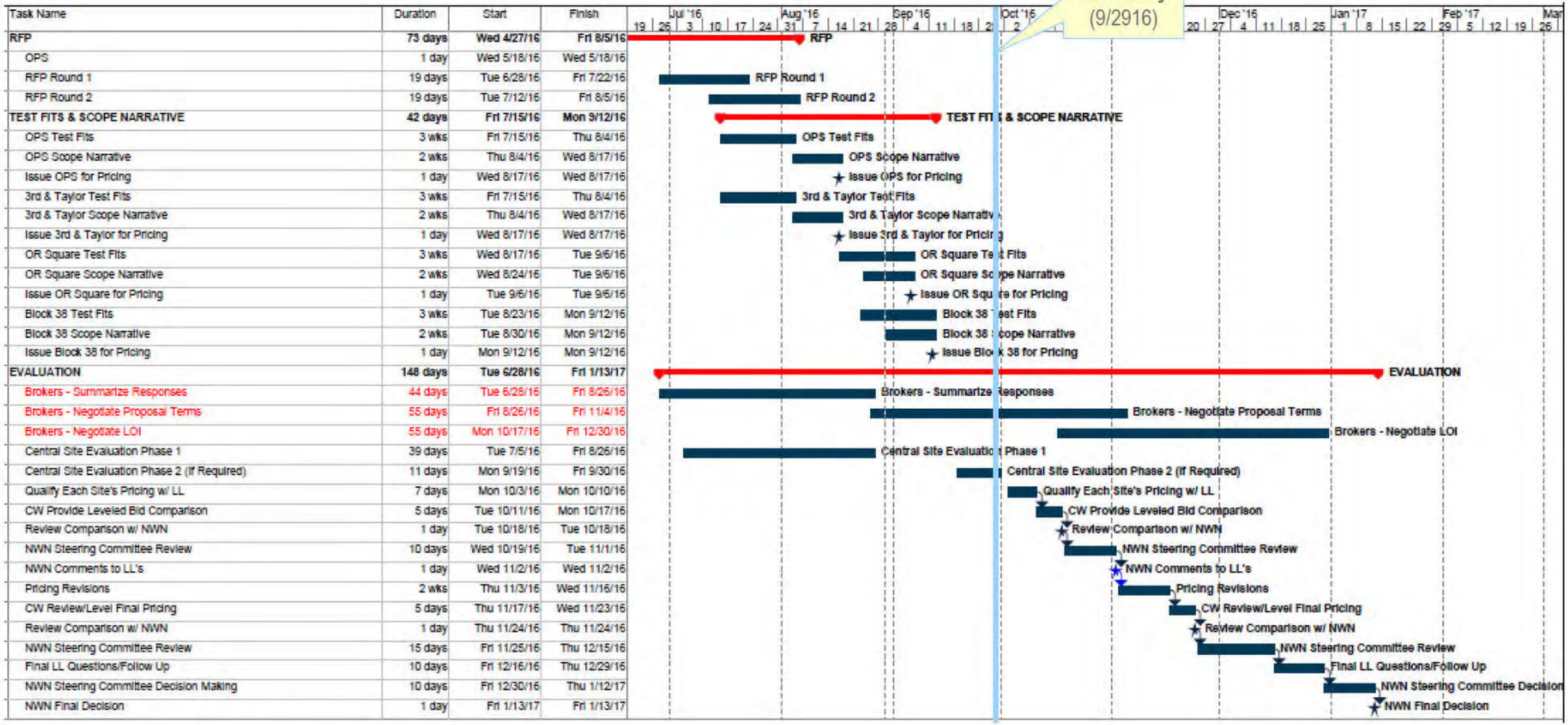
Oregon Square

- The test fit has been completed
- Landlord is currently developing a cost for the tenant improvements – pricing should be completed in one month

Block 38

- The test fit has been completed
- Landlord is currently developing a cost for the tenant improvements – pricing should be completed in one month

Timeline and Critical Decision Dates



Task Name	Duration	Start	Finish
RFP	**73 days**	**Wed 4/27/16**	**Fri 8/5/16**
OPS	1 day	Wed 5/18/16	Wed 5/18/16
RFP Round 1	19 days	Tue 6/28/16	Fri 7/22/16
RFP Round 2	19 days	Tue 7/12/16	Fri 8/5/16
TEST FITS & SCOPE NARRATIVE	**42 days**	**Fri 7/15/16**	**Mon 9/12/16**
OPS Test Fits	3 wks	Fri 7/15/16	Thu 8/4/16
OPS Scope Narrative	2 wks	Thu 8/4/16	Wed 8/17/16
Issue OPS for Pricing	1 day	Wed 8/17/16	Wed 8/17/16
3rd & Taylor Test Fits	3 wks	Fri 7/15/16	Thu 8/4/16
3rd & Taylor Scope Narrative	2 wks	Thu 8/4/16	Wed 8/17/16
Issue 3rd & Taylor for Pricing	1 day	Wed 8/17/16	Wed 8/17/16
OR Square Test Fits	3 wks	Wed 8/17/16	Tue 9/6/16
OR Square Scope Narrative	2 wks	Wed 8/24/16	Tue 9/6/16
Issue OR Square for Pricing	1 day	Tue 9/6/16	Tue 9/6/16
Block 38 Test Fits	3 wks	Tue 8/23/16	Mon 9/12/16
Block 38 Scope Narrative	2 wks	Tue 8/30/16	Mon 9/12/16
Issue Block 38 for Pricing	1 day	Mon 9/12/16	Mon 9/12/16
EVALUATION	**148 days**	**Tue 6/28/16**	**Fri 1/13/17**
Brokers - Summarize Responses	44 days	Tue 6/28/16	Fri 8/26/16
Brokers - Negotiate Proposal Terms	55 days	Fri 8/26/16	Fri 11/4/16
Brokers - Negotiate LOI	55 days	Mon 10/17/16	Fri 12/30/16
Central Site Evaluation Phase 1	39 days	Tue 7/5/16	Fri 8/26/16
Central Site Evaluation Phase 2 (If Required)	11 days	Mon 9/19/16	Fri 9/30/16
Qualify Each Site's Pricing w/ LL	7 days	Mon 10/3/16	Mon 10/10/16
CW Provide Leveled Bid Comparison	5 days	Tue 10/11/16	Mon 10/17/16
Review Comparison w/ NWN	1 day	Tue 10/18/16	Tue 10/18/16
NWN Steering Committee Review	10 days	Wed 10/19/16	Tue 11/1/16
NWN Comments to LL's	1 day	Wed 11/2/16	Wed 11/2/16
Pricing Revisions	2 wks	Thu 11/3/16	Wed 11/16/16
CW Review/Level Final Pricing	5 days	Thu 11/17/16	Wed 11/23/16
Review Comparison w/ NWN	1 day	Thu 11/24/16	Thu 11/24/16
NWN Steering Committee Review	15 days	Fri 11/25/16	Thu 12/15/16
Final LL Questions/Follow Up	10 days	Fri 12/16/16	Thu 12/29/16
NWN Steering Committee Decision Making	10 days	Fri 12/30/16	Thu 1/12/17
NWN Final Decision	1 day	Fri 1/13/17	Fri 1/13/17

Timeline

- Timeline of activities for the next two months:

Next Step	Estimated Completion Date	Critical Decision Date
Continuing the collection of information on the various options	End of November	
Analyze and present findings to NW Natural	November	
Site tour of alternatives	November	
Refine list to two or three preferred options	-	November
NW Natural to make a decision on preferred option	-	December
Develop and implement final execution strategy	December/January	

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OPS EVALUATION PROJECT STEERING COMMITTEE

PREPARED FOR:

NW NATURAL

2016 November 2

Redacted Version

Agenda

- November 1st OPUC Meeting Update
- Workplace Guiding Principles Recommendations
- Central Site Evaluation Update
  - Financial analysis
  - Environmental Overview
- Decision Timeline

Workplace Guiding Principles Update

Work to date

- ✓ Bi-weekly meetings over last three months
- ✓ Toured Daimler, Vestas, PGE offices
- ✓ Researched industry space planning data
- ✓ Toured workspace furnishings facility

Next Steps

- ✓ Incorporate feedback into recommendations
- ✓ Finalize workplace guiding principles
- ✓ Socialize WPGP with OTM
- ✓ Update test fits to finalize required square footage
- ✓ Develop change management plan

Timeline

Next Step	End Date	Critical Decision Date
Continuing the collection of information on the various options	End of November	
Analyze and present findings to NW Natural	November	
Site tour of alternatives	November	
Steering Committee Meeting	11/2/16	
Refine list to three preferred options	-	November
Developer presentations	11/28/16 & 11/29/16	
NW Natural to make a decision on preferred option	**-**	**December**
NW Natural OTM (Officer Update Meeting)	12/12/16	
NW Natural Board Meeting	12/15/16	
Develop and Implement Final Execution Strategy	December/January	
Steering Committee Meeting	**1/3/17**	

Decision Timeline

Over the next 6 to 8 weeks – **Building Selection & Negotiations**	
Space Plan	Finalize (revise) Test Fits
Building Analysis and Evaluation	Determine Pricing
	Financial Analysis of Proposals
RFP Response	Finalize Counterproposals
	Negotiate Lease Document
Decision Making	NWN Steering Committee Decision Making: Select Building
Developer Response	Develop and Negotiate Letter of Intent

Strategy Analysis
Critical Decision Period
Implementation

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OPS EVALUATION PROJECT
STEERING COMMITTEE PRESENTATION

PREPARED FOR:

NW NATURAL

January 3, 2017

Redacted Version

Steering Committee Meeting Agenda

Tuesday, January 3rd, 2017 – 1:00 pm

Meeting Agenda	
TOPIC	DESCRIPTION
Timeline	▪ Update on where we are in the process
Qualitative Matrix	▪ Discussion on qualitative ranking
Financial Summary	▪ Comparison of remaining alternatives
Seismic	▪ Update on site evaluations and impact on alternatives
Negotiation Structure	▪ Overview of process
Next Steps	▪ Upcoming Discussion for 1/18/17 Meeting

Timeline

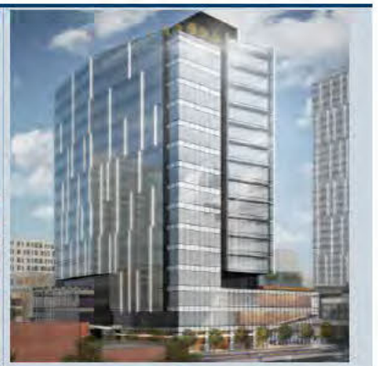
Next Steps	Date	Critical Decision Date
Develop and Implement Final Execution Strategy	December/January/February	---
Steering Committee Meeting	**1/18/17**	---
Send Abbreviated Counter Proposals	January	---
NW Natural to Shortlist Options (2)	---	January
Distribute Lease to Shortlisted Options	January	---

Decision Timeline

Over the next 6 to 8 weeks – **Building Selection & Negotiations**	
Space Plan	Review Revised Test Fits
Building Analysis and Evaluation	Confirming Pricing
	Financial/Negotiating Rate of Return of Proposals
RFP Response	Finalize Abbreviated Counterproposals
	Negotiate Lease Document
Decision Making	NWN Steering Committee Decision Making: Select Building
Developer Response	Develop and Negotiate Letter of Intent

- Strategy Analysis
- Critical Decision Period
- Implementation

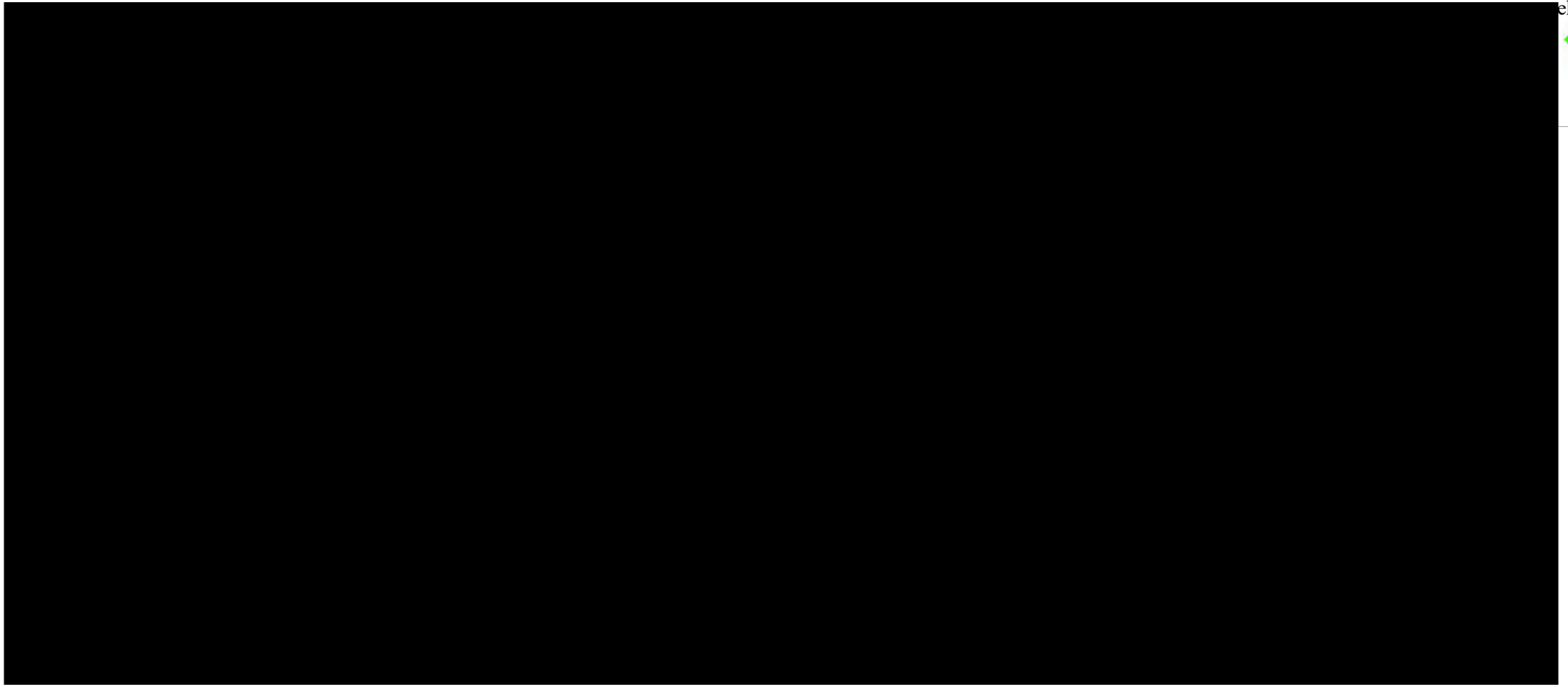
Qualitative Criteria Matrix

	One Pacific Square (OPS)	250 Taylor	Block 38	Oregon Square
Image/Rendering				
Seismic (Building)				
Safety				
Public Transit (Bus)				
MAX Access				
Parking Ratio (In Building)				
Parking Access				
Parking Cost				
Impact on Commute (Drive Time)				
Estimated Annual Rental Rate (+OpEx)	TBD	TBD	TBD	TBD
Amenities				
Proximity to Community Partners				
Developer Risk	TBD	TBD	TBD	TBD

Financial Summary

	OPS	Oregon Square	Block 38	250 Taylor
Total Rentable Square Feet	179,200 SF	167,000 SF*	167,000 SF*	167,200 SF*
Total Pre-Tax Cost	$88.9M	$104.7M	$101.3M	$94.0M
Starting Rental Rate (Full Service, Office)	$37.28/SF	$54.92/SF	$50.74/SF	$48.00/SF
Year 1 Total Cost	$6.8M (includes print center)	$9.2M	$8.5M	$8.0M

*Note: *Does not include Print Center in the total square feet*



Negotiation Structure

1. Structure the transaction so we have mitigated all risk, yet benefit from improvements in cost – move to a capped rate with a rate of return
2. Identify all variables which can also adjust costs, beyond the rate:
   - Construction Costs
   - Cost of land
   - Developer fee
   - Load factor
   - Operating Expenses
   - Sustainability
   - Ability for NW Natural to influence construction
3. Receive as much information as possible from competitors to fully understand “rate”
4. Continue competition to negotiate optimal terms

Next Steps

- Send out abbreviated RFP to meet negotiation structure
- Shortlist to two sites:
  - Steering Committee Meeting January 18th
- Send lease out and continue negotiation
- PUC update meeting: January 30th on criteria and financials

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OPS EVALUATION PROJECT STEERING COMMITTEE: CURRENT FOCUS

PREPARED FOR:

NW NATURAL

January 18, 2017

Redacted Version

Decision Timeline

Over the next 6 to 8 weeks – **Building Selection & Negotiations**	
Space Plan	Review Revised Test Fits
Building Analysis and Evaluation	Confirming Pricing
	Financial/Negotiating Rate of Return of Proposals
RFP Response	Finalize Abbreviated Counterproposals
	Negotiate Lease Document
Decision Making	NWN Steering Committee Decision Making: Select Building
Developer Response	Develop and Negotiate Letter of Intent

- Strategy Analysis
- Critical Decision Period
- Implementation

OPS/Menlo Update

- Process Update
- Seismic Discussion
- Next Steps

Current Focus

Keep all four (4) remaining options on the table and narrow focus on the two (2) opportunities which could provide NW Natural a HQ that will

- Function after an event
- Accessible after an event
- Lower cost options
- Meet basic NW Natural criteria
- Minimal development risk

Current Focus

Oregon Square

- Lowest seismic hazard
  - Operational after an event
  - Accessible after an event
- Given land costs, potential to be a low cost alternative
- Minimal development risk
- Provides mission critical facility on Eastside of the river
- Highly ranked against NW Natural selection Criteria

250 Taylor

- Second lowest seismic hazard
  - Operational after an event
  - Moderate risk to accessibility issues after an event
- Currently lowest cost alternative
- Lowest development risk
- Single-building occupancy allows for security and operational control
- Highly ranked against NW Natural selection Criteria

[redacted]

[redacted]

[redacted]

Implement

Continue to Control Process

- Distribute lease to OR SQ & 250 Taylor
- Develop final counter
- Timing is critical
- Negotiate lease while maintaining leverage
- Execute lease

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NW Natural Headquarters
Update
For OPUC
NW Natural
November 1, 2019
NW Natural

AGENDA

- Background
- Seismic Overview
- Project Timeline
- Project Phases / Approach
- Selection Process
- Project Outcome
- Cost Overview
- 250 Taylor Photos

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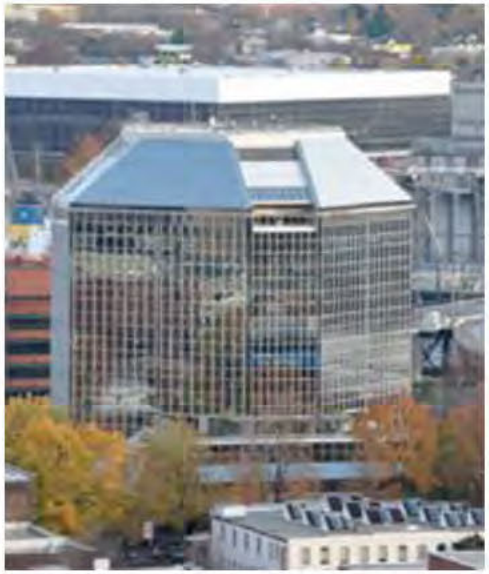
BACKGROUND

- NW Natural has been headquartered at OPS for over 30 years
- Current lease was extended in 2014 and expires in May of 2020
- 5 year extension allowed adequate time to complete alternatives analysis and evaluation and keep all options on the table
- Headquarters Steering Committee formed in late 2014 to develop a deliberate process, timeline, and oversee the appropriate due diligence needed to reach a decision about our future headquarters
- Evaluated options to maximize operational and cost efficiency -- i.e., to renegotiate an OPS lease, or relocate to another location with optimum leverage



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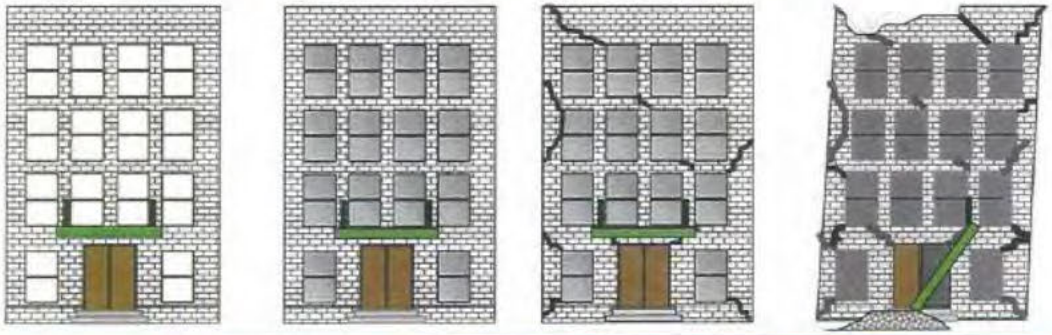
SEISMIC CATEGORIES OVERVIEW



	Operational	Immediate Occupancy	Life Safety	Collapse Prevention
Damage?	Minor	Minor	Substantial	Extensive
Safe to Occupy?	Yes	Yes	No	No
Repairable?	Yes	Yes	Maybe	No
Functional?	Yes	M/E/P Systems likely down	No	No

IMAGE SOURCE: KPFF

28 APRIL 2015

Desired Facility

Dependent on operational function

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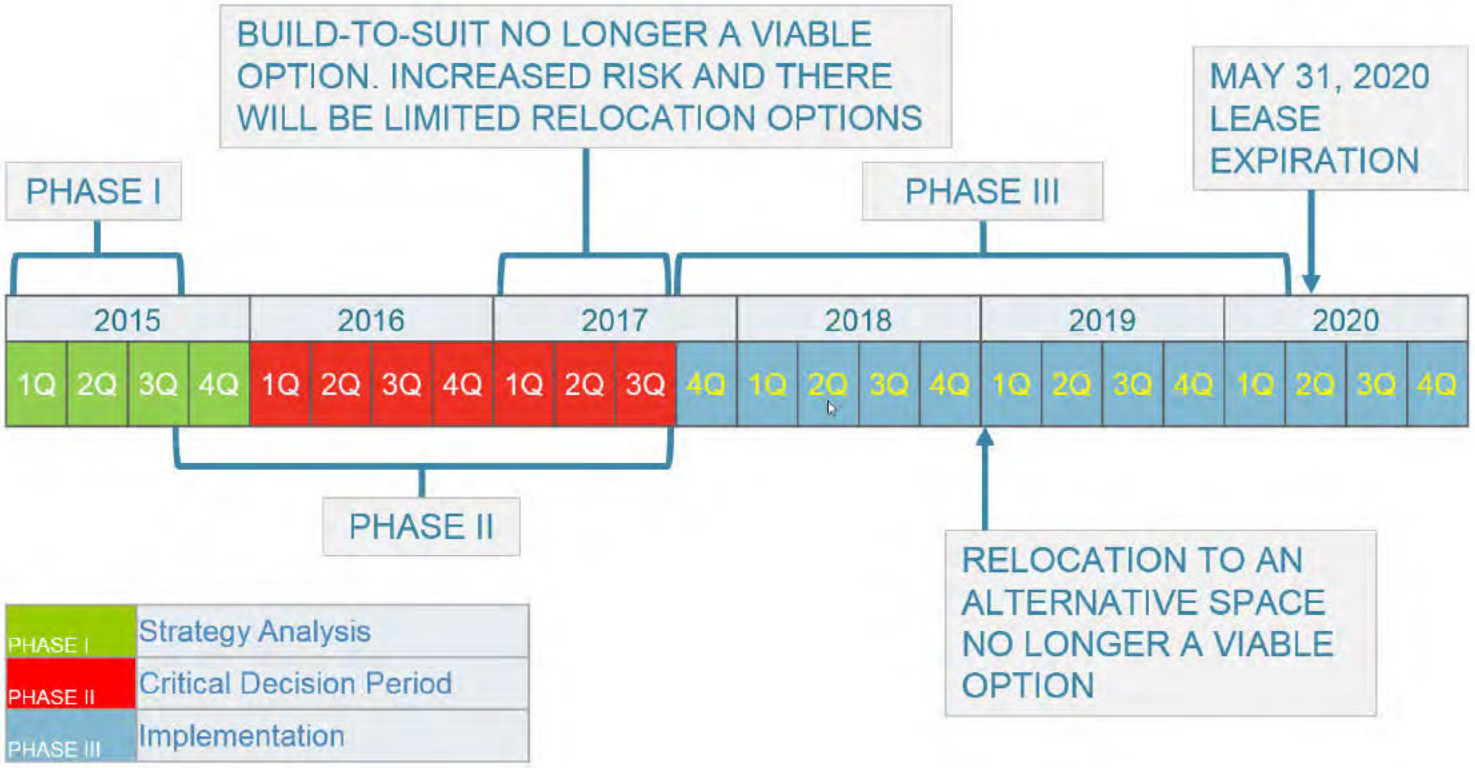
PHASED PROJECT - TIMELINE



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PHASED APPROACH

Phase 1 (2015)

- Engaged with outside experts to develop selection and analysis criteria specific to the Company's needs:
  - Seismic resiliency, safety and security, and proximity to transit, parking, and amenities / services
- Gathered information to determine requirements in terms of space, functionality, and geographic locations
- Determined that Company could not remain at OPS without significant seismic upgrades
- Determined Company would need a central Portland location, and set out to identify its options for headquarters locations

Phase 2 (2016 / 2017)

- Rigorously tested the market to identify the least-cost, least-risk option that best met the Company's needs.
- Surveyed area landlords, brokers and developers to determine what options were available to us (e.g., cast a "wide net"). RFI process resulted in 33 responses
- Narrowed 33 RFI responses to 11 RFP participants.
- Narrowed 11 RFP responses to four finalists.
- Performed a more detailed seismic analysis of the four finalists as well as a comparative financial analysis.
- Negotiated with the developers for two finalists: 250 Taylor and Oregon Square.
- Selected 250 Taylor as the least-cost and least-risk option.
- Executed the lease for 250 Taylor in October 2017

Phase 3 (2018 / 2019)

- Engaged with our outside experts to develop space plan and design, complete bid process and tenant improvements
- Assembled project team and plan to manage the project and prepare the company and employees for the physical move:
  - Design & furnishings, wellness & sustainability, technology, security, change management & communications, move plan
- Phase 3 is currently on time and budget and the company plans to move into the new building in Q1 of 2020

EVALUATION & SELECTION PROCESS OVERVIEW / PHASE II

Key Evaluation Criteria:

- Resiliency (Seismic and Flood)
- Building Safety and Security
- Public Transit
- Accessibility to Workforce and Partners
- Employee Safety and Security
- Amenities / Services for Employee Retention and Recruitment

Key Selection Criteria:

- Ability to deliver within timeline
- Overall cost

February. RFIs sent requesting site availability, ownership, and project information/timeline — 33

March. Received 33 responses and objectively evaluated with criteria

April-May. Round 2 RFIs for information on *seismic resilience, building size* — 22 — *Sent Architect RFPs*

June-July. RFPs sent out to remaining active sites that met *Key Evaluation Criteria* — 11 — *Retained KPFF for Seismic & GBD Architects*

August. Six RFP Responses + NWN Central Eastside site remain under evaluation — 7 — *Initial site tours & test fits*

September. Two sites removed for seismic, timing, and employee accessibility — 5 — *Seismic studies completed by KPFF and GeoEngineers*

October. Steering Committee site tours on five remaining sites for further evaluation — 4

December. Central site removed from active list due to overall cost. Developer presentations made to Steering Committee. Four sites remain. — 2

January 2017. Two sites remain. June 2017. Negotiations focused on 250 Taylor — 1 — *250 Taylor Lease executed in October 2017*

250 TAYLOR SELECTED

- Least cost option – 250 Taylor was the least cost of 4 finalists and also ranked 2nd highest in selection criteria
- Resiliency & building safety – Built to operational seismic standard. No risk of soil liquefaction or lateral spread. Located out of 100 year flood plane. Limited (URM) unreinforced masonry buildings in area. Redundant electrical services. Optimizes emergency response capabilities and is consistent with the (ORP) Oregon Resiliency Plan.
- Public transit – Provides easy access to all major forms of regional mass transit for employees.
- Accessibility to workforce & partners – Location is close to business partners & beneficial to workforce commute times
- Employee safety & security – Location, full control of building
- Amenities / services for employee retention & recruitment – Located close to multiple retailers, restaurants and services

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COST OVERVIEW

Category	250 Taylor	Portland Market Avg
TI Construction	$151.44 - Sq. Ft. / $27M*	$164.00 – Sq. Ft. / $29.2M*
Lease Cost	$33.95 / Sq. Ft. - $6.1M	$35 - $39 per Sq. Ft. / $6.3M / $7M**

Notes:
1. * Excludes utility specific scope & technology
2. ** Without enhanced seismic standard / older class A offices
3. Rental rates in CBD have been increasing 10-15% per annum over the last 5 years (Per Cushman & Wakefield)

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250 TAYLOR: EXTERIOR

Redacted Version

250 TAYLOR: SEISMIC REINFORCED

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250 TAYLOR: FURNISHINGS

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Oregon Economic and Revenue Forecast

March 2020

Volume XL, No. 1

Release Date: February 12, 2020

Katy Coba
Chief Operating Officer
DAS Director

Kate Brown
Governor

Prepared By:
Office of Economic Analysis
Department of Administrative Services

Redacted Version

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Foreword

This document contains the Oregon economic and revenue forecasts. The Oregon economic forecast is published to provide information to planners and policy makers in state agencies and private organizations for use in their decision making processes. The Oregon revenue forecast is published to open the revenue forecasting process to public review. It is the basis for much of the budgeting in state government.

The report is issued four times a year; in March, June, September, and December.

The economic model assumptions and results are reviewed by the Department of Administrative Services Economic Advisory Committee and by the Governor's Council of Economic Advisors. The Department of Administrative Services Economic Advisory Committee consists of 15 economists employed by state agencies, while the Governor's Council of Economic Advisors is a group of 12 economists from academia, finance, utilities, and industry.

Members of the Economic Advisory Committee and the Governor's Council of Economic Advisors provide a two-way flow of information. The Department of Administrative Services makes preliminary forecasts and receives feedback on the reasonableness of such forecasts and assumptions employed. After the discussion of the preliminary forecast, the Department of Administrative Services makes a final forecast using the suggestions and comments made by the two reviewing committees.

The results from the economic model are in turn used to provide a preliminary forecast for state tax revenues. The preliminary results are reviewed by the Council of Revenue Forecast Advisors. The Council of Revenue Forecast Advisors consists of 15 specialists with backgrounds in accounting, financial planning, and economics. Members bring specific specialties in tax issues and represent private practices, accounting firms, corporations, government (Oregon Department of Revenue and Legislative Revenue Office), and the Governor's Council of Economic Advisors. After discussion of the preliminary revenue forecast, the Department of Administrative Services makes the final revenue forecast using the suggestions and comments made by the reviewing committee.

Readers who have questions or wish to submit suggestions may contact the Office of Economic Analysis by telephone at 503-378-3405.

Katy Coba
DAS Director
Chief Operating Officer

Table of Contents

EXECUTIVE SUMMARY

March 2020

U.S. economic growth has settled in around its potential in recent quarters. The outlook is stable and the risk of recession is receding. The trade war deescalated with the signing of the Phase One trade deal between China and the U.S. and financial markets calmed following the Federal Reserve's shift in policy.

Local and national strength lies in the labor market where ongoing job gains are more than enough to meet labor force and population gains. Encouragingly the more-plentiful, and better-paying job opportunities are generating a supply side response. Workers continue to come off the sidelines and join the labor force.

One risk to the U.S. and global outlook is the potential human, social, and economic impacts of the coronavirus. Economically the worst case scenario is fears over the virus are a coordinating event that serves as a recession catalyst. Other direct impact channels, however small here in the U.S., include supply chain disruptions, lower volumes of trade, reduced Chinese tourism, and increased financial market uncertainties.

Oregon's stronger long-run economic growth historically is tied to migration and faster working-age population gains. The primary risk to the local outlook is the available labor supply, particularly as recent population estimates indicate migration is slowing more than expected. To the extent Oregon's labor force and employment gains no longer outstrip the typical state in a mature expansion, the state must rely more upon its industrial structure and productivity gains to drive faster overall economic growth.

While growth has slowed across many economic indicators, the same cannot be said for Oregon's primary sources of tax revenue. They continue to outstrip the performance of the underlying economy. The primary forecasting challenge for the current biennium is to determine what portion of the recently strong tax collections is due to temporary factors that will fade away.

Even without the onset of recession, revenue growth is facing major headwinds during the current biennium. State and federal tax policies, a big kicker refund and slower economic growth will all weigh on General Fund revenues in the near term.

The longer the revenue boom persists, the more likely it becomes that permanent factors are playing a significant role in boosting tax collections. As such, revenue estimates for the current biennium have been steadily revised upward over the past two years.

Even so, given that job gains and population growth have both taken a step back, some moderation in state revenue growth is likely going forward. It is also likely that the unprecedented surge in collections that occurred during the last tax filing season was due in part to taxpayers shifting their payments response to federal tax law changes, and other temporary factors.

Together with state and federal tax law changes, the uncertain economic outlook is currently injecting a considerable amount of risk into the revenue forecast. Both April tax filing seasons are yet to come this biennium, leading to a wide range of possible outcomes. Despite this uncertainty, this forecast reflects a relatively stable outlook, with General Fund collections increasing by just over one percentage point.

Fortunately, Oregon is better positioned than ever before to weather a revenue downturn. Automatic deposits into the Rainy Day Fund and Education Stability Fund have added up over the decade-long economic expansion. Oregon is expected to end the biennium with nearly $3 billion in reserves set aside, nearly 14% of the budget.

ECONOMIC OUTLOOK

U.S. Economy

The U.S. economy has settled in around its potential in recent quarters. Real GDP is growing at a two percent annual pace and expected to maintain similar gains through the middle of next year. Encouragingly, the two major risks to the outlook have improved in recent months. The signing of the Phase One trade deal in January between China and the U.S. signals that trade tensions are no longer escalating. The yield curve also un-inverted following the shift in Federal Reserve policy last year. Financial markets and economists are more optimistic about the near-term outlook and the probability of recession is declining. That said, the concerns over the novel coronavirus drove another inversion of the yield curve in recent weeks and forecasters are still assessing the potential, and mounting economic impacts.

But first, the underlying economy in the U.S. remains in good health. Business and consumer sentiment is high. Interest rates are low. Asset prices are growing and household debt burdens remain tame. The manufacturing sector is finding its footing, even as it remains weak. Overall, the strong labor market is driving economics gains today and in the next few years. Households will continue to spend so long as they are confident in their prospects. With layoffs near all-time lows, consumer confidence remains highs.

Jobs are increasing quicker than is needed to keep pace with labor force and population gains. The unemployment rate continues to reach new historic lows as a result. That said, the pace of hiring both national and locally is slowing as the economy begins to run into supply side constraints, labor chief among them. Encouragingly, the strong economy is creating a labor force supply side response. The share of working-age Americans with a job or looking for one continues to increase. More workers are being pulled in off the sidelines given job opportunities are more plentiful and wages are rising. The economy has yet to truly reach full employment, but continues to make progress.

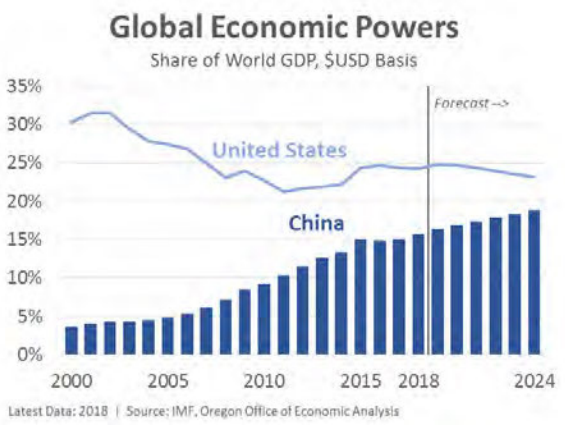
Now, this does not mean the economy is perfect. There are always issues and risks to both the upside and downside. Today those may include potential equity market corrections, subprime auto loan delinquencies, and depending upon the outcome of the 2020 presidential election, large federal policy changes. Even so, the largest current risk to the outlook may be the novel coronavirus, for both its direct economic impact and the potential to be a coordinating event that could serve as a recession catalyst.

Forecasters and health experts alike are still assessing the situation. It is important to remember in times of war, famine and disease that the largest impacts are human and social. That said, there are also economic damages as a result. The starting point for many analyses of the coronavirus is the Brookings Institution's research on the 2003 impact of SARS. Brookings found that SARS subtracted one percentage point off Chinese GDP and had minimal impacts across the global economy, including less than 0.1 percent of real U.S. GDP at the time.

Clearly this is not a perfect comparison to today, but it does provide a starting point to help think through the potential impacts. The most concerning would be that a severe pandemic serves as a coordinating event and recession catalyst. Fears over the human and economic impact could potentially reach critical mass where consumers pull back and delay spending money and employers put off investment and hiring decisions. Provided

the recession catalyst scenario is avoided, the more direct impacts on the economy generally fall into three categories: reduced global trade, a drop in international tourism, and financial market uncertainties.

How the Chinese shutdown and quarantine affects integrated global supply chains is where the greatest economic impact is likely to be felt. A key difference today relative to the SARS outbreak in 2003 is China's role in the global economy. Today, China is the second largest economy and accounts for 16 percent of world GDP. This indicates that the effects of the coronavirus on China's economy will be more widely felt today.



In the U.S. about 20 percent of all intermediate goods used in manufacturing are imported from abroad. To the extent that plant shutdowns in China means suppliers cannot provide parts to factories around the globe then slows down the whole supply chain. Stockpiles and shortages emerge depending upon exactly where in the chain a given firm is located. These issues, combined with lower Chinese demand for goods and services, would result in lower levels of global trade overall.

China remains Oregon's number one foreign market for exports, accounting for 20-30 percent of state totals. In recent years, Oregon exports to China have largely avoided the brunt of the trade war, however it is unlikely they will be spared any prolonged effects of a Chinese shutdown. The same goes for Oregon-based firms with operations or clients in China as well.

Additional impacts of the coronavirus may show up in international tourism to the U.S. being reduced. Based upon the trends seen during the SARS outbreak, national travel forecasters currently expect a 25 percent drop in Chinese tourism to the U.S. in 2020. According to Travel Oregon reports, in around 70,000 Chinese tourists visited the state. In 2018, Chinese tourists in Oregon spent approximately $261 million, which is 2 percent of total tourism spending statewide. A 25-50 percent decline in tourism from China this year would mean a 0.5-1.0 percentage point hit to the Oregon tourism industry, everything else being equal.

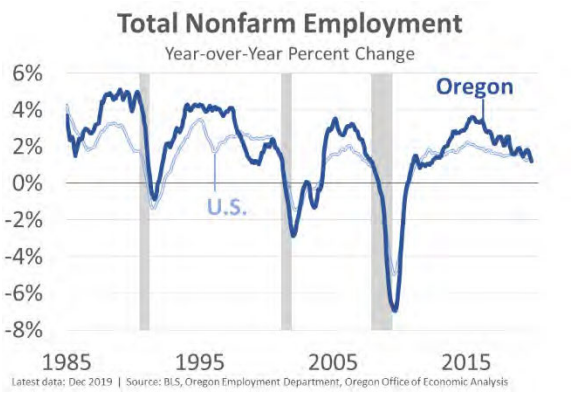
The third main channel in which the coronavirus could impact the economy is through financial markets and heightened risks. This could mean a stronger U.S. dollar, wider credit risk spreads, or a drop in equity markets themselves. All of these impacts, should they come to pass, work to slow current economic growth via fewer exports, less borrowing and lending activity, and lower levels of consumer spending and business investment.

All told, both IHS Markit and Moody's Analytics currently forecasts global GDP to be reduced by 0.3 or 0.4 percentage points in 2020. These impacts are larger early this year, but fade over time as factories get back up and running and employees return to their offices in the weeks and months ahead. The two forecasting firms differ just a little in how much the coronavirus will impact the U.S. directly. Moody's estimates full year 2020 GDP will be 0.15 percentage points lower, while IHS' impact is less than 0.1 percentage point. Of course, the longer the shutdowns last, the larger the impacts will be. To the extent the health situation worsens – the virus could prove more contagious and/or deadly – then the economic impacts will likewise increase as well.

Bottom Line: The U.S. economy is growing at its potential. Productivity gains have firmed over the past year and inflation remains below the Federal Reserve's target. The bright spot remains the labor market and consumer spending. The developing coronavirus situation represents a risk to the outlook but to date appears unlikely to derail the longest economic expansion on record.

Oregon Economy

Oregon continues to see healthy rates of growth when it comes to employment, income, and GDP. However the state is no longer significantly outpacing the nation like it was a few years ago. The economic slowdown to date has largely matched expectations. The outlook remains stable in the near-term and slightly stronger in the long-term.



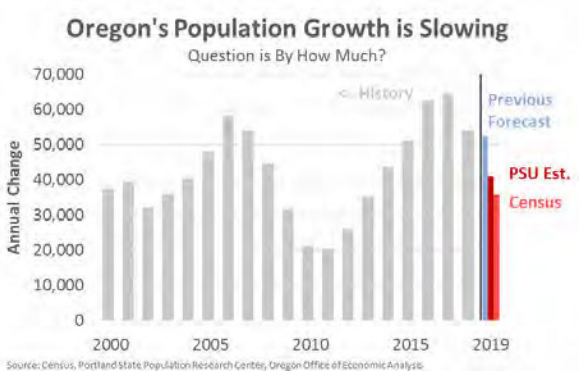
Like the nation overall, Oregon is transitioning down to more sustainable rates of growth. Job gains are roughly in-line with what underlying demographics suggest the state needs to hold the unemployment rate steady. Eventually the cyclical drivers of growth will slow further and gains will be driven by productivity and the number of workers.

Historically Oregon's industrial structure, productivity, and ability to attract and retain young, working-age households has driven faster growth than the nation overall. Today Oregon continues to outpace the typical state in terms of GDP and income, but not employment. This is one indication that the mix of those long-run drivers of growth may change in a mature expansion, or at least in this mature expansion. We do not know what the eleventh year of an expansion looks like, much less the twelfth or thirteenth year, because the U.S. economy has never been here before.

The labor market is tight for both cyclical and structural reasons. Cyclically there is no longer a reserve army of unemployed Oregonians waiting around for a job. It is harder to find workers in large part because most everyone who wants a job has a job. Structurally, demographics are slowing labor force gains as the inflows of new entrants is being offset to a larger degree by retiring Baby Boomers leaving the workforce. Recent data continues to point toward the slower growing labor supply being the key factor behind the slowdown in Oregon job growth. See our previous forecast[1] for a more in-depth discussion on the slowdown and underlying factors.

Net in-migration is the key driver of labor force gains and the primary reason the Oregon forecast is stronger than the U.S. overall. People follow the jobs. As employment gains slow, so too do migration flows. Today it is challenging to get a handle on population growth as differences have emerged in recent years between varying data sources.

First, the number of surrendered driver licenses at the Oregon DMV – one of the best leading indicators for migration – have slowed just a bit over the past couple of years. However, population estimates from Portland State's Population Research Center – the official arbiter of state population in non-decennial census years – show a more pronounced slowdown in migration. Finally the annual state estimates from the Census Bureau itself indicate an even sharper drop-off in migration to Oregon.



The gap between the 2019 population estimates and our office's previous forecast translates into 6,000 – 9,000 fewer Oregonians in the labor force today. This is not

[1] https://digital.osl.state.or.us/islandora/object/osl%3A939177

immaterial to both the current state of the labor market and also its implication for future growth if noticeably slower migration is here to stay.

The official 2020 Census population estimates will be available at the end of the year, with full details of the population coming in 2021. At that time our office's demographic and population forecast will undergo the major refresh it does every ten years with new decennial census data. Not only will the 2020 Census anchor the population estimates, but it will provide updated birth and death rate information to integrate in the outlook.

For now, our office's forecast incorporates the latest Portland State population estimate and carries the lower migration rates into the future. The result is a lower population forecast, but one that has yet to be fully worked through the entire economic and revenue outlook. In the coming quarters and in consultation with our advisors, the adjusted population outlook and its implications for future growth will be discussed in more depth. Major changes are unlikely until after the 2020 Census data is released.

Bottom Line: Oregon's economy continues to grow and see healthy gains in GDP, income, and employment. Importantly initial claims for unemployment insurance, a good measure of layoffs, remains at or near historic lows. The slowdown in job growth appears to be primarily driven by slower increases in the labor force. That said, Oregon's stronger long-run growth is largely built upon faster population gains due to migration. To the extent that migration flows continue to come in below forecast, the overall economic outlook will need to be revised accordingly. The good news is Oregon's advantages in industrial structure and productivity gains continue to outpace the nation overall, driving stronger GDP and income gains locally.

Productivity is Key to Long-Run Economic Growth in Oregon

Over the long-run there are two primary sources of growth: labor and capital. Future economic growth is really about how many workers there are and how productive each worker is. Historically, Oregon's comparative advance has been the ability to attract and retain working-age households. Doing so will remain vital to the state's economic growth, as discussed in more detail in the May 2019 forecast[2]. The other key driver is state productivity.

Last summer, the Bureau of Labor Statistics published some experimental state productivity statistics[3]. No surprise, but Oregon ranks well. From 2007 to 2017, Oregon's labor productivity increased the second fastest among all state. At the same time, the state's unit labor costs increased the third slowest. As such the regional economy was able to produce a whole lot more goods and services with no price pressures forming. The flipside of this analysis is Oregon's inflation-adjusted hourly compensation increased right in-line with most states, ranking 25th best.

In the big picture there are different types of capital that can raise worker productivity and propel long-run economic growth.

Financial capital is essential for firms to grow and expand. Overall Oregon does just OK on financial capital. Oregon is not a financial center nor does the state have a deep bench of venture capital or the like. The state largely relies upon investments and loans made by out-of-state financial institutions. Encouragingly, the latest Oregon Capital Scan[4] report shows the state is seeing some improvements.

[2] https://digital.osl.state.or.us/islandora/object/osl%3A754124
[3] https://www.bls.gov/opub/mlr/2019/article/bls-publishes-experimental-state-level-labor-productivity-measures.htm
[4] https://oregoncf.org/Templates/media/files/reports/oregon-capital-scan-2018.pdf

Natural capital is largely about putting natural resources to use. Workers start with raw products and turn them into intermediate or finished goods. Between the diverse landscape of agricultural products plus the fisheries and forests, Oregon has an abundance of natural capital. The questions are how best should the state use them and to what degree should the state use them.

Physical capital historically is about plants and equipment and allowing workers to make more widgets per hour worked. However, it is increasingly about office space and software and worker productivity in the knowledge economy. There remains very little good data at the state or local level on physical capital. Items collected through assessor offices can shed some light in terms of how much physical space there is and approximate valuations for tax purposes.

The final forms of capital are human and social; while similar, there are important differences. Social capital is more about community networks and involvement. These are key for economic mobility as well. Human capital, on the other hand, is largely about the skills of the workforce.

Educational attainment and college degrees are not the be-all and end-all for measuring a productive workforce. Soft skills are just as important as technical skills in this regard. Plus on-the-job training and apprenticeship programs provide experience and technical skills but delivered through a different format than in a college classroom. That said, in an economy that continues to transition further away from goods-producing industries and into the knowledge economy, things like educational attainment and college degrees become more important.

Overall, Oregon's workforce has solid educational attainment and compares similarly to the nation as a whole. Oregonians are somewhat more likely to have complete high school, attended college, and obtain a college degree. Increases in educational attainment match national trends, however these gains are not evenly spread across the state. Some metro areas are seeing substantial gains while others hardly any. *See the Regional Comparisons section of this forecast (pg 19) for more on educational attainment across the state.*

Looking forward, all of the different types of capital can help drive future economic growth. If a regional economy lacks in one type of capital, it is not a deathblow to growth. Rather it signals the area must rely on the other types or avenues for growth. But one type of capital is not inherently better than the others.

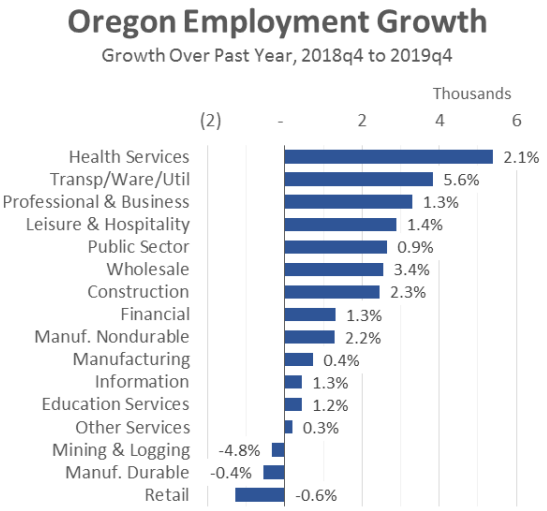
Oregon's Labor Market

The Office of Economic Analysis examines four main sources for jobs data: the monthly payroll employment survey, the monthly household survey, monthly withholding tax receipts and the quarterly census of employment and wages. Right now all four measures of the labor market are improving. Jobs are being added, albeit at a slower rate. Wages are rising, both in aggregate and for each worker. The unemployment rate is currently at its historical low, with records going back to 1976. While good news, it is an open question whether the labor market truly is at full employment, or even beyond. Other measures of labor market slack, like the share of prime working-age Oregonians with a job indicates the economy is strong, but there is some room for further improvement.

Importantly, wages in Oregon remain strong, although different measures of wages have diverged a bit in recent years. The good news is that after three plus years of revisions, the wages as reported by the BEA and from the payroll records (QCEW) are once again telling the same story.

That said, withholding out of Oregonian paychecks continue to outstrip these other measures of economic wages. This gap is larger than it has been historically. It is also seen across nearly all industries and not confined to a particular sector or two. Our office and the Department of Revenue continue to research the topic. One item impacting these trends is the increase in withholding out of retirement accounts (pensions and IRA distributions). Given the increase in retirements and stock market returns, such withholdings are an increasing share of all withholding in the state, but are not directly tied to the labor market. Even so, wage growth for Oregon workers remains strong. Oregon's average wage, while lower than the nation's, is at its highest relative point since the mills closed in the 1980s.

Overall, getting a handle of the health of Oregon's labor market is being somewhat complicated by technical issues within the underlying payroll jobs data. For this reason the employment data in our office's forecast is adjusted for two important technical purposes: seasonality at the detailed industry level and the upcoming benchmark revisions[5]. Specifically, our office uses the benchmarked, or revised employment data through 2018q3 and imputes the 2018q4 through 2019q4 employment data based upon the available preliminary Oregon estimates, national data, and our office's economic forecast model. As such, for this quarterly forecast, the first pure forecast period is 2020q1. The next official benchmark for Oregon employment will be released in early March and will be fully incorporated into the next quarterly forecast.



In the fourth quarter, total nonfarm employment increased 1.3 percent over the past year. Growth was led by the private

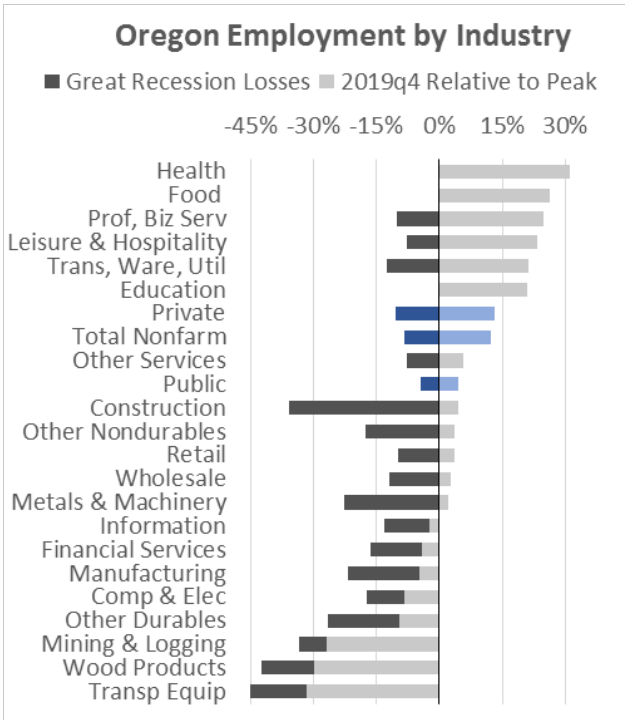
[5] Each year the U.S. Bureau of Labor Statistics revise the employment data – a process known as benchmarking. The current establishment survey (CES), also known as the monthly payroll survey, is benchmarked against the quarterly census of employment and wages (QCEW), a series that contains all employees covered by unemployment insurance. The monthly CES is based on a sample of firms, whereas the QCEW contains approximately 96 percent of all employees, or nearly a complete count of employment in Oregon. The greatest benefit of the CES is the timeliness – monthly employment estimates are available with only a one month lag – and these estimates are reasonably accurate. However the further removed from the latest benchmark, the larger the errors. The QCEW is less timely as the data is released approximately 3-4 months following the end of the quarter. The greatest benefit of the QCEW is that is a near 100 percent count of statewide employment. For these reasons, the CES is usually used to discuss recent monthly employment trends, however once a year the data is revised to match the historical QCEW employment trends. The last month of official benchmark data is September 2018. The QCEW is currently available through September 2019, thus the preliminary benchmark used here covers the October 2018 – September 2019 period.

sector at 1.3 percent, while the public sector increased 0.9 percent. These rates of growth are a clear step down from the full-throttle rates seen a few years ago, however still remain fast enough to keep pace with population gains so far.

The nearby graph illustrates the number of job gains by major industry by the length of the bar. The percentage increase these changes represent is noted as well.

So far in recovery, the large service sector industries have generally led job growth in terms of the number of jobs added and with above-average growth rates. These include jobs in professional and business services, health services, and leisure and hospitality industries. These three industries have gained nearly 12,000 jobs in the past year and account for 47 percent of all job gains across the state. Now, given these industries account for 38 percent of all Oregon jobs, today they are increasing at a similar rate as the rest of the economy. Growth in the past year is being led to a larger degree by wholesale, construction, and transportation, warehousing, and utilities.

In terms of illustrating how each industry has fared over the Great Recession and so far in recovery, the second graph shows both the depths of recessionary losses[6] and where each industry stands today relative to pre-recession peak levels.



Currently, thirteen major industries are at all-time highs. Private sector food manufacturing, education, and health never really suffered recessionary losses – although their growth did slow during the recession. Professional and business services and leisure and hospitality have each regained all of their losses and are leading growth today. Over the past couple of years retail emploment, other services, transportation, warehousing and utilities, and construction, in addition to the public sector have surpassed their pre-recession levels and are at all-time highs. Additionally, wholesale trade and metals and machinery manufacturing have fully regained their recessionary losses. Most recently non-durable manufacturing excluding food is all the way back back; this growth is led by beverages (breweries), chemicals, and plastics and rubber. In total, the twelve private sector industries at all-time highs account for 71 percent of all statewide jobs. The public sector accounts for an additional 16 percent of all jobs.

With the Great Recession being characterized by a housing bubble, it is no surprise to see wood products, construction, mining and logging and financial services (losses are mostly real estate agents) among the hardest hit industries. These housing and related sectors are now recovering, although they still have much ground to make up. Transportation equipment manufacturing suffered the worst job cuts and is likely a structural decline

[6] Each industry's pre-recession peak was allowed to vary as, for example, construction and housing-related industries began losing jobs earlier than other industries or the recession's official start date per NBER.

due to the RV industry's collapse[7]. With that being said, the subsectors tied to aerospace are doing better and the ship and boat building subsector is growing again. Metals and machinery manufacturing, along with mining and logging, have shown the largest improvements since the depths of the recession.

Coming off such a deep recession, goods-producing industries exhibited stronger growth than in past cycles. While all manufacturing subsectors have seen some growth, they are unlikely to fully regain all of their lost jobs. The near-term outlook for goods-producing industry is modest at best. While trade tensions appear to be subsiding, the strong U.S. dollar and relatively weak global economy point toward a flat outlook for manufacturing. That said, Oregon manufacturers typically outperform those in other states, in large part due to the local industry make-up. Oregon does not rely upon old auto makers or textile mills. The state's manufacturing industry is comprised of newer technologies like aerospace and semiconductors. Similarly Oregon's food processing industry continues to boom[8] even with layoffs and a closure recently.

All told, each of Oregon's major industries has experienced some growth in recovery, albeit uneven. As the economy continues to recover there will be net winners and net losers when it comes to jobs, income and sales. Business cycles have a way of restructuring the economy.

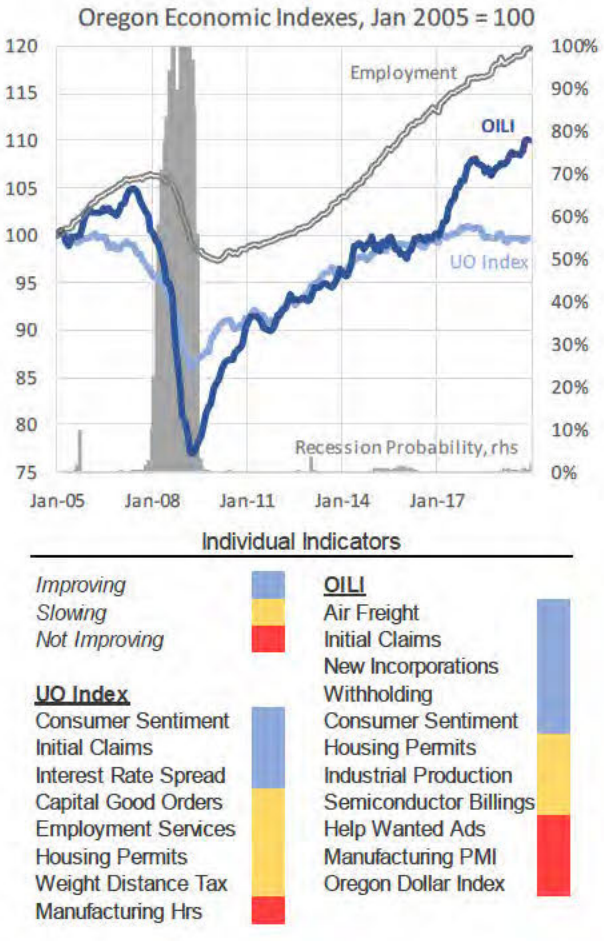
For additional information on the most recent quarter's employment forecast errors, please refer to Table A.1 in Appendix A.

Leading Indicators

Over the past year the two Oregon-specific composite leading indicators are providing different signals. Our office's Oregon Index of Leading Indicators (OILI) continues to signal ongoing growth in the coming months. The University of Oregon Index of Economic Indicators has largely moved sideways.

Upon closer examination, the number of individual indicators improving, slowing or contracting is pretty similar across the two series. The topline divergence is a result of the relative weights each index places upon each individual indicator. Given this and the fact these indexes are used as a green light-red light measure of future economic growth, neither of the two series are signaling recession or any real concerns for the time being.

As has been the case for more than a year, the manufacturing-related indicators weigh on both series. These include manufacturing hours worked, the purchasing managers' index for manufacturing, and the strong U.S. dollar, all of which point toward continued manufacturing weakness. Other goods-producing



[7] http://oregoneconomicanalysis.com/2012/07/10/rv-workers-and-reemployment/
[8] https://oregoneconomicanalysis.com/2018/06/27/oregons-food-economy/

indicators like industrial production and capital good orders are relatively weak but not currently signaling contraction.

Outside of these goods-related indicators, the rest remain solid to good. In general, economic forecasters see a somewhat heightened risk of recession in 2020, but these concerns are fading relative to six months ago. For now, baseline forecasts remain intact.

University of Oregon professor Jeremy Piger has created a real time probability of recession[9] model, and finds there is a 2.1 percent chance the U.S. has entered into a recession. However, another recession will come, of that we can be sure. IHS Markit puts the probability of recession in the next year at 25 percent, while the Wall Street Journal Economic Forecasting Survey puts it at 24 percent.

Hopefully Oregon's leading indicators will give a signal in advance of the next recession, which neither is doing today. While past experience is no guarantee of future performance, Oregon's leading indicator series do have a good track record in their relatively brief history. Both series flattened out in 2006 and began their decline in advance of the Great Recession. Similarly both Oregon series reached their nadir in March 2009, a few months before the technical end of the recession (June 2009 per NBER) and about 9 months in advance of job growth returning to Oregon.

Short-term Outlook

While Oregon's economic expansion continues, growth has slowed and stabilized. A few years ago, the state has enjoyed robust, full-throttle rates of job gains in the 3-3.5 percent range, or nearly 5,000 jobs per month. No longer is this the case. Oregon is expected to continue to see healthy job gains – a bit more than 2,000 per month or about 2 percent – through mid-2021, but the state is past its peak growth rates for this expansion. Crucially, such gains remain strong enough to hold unemployment down and account for ongoing population growth. The economy should remain strong.

Economic Forecast Summary

		Quarterly					Annual				
		2019:4	2020:1	2020:2	2020:3	2020:4	2019	2020	2021	2022	2023
Personal Income, Nominal	U.S.	3.7	4.0	3.6	4.1	4.2	4.6	3.9	4.4	4.5	4.3
% change	Oregon	5.3	4.4	4.6	4.8	4.8	5.0	4.6	4.9	4.9	4.8
Wages and Salaries, Nominal	U.S.	4.7	4.4	4.9	4.2	4.5	4.9	4.3	4.6	4.7	4.4
% change	Oregon	7.3	6.0	6.3	5.2	5.3	5.0	5.6	5.4	5.3	5.0
Population	U.S.	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
% change	Oregon	1.0	0.9	0.9	0.9	0.9	1.0	1.0	0.9	0.9	0.9
Housing Starts	U.S.	1.34	1.34	1.31	1.30	1.29	1.27	1.31	1.29	1.28	1.27
U.S. millions, Oregon thousands	Oregon	21.1	22.1	22.4	22.6	22.8	20.7	22.4	23.3	23.6	23.4
Unemployment Rate	U.S.	3.5	3.5	3.4	3.5	3.5	3.7	3.5	3.5	3.8	4.2
	Oregon	3.9	3.9	3.8	3.8	3.8	4.1	3.8	3.9	4.0	4.2
Total Nonfarm Employment	U.S.	1.6	1.3	1.6	0.4	0.7	1.6	1.2	0.8	0.5	0.1
% change	Oregon	1.5	1.9	2.2	1.3	1.3	1.5	1.6	1.4	1.0	0.8
Private Sector Employment	U.S.	1.7	1.3	0.8	1.1	0.9	1.8	1.3	0.8	0.4	(0.1)
% change	Oregon	2.0	1.9	1.6	1.9	1.5	1.6	1.7	1.4	1.1	0.8

After these near-term job gains, supply side constraints and longer-run demographic trends weigh on growth to a larger degree. These supply side constraints include a tighter labor market, infrastructure, energy costs, capacity utilization and the like. The large wave of retiring Baby Boomers will weigh on job growth rates for the

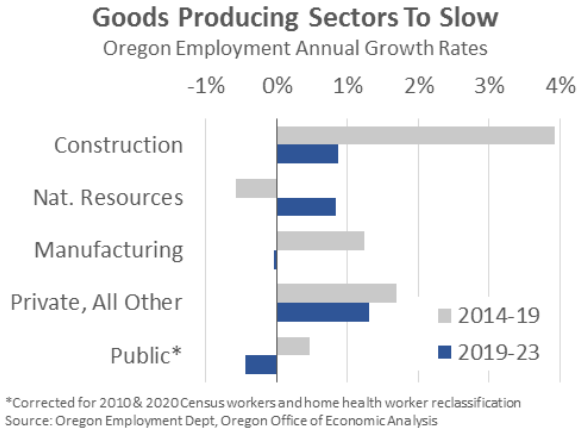
[9] http://pages.uoregon.edu/jpiger/us_recession_probs.htm/

coming decade. There will be enough jobs overall, as the generational churn is hidden underneath the labor market's surface.

The general characteristics of the current forecast remain the same as in recent quarters although employment is revised up and personal income is revised down slightly in keeping with revisions and tracking this year. One key factor impacting income growth is a lower inflation forecast. Real, or inflation-adjusted incomes are higher in the outlook, however nominal income is what matters for Oregonians and tax collections.

Private sector growth, measured by the number of jobs created, will be dominated by the large, service sector industries like professional and business services, leisure and hospitality, and health. All other industries are expected to add jobs, albeit at somewhat slower rates than the economy overall.

In particular, goods-producing industries are expected to slow considerably relative to their strong gains in recent years. Natural Resources (mining and logging), along with wood products manufacturing are expected to hold steady in the years ahead.

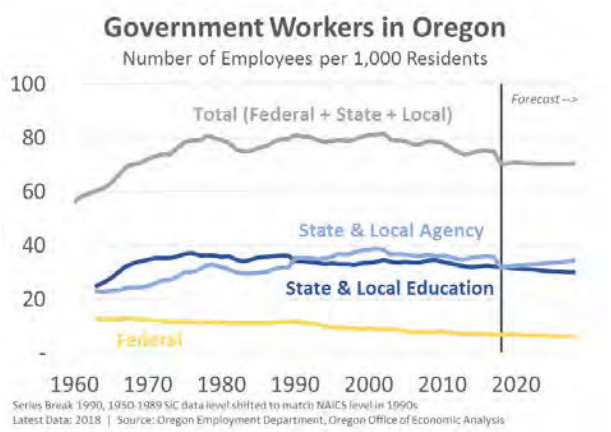


Construction employment will continue to grow, but the pace of those gains will come back down to earth following exceptionally strong gains since 2013. Construction's slowdown is in part that growth must cool off, but also that jobs appear to have outpaced increases in new home construction. One side effect of this pattern is that productivity within the construction industry is declining. More workers producing fewer units of new housing or remodel activity means industrywide productivity is lower today than a decade or two ago. This is evident in the national data as well and is something researchers continue to dig into. No consensus has been reached as of yet.

Manufacturing employment overall is not expected to see any growth in the coming years. This topline result masks some differences in individual subsectors. In particular growth among the state's food and beverage manufacturers, predominantly breweries and wineries, offsets weakness elsewhere. That said, any further global weakening or strengthening of the dollar will weigh further on the outlook. Oregon as a whole is not expected to fully regain all of its Great Recession related manufacturing job losses. That said, both the Portland and Medford metro regions have fully regained their losses. Nationwide about 1 out of 5 metros have done so as well.

Public sector employment at the local, county and state level for both education and non-education workers is growing in Oregon, as state and local revenues continue to improve along with the economy. Over the forecast horizon, government employment is expected to grow roughly in line with population growth and the increased demand for public services, albeit just a hair faster than population growth alone. One public sector risk to the

outlook is PERS. The extent to which government hiring by local and state entities is impacted in the coming years as contributions increase is unknown.



Along with an improving labor market, strong personal income gains are here, although tax law changes have pushed around growth rates in the recent past (see the expiring Bush tax cuts and the fiscal cliff) and may do so again moving forward. Recent revisions have also lowered Oregon's personal income below previous forecast estimates. Personal income is now forecasted to grow 4.6 percent in 2020, while picking up to 4.9 percent in both 2021 and 2020, then slow a hair to 4.8 percent in 2023. These growth rates slightly stronger than last quarter but given the revisions and lower inflation outlook, total nominal personal income in Oregon has been lowered 0.1-0.2 percentage points.

As the economy continues to improve, household formation is increasing too, which will help drive up demand for new houses. Household formation was suppressed earlier in the recovery, however the improving economy and increase in migration have returned in full force. Even as more young Oregonians are living at home, as the Millennials continue to age into their late-20s through their mid-30s, demand for housing will increase as well. In fact, given the underlying demographics, household formation should slightly outpace overall population growth in the coming years.

Housing starts in 2019 totaled just under 21,000, which is about the level of Oregon's long-run average, at least prior to the housing bubble. The outlook calls for a few more gains as housing production increases to meet demand. Starts will increase to 22,400 in 2020, 23,300 in 2021 and 23,600 in 2022. Over the extended horizon, starts are expected to average around 23,000 per year to meet demand for a larger population and also, partially, to catch-up for the underbuilding that has occurred in recent years.

A more complete summary of the Oregon economic outlook and forecast changes relative to the previous outlook are available as Table A.2 and A.3 in Appendix A.

Forecast Risks

The economic and revenue outlook is never certain. Our office will continue to monitor and recognize the potential impacts of risk factors on the Oregon economy. Although far from comprehensive, we have identified several major risks now facing the Oregon economy in the list below:

- U.S. Economy. While Oregon is more volatile than the nation overall, the state has never missed a U.S. recession or a U.S. expansion. In fact, Oregon's business cycle is perfectly aligned with the nation's, at least when measuring peak and trough dates for total nonfarm employment. If anything, Oregon actually leads the U.S. by a month or two. The fact that there are more worrisome trends or risks at the U.S. level means there should be concerns about the Oregon outlook. Should the U.S. fall into recession, Oregon will too. That said, should the U.S. economy accelerate, Oregon's economy should receive a similar boost as well.

- Housing affordability. Even as the housing market recovers, new supply has not kept up with demand (both from new households and investor activity). This applies to both the rental and ownership sides of the market. As such, prices have risen considerably and housing (in)affordability is becoming a larger risk to the outlook. Expectations are that new construction will pick up a bit in the next year or three, to match the increase in demand, which will alleviate some price pressures. However to the extent that supply does not match demand, home prices and rents increasing significantly faster than income or wages for the typical household is a major concern. While not included in the baseline outlook, significantly worse housing affordability may dampen future growth as fewer people can afford to move here, lowering net in-migration and the size of the labor force.

- Global Spillovers Both Up and Down. The international list of risks seems to change by the day: a pandemic in China, a hard Brexit, sovereign debt problems in Europe, equity and property bubbles in places like Canada, South America and Asia, political unrest in Hong Kong, the Middle East and Venezuela, nuclear arsenal concerns with North Korea, and commodity price spikes and inflationary pressures in emerging markets. In particular, with China now a top destination for Oregon exports, the state of the Chinese economy – and its real estate market, or public debt burden – has spillover effects to the Oregon economy. Any economic slowing, or deteriorating relations in or with Asia is a potential threat to the Pacific Northwest.

- Federal fiscal policy. The uncertainty regarding federal fiscal policy remains a risk. Some policies are likely to impact Oregon more than the typical state, while others maybe not as much. The good news for Oregon is that outside of outright land ownership, the federal government has a relatively small physical presence in the state. This means that direct spending reductions are less likely to hurt Oregon. Of course, it also limits the local benefit from any potential increases in federal spending, as was recently passed by Congress. In terms of federal grants as a share of state revenue, Oregon ranks 29th highest. For federal procurement as a share of the economy, Oregon ranks 48th highest. Oregon ranks below average in terms of military-dependent industries as well. The one area that Oregon ranks above average is in terms of direct federal employment, ranking 19th highest among all states. Oregon also is exposed to an above-average share of federal transfer payments to households. Transportation funding is also a major local concern. Overall, the direct impact may be less than in other states but the impact will be felt nevertheless, particularly as our closest neighboring states have large federal and military workforces.

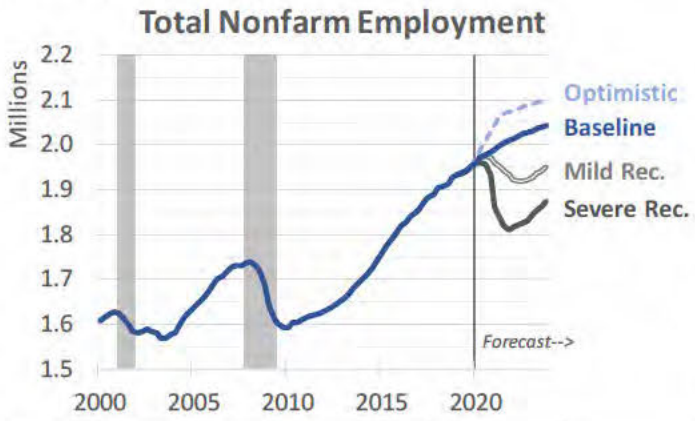
- Climate and Natural Disasters. Weather forecasting is even more difficult than economic forecasting a year or two into the future. While the severity, duration and timing of catastrophic events like earthquakes, wildfires and droughts are difficult to predict, we do know they impact regional economies. Fires damage forests and tourism. Droughts in particular impact our agricultural sector and rural economies to a larger degree. Whenever Cascadia, the big earthquake, hits, we know our regional economy and its infrastructure will be crippled and in need of immediate repairs. Some economic modeling suggests that Cascadia's impact on Oregon will be similar to Hurricane Katrina's on New Orleans. Longer-term issues like the potential impact of climate change on domestic migration patterns are likewise hard to predict and outside our office's forecast horizon. There is a reasonable expectation that migration flows will continue to be strong as the rest of the country becomes less habitable over time.

- Commodity price inflation. Always worrisome is the possibility of higher oil (and gasoline) prices. While consumer spending has held up pretty consistently in this recovery, anytime there is a surge in gas prices, it eats away at consumers' disposable income, leaving less income to spend on all other, non-energy related goods and services. This impact is certainly more muted today[10], but a risk nonetheless.
- Federal timber policy and transfers impact regional economies and local governments. Reductions in public employment and services are being felt in the impacted counties in recent years and decades. For more information from a historical perspective, see two recent blog posts, here and here[11].
- Initiatives, referendums, and referrals. Generally, the ballot box and legislative changes bring a number of unknowns that could have sweeping impacts on the Oregon economy and revenue picture.

Alternative Scenarios

The baseline forecast is our outlook of the most likely path for the Oregon economy. As with any forecast, however, many other scenarios are possible. In conjunction with the Legislative Revenue Office, this forecast provides three alternative scenarios, which are modeled on growth patterns over previous business cycles.

Alternative Scenarios **Mar 2020**



	2020	2021	2022	2023
Employment				
Baseline	1.6%	1.4%	1.0%	0.8%
Optimistic	3.0%	3.2%	0.9%	0.7%
Mild Recession	1.4%	-1.1%	-1.3%	1.0%
Severe Recession	0.6%	-6.2%	-0.5%	2.0%
Personal Income				
Baseline	4.6%	4.9%	4.9%	4.8%
Optimistic	7.9%	6.8%	5.0%	4.5%
Mild Recession	4.4%	2.3%	3.0%	6.0%
Severe Recession	4.0%	-3.9%	4.0%	7.0%

Optimistic Scenario:

The expansion is able to gather steam as the trade tensions and manufacturing weakness fade and recede into the rearview mirror of history. The U.S. economy builds momentum throughout 2020. The economy is once again firing on all cylinders, resulting in faster productivity growth which raises the speed limit of overall gains. Wages and incomes increase likewise increase at a faster rate. All of this results in stronger consumer spending and more business investment.

In Oregon, job gains are broad based with strong growth in all private sector industries. The unemployment rate remains lower than under the baseline scenario as individuals are able to find employment more readily and income growth accelerates. The labor force participation gap closes and even turns positive as more Oregonians enter the labor market. The increase in employment and income support a self-sustaining economic expansion in which new income fuels increased consumer spending (and debt reduction) which begets further increases in

[10] https://oregoneconomicanalysis.com/2018/11/08/oregons-energy-intensity-and-household-spending/
[11] http://oregoneconomicanalysis.wordpress.com/2012/01/23/historical-look-at-oregons-wood-product-industry
http://oregoneconomicanalysis.wordpress.com/2013/05/28/timber-counties/

employment. Such an expansion increases housing demand as newly employed households (and increasing income for existing households) find their own homes after doubling-up with family and friends during the recession. This results in new construction returns to normal levels about a year earlier than the baseline.

Mild Recession Scenario:

The slowdown in domestic economic growth continues, global GDP weakens further in part due to trade tensions and fears of a coronavirus pandemic. Financial markets get spooked and the yield curve inversion deepens. The economy suffers from a broad loss in confidence and growing aversion to risk. Real estate prices correct and the housing market stall worsens, removing one potential driver of growth. Strained trade relations result in falling exports, business confidence tumbles and so does capital spending. The U.S. dollar strengthens further, chocking off the manufacturing cycle entirely. These factors are enough weight on the recovery that by late-2020 the economy slides back into recession. Job losses ensue and while not severe – about 56,000 jobs in Oregon when it is all said and done – it takes a toll on business income, housing starts and personal income. The unemployment rate returns to nearly 7 percent. The net effect of the mild recession is an extended period of prolonged economic weakness, not unlike Japan's so-called Lost Decade(s). Although inflation is expected to remain positive, a key difference.

Severe Recession Scenario:

After expanding for 11 years at relatively lackluster growth rates, the U.S. economy falls back into recession. Industrial production declines and the slower personal income growth in the U.S. worsens. Strained trade relations develop into an all-out trade war. The Fed, already lacking in traditional monetary policy ammunition, is not able to stave off such an impact. While the catalyst may be different, the economic effect is similar to late 2008 and early 2009, although not quite as severe when the dust settles. This is little comfort when the unemployment spikes back to 9 percent and more than 150,000 Oregonians lose their jobs by early-2021.

Besides the domestic economic headwinds and Federal Reserve tightening, the likely culprit in this scenario is either a meltdown of the financial markets sparked by some geopolitical shock, or quickly rising inflation. Economic growth in the U.S., while fairly steady as of late, is not nearly strong enough to withstand an external financial shock of this magnitude, nor a Federal Reserve quickly raising rates to fight inflation. Further economic effects of a recession this size are personal income losses of around 5 percent, about three-quarters the size of the Great Recession losses in Oregon. Housing starts plummet to near historical low levels of construction and home prices decline further. On the bright side, when construction does rebound, it will result in a surge of new home building that will rise above the state's long term average level of building due to pent-up demand for housing and that the state will have under built housing during this time period.

Extended Outlook

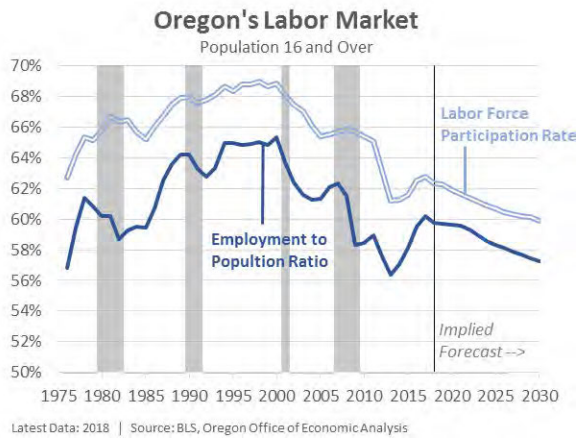
IHS Markit projects Oregon's economy to fare well relative to the rest of the country in the coming years. The state's Real Gross State Product is projected to be the seventeenth fastest among all states across the country in terms of growth with gains averaging 1.8 percent from 2019 through 2024. Total employment is expected to be the tenth strongest among all states at an annualized 0.7 percent, while manufacturing employment will be the second fastest in the country at 0.2 percent. Total personal income growth is expected to be 4.5 percent per year, the seventeenth fastest among all states, according to IHS.

Our office is equally, if not more bullish in terms of Oregon's relative growth prospects. Much of Oregon's advantage comes from population growth, specifically the ability to attract and retain young, working-age households. Even with our office's downward revision to the population outlook, we still expect Oregon see 0.9 percent annual gains through 2024. IHS forecasts Oregon's population to increase 0.8 percent. While a smaller difference that seen in recent forecasts, the impact of these differences compounds over the forecast horizon. Roughly speaking, the population forecast differences amount to 15,000 to 20,000 working-age Oregonians in a handful of years. This is not an immaterial difference. As such, our overall economic outlooks have diverged just a bit.

OEA has identified three main avenues of economic growth that are important to continue to monitor over the extended horizon: the state's dynamic labor supply, the state's industrial structure and the current number of start-ups, or new businesses.

Oregon has typically benefited from an influx of households from other states, including an ample supply of skilled workers. Households continue to move to Oregon even when local jobs are scarce, as long as the economy is equally bad elsewhere, particularly in California. Relative housing prices also contribute to migration flows in and out of the state. For Oregon's recent history – data available from 1976 – the labor force in the state has both grown faster than the nation overall and the labor force participation rate has been higher. Even as this expansion follows similar patterns, there remain potentially worrisome signs, particularly when the next recession comes.

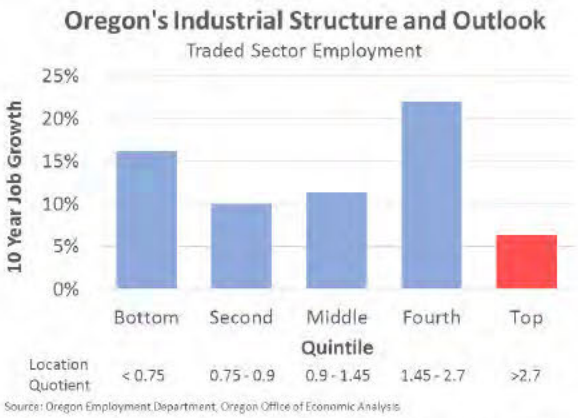
First, on the bright side, all of the recessionary-induced declines in the labor force itself have been reversed in the recent years. Oregon's labor force has never been larger. However, the participation rate may be a little lower than expected, when adjusting for the size of the population and the aging demographics. Such modeling is sensitive to assumptions but it is encouraging that much of the participation gap has closed as the expansion has endure.



A complicating factor is that Oregon is now at the point where demographics and the economy effectively offset one another. Job gains are just enough to account for the increase in Baby Boomers retiring. As such, the fact that Oregon's labor force participation rate and employment to population ratio have flattened out and even fallen somewhat in recent months is not necessarily a cause for concern. What would be more concerning is if the declines accelerated or that demographically-adjusted participation rates no longer increased as the expansion continues.

Oregon's industrial structure is very similar to the U.S. overall, even moreso than nearly all other states. That said, Oregon's manufacturing industry is larger and weighted toward semiconductors and wood products, relative to the nation which is much more concentrated in transportation equipment (autos and aerospace).

However, these industries which have been Oregon's strength in both the recent past and historically, are now expected to grow the slowest moving forward. Productivity and output from the state's technology producers is expected to continue growing quickly, however employment is not likely to follow suit. Similarly, the timber industry remains under pressure from both market based conditions and federal regulations. Barring major changes to either, the slow growth to downward trajectory of the industry in Oregon is likely to continue.

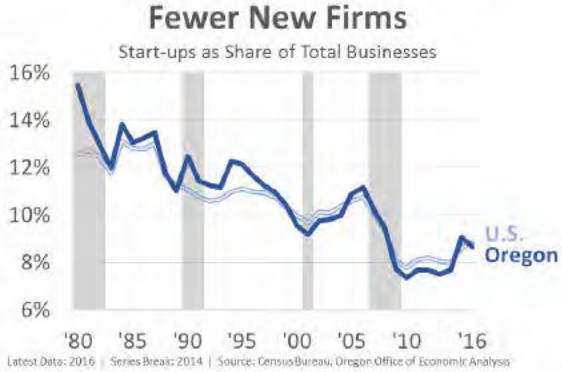


With that being said, certainly not all hope is lost. Those top industries in Oregon comprise approximately 7 percent of all statewide employment. And many industries in which Oregon has a larger concentration that then typical state are expected to perform quite well over the coming decade. These industries include management of companies, food and beverage manufacturing, published software along with some health care related firms.

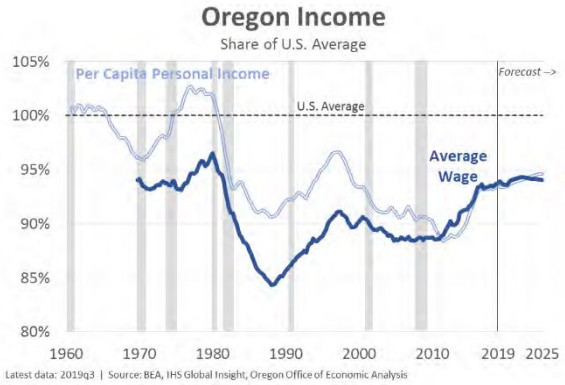
The state's real challenges and opportunities will come in industries in which Oregon does not have a relatively large concentration. These industries, like consulting, computer system design, financial investment, and scientific R&D, are expected to grow quickly in the decade ahead. To the extent that Oregon is behind the curve, then the state may not fully realize these gains if they rely more on clusters and concentrations of similar firms that may already exist elsewhere around the country.

Another area of potential concern that may impact longer term economic growth is that of new business formation. Over the past few years, the number of new business license applications with the Oregon Secretary of State have begun to grow again and even accelerate. However data available from the U.S. Census Bureau and Bureau of Labor Statistics clearly indicate that entrepreneurship and business formation remain at subdued levels and rates.

The share of all businesses that are start-ups, either in Oregon or across the nation, is effectively at an all-time low, with data starting in the late 1970s. Associated start-up employment follows a similar pattern. The concern is that new businesses are generally considered the source of innovation and new ideas, products and services that help propel economic growth. To the extent that fewer start-ups indicate that R&D more broadly is not being undertaken, slower growth is to be expected moving forward. However, if the larger firms that have won out in today's marketplace are investing in R&D and making those innovations themselves, then the worries about the number of start-ups today is overstated. It can be hard to say which is the correct view. However seeing these longer run, downward trends in new business formation warrants, at the very least, concern about future growth prospects.



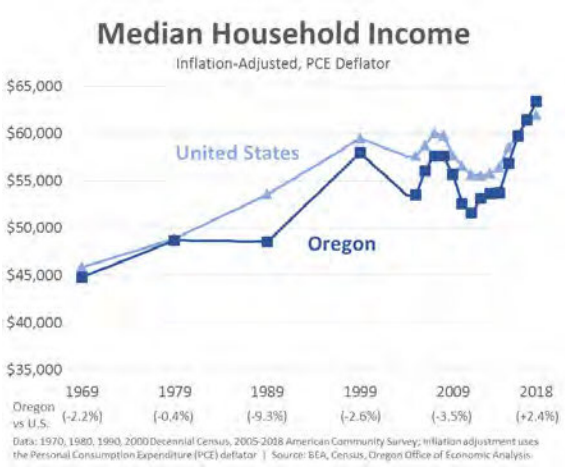
Importantly, Oregon also enjoys the long-term advantages of low electricity costs; a central location between the large markets of California, Vancouver and Asia; clean water; low business rents and living costs when compared to other Left Coast locations; and an increasingly diverse industrial base.



Finally, one long-run concern for some policymakers and think tanks has been Oregon's relatively low income and wage numbers in recent decades. Back in the heyday of the timber industry, Oregon's per capita personal income and median household income were in-line with the nation overall. At this time, Oregon's average wage was lower in part due to the industrial composition, but these lower wages were made up at the statewide level by demographics and household composition.

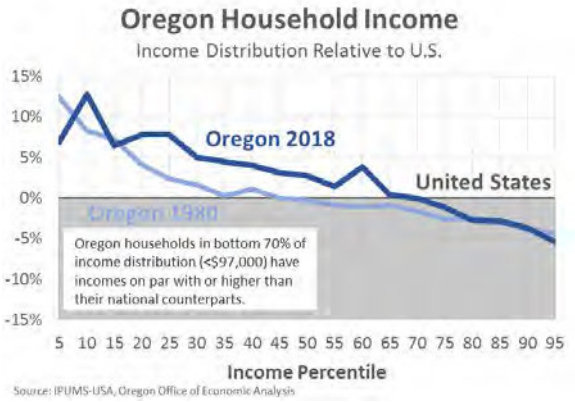
Even since the timber industry restructured following the severe early 1980s recessions, Oregon's relative incomes have been lower. The regional economy experienced a major shock and it took quite a long time to recover. However, finally, in this current economic expansion, Oregon is regaining the ground lost decades ago.

Oregon's median household income is currently at an all-time high, even after adjusting for inflation. More importantly, it now stands 2.4 percent higher than the U.S. overall. This marks the first time in more than 50 years that Oregonian incomes are higher than the nation. Similarly, average wages in Oregon are at their highest relative point since the mills closed in the early 1980s. And the state's per capita personal income is back to where it was prior to the dotcom crash in 2001.



In terms of the outlook, expectations are for Oregon's relative positions to hold steady in the coming years. The primary reason for this is that Oregon's average wages have already accelerated in recent years, even as U.S. wages are just now picking up. Our office expects Oregon's average wage to continue to increase by 4 percent per year. However as the U.S. accelerates closer to Oregon's annual rate, Oregon's growth advantage in recent years will lessen.

One major factor influencing per capita personal income trends is the relative incomes at the very top of the distribution. Make no mistake, Oregon's highest-income households have done well financially. However incomes at the top of the national distribution have increased even further. This gap among the richest households is large enough, and the incomes high enough to weigh on Oregon's overall per capita income figures. One further item to note is that different data sets peg Oregon's relative per capita income differently. The most commonly used BEA income shows Oregon's per capita income at 93% the U.S. average in recent years. The most recent IRS data (2017) shows Oregon's adjusted gross income per exemption



at 97% the U.S. average. The most recent Census data (2018) show Oregon's per capita income at 100% the U.S. average. The differences between the series are a topic our office continues to research.

Regional Comparisons

Economic growth is driven by the number of workers in a regional economy and how productive each worker is. As discussed earlier in the forecast, human capital is one type that raises worker productivity. Overall Oregon's educational attainment is solid to good. The share of working-age Oregonians with a college degree is increasing along with the country, even slightly faster. These gains are due to both migrants having higher levels of educational attainment, but also due to rising attainment among those born in Oregon as well. That said, there is considerable variation in educational attainment across the state.

Educational Attainment among Working-Age Population

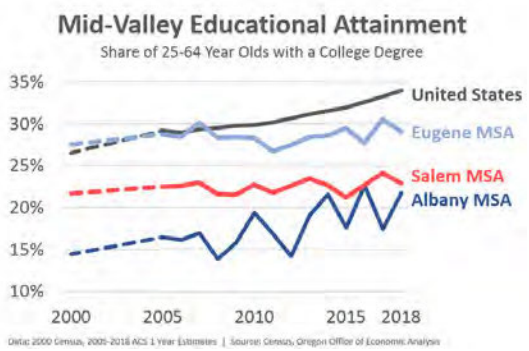
Share of All 25-64 Year Olds

2017 American Community Survey 5 Year Estimates

Geography	College Graduates	*Metro Percentile*
Corvallis MSA	55.5%	*99th*
Portland MSA	39.0%	*90th*
U.S. Metro Total	34.4%	
Bend MSA	33.3%	*75th*
Oregon	**33.1%**	
United States	**32.3%**	
Eugene MSA	29.0%	*56th*
Median U.S. Metro	27.7%	*50th*
Medford MSA	25.3%	*42nd*
Salem MSA	23.4%	*32nd*
Albany MSA	19.2%	*13th*
Grants Pass MSA	17.0%	*6th*

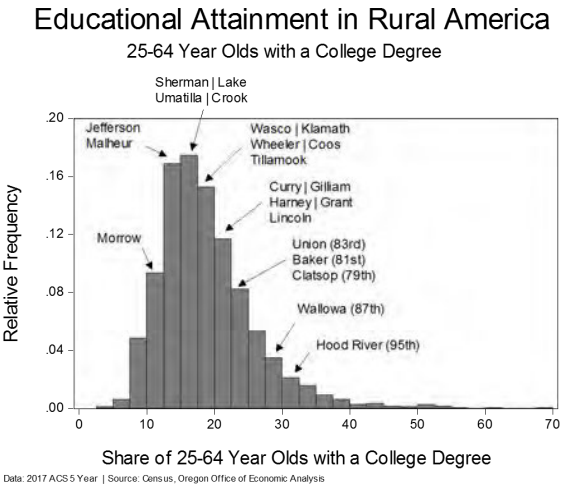
Source: Census, Oregon Office of Economic Analysis

On the upper end, the share of the working-age population with a college degree in the Corvallis MSA is among the highest in the nation. The Portland MSA has seen tremendous gains in the past decade and now ranks 18th highest among the 100 largest metros in the country. Similarly, the Bend MSA has undergone strong growth and local educational attainment now is higher than three-fourths of all U.S. metros. In rural Oregon, some places in the Gorge, along the North Coast, and in eastern Oregon have among of the highest levels of educational attainment in all of rural America.



However, one of the clear trends that has emerged in recent years is that educational attainment is not rising everywhere. Across much of the Rogue and Willamette Valleys the share of working-age residents with a college degree has essentially held steady for the past two decades.

Now, these regional economies do have above average shares of the workforce with Associate's degrees or with some college coursework. Research clearly shows that every year of schooling helps when it comes to employment opportunities and wages. As such, some of these potential concerns may be overblown when focusing just on four year degrees.



That said, while stagnant educational attainment might not be an outright barrier to growth, it is certainly an issue to watch. This goes for much of rural Oregon as well, which has solid to great attainment compared to the rest of rural America, but is likewise not seeing the gains that Bend, Corvallis and Portland are.

Why is this an issue to watch and not an outright barrier to growth? First, all regions of the state are seeing good economic growth this cycle and in recent years. Jobs and incomes are rising while poverty is falling. The lower or

stagnant levels of educational attainment do not appear to be holding back growth so far. Furthermore, there are other types of capital. When a regional economy lacks one type, it is more reliant upon the others to drive productivity and long-run growth.

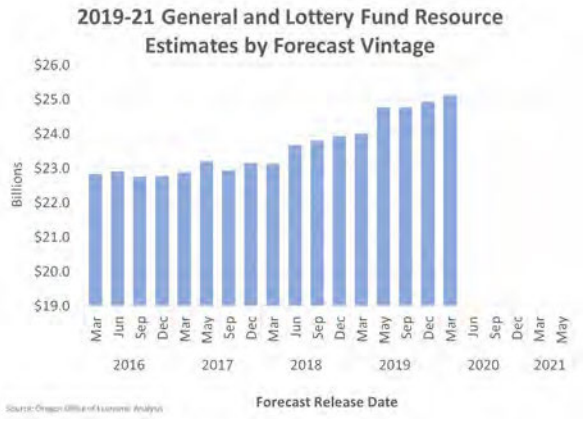
The concern is that by removing one avenue of future growth, or one source of productivity, it may at some point put a lid on future economic gains overall. Plus some of the growth in recent years is cyclical and represents digging out from the aftermath of the Great Recession. Pushing the productive capacity of the economy forward requires innovation, productivity enhancements, and a growing labor force. The pieces of the puzzle do not have to be the same size nor account for the same share, but they must fit together to drive future economic growth.

Revenue Summary

Ten years into the economic expansion, growth has slowed across many economic indicators. The same cannot be said for Oregon's primary sources of tax revenue, which continue to outstrip the performance of the underlying economy.

The primary forecasting challenge for the current biennium is to determine what portion of the recently strong tax collections is due to temporary factors that will fade away or reverse themselves in the months ahead. Even without the onset of recession, revenue growth is facing major headwinds during the current biennium. State and federal tax policies, a big kicker refund and slower economic growth will all weigh on General Fund revenues in the near term.

The longer the revenue boom persists, the more likely it becomes that permanent factors are playing a significant role in boosting tax collections. As such, revenue estimates for the current biennium have been steadily revised upward over the past two years. Estimate of personal and corporate income taxes, lottery earnings, and estate taxes are all up sharply from the Close of Session forecast.



Even so, given that job gains and population growth have both taken a step back, some moderation in state revenue growth is likely going forward. It is also likely that the unprecedented surge in collections that occurred during the last tax filing season was due in part to taxpayers shifting their payments response to federal tax law changes, and other temporary factors.

Together with tax law changes at both the state and federal levels, the uncertain economic outlook is currently injecting a considerable amount of risk into the revenue forecast. Both April tax filing seasons are yet to come in the biennium, leading to a wide range of possible outcomes. Despite this uncertainty, the March forecast reflects a relatively stable outlook, with the expected size of General Fund collections increasing by just over one percentage point.

Fortunately, Oregon is better positioned than ever before to weather a revenue downturn. Automatic deposits into the Rainy Day Fund and Education Stability Fund have added up over the decade-long economic expansion. When the projected ending balance for the current biennium is included, Oregon is expected to end the biennium with nearly $3 billion in reserves set aside, amounting to almost 14% of the two-year budget.

Longer term, revenue growth in Oregon and other states will face considerable downward pressure over the 10-year extended forecast horizon. As the baby boom population cohort works less and spends less, traditional state tax instruments such as personal income taxes and general sales taxes will become less effective, and revenue growth will fail to match the pace seen in the past.

2019-21 General Fund Revenues

Gross General Fund revenues for the 2019-21 biennium are expected to reach $21,458 million. This represents an increase of $289 million from the December 2019 forecast, and an increase of $438 million relative to the Close of Session forecast. Just under half of this increase can be traced to a stronger outlook for personal income tax collections, with additional corporate income taxes and estate taxes accounting for most of the remainder.

Table R.1

2019-21 General Fund Forecast Summary

(Millions)	2019 COS Forecast	December 2019 Forecast	March 2020 Forecast	Change from Prior Forecast	Change from COS Forecast
Structural Revenues					
Personal Income Tax	$18,283.5	$18,285.8	$18,472.6	$186.8	$189.1
Corporate Income Tax	$1,190.8	$1,325.9	$1,312.7	-$13 2	$121.9
All Other Revenues	$1,546.1	$1,557.4	$1,672.7	$115 3	$126.6
Gross GF Revenues	$21,020.4	$21,169.0	$21,457 9	$288 9	$437.5
Offsets and Transfers	-$203.5	-$209.1	-$254 3	-$45 2	-$50.8
Administrative Actions[1]	-$21.5	-$21.5	-$21 5	$0.0	$0.0
Legislative Actions	-$199.5	-$199.5	-$198 3	$1.1	$1.1
Net Available Resources	$22,914.4	$23,389.5	$23,563.2	$173.7	$648.8
Confidence Intervals					
67% Confidence	+/- 6.5%		**$1,399.0**	**$20.06B to $22.86B**	
95% Confidence	+/- 13.0%		**$2,798.1**	**$18.66B to $24.26B**	

1 Reflects cost of cashflow management actions, exclusive of internal borrowing.

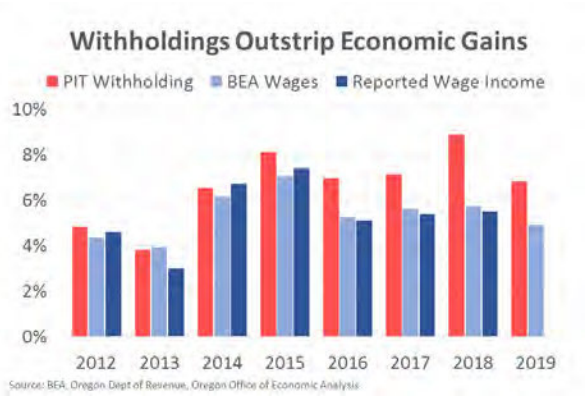
Personal Income Tax

Personal income tax collections were $2,425 million during the second quarter of fiscal year 2020, $36 million (1.5%) above the latest forecast. Compared to the year-ago level, total personal income tax collections rose by 13.1% relative to a forecast that called for an 11.4% increase. Table B.8 in Appendix B presents a comparison of actual and projected personal income tax revenues for the October-December quarter. Strong growth in collections has continued into the third quarter of fiscal year 2020.

Personal income tax collections during the 2019-21 biennium will be constrained by many factors, including a large kicker credit to be paid out this tax season. State tax reforms enacted during the 2019 session will also put downward pressure on personal income tax collections.

While the forecast continues to call for modest gains in personal income tax collections, growth rates have been revised upward relative to the December outlook. Persistently large withholding payments are the primary reason for the change.

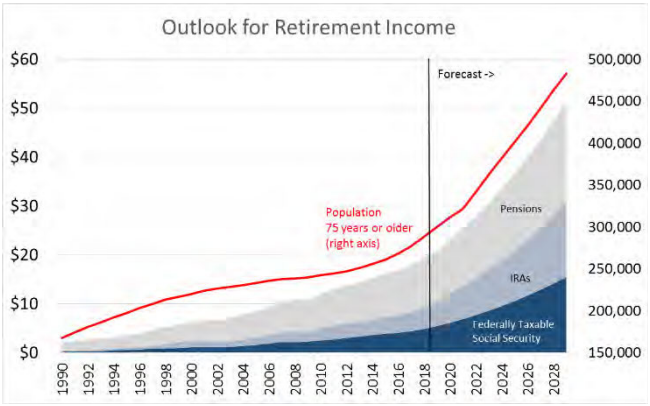
For several years, withholdings of personal income tax collections have grown significantly faster than have both the amount of wages reported on tax returns as well as measures of wages drawn from economic accounts. In the past, personal income tax withholdings have always grown in lockstep with other wage measures aside from brief periods when withholding tables were changed or when Oregon's businesses paid out large bonuses to their workers. Growth in personal income tax withholdings has been broad-based, and cannot be traced to any particular industry.



One potential factor behind the strong personal income tax withholdings could be an increase in retirement income. Although direct data on retirement withholdings is not available over time, taxpayers have been

cashing in an increasing amount of IRAs and reporting more pension income in recent years. Both of these income streams are often are subject to withholding.

Going forward, retirement income streams will account for a much larger share of overall income in Oregon as many in the baby boom population cohort leave the workforce. While this shift will lead to a lower average tax rate, it will likely support stronger withholdings for several years. In keeping with increased retirement income and other nonwage sources of household income, the outlook for withholdings has been revised upward, leading to more expected personal income tax revenue across the forecast horizon.



Corporate Excise Tax

Corporate excise tax collections equaled $144 million for the second quarter of fiscal year 2020, $39 million (21%) below the December forecast. Compared to the year-ago level, net corporate excise tax collections fell by 22% while the forecast called for a decline of only 1%. Despite this decline, corporate tax collections remain elevated well above their historical average.

While corporate tax collections are notoriously volatile, federal tax law changes have injected a good deal of uncertainty into the outlook for corporate tax payments. It is likely that the corporate tax base has become larger in Oregon. In part, firms are now recognizing more of their global income streams. Also, some employees, investors, partnerships, S-corps and sole proprietorships face a larger tax incentive to incorporate. The City of Portland and Multnomah County have both reported a surge in corporate revenues in recent months. Conversely, some C-corporations and employees will benefit from becoming pass-through entities. Accelerated depreciation provisions are also impacting the revenue stream, as is the repatriation of deferred income from multinational corporations. Given recent return data, estimates of repatriated taxable corporate income have been revised upward in the current outlook.

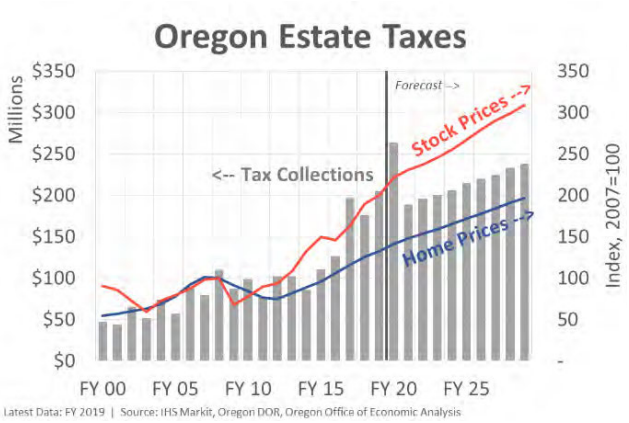
Other Sources of Revenue

Non-personal and non-corporate revenues in the General Fund account for approximately 7 percent of the total. One-fifth of this amount comes from Oregon Liquor Control Commission revenues, while estate taxes account for another fifth. In terms of forecast changes in recent biennia, estate taxes stand out as they have come in considerably above expectations. The 2019-21 biennium is no exception.

Overall the number of estates impacted by the tax is relatively steady over the past decade, both in absolute numbers and as a share of all Oregon deaths. The growth in tax collections largely reflects the increasing size of a few very large estates. Looking forward, the outlook for collections remains strong, however not quite as strong as demographics and asset markets alone suggest due to household's tax planning capabilities.

All told, General Fund revenues excluding personal and corporate taxes are expected to total $1.67 billion in 2019-21. This represents a huge upward revision of $115 million relative to the previous forecast, or +7.4 percent.

Much of this increase comes from a stronger outlook for estate taxes, which have been raised $87 million relative to last quarter. In early 2020 there have been a handful of very large estate tax payments. Monthly collections are twice as large as the previous historical record. Overall, fiscal year 2020 is expected to be 30% larger than any previous year.



Should the forecast hold, one impact of the strong estate tax collections in 2019-21 is that an expected $17.6 million will be transferred next biennium to help pay down the Oregon Public Employee Retirement System Unfunded Accrued Liability (PERS UAL). The reason is that estate tax collections this biennium are expected to be stronger than the trend growth over the previous five biennia which is the trigger for this transfer, per SB 1566 (2018).

In 2019-21, General Fund revenues excluding personal and corporate taxes are also revised higher due to stronger interest earnings ($12m) and a one-time solar-related restitution payment ($13m).

Over the extended forecast horizon, General Fund revenues excluding personal and corporate taxes are revised higher by around one percent, due to a slightly stronger estate tax forecast going forward.

Extended General Fund Outlook

Table R.2 exhibits the long-run forecast for General Fund revenues through the 2027-29 biennium. Users should note that the potential for error in the forecast increases substantially the further ahead we look.

Revenue growth in Oregon and other states will face considerable downward pressure over the 10-year extended forecast horizon. As the baby boom population cohort works less and spends less, traditional state tax instruments such as personal income taxes and general sales taxes will become less effective, and revenue growth will fail to match the pace seen in the past.

Table R.2

General Fund Revenue Forecast Summary (Millions of Dollars, Current Law)

Revenue Source	Forecast 2017-19 Biennium	% Chg	Forecast 2019-21 Biennium	% Chg	Forecast 2021-23 Biennium	% Chg	Forecast 2023-25 Biennium	% Chg	Forecast 2025-27 Biennium	% Chg	Forecast 2027-29 Biennium	% Chg
Personal Income Taxes	18,823.3	17.2%	18,472.6	-1.9%	21,746.5	17.7%	23,744.0	9.2%	25,902 2	9.1%	28,741.3	11.0%
Corporate Income Taxes	1,752.7	44.8%	1,312.7	-25.1%	1,316.3	0.3%	1,510.8	14.8%	1,767 9	17.0%	1,993.1	12.7%
All Others	1,339.3	3.9%	1,672.7	24.9%	1,420.2	#####	1,489.4	4.9%	1,560.7	4.8%	1,650.4	5.7%
Gross General Fund	21,915.3	18.1%	21,457.9	-2.1%	24,483.0	14.1%	26,744.2	9.2%	29,230 9	9.3%	32,384.8	10.8%
Offsets and Transfers	*(129.5)*		*(254.3)*		*(132.7)*		*(118.1)*		*(82.6)*		*(85.3)*	
Net Revenue	21,785.8	17.6%	21,203.6	-2.7%	24,350.3	14.8%	26,626.1	9.3%	29,148 3	9.5%	32,299.5	10.8%

Tax Law Assumptions

The revenue forecast is based on existing law, including measures and actions signed into law during the 2019 Oregon Legislative Session. OEA makes routine adjustments to the forecast to account for legislative and other

actions not factored into the personal and corporate income tax models. These adjustments can include expected kicker refunds, when applicable, as well as any tax law changes not yet present in the historical data. A summary of actions taken during the 2019 Legislative Session can be found in Appendix B Table B.3. For a detailed treatment of the components of the 2019 Legislatively Enacted Budget, see: LFO 2019-21 Budget Summary.

Although based on current law, many of the tax policies that impact the revenue forecast are not set in stone. In particular, sunset dates for many large tax credits have been scheduled. As credits are allowed to disappear, considerable support is lent to the revenue outlook in the outer years of the forecast. To the extent that tax credits are extended and not allowed to expire when their sunset dates arrive, the outlook for revenue growth will be reduced. The current forecast relies on estimates taken from the Oregon Department of Revenue's 2019-21 Tax Expenditure Report together with more timely updates produced by the Legislative Revenue Office.

General Fund Alternative Scenarios

The latest revenue forecast for the current biennium represents the most probable outcome given available information. OEA feels that it is important that anyone using this forecast for decision-making purposes recognize the potential for actual revenues to depart significantly from this projection.

Currently, the overwhelming downside risk facing the revenue outlook is the threat that the U.S. economic recovery will lose steam in the near term. Such a scenario, however it played out, would result in drastic revenue losses. Two recessionary scenarios are displayed in table R.2b. In a severe recession, biennial revenues could come in as much as $4.8 billion lower than predicted over the next two biennia[12].

TABLE R2b — **March 2020**

Alternative Cyclical Revenue Forecast ($ millions)

	2017-19 BN		2019-21 BN		2021-23 BN		2023-25 BN		2025-27 BN	
Baseline Case	**FY '18**	**FY '19**	**FY '20**	**FY '21**	**FY '22**	**FY '23**	**FY '24**	**FY '25**	**FY '26**	**FY '27**
Personal Income										
Level	206.7	218.6	228.6	239.6	251.5	263.7	274.7	289.9	304.3	319.2
% change	*6.0%*	*5.8%*	*4.6%*	*4.8%*	*5.0%*	*4.8%*	*4.2%*	*5.5%*	*5.0%*	*4.9%*
Taxes										
Personal Income	8,872	9,909	8,740	9,733	10,699	11,047	11,593	12,151	12,616	13,286
Corporate Excise & Income	739	927	731	582	630	686	730	781	854	914
Other General Fund	633	706	801	872	702	718	735	754	772	789
Total General Fund	10,244	11,542	10,272	11,186	12,032	12,451	13,058	13,687	14,242	14,989
% change	*4.3%*	*12.7%*	*-11.0%*	*8.9%*	*7.6%*	*3.5%*	*4.9%*	*4.8%*	*4.1%*	*5.2%*
Moderate Recession	**FY '18**	**FY '19**	**FY '20**	**FY '21**	**FY '22**	**FY '23**	**FY '24**	**FY '25**	**FY '26**	**FY '27**
Personal Income										
Level	206.7	218.6	223.1	228.1	242.0	256.7	269.6	286.6	301.6	316.9
% change	*6.0%*	*5.8%*	*2.0%*	*2.2%*	*6.1%*	*6.1%*	*5.1%*	*6.3%*	*5.2%*	*5.1%*
Taxes										
Personal Income	8,872	9,909	8,442	9,078	10,134	10,636	11,291	11,959	12,450	13,132
Deviation from baseline	*0*	*0*	*-298*	*-654*	*-565*	*-411*	*-302*	*-192*	*-166*	*-155*
Corporate Excise & Income	739	927	695	526	583	649	703	763	839	900
Deviation from baseline	*0*	*0*	*-36*	*-56*	*-48*	*-36*	*-27*	*-18*	*-15*	*-13*
Other General Fund	633	706	801	872	702	718	735	754	772	789
Total General Fund	10,244	11,542	9,938	10,476	11,419	12,003	12,729	13,477	14,061	14,821
% change	*4.3%*	*12.7%*	*-13.9%*	*5.4%*	*9.0%*	*5.1%*	*6.0%*	*5.9%*	*4.3%*	*5.4%*
Deviation from baseline	*0*	*0*	*-334*	*-710*	*-612*	*-448*	*-329*	*-209*	*-181*	*-168*
Biennial Deviation		*0*		*-1 044*		*-1 060*		*-539*		*-349*
Severe Recession	**FY '18**	**FY '19**	**FY '20**	**FY '21**	**FY '22**	**FY '23**	**FY '24**	**FY '25**	**FY '26**	**FY '27**
Personal Income										
Level	206.7	218.6	208.4	216.2	232.7	249.8	265.4	285.1	300.0	315.3
% change	*6.0%*	*5.8%*	*-4.7%*	*3.8%*	*7.6%*	*7.4%*	*6.2%*	*7.4%*	*5.2%*	*5.1%*
Taxes										
Personal Income	8,872	9,909	7,655	8,406	9,581	10,236	11,043	11,870	12,357	13,035
Deviation from baseline	*0*	*0*	*-1 085*	*-1 326*	*-1 118*	*-812*	*-550*	*-281*	*-259*	*-252*
Corporate Excise & Income	739	927	601	469	536	614	680	755	830	891
Deviation from baseline	*0*	*0*	*-130*	*-113*	*-94*	*-72*	*-49*	*-26*	*-24*	*-23*
Other General Fund	633	706	801	872	702	718	735	754	772	789
Total General Fund	10,244	11,542	9,057	9,746	10,819	11,568	12,459	13,380	13,960	14,714
% change	*4.3%*	*12.7%*	*-21.5%*	*7.6%*	*11.0%*	*6.9%*	*7.7%*	*7.4%*	*4.3%*	*5.4%*
Deviation from baseline	*0*	*0*	*-1 215*	*-1 440*	*-1 212*	*-884*	*-599*	*-307*	*-283*	*-275*
Biennial Deviation		*0*		*-2 655*		*-2 096*		*-906*		*-557*

Corporate Activity Tax

HB 3427 (2019) created a new state revenue source by implementing a corporate activity tax (CAT) that went into effect January 2020. The tax is expected to generate $1.6 billion in revenue in 2019-21 and $2.8 billion in 2021-23. These revenues are dedicated to spending on education. The legislation also included personal income

[12] The methodology for computing alternative scenarios has been changed to reflect recent work done by the Legislative Revenue Office. Assumptions: Recessions begin in 2019 and return to baseline income by 2026. The moderate recession scenario assumes personal income growth will be reduced by one-half relative to the baseline in 2019 and 2020. The severe recession scenario assumes personal income will decline in 2019 by as much as it did in 2009. The percentage deviation in personal income taxes is 1.4 times the deviation in personal income. The percentage deviation in corporate income taxes is 2.0 times the deviation in personal income.

tax rate reductions, reducing General Fund revenues. The net impact of HB 3427 was designed to generate approximately $1 billion per year in new state resources, or $2 billion per biennium.

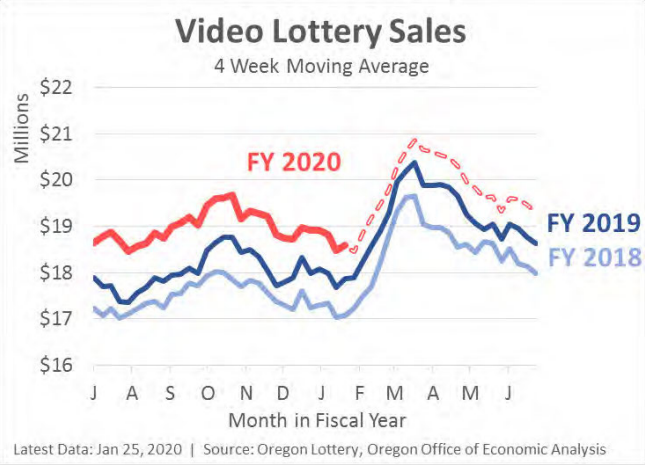
In terms of the big picture economic impacts, as always, our office starts with the Legislative Revenue Office's (LRO) impact statement and any Oregon Tax Incidence Model (OTIM) results LRO found. At the top line, OTIM results find minimal macroeconomic impacts across Oregon due to the new tax. Personal income, employment, population, investment and the like are less than one-tenth of a percent different under the new tax relative to the baseline. The model results also show that price levels (inflation) will increase above the baseline as some of the CAT is pushed forward onto consumers. Of course these top line, statewide numbers mask the varying experiences that individual firms and different industries will experience. There are likely to be some businesses or sectors that experience large impacts from the CAT, or where pyramiding increases prices to a larger degree, while other businesses or sectors see relatively few impacts.

Today there exists no real economic or revenue data to evaluate either the revenue estimates or the economic impact. Businesses will make quarterly payments throughout 2020, however it really will not be until after the April 2021 annual tax returns are processed that we will have a complete look at the revenue, taxpayer behavior or the like. As data does become available, our office, in conjunction with our advisors and LRO will work together to better understand the revenue and its impact. Our office will update the outlook accordingly at that time. Until then, the forecast adopts the initial LRO revenue impact statement estimates as the best available.

Table B.12 in Appendix B has details on 10 year forecast and the allocation of resources, while the personal income tax reductions are built into the General Fund forecasts shown in Tables B.1 and B.2.

Lottery Earnings

Overall the lottery outlook is raised modestly relative to last quarter. Available resources in the current 2019-21 biennium are revised $9.7 million higher (0.7%). One quarter of this change is due to stronger than expected sales in recent months while three quarters is due to a stronger outlook.



Video lottery sales growth is slowing some, tapering to around 4 percent year-over-year in recent weeks. While in-line with the general nature of previous outlooks, this growth remains above expectations. Moving forward, the outlook calls for some further slowing in video sales, down to around 3 percent year-over-year. When combined with a stronger economic forecast, the overall lottery outlook is raised both in the near-term and long-run.

Available lottery resources in the 2021-23 biennium are revised upward by $11.5 million (+0.7%) while the 2023-25 is revised higher by $14.2 million (+0.8). The out-biennia are up a larger amount, around $45 million or 2.5%. Previous forecasts had video lottery sales growth slowing considerably in the out-years. The current forecast has video lottery growth slowing some, but keeping closer to overall gains in personal income.

No adjustments were made to the outlook for sports betting as the game has only been available for a few months. To date, gaming revenues are a little below but profit margins slightly higher than initial expectations. It is too soon to know how accurate the first year projections are overall, particularly for a brand new legal market

that is continuing to develop. In 2019-21, Scoreboard (sports betting) is projected to generate $8.3 million in available resources, which are dedicated to the PERS Employer Incentive Fund per SB 1049 (2019).

Longer term, sports betting is forecasted to generate $29.4 million in 2021-23 and $42.2 million 2023-25 for the Employer Incentive Fund. These estimates are highly uncertain and come from myriad assumptions about the size of the sports betting market overall, industry competition, player adoption rates, administrative costs and the like. The research team at Lottery provided the underlying estimates of the handle, gross gaming revenue and expenses. Our office worked to extend the analysis over the full forecast horizon and to translate the gaming revenue estimates into available resources.

We also know that additional uncertainty arises from the volatility of revenues as wagers come in heavy on one team or another. For this reason, the forecast also assumes that Lottery will build reserves out of the sports betting revenue to help account for the expected volatility.

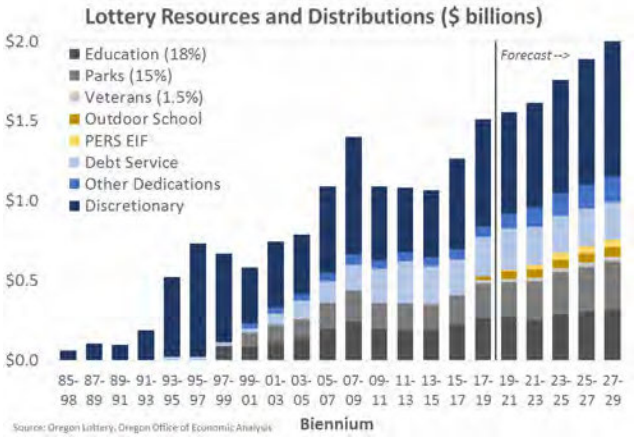
These figures have been discussed among the Lottery forecast advisory group and represent just a first step in incorporating sports betting revenue into the outlook. As actual sales data comes in, our office, along with the Oregon Lottery, Oregon Legislative Fiscal and Revenue Offices, and the state CFO's office will discuss trends, issues and risks. We will update the outlook accordingly.

Lottery Outlook and Distributions

Big picture issues to watch include broader national trends in gaming markets, demographic preferences for recreational activities, and to what extent consumers increase the share of their incomes spent on gaming. In much of the past decade, consumers have remained cautious with their disposable income. Increases in spending on gaming have largely matched income growth.

Over the long-run our office expects increased competition for household entertainment dollars, increased competition within the gaming industry, and potentially shifts in generational preferences and tastes when it comes to gaming. As such, our outlook for video lottery sales is continued growth, however at a rate that is slightly slower than overall personal income growth. Lottery sales will continue to increase as Oregon's population and economy grows, however video lottery sales will likely be a slightly smaller slice of the overall pie.

Finally, in recent years Oregon voters approved two new amendments for where lottery resources are to be spent. The Outdoor School Education Fund is set to receive the lesser of 4 percent of net proceeds or $5.5 million per quarter ($44 million per biennium), adjusted for inflation. The Veterans' Services Fund is set to receive 1.5 percent of net proceeds.



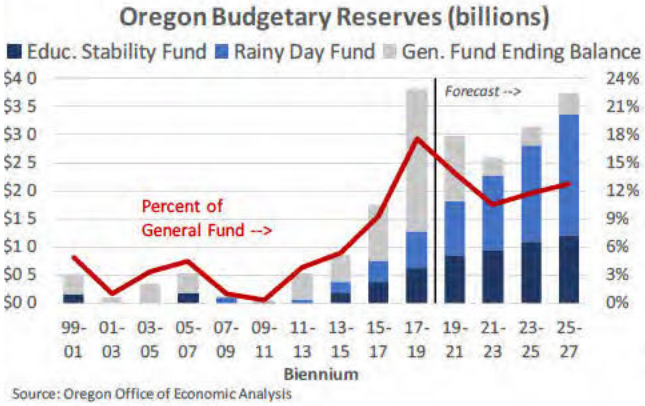
For more on the Lottery and overall gaming outlook, see our office's report[13].

The full extended outlook for lottery earnings can be found in Table B.9 in Appendix B.

Budgetary Reserves

The state currently administers two general reserve accounts, the Oregon Rainy Day Fund14 (ORDF) and the Education Stability Fund15 (ESF). This section updates balances and recalculates the outlook for these funds based on the March revenue forecast.

As of this forecast the two reserve funds currently total a combined $1.35 billion. At the end of the current 2019-21 biennium, they will total $1.82 billion.



Effective Reserves ($ millions)

	January 2020	*End 2019-21*
ESF	$678.8	$860.3
RDF	$675.1	$962.8
Reserves	$1,353.9	$1,823.1
Ending Balance	$1,153.8	$1,153.8
Total	**$2,507.6**	**$2,976.8**
% of GF	11.7%	13.9%

The forecast for the ORDF includes two deposits for this biennium relating to the General Fund ending balance from the previous biennium (2017-19). A deposit of $198.3 million is expected in 2020 after the accountants close the books. Additionally a $64.0 million deposit relating to the increased corporate taxes from Measure 67 is expected at the end of the biennium. All told, at the end of 2019-21 the ORDF will total $962.8 million.

The forecast for the ESF calls for $240.6 million in deposits during the 2019-21 biennium based on the current Lottery forecast. This would bring the ESF balance to $860.3 million at the end of the current biennium. The ESF is forecasted to reach its cap of 5% of the previous biennium's General Fund revenues at the end of FY2022. Once the cap it reached, transfers accrue to the Capital Matching Account.

[13] https://oregoneconomicanalysis.com/2019/02/13/lottery-and-gaming-outlook-2019/

[14] The ORDF is funded from ending balances each biennium, up to one percent of appropriations. The Legislature can deposit additional funds, as it did in first populating the ORDF with surplus corporate income tax revenues from the 2005-07 biennium. The ORDF also retains interest earnings. Withdrawals from the ORDF require one of three triggers, including a decline in employment, a projected budgetary shortfall, or declaration of a state of emergency, plus a three-fifths vote. Withdrawals are capped at two-thirds of the balance as of the beginning of the biennium in question. Fund balances are capped at 7.5 percent of General Fund revenues in the prior biennium.

[15] The ESF gained its current reserve structure and mechanics via constitutional amendment in 2002. The ESF receives 18 percent of lottery earnings, deposited on a quarterly basis – 10% of which are deposited in the Oregon Growth sub-account. The ESF does not retain interest earnings. The ESF has similar triggers as the ORDF, but does not have the two-thirds cap on withdrawals. The ESF balance is capped at five percent of General Fund revenues collected in the prior biennium.

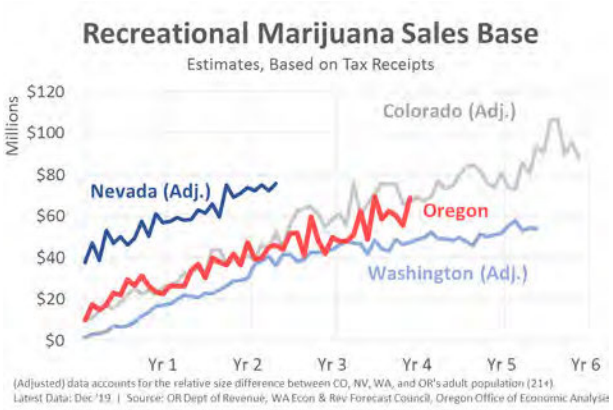
Together, the ORDF and ESF are projected to have a combined balance of $1.82 billion at the close of the 2019-21 biennium. Provided the General Fund ending balance remains unallocated, total effective reserves at the end of 2019-21 would total nearly $3 billion, or 13.9 percent of current revenues.

Such levels of reserve balances are bigger than Oregon has ever been able to accumulate, at least in the state's recent history. Such reserves would likely be just sufficient enough to withstand a typical recession's impact on state revenues, but not likely enough to account for the increase in public services and programs during downturns. That said, reserves of approximately 7 percent are generally accepted to withstand a medium sized recession. Oregon now has reached that threshold.

B.10 in Appendix B provides more details for Oregon's budgetary reserves.

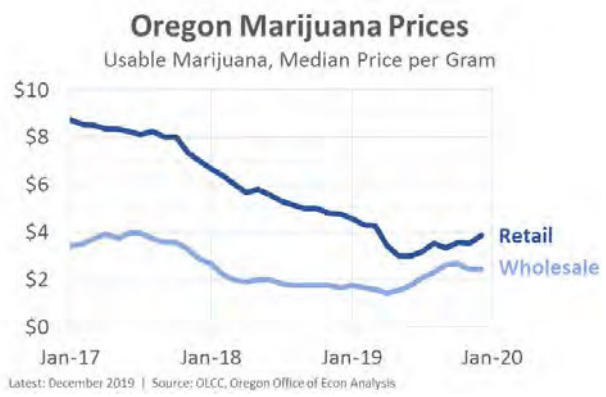
Recreational Marijuana Tax Collections

The underlying outlook for recreational marijuana sales and tax collections remains intact and largely unchanged. Tax collections in recent months have largely tracked expectations, although a few million to the high side, resulting in a minor upward revision to 2019-21 available resources. No other changes have been made to the underlying sales forecast.



That said, issues and risks abound. As discussed further in the December 2019 forecast[16], a potential vaping ban would impact the sales forecast while the timing of transfers to programs is impacted by quickly and accurately firms file their tax returns and they are processed by the Oregon Department of Revenue.

Prices are an issue that could have long-run impacts. As our office has discussed every quarter since we began developing the recreational marijuana forecast, prices are a big risk to the outlook. Oregon levies its recreational marijuana tax based on the price of the product. As such if prices fall, then the state receives less tax revenue for every ounce sold, or every edible purchased. Over the past couple of years this is exactly what has happened. Total state tax collections leveled off throughout 2018 and into early 2019, however the relatively stagnant topline masked big price declines and increases in quantities sold.



However, in the past year prices have risen, leading to higher tax collections but slower gains in the volume of products sold. This is certainly the case for usable marijuana where wholesale prices are up around 50 percent and retail prices more like 25 percent since the summer.

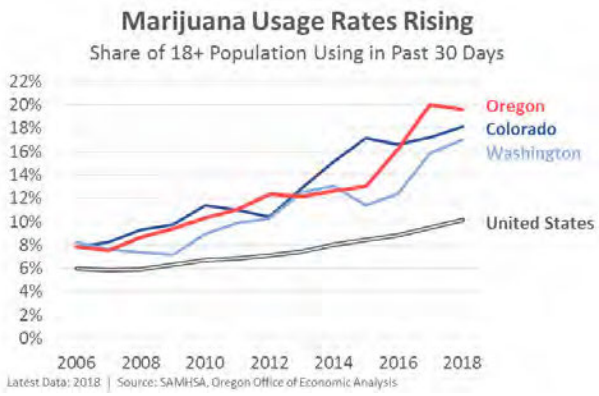
This rebound in prices is likely the bounce back following the large supply glut in recent years. As that inventory is sold or converted to other forms like concentrates, extracts, edibles and the like, prices are rising as the

[16] https://digital.osl.state.or.us/islandora/object/osl%3A939177

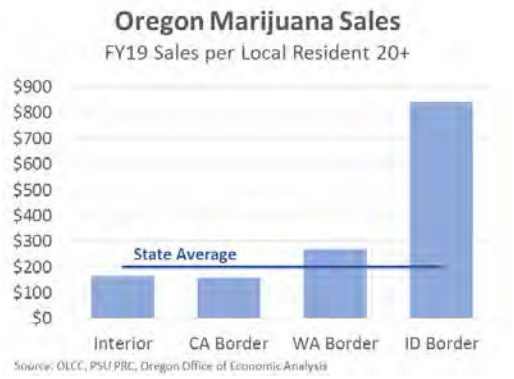
market works to find a better equilibrium between consumer demand and industry supply. A recent report by the Oregon Liquor Control Commission finds that inventory levels remain high for concentrates and extracts indicating that the backlog was likely converted into these forms, which have a longer shelf life.

Looking forward, Oregon is posed for strong growth in the coming years as the state's population, household incomes, and marijuana usage rates all increase.

The latest survey of drug usage across the country shows that Oregon remains the state with the highest report usage of marijuana among adults in the past year, and number two behind Vermont for reported usage among adults in the most month. The 2018 survey results are essentially unchanged from 2017. Whether this is simply noise in the year-to-year changes or is indicative that the market may flatten out as social acceptance and usage rates top out is still yet to be determined. Besides the overall usage rate, black and medical market conversions should boost recreational sales and tax collections as well in the years ahead.



One other source of recreational sales and tax collections comes from nonresidents. Oregon sales in counties along the borders with Idaho and Washington are above average and larger than can be explained by local socio-economic conditions, things like population, incomes and the like. Much of these higher level of sales per capita are likely due to the so-called border effect, a well-researched topic and issue that arise when neighboring jurisdictions have different laws and taxes for the same industry or product. See our office's recent report[17] for more on the marijuana border effects in the Pacific Northwest.



All told, the outlook remains highly uncertain with substantial upside and downside risks. These risks include not only usage rates and prices, but shifts in supply and regulations that impact product availability. Additionally potential actions by the federal government remains a large risk as marijuana is a controlled substance and leakage into other states a large concern. Furthermore, the federal legalization of hemp introduces yet another risk to the outlook. To the extent that consumers choose to purchase CBD products, which have many of the same purported medical benefits as cannabis but without the psychoactive component, then these widely available products may gain market share at the expense of the Oregon taxed recreational marijuana products only available at licensed retailers.

See Table B.11 in Appendix B for a full breakdown of distributions for recreational marijuana tax collections. Note that these distributions are based on current law.

[17] https://oregoneconomicanalysis.com/2020/01/17/fun-friday-more-marijuana-border-effects/

POPULATION AND DEMOGRAPHIC OUTLOOK

Population and Demographic Summary

Oregon's population count on April 1, 2010 was 3,831,074. Oregon gained 409,550 persons between the years 2000 and 2010. The population growth during the decade of 2000 to 2010 was 12.0 percent, down from 20.4 percent growth from the previous decade. Oregon's rankings in terms of decennial growth rate dropped from 11th between 1990 and 2000 to 18th between 2000 and 2010. Oregon's national ranking, including D.C., in population growth rate was 12th between 2010 and 2019 lagging behind all of our neighboring states, except California. Slow population growth during the decade preceding the 2010 Census characterized by double recessions probably cost Oregon one additional seat in the U.S. House of Representatives. Actually, Oregon's decennial population growth rate during the most recent census decade was the second lowest since 1900. As a result of economic downturn and sluggish recovery that followed, Oregon's population increased at a slow pace in the recent past. However, Oregon's current population is showing strong growth as a consequence of state's strong economic recovery. Population growth between 2018 and 2019 was 13th fastest in the nation. Due to this better than average growth on national scale, Oregon will most likely get an additional seat in the U.S. House of Representatives. Based on the current forecast, Oregon's population of 4.236 million in 2019 will reach 4.612 million in the year 2029 with an annual rate of growth of 0.8 percent between 2019 and 2029.

Oregon's economic condition heavily influences the state's population growth. Its economy determines the ability to retain existing work force as well as attract job seekers from national and international labor market. As Oregon's total fertility rate remains below the replacement level and number of deaths continue to rise due to aging population, long-term growth comes mainly from net in-migration. Working-age adults come to Oregon as long as we have favorable economic and living conditions. During the 1980s, which include a major recession and a net loss of population during the early years, net migration contributed to 22 percent of the population change. On the other extreme, net migration accounted for 76 percent of the population change during the booming economy of early 1990s. This share of migration to population change declined to 32 percent in 2010, lowest since early 1980s when we actually had negative net migration for several years. As a sign of slow to modest economic gain and declining natural increase (births minus deaths), the ratio of net migration-to-population change has registered at 87 percent in 2019 and will continue to rise throughout the forecast horizon. By 2029, all of Oregon's population growth and more will come from the net migration due to the combination of continued high net migration, decline in the number of births, and the rise in the number of deaths. The natural increase of population, defined as the numbers of births minus deaths, will actually turn negative by the end of the forecast period due to the below replacement level fertility and increase in the number of deaths associated with the increase in the elderly population. With Oregon's favorable economic and environmental conditions, high level of net migration into Oregon will continue. Not too far into the future, migration will be solely responsible for Oregon's population growth.

Age structure and its change affect employment, state revenue, and expenditure. Demographics are the major budget drivers, which are modified by policy choices on service coverage and delivery. Growth in many age groups will show the effects of the baby-boom and their echo generations during the forecast period of 2019-2029. It will also reflect demographics impacted by the depression era birth cohort combined with changing migration of working age population and elderly retirees through history. After a period of slow growth during the 1990s and early 2000s, the elderly population (65+) has picked up a faster pace of growth and will continue a very high level as the baby-boom generation continue to enter this age group combined with the attrition of

small depression era cohort due to death. However, this age cohort seems to have hit the highest point and will continue a high but diminishing rate of growth. The average annual growth of the elderly population will be 2.7 percent during the 2019-2029 forecast period. Different age groups among the elderly population show quite varied and fascinating growth trends. The youngest elderly (aged 65-74), which has been growing at an extremely fast pace in the recent past, will exhibit a tendency to slow down in the future. The annual growth rate of this youngest elderly will exceed 3 percent in the near future due to the direct impact of the baby-boom generation entering the retirement age and smaller pre-baby boom cohort exiting the 65-74 age group. This fast paced growth rate will taper off to negative growth by the end of the forecast period as a sign of end of the baby-boom generation transitioning to elderly age group. Reversing several years of slow growth and a period of shrinking population, the elderly aged 75-84 started to show a positive growth as the effect of depression era birth-cohort has dissipated. An unprecedented fast pace of growth of population in this age group has started as the baby-boom generation is starting to mature into 75-84 age group. Annual growth rate during the forecast period of 2019-2029 is expected to be unusually high 5.3 percent. The oldest elderly (aged 85+) will continue to grow at a slow but steady rate in the near future due to the combination of cohort change, continued positive net migration, and improving longevity. The average annual rate of growth for this oldest elderly over the forecast horizon will be 3.2 percent. An unprecedented growth in oldest elderly will commence near the end of the forecast horizon as the fast growing 75-84 age group population transition into this oldest elderly age cohort. As a sign of massive demographic structural change of Oregon's population, starting in 2023 the number of elderly population will exceed the number of children under the age of 18. To illustrate the contrast, in 1980 elderly population numbered less than half of the number of children in Oregon.

As the baby-boom generation matures out of oldest working-age cohort combined with slowing net migration, the once fast-paced growth of population aged 45-64 has gradually tapered off to below zero percent rate of growth by 2012 and has remained and will remain at slow or below zero growth phase for several years. The size of this older working-age population will see only a small increase by the end of the forecast period. The 25-44 age group population is recovering from several years of declining and slow growing trend. The decline was mainly due to the exiting baby-boom cohort. This age group has seen positive but slow growth starting in the year 2004 and will increase by 1.1 percent annual average rate during the forecast horizon mainly because of the exiting smaller birth (baby-bust) cohort being replaced by larger baby-boom echo cohort. The young adult population (aged 18-24) will remain nearly unchanged over the forecast period. Although the slow or stagnant growth of college-age population (age 18-24), in general, tend to ease the pressure on public spending on higher education, but college enrollment typically goes up during the time of very competitive job market, high unemployment, and scarcity of well-paying jobs when even the older people flock back to colleges to better position themselves in a tough job market. The growth in K-12 population (aged 5-17) will remain very low in the near future and will see negative growth for the rest of the forecast years. This will translate into slow growth or even decline in the school enrollments. On average for the forecast period, this school-age population will actually decline by -0.4 percent annually. The growth rate for children under the age of five has remained below or near zero percent in the recent past due to the sharp decline in the number of births. Although the number of children under the age of five declined in the recent years, the demand for child care services and pre-Kindergarten program will be additionally determined by the labor force participation and poverty rates of the parents.

Overall, elderly population over age 65 will increase rapidly whereas the number of children actually decline over the forecast horizon. The number of working-age adults in general will show fast paced growth after the

year 2023. Hence, based solely on demographics of Oregon, demand for public services geared towards children and young adults will likely to decline or increase at a slower pace, whereas demand for elderly care and services will increase rapidly.

Procedure and Assumptions

Population forecasts by age and sex are developed using the cohort-component projection procedure. The population by single year of age and sex is projected based on the specific assumptions of vital events and migrations. Oregon's estimated population of July 1, 2010 based on the most recent decennial census is the base for the forecast. To explain the cohort-component projection procedure very briefly, the forecasting model "survives" the initial population distribution by age and sex to the next age-sex category in the following year, and then applies age-sex-specific birth and migration rates to the mid-period population. Further iterations subject the in-and-out migrants to the same mortality and fertility rates.

Populations by age-sex detail for the years 2000 through 2009, called intercensal estimates, in the tables in Appendix C are developed by OEA based on 2000 and 2010 censuses. Post-censal population totals for the years 2010 through 2019 are from the Population Research Center, Portland State University. The numbers of births and deaths through 2018 are from Oregon's Center for Health Statistics. All other numbers and age-sex detail are generated by OEA.

Annual numbers of births are determined from the age-specific fertility rates projected based on Oregon's past trends and past and projected national trends. Oregon's total fertility rate is assumed to be 1.6 per woman in 2019 and this rate is projected to remain well below the replacement level of 2.1 children per woman during the forecast period, tracking below the national rate.

Life Table survival rates are developed for the year 2010. Male and female life expectancies for the 2010-2029 period are projected based on the past three decades of trends and national projected life expectancies. Gradual improvements in life expectancies are expected over the forecast period. At the same time, the difference between the male and female life expectancies will continue to shrink. The male life expectancy at births of 77.4 and the female life expectancy of 81.8 in 2010 are projected to improve to 79.4 years for males and 83.5 years for females by the year 2029.

Estimates and forecasts of the number of net migrations are based on the residuals from the difference between population change and natural increase (births minus deaths) in a given forecast period. The migration forecasting model uses Oregon's employment, unemployment rates, income/wage data from Oregon and neighboring states, and past trends. Distribution of migrants by age and sex is based on detailed data from the American Community Survey. The annual net migration between 2019 and 2029 is expected to remain in the range of 35,760 to 38,300, averaging 37,100 persons annually. In the recent past, slowdown in Oregon's economy resulted in smaller net migration and slow population growth. Estimated population growth and net migration rates in 2010 and 2011 were the lowest in over two decades. Migration is intrinsically related to economy and employment situation of the state. Still, high unemployment and job loss in the recent past have impacted net migration and population growth, but not to the extent in the early 1980s. Main reason for this is the fact that other states of potential destination for Oregon out-migrants were not faring any better either, limiting the potential destination choices. The role of net migration in Oregon's population growth will get more prominence as the natural increase will decline considerably due to rapid increase in the number of deaths associated with aging population and decline in the number of births largely due to the decline in fertility rate.

APPENDIX A: ECONOMIC FORECAST DETAIL

Table A.1 – Employment Forecast Tracking

Total Nonfarm Employment, 4th quarter 2019

(Employment in thousands, Annualized Percent Change)

	Preliminary Estimate		Forecast		Forecast Error		Y/Y Change
	level	% ch	level	% ch	level	%	% ch
Total Nonfarm	1,950.5	1.5	1,950.3	1.5	0.1	0.0	1.3
Total Private	1,652.6	2.0	1,650.3	1.5	2.2	0.1	1.3
Mining and Logging	6.8	(0.5)	7.1	9.3	(0.3)	(3.6)	(4.8)
Construction	109.8	1.8	108.8	0.8	0.9	0.9	2.3
Manufacturing	198.4	1.5	199.4	(0.1)	(1.0)	(0.5)	0.4
Durable Goods	137.1	1.4	137.7	0.4	(0.6)	(0.4)	(0.4)
Wood Product	23.3	4.0	23.2	0.3	0.0	0.1	(1.4)
Metals and Machinery	40.2	1.2	40.4	0.2	(0.2)	(0.5)	0.4
Computer and Electronic Product	38.6	(0.5)	38.7	0.6	(0.1)	(0.4)	0.1
Transportation Equipment	12.6	0.1	12.9	(0.7)	(0.3)	(2.4)	0.9
Other Durable Goods	22.5	3.2	22.4	1.2	0.1	0.3	(2.3)
Nondurable Goods	61.3	1.6	61.7	(1.0)	(0.5)	(0.8)	2.2
Food	29.6	2.4	29.8	(3.1)	(0.1)	(0.4)	(0.2)
Other Nondurable Goods	31.6	0.8	32.0	0.9	(0.3)	(1.1)	4.5
Trade, Transportation & Utilities	358.7	1.9	356.2	0.1	2.5	0.7	1.4
Retail Trade	209.6	0.5	209.1	(0.2)	0.5	0.2	(0.6)
Wholesale Trade	76.7	2.7	76.8	1.1	(0.0)	(0.0)	3.4
Transportation, Warehousing & Utilities	72.4	5.1	70.3	(0.3)	2.0	2.9	5.6
Information	35.3	3.3	34.6	0.9	0.7	2.1	1.3
Financial Activities	103.7	1.8	103.4	1.3	0.3	0.3	1.3
Professional & Business Services	255.3	2.7	256.7	3.2	(1.5)	(0.6)	1.3
Educational & Health Services	304.1	0.9	305.5	2.8	(1.4)	(0.5)	2.0
Educational Services	37.0	0.4	36.7	0.0	0.3	0.8	1.2
Health Services	267.1	0.9	268.8	3.2	(1.7)	(0.6)	2.1
Leisure and Hospitality	216.0	4.2	214.0	1.9	2.0	0.9	1.4
Other Services	64.6	0.9	64.7	0.2	(0.1)	(0.1)	0.3
Government	297.9	(1.2)	300.0	1.5	(2.1)	(0.7)	0.9
Federal	28.4	(3.7)	28.5	(10.5)	(0.0)	(0.2)	0.7
State	39.8	(4.2)	39.8	(2.1)	0.1	0.1	1.6
State Education	0.8	5.1	0.9	(7.0)	(0.1)	(7.3)	(1.9)
Local	229.7	(0.4)	231.8	3.7	(2.1)	(0.9)	0.8
Local Education	133.0	2.4	131.0	(1.8)	2.0	1.5	0.3

Table A.2 – Short-Term Oregon Economic Summary

Oregon Forecast Summary

	Quarterly					Annual					
	2019:4	2020:1	2020:2	2020:3	2020:4	2018	2019	2020	2021	2022	2023
Personal Income ($ billions)											
Nominal Personal Income	227.5	230.0	232.6	235.3	238.1	213.1	223.7	234.0	245.5	257.6	269.9
% change	5.3	4.4	4.6	4.8	4.8	6.2	5.0	4.6	4.9	4.9	4.8
Real Personal Income (base year=2012)	206.1	207.5	209.0	210.6	212.4	197.0	204.0	209.9	216.3	222.1	227.6
% change	3.6	2.7	2.9	3.2	3.4	4.1	3.5	2.9	3.1	2.7	2.5
Nominal Wages and Salaries	114.5	116.2	118.0	119.5	121 1	107.0	112.4	118.7	125.1	131.7	138.3
% change	7.3	6.0	6.3	5 2	5 3	5.7	5.0	5.6	5.4	5.3	5.0
Other Indicators											
Per Capita Income ($1,000)	53.5	54.0	54.4	55.0	55 5	50.8	52.8	54.7	56.9	59.1	61.4
% change	4.3	3.4	3.6	3.8	3.8	4.9	4.0	3.6	3.9	4.0	3.9
Average Wage rate ($1,000)	58 1	58.8	59.4	60.0	60.6	55.5	57.4	59.7	62.1	64.7	67.4
% change	5.4	4.4	4.1	4.0	4.0	3.7	3.4	4.0	4.0	4.2	4.2
Population (Millions)	4 3	4.3	4.3	4.3	4.3	4.20	4.24	4.28	4.32	4.36	4.39
% change	1.0	0.9	0.9	0.9	0.9	1.3	1.0	1.0	0.9	0.9	0.9
Housing Starts (Thousands)	21.1	22.1	22.4	22.6	22.8	19.6	20.7	22.4	23.3	23.6	23.4
% change	13.9	18.3	5.9	4.1	3.0	1.6	5.8	8.2	4.0	1.2	(0.9)
Unemployment Rate	3.9	3.9	3.8	3.8	3.8	4.1	4.1	3.8	3.9	4.0	4.2
Point Change	(0.2)	0.0	(0.1)	0.0	0.0	0.0	(0.0)	(0.3)	0.0	0.2	0.2
Employment (Thousands)											
Total Nonfarm	1,950.5	1,959.7	1,970.5	1,976.7	1,983.0	1,912.1	1,941.2	1,972.5	1,999.5	2,020.5	2,036.1
% change	1.5	1.9	2.2	1.3	1.3	2.0	1.5	1.6	1.4	1.0	0.8
Private Nonfarm	1,652.6	1,660.3	1,666.7	1,674.5	1,680.7	1,617.3	1,643.0	1,670.6	1,694.6	1,712.5	1,725.6
% change	2.0	1.9	1.6	1.9	1.5	3.3	1.6	1.7	1.4	1.1	0.8
Construction	109.8	110.2	110.5	110.8	111.0	105.3	109.1	110.6	112.1	112.4	113.3
% change	1.8	1.6	1.2	0.9	0.9	7.7	3.5	1.4	1.3	0.3	0.7
Manufacturing	198.4	198.7	198.8	198.4	198.3	195.3	198.3	198.6	197.8	197.7	197.7
% change	1.5	0.7	0.1	(0.7)	(0.2)	2.8	1.5	0.1	(0.4)	(0.1)	0.0
Durable Manufacturing	137.1	138.0	138.1	137.8	137.7	135.6	137.2	137.9	137.0	136.4	136.2
% change	1.4	2.6	0.4	(1.0)	(0.3)	3.0	1.2	0.5	(0.6)	(0.4)	(0.2)
Wood Product Manufacturing	23.3	23.6	23.6	23.5	23.5	23.5	23.3	23.6	23.3	23.2	23.3
% change	4.0	5.8	1.0	(1.9)	(1.2)	2.4	(0.8)	1.1	(1.0)	(0.5)	0.4
High Tech Manufacturing	38.6	39.0	39.0	38.9	38.9	38.0	38.6	38.9	38.7	38.9	38.8
% change	(0.5)	4.2	0.0	(1.5)	0.5	3.0	1.7	0.9	(0.5)	0.4	(0.1)
Transportation Equipment	12.6	12.4	12.5	12.5	12.6	12.2	12.6	12.5	12.6	12.6	12.6
% change	0.1	(6.2)	2.2	1.9	1.3	2.5	3.9	(1.0)	0.5	(0.0)	0 1
Nondurable Manufacturing	61.3	60.7	60.6	60.6	60.6	59.6	61.1	60.7	60.8	61 3	61.6
% change	1.6	(3.5)	(0.5)	(0.2)	0.2	2.2	2.4	(0.7)	0.3	0.7	0.5
Private nonmanufacturing	1,454.2	1,461.6	1,468.0	1,476.1	1,482.4	1,422.1	1,444.7	1,472.0	1,496.8	1,514.8	1,527.8
% change	2.1	2.0	1.8	2.2	1.7	3.4	1.6	1.9	1.7	1.2	0.9
Retail Trade	209.6	209.7	209.8	209 9	209 9	211.4	209.9	209.8	210.1	210.4	210.7
% change	0.5	0.2	0.2	0 1	0 1	0.2	(0.7)	(0.0)	0.1	0.1	0.1
Wholesale Trade	76.7	77.0	77 1	77 2	77.3	75.1	76.4	77.2	77.5	77.8	77.8
% change	2.7	1 3	0.6	0.6	0.5	0.1	1.8	1.0	0.5	0.3	0.0
Information	35 3	35 5	35.4	35.3	35.4	34.4	34.9	35.4	35.4	35.4	35.4
% change	3 3	2.0	(1.1)	(0.6)	0.2	0.4	1.7	1.4	(0.1)	(0.0)	(0.0)
Professional and Business Services	255.3	257.2	259.1	263.5	266.5	249.7	253.8	261.6	274.5	284.5	289.1
% change	2.7	3.1	2.9	6.9	4.6	2.1	1.6	3.0	5.0	3.6	1.6
Health Services	267.1	269.9	272.4	273.9	275.0	258.9	264.5	272.8	277.8	282.7	287.6
% change	0.9	4.3	3.7	2.2	1.6	9.3	2.2	3.1	1.8	1.8	1.7
Leisure and Hospitality	216.0	217.8	219.1	220.6	222.0	211.2	214.1	219.9	223.0	224.5	226.8
% change	4.2	3.4	2.4	2.7	2.6	2.4	1.3	2.7	1.4	0.6	1.0
Government	297.9	299.4	303.8	302.2	302.3	294.8	298.2	301.9	304.9	308.0	310.6
% change	(1.2)	2.0	6.0	(2.1)	0.1	(4.8)	1.2	1.2	1.0	1.0	0.8

Table A.3 – Oregon Economic Forecast Change

Oregon Forecast Change (Current vs. Last)

	Quarterly					Annual					
	2019:4	**2020:1**	**2020:2**	**2020:3**	**2020:4**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**
					Personal Income ($ billions)						
Nominal Personal Income	227.5	230.0	232.6	235.3	238.1	213.1	223.7	234.0	245.5	257.6	269.9
% change	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	0.0	(0.3)	(0.2)	(0.2)	(0.1)	(0.1)
Real Personal Income (base year=2012)	206.1	207.5	209.0	210.6	212.4	197.0	204.0	209.9	216.3	222.1	227.6
% change	0.0	0.2	0.2	0.3	0.4	0.0	(0.2)	0.3	0.3	0.4	0.4
Nominal Wages and Salaries	114.5	116.2	118.0	119.5	121.1	107.0	112.4	118.7	125.1	131.7	138.3
% change	(0.7)	(0.6)	(0.6)	(0.5)	(0.6)	0.0	(0.8)	(0.6)	(0.6)	(0.5)	(0.4)
					Other Indicators						
Per Capita Income ($1,000)	53.5	54.0	54.4	55.0	55.5	50.8	52.8	54.7	56.9	59.1	61.4
% change	0.1	0.2	0.3	0.4	0.4	0.0	(0.0)	0.3	0.6	0.9	1.1
Average Wage rate ($1,000)	58.1	58.8	59.4	60.0	60.6	55.5	57.4	59.7	62.1	64.7	67.4
% change	(0.9)	(0.8)	(0.8)	(0.8)	(0.8)	0.0	(0.8)	(0.8)	(0.8)	(0.7)	(0.6)
Population (Millions)	4.25	4 26	4 27	4.3	4.3	4.20	4 24	4.28	4.32	4.36	4.39
% change	(0.4)	(0.4)	(0.5)	(0.6)	(0.6)	0.0	(0.3)	(0.5)	(0.8)	(1.0)	(1.2)
Housing Starts (Thousands)	21.1	22.1	22.4	22.6	22.8	19.6	20.7	22.4	23.3	23.6	23.4
% change	(0.5)	1.8	2.4	2.9	2.3	(0.1)	(0.4)	2.4	2.4	1.3	1.7
Unemployment Rate	3.9	3.9	3.8	3.8	3.8	4.1	4.1	3.8	3.9	4.0	4.2
Point Change	(0.1)	0.0	0.0	0.0	0.0	0.0	(0.0)	0.0	0.0	0.0	0.0
					Employment (Thousands)						
Total Nonfarm	1,950.5	1,959.7	1,970.5	1,976.7	1,983.0	1,912.1	1,941.2	1,972.5	1,999.5	2,020.5	2,036.1
% change	0.0	0.1	0.2	0.2	0.2	(0.0)	0.0	0.2	0.2	0.2	0.2
Private Nonfarm	1,652.6	1,660.3	1,666.7	1,674.5	1,680.7	1,617.3	1,643.0	1,670.6	1,694.6	1,712.5	1,725.6
% change	0.1	0.3	0.3	0.4	0.3	0.0	0.1	0.3	0.3	0.3	0.3
Construction	109.8	110.2	110.5	110.8	111.0	105.3	109.1	110.6	112.1	112.4	113.3
% change	0 9	1.0	1.3	1.4	1.4	(0.0)	0.5	1.3	1.5	1.2	1.2
Manufacturing	198.4	198.7	198.8	198.4	198.3	195 3	198.3	198.6	197.8	197.7	197.7
% change	(0.5)	0 1	0.2	0.2	0.2	(0.0)	(0 3)	0.2	(0.1)	(0.4)	(0.7)
Durable Manufacturing	137.1	138.0	138 1	137.8	137.7	135.6	137 2	137 9	137.0	136.4	136.2
% change	(0.4)	0.2	0 3	0.1	0.2	(0.0)	(0.2)	0 2	(0.2)	(0.6)	(0.9)
Wood Product Manufacturing	23.3	23.6	23.6	23 5	23.5	23.5	23.3	23.6	23 3	23.2	23.3
% change	0.1	1.5	1.6	1 1	0.7	0.0	(0.1)	1.2	(0 2)	(1.3)	(1.9)
High Tech Manufacturing	38.6	39.0	39.0	38.9	38 9	38.0	38.6	38.9	38.7	38 9	38.8
% change	(0.4)	0.6	0.5	0.1	0 1	(0.0)	0.0	0.3	(0.6)	(0 9)	(1.0)
Transportation Equipment	12.6	12.4	12.5	12.5	12.6	12.2	12.6	12.5	12.6	12.6	12.6
% change	(2.4)	(3.4)	(2.9)	(2.2)	(1.4)	(0.0)	(1.3)	(2.5)	(0.9)	(1.0)	(1 3)
Nondurable Manufacturing	61.3	60.7	60.6	60.6	60.6	59.6	61.1	60.7	60.8	61.3	61.6
% change	(0.8)	(0.0)	0.1	0.3	0.3	(0.0)	(0.5)	0.1	0.2	0.1	(0.1)
Private nonmanufacturing	1,454.2	1,461.6	1,468.0	1,476.1	1,482.4	1,422.1	1,444.7	1,472.0	1,496.8	1,514.8	1,527.8
% change	0.2	0.3	0.3	0.4	0.4	0.0	0.1	0.3	0.3	0.4	0.4
Retail Trade	209.6	209.7	209.8	209.9	209.9	211.4	209.9	209.8	210.1	210.4	210.7
% change	0.2	0.4	0.4	0.4	0.3	(0.0)	0.2	0.4	0.3	0.2	0.1
Wholesale Trade	76.7	77.0	77.1	77.2	77.3	75.1	76.4	77.2	77.5	77.8	77.8
% change	(0.0)	0.2	0.3	0.4	0.3	0.0	(0.1)	0.3	0.3	0.4	0.3
Information	35.3	35.5	35.4	35.3	35.4	34.4	34.9	35.4	35.4	35.4	35.4
% change	2.1	2.5	2.2	1.9	1.9	(0.0)	1.0	2.1	1.8	1.6	1.4
Professional and Business Services	255.3	257.2	259.1	263.5	266.5	249.7	253.8	261.6	274.5	284.5	289.1
% change	(0.6)	(0.7)	(0.9)	(0.5)	(0.7)	0.0	(0.2)	(0.7)	(0.5)	0.2	0.6
Health Services	267.1	269.9	272.4	273.9	275.0	258.9	264.5	272.8	277.8	282.7	287.6
% change	(0.6)	(0.4)	(0.2)	(0.1)	(0.2)	0.0	(0.2)	(0.2)	(0.3)	(0.2)	(0.2)
Leisure and Hospitality	216.0	217.8	219.1	220.6	222.0	211.2	214.1	219.9	223.0	224.5	226.8
% change	0.9	1.3	1.1	1.1	1.4	(0.0)	0.4	1.2	1.2	0.7	0.9
Government	297.9	299.4	303.8	302.2	302.3	294.8	298.2	301.9	304.9	308.0	310.6
% change	(0.7)	(0.6)	(0.5)	(0.5)	(0.5)	(0.0)	(0.2)	(0.5)	(0.4)	(0.3)	(0.2)

Table A.4 – Annual Economic Forecast

Mar 2020 - Personal Income

(Billions of Current Dollars)

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Total Personal Income*												
Oregon	213 1	223 7	234 0	245 5	257 6	269 9	283 0	297 0	311 7	326 8	342 5	358 7
% Ch	6 2	5 0	4 6	4 9	4 9	4 8	4 9	4 9	5 0	4 8	4 8	4 7
U.S.	17,819 2	18,630 0	19,350 2	20,209 0	21,109 4	22,009 7	22,996 5	24,098 3	25,241 3	26,415 4	27,640 1	28,904 4
% Ch	5 6	4 6	3 9	4 4	4 5	4 3	4 5	4 8	4 7	4 7	4 6	4 6
Wage and Salary												
Oregon	107 0	112 4	118 7	125 1	131 7	138 3	145 1	152 4	160 0	167 9	176 1	184 5
% Ch	5 7	5 0	5 6	5 4	5 3	5 0	4 9	5 0	5 0	4 9	4 9	4 8
U.S.	8,888 5	9,325 1	9,727 2	10,174 9	10,649 3	11,119 6	11,620 2	12,192 1	12,802 4	13,430 4	14,079 4	14,750 4
% Ch	5 0	4 9	4 3	4 6	4 7	4 4	4 5	4 9	5 0	4 9	4 8	4 8
Other Labor Income												
Oregon	25 6	26 8	28 1	29 7	31 3	32 9	34 5	36 3	38 2	40 2	42 2	44 3
% Ch	4 4	4 5	5 1	5 4	5 5	5 0	4 9	5 2	5 4	5 2	5 0	5 0
U.S.	1,417 2	1,473 2	1,535 9	1,606 5	1,681 5	1,756 0	1,835 1	1,925 4	2,021 8	2,121 1	2,223 7	2,329 7
% Ch	5 5	4 0	4 3	4 6	4 7	4 4	4 5	4 9	5 0	4 9	4 8	4 8
Nonfarm Proprietor's Income												
Oregon	18 1	18 8	19 5	19 9	19 9	20 0	20 4	20 8	21 4	22 1	22 8	23 5
% Ch	4 4	3 9	3 5	2 0	0 3	0 6	1 6	2 3	3 0	3 2	3 1	3 1
U.S.	1,561 6	1,626 0	1,676 5	1,703 4	1,699 7	1,701 3	1,715 5	1,732 6	1,756 9	1,796 5	1,848 8	1,907 1
% Ch	5 5	4 1	3 1	1 6	(0 2)	0 1	0 8	1 0	1 4	2 3	2 9	3 2
Dividend, Interest and Rent												
Oregon	45 8	47 0	48 2	50 2	52 5	55 1	57 9	60 8	63 7	66 5	69 5	72 7
% Ch	8 3	2 6	2 5	4 3	4 5	4 9	5 1	5 0	4 7	4 4	4 5	4 5
U.S.	3,686 9	3,771 8	3,869 2	4,037 4	4,222 9	4,420 0	4,654 2	4,905 8	5,139 8	5,365 7	5,603 6	5,853 0
% Ch	8 4	2 3	2 6	4 3	4 6	4 7	5 3	5 4	4 8	4 4	4 4	4 5
Transfer Payments												
Oregon	40 0	43 2	45 2	47 5	50 0	52 8	55 8	58 8	61 9	65 1	68 4	71 8
% Ch	5 9	8 1	4 4	5 1	5 4	5 6	5 6	5 4	5 3	5 2	5 1	4 9
U.S.	2,920 0	3,115 8	3,274 6	3,435 6	3,607 7	3,799 4	4,004 0	4,216 1	4,432 6	4,658 6	4,891 9	5,124 9
% Ch	4 1	6 7	5 1	4 9	5 0	5 3	5 4	5 3	5 1	5 1	5 0	4 8
Contributions for Social Security												
Oregon	18 5	19 4	20 4	21 6	22 7	23 9	25 1	26 4	27 7	29 0	30 3	31 7
% Ch	3 5	4 5	5 5	5 6	5 2	5 3	5 1	5 1	4 9	4 7	4 7	4 6
U.S.	733 7	771 3	802 8	836 1	872 5	909 0	948 6	994 1	1,042 9	1,093 4	1,145 8	1,200 0
% Ch	5 7	5 1	4 1	4 1	4 4	4 2	4 3	4 8	4 9	4 8	4 8	4 7
Residence Adjustment												
Oregon	(4 9)	(5 1)	(5 3)	(5 4)	(5 5)	(5 6)	(5 8)	(6 0)	(6 2)	(6 4)	(6 6)	(6 8)
% Ch	4 0	4 2	2 9	2 1	2 3	2 7	3 2	3 2	2 9	3 3	3 1	2 8
Farm Proprietor's Income												
Oregon	(0 1)	(0 1)	(0 0)	0 0	0 3	0 3	0 2	0 2	0 3	0 3	0 3	0 3
% Ch	(429 7)	(0 2)	(44 1)	(166 4)	1,015 6	5 9	(23 6)	6 1	17 0	5 6	(0 4)	1 0
Per Capita Income (Thousands of $)												
Oregon	50 8	52 8	54 7	56 9	59 1	61 4	63 9	66 4	69 2	71 9	74 8	77 8
% Ch	4 9	4 0	3 6	3 9	4 0	3 9	4 0	4 1	4 1	4 0	4 0	4 0
U.S.	54 4	56 4	58 2	60 4	62 6	64 9	67 3	70 1	72 9	75 8	78 9	82 0
% Ch	4 9	3 8	3 1	3 7	3 7	3 6	3 8	4 1	4 1	4 0	4 0	3 9

* Personal Income includes all classes of income minus Contributions for Social Security

Mar 2020 - Employment By Industry
(Oregon - Thousands, U.S. - Millions)

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Total Nonfarm												
Oregon	1,912 1	1,941 2	1,972 5	1,999 5	2,020 5	2,036 1	2,049 6	2,065 4	2,082 3	2,098 5	2,114 4	2,129 3
% Ch	2 0	1 5	1 6	1 4	1 0	0 8	0 7	0 8	0 8	0 8	0 8	0 7
U S	149 1	151 4	153 3	154 4	155 1	155 2	155 4	156 0	156 9	157 8	158 7	159 5
% Ch	1 7	1 6	1 2	0 8	0 5	0 1	0 1	0 4	0 6	0 6	0 6	0 5
Private Nonfarm												
Oregon	1,617 3	1,643 0	1,670 6	1,694 6	1,712 5	1,725 6	1,736 6	1,749 7	1,763 8	1,776 6	1,789 2	1,801 6
% Ch	3 3	1 6	1 7	1 4	1 1	0 8	0 6	0 8	0 8	0 7	0 7	0 7
U S	126 6	128 8	130 4	131 6	132 1	132 0	132 0	132 5	133 2	134 0	134 7	135 4
% Ch	1 9	1 8	1 3	0 8	0 4	(0 1)	0 0	0 3	0 5	0 6	0 6	0 5
Mining and Logging												
Oregon	7 2	6 9	7 0	7 1	7 1	7 2	7 2	7 2	7 3	7 3	7 3	7 4
% Ch	3 2	(4 5)	1 9	0 7	0 7	0 6	0 3	0 7	0 5	0 3	0 4	1 3
U S	0 7	0 8	0 7	0 7	0 7	0 8	0 8	0 8	0 8	0 8	0 8	0 8
% Ch	8 3	2 7	(2 9)	0 1	1 9	2 2	2 4	1 4	0 3	0 2	0 1	0 2
Construction												
Oregon	105 3	109 1	110 6	112 1	112 4	113 3	113 9	114 2	114 5	114 8	115 2	115 7
% Ch	7 7	3 5	1 4	1 3	0 3	0 7	0 5	0 3	0 2	0 3	0 3	0 5
U S	7 3	7 5	7 6	7 6	7 7	7 8	7 8	7 9	8 1	8 2	8 4	8 5
% Ch	4 6	2 8	1 0	0 8	1 1	0 7	0 8	1 4	1 6	1 7	2 0	2 2
Manufacturing												
Oregon	195 3	198 3	198 6	197 8	197 7	197 7	197 8	198 1	198 7	199 1	199 3	199 5
% Ch	2 8	1 5	0 1	(0 4)	(0 1)	0 0	0 1	0 1	0 3	0 2	0 1	0 1
U S	12 7	12 8	12 7	12 5	12 4	12 4	12 3	12 2	12 1	12 0	11 9	11 7
% Ch	2 0	1 2	(0 8)	(2 1)	(0 5)	(0 2)	(0 7)	(0 8)	(0 4)	(0 9)	(1 4)	(1 4)
Durable Manufacturing												
Oregon	135 6	137 2	137 9	137 0	136 4	136 2	136 2	136 3	136 6	136 7	136 7	136 5
% Ch	3 0	1 2	0 5	(0 6)	(0 4)	(0 2)	0 0	0 1	0 2	0 1	(0 0)	(0 1)
U S	7 9	8 1	8 0	7 8	7 8	7 8	7 7	7 7	7 6	7 6	7 4	7 3
% Ch	2 7	1 4	(0 7)	(2 3)	(0 6)	(0 1)	(0 5)	(0 7)	(0 3)	(1 1)	(1 8)	(1 9)
Wood Products												
Oregon	23 5	23 3	23 6	23 3	23 2	23 3	23 6	23 8	23 8	24 0	24 2	24 4
% Ch	2 4	(0 8)	1 1	(1 0)	(0 5)	0 4	1 4	0 7	0 3	0 6	1 0	1 0
U S	0 4	0 4	0 4	0 4	0 4	0 4	0 4	0 5	0 5	0 5	0 5	0 5
% Ch	2 4	0 9	2 2	0 8	2 7	1 5	1 2	2 3	2 4	(0 2)	(1 0)	(0 8)
Metal and Machinery												
Oregon	39 3	40 3	40 2	39 7	39 0	38 6	38 8	39 1	39 4	39 5	39 5	39 5
% Ch	5 2	2 5	(0 2)	(1 2)	(1 8)	(0 8)	0 4	0 8	0 7	0 2	(0 0)	0 0
U S	3 0	3 0	2 9	2 8	2 9	2 9	2 9	2 9	2 9	2 8	2 8	2 7
% Ch	3 1	1 1	(2 4)	(2 8)	0 6	1 1	0 3	(0 6)	(0 3)	(1 4)	(2 1)	(2 0)
Computer and Electronic Products												
Oregon	38 0	38 6	38 9	38 7	38 9	38 8	38 5	38 2	38 0	37 8	37 7	37 7
% Ch	3 0	1 7	0 9	(0 5)	0 4	(0 1)	(0 9)	(0 8)	(0 4)	(0 4)	(0 3)	(0 1)
U S	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
% Ch	1 6	2 7	1 1	(1 1)	0 4	0 3	0 4	0 3	(0 2)	(0 5)	(1 1)	(1 1)
Transportation Equipment												
Oregon	12 2	12 6	12 5	12 6	12 6	12 6	12 6	12 6	12 7	12 7	12 6	12 3
% Ch	2 5	3 9	(1 0)	0 5	(0 0)	0 1	0 3	(0 2)	0 6	0 0	(0 8)	(2 0)
U S	1 7	1 7	1 7	1 7	1 6	1 6	1 5	1 5	1 5	1 5	1 4	1 4
% Ch	3 6	2 0	(0 2)	(3 2)	(4 7)	(2 6)	(2 6)	(2 2)	(0 8)	(1 0)	(2 3)	(3 2)
Other Durables												
Oregon	22 7	22 4	22 7	22 7	22 8	22 8	22 7	22 7	22 8	22 8	22 7	22 6
% Ch	0 5	(1 2)	1 4	(0 1)	0 5	(0 0)	(0 4)	(0 1)	0 2	0 1	(0 3)	(0 4)
U S	2 2	2 2	2 2	2 2	2 2	2 2	2 2	2 2	2 2	2 2	2 2	2 1
% Ch	1 8	0 8	0 2	(1 6)	0 4	0 1	(0 5)	(0 4)	0 1	(1 0)	(1 4)	(1 2)
Nondurable Manufacturing												
Oregon	59 6	61 1	60 7	60 8	61 3	61 6	61 6	61 8	62 1	62 4	62 6	62 9
% Ch	2 2	2 4	(0 7)	0 3	0 7	0 5	0 1	0 2	0 5	0 4	0 4	0 5
U S	4 7	4 8	4 7	4 7	4 6	4 6	4 6	4 5	4 5	4 5	4 4	4 4
% Ch	0 9	0 9	(0 9)	(1 8)	(0 4)	(0 5)	(1 1)	(1 0)	(0 6)	(0 6)	(0 6)	(0 5)
Food Manufacturing												
Oregon	29 9	29 8	29 1	29 4	29 6	29 8	29 9	30 0	30 1	30 3	30 4	30 6
% Ch	0 5	(0 5)	(2 2)	0 9	0 9	0 6	0 3	0 2	0 5	0 6	0 4	0 5
U S	1 6	1 6	1 6	1 6	1 7	1 7	1 7	1 7	1 7	1 7	1 7	1 7
% Ch	1 3	1 3	0 0	(0 5)	1 4	1 1	0 2	0 3	0 7	0 4	0 2	0 3
Other Nondurable												
Oregon	29 7	31 3	31 5	31 4	31 6	31 7	31 7	31 8	32 0	32 1	32 2	32 4
% Ch	3 9	5 3	0 8	(0 3)	0 6	0 4	(0 1)	0 3	0 5	0 3	0 4	0 5
U S	3 1	3 1	3 1	3 0	3 0	2 9	2 9	2 8	2 8	2 8	2 7	2 7
% Ch	0 7	0 7	(1 3)	(2 5)	(1 4)	(1 5)	(1 9)	(1 7)	(1 3)	(1 3)	(1 1)	(1 0)
Trade, Transportation, and Utilities												
Oregon	352 2	356 9	359 4	359 9	360 4	360 6	361 0	361 6	362 0	362 6	363 3	363 8
% Ch	0 9	1 3	0 7	0 1	0 1	0 1	0 1	0 2	0 1	0 2	0 2	0 1
U S	27 7	27 8	27 9	27 8	27 6	27 2	26 8	26 6	26 6	26 6	26 5	26 4
% Ch	0 9	0 7	0 1	(0 3)	(0 8)	(1 3)	(1 3)	(0 8)	(0 2)	(0 0)	(0 2)	(0 4)

Mar 2020 - Employment By Industry
(Oregon - Thousands, U.S. - Millions)

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Retail Trade												
Oregon	211 4	209 9	209 8	210 1	210 4	210 7	211 1	211 6	211 9	212 3	212 8	213 2
% Ch	0 2	(0 7)	(0 0)	0 1	0 1	0 1	0 2	0 2	0 1	0 2	0 2	0 2
U S	15 8	15 8	15 7	15 7	15 5	15 2	15 0	14 8	14 7	14 7	14 7	14 6
% Ch	(0 1)	(0 2)	(0 3)	(0 5)	(1 1)	(1 7)	(1 7)	(1 2)	(0 6)	(0 1)	(0 1)	(0 3)
Wholesale Trade												
Oregon	75 1	76 4	77 2	77 5	77 8	77 8	77 9	78 0	78 2	78 4	78 6	78 7
% Ch	0 1	1 8	1 0	0 5	0 3	0 0	0 1	0 2	0 2	0 3	0 2	0 2
U S	5 9	5 9	6 0	6 0	6 0	6 0	5 9	5 9	5 9	5 9	5 9	5 9
% Ch	0 7	1 4	0 6	0 4	(0 0)	(0 5)	(0 3)	(0 2)	(0 0)	0 1	(0 5)	(0 6)
Transportation and Warehousing, and Utilities												
Oregon	65 7	70 6	72 4	72 2	72 2	72 1	72 0	72 0	71 9	72 0	72 0	72 0
% Ch	4 1	7 4	2 5	(0 2)	(0 0)	(0 1)	(0 1)	(0 1)	(0 1)	0 0	0 0	(0 0)
U S	6 0	6 1	6 1	6 1	6 1	6 0	5 9	5 9	6 0	6 0	5 9	5 9
% Ch	3 9	2 3	0 6	(0 3)	(0 8)	(1 2)	(1 1)	(0 2)	0 4	0 0	(0 2)	(0 3)
Information												
Oregon	34 4	34 9	35 4	35 4	35 4	35 4	35 3	35 2	35 2	35 3	35 3	35 3
% Ch	0 4	1 7	1 4	(0 1)	(0 0)	(0 0)	(0 1)	(0 2)	(0 0)	0 1	0 1	0 0
U S	2 8	2 8	2 8	2 8	2 8	2 8	2 8	2 8	2 8	2 7	2 7	2 7
% Ch	0 5	(0 2)	0 4	(0 4)	(1 5)	0 2	0 4	(0 7)	(0 4)	(0 7)	(1 4)	(1 8)
Financial Activities												
Oregon	102 2	103 2	104 3	105 3	105 8	105 7	105 5	105 3	105 3	105 3	105 6	105 8
% Ch	2 2	1 0	1 1	1 0	0 4	(0 1)	(0 2)	(0 1)	(0 1)	0 1	0 3	0 2
U S	8 6	8 7	8 8	8 8	8 8	8 8	8 8	8 7	8 7	8 7	8 8	8 8
% Ch	1 4	1 3	1 4	0 4	0 1	(0 5)	(0 4)	(0 2)	(0 1)	(0 1)	0 3	0 2
Professional and Business Services												
Oregon	249 7	253 8	261 6	274 5	284 5	289 1	293 6	300 6	308 3	314 8	320 8	326 1
% Ch	2 1	1 6	3 0	5 0	3 6	1 6	1 5	2 4	2 6	2 1	1 9	1 7
U S	21 0	21 5	22 1	23 1	23 6	23 7	24 0	24 6	25 2	25 7	26 1	26 4
% Ch	2 4	2 2	2 8	4 5	2 3	0 5	1 2	2 4	2 4	1 9	1 7	1 3
Education and Health Services												
Oregon	295 5	301 2	309 2	314 5	319 5	324 5	328 6	332 3	335 8	338 8	341 5	344 5
% Ch	8 3	2 0	2 6	1 7	1 6	1 6	1 3	1 1	1 0	0 9	0 8	0 9
U S	23 7	24 3	24 7	25 0	25 1	25 2	25 3	25 4	25 5	25 7	26 0	26 2
% Ch	2 1	2 5	1 9	1 0	0 6	0 3	0 5	0 5	0 5	0 7	0 9	0 8
Educational Services												
Oregon	36 6	36 7	36 4	36 7	36 8	36 9	37 0	37 1	37 1	37 1	37 1	37 1
% Ch	1 6	0 4	(0 9)	0 7	0 4	0 3	0 3	0 2	0 0	0 0	0 0	0 0
U S	3 7	3 8	3 8	3 8	3 7	3 6	3 5	3 5	3 4	3 4	3 4	3 3
% Ch	1 6	2 0	0 9	(1 8)	(2 0)	(2 4)	(1 9)	(1 4)	(1 3)	(1 2)	(1 3)	(1 4)
Health Care and Social Assistance												
Oregon	258 9	264 5	272 8	277 8	282 7	287 6	291 6	295 2	298 7	301 7	304 4	307 4
% Ch	9 3	2 2	3 1	1 8	1 8	1 7	1 4	1 2	1 2	1 0	0 9	1 0
U S	19 9	20 5	20 9	21 2	21 4	21 6	21 8	21 9	22 1	22 3	22 6	22 9
% Ch	2 1	2 6	2 0	1 5	1 1	0 7	0 9	0 8	0 8	1 1	1 2	1 1
Leisure and Hospitality												
Oregon	211 2	214 1	219 9	223 0	224 5	226 8	228 1	229 2	230 5	232 1	233 9	236 1
% Ch	2 4	1 3	2 7	1 4	0 6	1 0	0 6	0 5	0 6	0 7	0 8	0 9
U S	16 4	16 7	17 2	17 4	17 5	17 6	17 7	17 6	17 6	17 7	17 8	18 0
% Ch	1 9	2 4	2 5	1 1	0 7	0 9	0 1	(0 1)	(0 0)	0 4	0 7	1 0
Other Services												
Oregon	64 3	64 6	64 6	65 0	65 3	65 4	65 6	65 8	66 2	66 5	66 8	67 3
% Ch	1 3	0 3	0 1	0 6	0 4	0 2	0 3	0 4	0 6	0 4	0 5	0 7
U S	5 8	5 9	6 0	5 9	5 9	5 8	5 8	5 8	5 8	5 8	5 8	5 8
% Ch	1 3	1 5	0 3	(0 6)	(0 7)	(0 9)	(0 5)	(0 1)	0 1	0 2	0 4	0 3
Government												
Oregon	294 8	298 2	301 9	304 9	308 0	310 6	313 0	315 7	318 6	321 9	325 3	327 7
% Ch	(4 8)	1 2	1 2	1 0	1 0	0 8	0 8	0 9	0 9	1 0	1 1	0 7
U S	22 4	22 6	22 8	22 9	23 1	23 2	23 4	23 5	23 7	23 8	24 0	24 1
% Ch	0 4	0 5	1 2	0 2	0 7	0 7	0 7	0 7	0 6	0 6	0 6	0 6
Federal Government												
Oregon	28 1	28 5	29 0	27 8	27 9	27 9	27 8	27 9	27 9	27 9	27 9	27 9
% Ch	(0 3)	1 3	1 7	(3 9)	0 0	0 0	(0 0)	0 0	(0 0)	0 0	0 0	0 0
U S	2 8	2 8	2 9	2 8	2 8	2 8	2 8	2 8	2 8	2 8	2 8	2 8
% Ch	(0 3)	0 9	4 2	(4 0)	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
State Government, Oregon												
State Total	39 5	40 7	40 0	40 9	41 7	42 2	42 6	43 0	43 6	44 2	44 8	45 2
% Ch	(29 7)	2 9	(1 8)	2 5	1 7	1 2	1 0	1 0	1 2	1 4	1 4	0 9
State Education	0 8	0 8	0 8	0 8	0 8	0 8	0 8	0 8	0 8	0 8	0 8	0 8
% Ch	1 9	0 5	(0 5)	0 3	0 3	0 0	0 5	0 3	0 2	0 4	0 6	0 8
Local Government, Oregon												
Local Total	227 1	229 1	233 0	236 1	238 5	240 6	242 5	244 8	247 2	249 8	252 6	254 6
% Ch	0 8	0 9	1 7	1 3	1 0	0 9	0 8	0 9	1 0	1 1	1 1	0 8
Local Education	132 7	132 7	133 0	134 9	136 3	137 5	138 5	139 4	140 6	141 7	142 3	143 0
% Ch	(0 1)	0 1	0 2	1 4	1 1	0 9	0 7	0 7	0 8	0 8	0 4	0 5

Mar 2020 - Other Economic Indicators

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
GDP (Bil of 2012 $),												
Chain Weight (in billions of $)	18,638 2	19,069 5	19,461 0	19,866 3	20,211 7	20,516 2	20,892 4	21,353 2	21,826 7	22,306 2	22,795 8	23,285 4
% Ch	2 9	2 3	2 1	2 1	1 7	1 5	1 8	2 2	2 2	2 2	2 2	2 1
Price and Wage Indicators												
GDP Implicit Price Deflator,												
Chain Weight U S , 2012=100	110 4	112 4	114 6	117 3	120 3	123 3	126 2	129 0	131 9	134 9	138 0	141 1
% Ch	2 4	1 8	2 0	2 3	2 5	2 5	2 3	2 3	2 2	2 3	2 3	2 3
Personal Consumption Deflator,												
Chain Weight U S , 2012=100	108 1	109 7	111 5	113 5	116 0	118 6	121 1	123 7	126 3	129 0	131 6	134 3
% Ch	2 1	1 4	1 6	1 8	2 2	2 2	2 2	2 1	2 1	2 1	2 0	2 0
CPI, Urban Consumers,												
1982-84=100												
West Region	263 3	270 3	276 8	282 3	289 8	297 6	305 4	313 3	321 3	329 3	337 4	345 6
% Ch	3 3	2 7	2 4	2 0	2 6	2 7	2 6	2 6	2 6	2 5	2 5	2 4
U S	251 1	255 7	260 4	264 9	271 5	278 5	285 4	292 3	299 2	306 2	313 2	320 2
% Ch	2 4	1 8	1 8	1 7	2 5	2 6	2 5	2 4	2 4	2 3	2 3	2 2
Oregon Average Wage												
Rate (Thous $)	55 5	57 4	59 7	62 1	64 7	67 4	70 3	73 3	76 4	79 5	82 8	86 2
% Ch	3 7	3 4	4 0	4 0	4 2	4 2	4 3	4 2	4 2	4 1	4 1	4 1
U S Average Wage												
Wage Rate (Thous $)	59 6	61 6	63 5	65 9	68 6	71 6	74 8	78 1	81 6	85 1	88 7	92 5
% Ch	3 3	3 3	3 0	3 8	4 2	4 3	4 4	4 5	4 4	4 3	4 2	4 2
Housing Indicators												
FHFA Oregon Housing Price Index												
1991 Q1=100	423 7	444 6	472 2	491 7	510 6	530 2	550 1	570 0	590 6	611 8	633 2	649 0
% Ch	7 8	4 9	6 2	4 1	3 8	3 8	3 8	3 6	3 6	3 6	3 5	2 5
FHFA National Housing Price Index												
1991 Q1=100	261 0	273 8	282 9	290 3	298 5	307 5	316 9	326 7	336 5	346 4	356 5	366 8
% Ch	6 6	4 9	3 3	2 6	2 8	3 0	3 1	3 1	3 0	2 9	2 9	2 9
Housing Starts												
Oregon (Thous)	19 6	20 7	22 4	23 3	23 6	23 4	23 7	23 3	23 3	23 0	22 9	22 8
% Ch	1 6	5 8	8 2	4 0	1 2	(0 9)	1 1	(1 4)	(0 2)	(1 0)	(0 5)	(0 5)
U S (Millions)	1 2	1 3	1 3	1 3	1 3	1 3	1 3	1 3	1 3	1 2	1 2	1 2
% Ch	3 4	1 9	3 0	(1 9)	(0 4)	(1 2)	(0 8)	1 3	(1 7)	(2 7)	(1 2)	(0 8)
Other Indicators												
Unemployment Rate (%)												
Oregon	4 1	4 1	3 8	3 9	4 0	4 2	4 3	4 4	4 3	4 3	4 3	4 3
Point Change	0 0	(0 0)	(0 3)	0 0	0 2	0 2	0 1	0 0	(0 0)	(0 0)	0 0	0 0
U S	3 9	3 7	3 5	3 5	3 8	4 2	4 5	4 5	4 4	4 4	4 4	4 4
Point Change	(0 5)	(0 2)	(0 2)	0 1	0 2	0 4	0 3	0 0	(0 1)	(0 0)	(0 0)	0 0
Industrial Production Index												
U S, 2012 = 100	108 6	109 4	109 7	111 4	112 8	113 8	115 5	117 9	120 3	122 6	124 9	127 4
% Ch	3 9	0 8	0 2	1 6	1 2	0 9	1 5	2 0	2 0	1 9	1 9	2 0
Prime Rate (Percent)	4 9	5 3	4 7	4 9	5 3	5 5	5 8	5 8	5 8	5 8	5 8	5 8
% Ch	19 7	7 7	(10 1)	3 0	7 5	4 7	4 5	0 0	0 0	0 0	0 0	0 0
Population (Millions)												
Oregon	4 20	4 24	4 28	4 32	4 36	4 39	4 43	4 47	4 51	4 54	4 58	4 61
% Ch	1 3	1 0	1 0	0 9	0 9	0 9	0 9	0 8	0 8	0 8	0 8	0 7
U S	327 7	330 1	332 4	334 7	337 1	339 4	341 6	343 9	346 1	348 3	350 5	352 6
% Ch	0 6	0 7	0 7	0 7	0 7	0 7	0 7	0 7	0 6	0 6	0 6	0 6
Timber Harvest (Mil Bd Ft)												
Oregon	3,619 9	3,565 2	3,616 1	3,670 4	3,765 3	3,812 8	3,835 8	3,899 8	3,906 2	3,911 9	3,915 1	4,072 7
% Ch	(2 0)	(1 5)	1 4	1 5	2 6	1 3	0 6	1 7	0 2	0 1	0 1	4 0

APPENDIX B: REVENUE FORECAST DETAIL

Table B.1 General Fund Revenue Statement

Table B.1
General Fund Revenue Statement -- 2019-21

	Estimate at COS 2019	Forecasts Dated: 12/1/2019			Forecasts Dated: 3/1/2020			Difference	
		2019-20	2020-21	Total 2019-21	2019-20	2020-21	Total 2019-21	3/1/2020 Less 12/1/2019	3/1/2020 Less COS
Taxes									
Personal Income Taxes	18,283,508,000	8,587,742,000	9,698,026,000	18,285,768,000	8,739,929,000	9,732,663,000	18,472,592,000	186,824,000	189,084,000
Film and Video and Transfer to Counties	(45,262,000)	(22,230,000)	(23,032,000)	(45,262,000)	(22,230,000)	(23,032,000)	(45,262,000)	0	0
Corporate Income Taxes	1,190,805,000	748,720,000	577,156,000	1,325,876,000	730,835,000	581,826,000	1,312,661,000	(13,215,000)	121,856,000
Transfer to Rainy Day Fund & PERS UAL	(158,254,000)	(101,500,000)	(62,303,000)	(163,803,000)	0	(209,046,000)	(209,046,000)	(45,243,000)	(50,792,000)
Insurance Taxes	132,563,000	75,904,000	63,833,000	139,737,000	69,897,000	71,685,000	141,582,000	1,845,000	9,019,000
Estate Taxes	361,189,000	179,554,000	185,935,000	365,489,000	263,654,000	188,985,000	452,639,000	87,150,000	91,450,000
Transfer to PERS UAL	0	0	0	0	0	0	0	0	0
Cigarette Taxes	64,998,000	31,922,000	31,888,000	63,810,000	32,439,000	31,888,000	64,327,000	517,000	(671,000)
Other Tobacco Products Taxes	66,534,000	32,218,000	32,811,000	65,029,000	32,078,000	32,811,000	64,889,000	(140,000)	(1,645,000)
Other Taxes	1,636,000	878,000	878,000	1,756,000	878,000	878,000	1,756,000	0	120,000
Fines and Fees									
State Court Fees	138,730,000	70,227,000	69,449,000	139,676,000	70,962,000	69,732,000	140,694,000	1,018,000	1,964,000
Secretary of State Fees	70,837,000	35,392,000	35,445,000	70,837,000	37,592,000	37,645,000	75,237,000	4,400,000	4,400,000
Criminal Fines & Assessments	51,748,000	25,366,000	25,366,000	50,732,000	22,964,000	22,964,000	45,928,000	(4,804,000)	(5,820,000)
Securities Fees	27,269,000	12,690,000	13,206,000	25,896,000	11,690,000	12,830,000	24,520,000	(1,376,000)	(2,749,000)
Central Service Charges	10,376,000	5,188,000	5,188,000	10,376,000	5,188,000	5,188,000	10,376,000	0	0
Liquor Apportionment	348,537,000	167,298,000	181,239,000	348,537,000	167,298,000	181,239,000	348,537,000	0	0
Interest Earnings	102,965,000	55,301,000	51,488,000	106,789,000	65,301,000	53,488,000	118,789,000	12,000,000	15,824,000
Miscellaneous Revenues	13,500,000	6,500,000	7,000,000	13,500,000	8,300,000	7,000,000	15,300,000	1,800,000	1,800,000
One-time Transfers	155,200,000	0	155,200,000	155,200,000	12,900,000	155,200,000	168,100,000	12,900,000	12,900,000
Gross General Fund Revenues	21,020,395,000	10,034,900,000	11,134,108,000	21,169,008,000	10,271,905,000	11,186,022,000	21,457,927,000	288,919,000	437,532,000
Total Transfers	(203,516,000)	(123,730,000)	(85,335,000)	(209,065,000)	(22,230,000)	(232,078,000)	(254,308,000)	(45,243,000)	(50,792,000)
Net General Fund Revenues	20,816,879,000	9,911,170,000	11,048,773,000	20,959,943,000	10,249,675,000	10,953,944,000	21,203,619,000	243,676,000	386,740,000
Plus Beginning Balance	2,318,444,712			2,650,498,712			2,579,398,712	(71,100,000)	260,954,000
Less Anticipated Administrative Actions*	(21,472,000)			(21,472,000)			(21,472,000)	0	0
Less Legislatively Adopted Actions**	(199,459,036)			(199,459,036)			(198,338,493)	1,120,543	1,120,543
Available Resources	22,914,392,677			23,389,510,677			23,563,207,219	173,696,543	648,814,543
Appropriations	22,409,455,625			22,409,455,625			22,409,455,625	0	0
Estimated Ending Balance	504,937,052			980,055,052			1,153,751,594	173,696,543	648,814,543

Table B.2 General Fund Revenue Forecast by Fiscal Year

General Fund Revenue Forecast

March 2020

($Millions)

Fiscal Years	2017-18 Fiscal Year	2018-19 Fiscal Year	2019-20 Fiscal Year	2020-21 Fiscal Year	2021-22 Fiscal Year	2022-23 Fiscal Year	2023-24 Fiscal Year	2024-25 Fiscal Year	2025-26 Fiscal Year	2026-27 Fiscal Year	2027-28 Fiscal Year	2028-29 Fiscal Year
Taxes												
Personal Income	8,893 1	9,930 3	8,739 9	9,732 7	10,699 0	11,047 5	11,593 0	12,151 0	12,616 0	13,286 2	14,045 8	14,695 5
Film and Video & Transfer to Counties	(20 6)	(21 7)	(22 2)	(23 0)	(23 3)	(26 7)	(24 8)	(24 0)	0 0	0 0	0 0	0 0
Corporate Excise & Income	755 0	997 8	730 8	581 8	630 4	685 9	729 8	781 0	854 2	913 7	977 0	1,016 1
Transfer to RDF & PERS UAL	(16 2)	(71 1)	0 0	(209 0)	0 0	(65 0)	0 0	(69 3)	0 0	(82 6)	0 0	(85 3)
Insurance	76 7	83 5	69 9	71 7	64 8	66 6	69 3	71 2	74 3	76 6	85 3	88 2
Estate	176 5	204 7	263 7	189 0	195 5	200 6	206 0	214 7	219 8	224 5	233 4	238 2
Transfer to PERS UAL	0 0	0 0	0 0	0 0	0 0	(17 6)	0 0	0 0	0 0	0 0	0 0	0 0
Cigarette	33 7	31 9	32 4	31 9	31 3	30 8	30 3	29 6	29 0	28 4	27 9	27 5
Other Tobacco Products	32 4	31 2	32 1	32 8	33 2	33 8	34 2	34 4	34 6	34 8	35 0	35 1
Other Taxes	0 9	1 1	0 9	0 9	0 9	0 9	0 9	0 9	0 9	0 9	0 9	0 9
Other Revenues												
Licenses and Fees	126 3	132 7	143 2	143 2	144 2	144 8	145 4	146 0	146 6	147 2	147 8	148 4
Charges for Services	5 4	5 4	5 2	5 2	5 4	5 4	5 4	5 4	5 4	5 4	5 4	5 4
Liquor Apportionment	142 6	151 8	167 3	181 2	166 1	173 8	181 6	190 0	198 6	207 8	217 0	226 7
Interest Earnings	30 2	57 0	65 3	53 5	53 4	53 3	53 3	53 2	53 1	53 0	53 0	52 9
Others	8 2	7 0	21 2	162 2	7 5	8 0	8 5	9 0	9 5	10 0	10 5	11 0
Gross General Fund	10,281 0	11,634 3	10,271 9	11,186 0	12,031 6	12,451 3	13,057 7	13,686 5	14,242 1	14,988 7	15,838 9	16,545 9
Net General Fund	10,244 3	11,541 5	10,249 7	10,953 9	12,008 3	12,342 0	13,032 9	13,593 2	14,242 1	14,906 1	15,838 9	16,460 5

Biennial Totals	2017-19 BN	Change (%)	2019-21 BN	Change (%)	2021-23 BN	Change (%)	2023-25 BN	Change (%)	2025-27 BN	Change (%)	2027-29 BN	Change (%)
Taxes												
Personal Income	18,823 3	17 2%	18,472 6	-1 9%	21,746 5	17 7%	23,744 0	9 2%	25,902 2	9 1%	28,741 3	11 0%
Corporate Excise & Income	1,752 7	44 8%	1,312 7	-25 1%	1,316 3	0 3%	1,510 8	14 8%	1,767 9	17 0%	1,993 1	12 7%
Insurance	160 3	15 1%	141 6	-11 7%	131 3	-7 2%	140 5	7 0%	150 9	7 4%	173 5	14 9%
Estate Taxes	381 2	18 1%	452 6	18 7%	396 1	-12 5%	420 7	6 2%	444 4	5 6%	471 6	6 1%
Cigarette	65 6	-6 9%	64 3	-1 9%	62 1	-3 5%	59 9	-3 5%	57 4	-4 2%	55 4	-3 4%
Other Tobacco Products	63 6	2 0%	64 9	2 0%	67 0	3 3%	68 6	2 3%	69 4	1 2%	70 0	0 9%
Other Taxes	2 0	9 6%	1 8	-11 1%	1 8	0 0%	1 8	0 0%	1 8	0 0%	1 8	0 0%
Other Revenues												
Licenses and Fees	259 0	5 2%	286 4	10 6%	288 9	0 9%	291 4	0 9%	293 8	0 8%	296 2	0 8%
Charges for Services	10 9	5 8%	10 4	-4 6%	10 9	4 8%	10 9	0 0%	10 9	0 0%	10 9	0 0%
Liquor Apportionment	294 4	12 4%	348 5	18 4%	339 9	-2 5%	371 7	9 4%	406 4	9 4%	443 7	9 2%
Interest Earnings	87 2	250 5%	118 8	36 3%	106 8	-10 1%	106 5	-0 3%	106 2	-0 3%	105 9	-0 3%
Others	15 2	-89 8%	183 4	1105 9%	15 5	-91 5%	17 5	12 9%	19 5	11 4%	21 5	10 3%
Gross General Fund	21,915 3	18 1%	21,457 9	-2 1%	24,483 0	14 1%	26,744 2	9 2%	29,230 9	9 3%	32,384 8	10 8%
Net General Fund	21,785 8	17 6%	21,203 6	-2 7%	24,350 3	14 8%	26,626 1	9 3%	29,148 3	9 5%	32,299 5	10 8%

Redacted Version

Table B.3 Summary of 2019 Legislative Session Adjustments

	19-21	21-23	23-25	Revenue Impact Statement
Personal Income Tax Impacts (millions)				
Tax Expenditure Extension - HB 2164	-$70.5	-$146.0	-$156.4	HB 2164
Rural Medical Provider – HB 2847	-$0.2	-$0.4	-$0.4	HB 2847
Corporate Activity Tax – HB 3427	-$352.0	-$548.0	-$599.0	HB 3427
DOR Tax Compliance – SB 523 & HB 5033	$1.1	$1.4	$1.4	SB 523 HB 3206
Personal Income Tax Total	**-$421.6**	**-$693.0**	**-$754.4**	
Corporate Income Tax Impacts (millions)				
Medical Provider Taxes - HB 2010	-$5.0	-$8.0	-$8.0	HB 2010
Medical Provider Taxes - SB 523	$1.20	$1.2	$1.2	SB 523
Corporate Activity Tax – HB 3427	-$71.0	-$151.0	-$163.0	HB 3427
Corporate Income Tax Total	**-$74.8**	**-$157.8**	**-$169.8**	
Other Tax/Revenue Impacts (millions)				
Court Filing Fees - HB 3447	$3.1	$3.6	$3.8	HB 3447
OLCC Fees - SB 248	$5.2	$5.6	$5.7	SB 248
DOR Collections - SB 980	$0.5	$0.5	$0.5	SB 980
DOR Tax Compliance - HB 5033	$0.2	$0.4	$0.4	HB 5033
Fund Shifts and Adjustments – HB 2377	$179.6	$26.5	$10.0	HB 2377
Other Tax Total	**$188.5**	**$36.6**	**$20.4**	

Table B.4 Oregon Personal Income Tax Revenue Forecast

TABLE B.4 **OREGON PERSONAL INCOME TAX REVENUE FORECAST - QUARTERLY COLLECTIONS**
Thousands of Dollars - Not Seasonally Adjusted **March 2020**

	2009:3	2009:4	2010:1	2010:2	FY 2010	2010:3	2010:4	2011:1	2011:2	FY 2011
WITHHOLDING	1,092,795	1,151,673	1,157,857	1,116,552	4,518,878	1,146,189	1,196,214	1,262,781	1,218,439	4,823,622
%CHYA	-6 0%	-2 6%	2 6%	2 5%	-1 0%	4 9%	3 9%	9 1%	9 1%	6 7%
EST PAYMENTS	176,110	161,759	186,894	265,703	790,467	179,692	148,589	207,036	284,662	819,978
%CHYA	-33 4%	-7 5%	-14 0%	1 0%	-14 1%	2 0%	-8 1%	10 8%	7 1%	3 7%
FINAL PAYMENTS	63,363	77,013	105,745	515,262	761,383	62,259	81,728	114,877	607,592	866,456
%CHYA	-9 9%	-22 5%	1 6%	-2 8%	-5 3%	-1 7%	6 1%	8 6%	17 9%	13 8%
REFUNDS	96,477	188,704	459,550	380,459	1,125,190	92,291	151,515	432,478	340,652	1,016,937
%CHYA	4 8%	4 6%	2 6%	-5 9%	0 1%	-4 3%	-19 7%	-5 9%	-10 5%	-9 6%
OTHER	(138,521)	-	-	136,193	(2,328)	(136,193)	-	-	165,933	29,740
TOTAL	1,097,271	1,201,740	990,947	1,653,251	4,943,210	1,159,655	1,275,015	1,152,216	1,935,973	5,522,860
%CHYA	-10 2%	-5 9%	-1 2%	2 3%	-3 4%	5 7%	6 1%	16 3%	17 1%	11 7%

	2011:3	2011:4	2012:1	2012:2	FY 2012	2012:3	2012:4	2013:1	2013:2	FY 2013
WITHHOLDING	1,235,508	1,287,030	1,348,171	1,269,562	5,140,271	1,262,589	1,364,547	1,354,116	1,321,413	5,302,666
%CHYA	7 8%	7 6%	6 8%	4 2%	6 6%	2 2%	6 0%	0 4%	4 1%	3 2%
EST PAYMENTS	194,674	185,239	199,238	299,646	878,797	205,533	159,104	278,341	321,896	964,874
%CHYA	8 3%	24 7%	-3 8%	5 3%	7 2%	5 6%	-14 1%	39 7%	7 4%	9 8%
FINAL PAYMENTS	85,889	87,233	117,628	627,762	918,512	72,224	91,338	123,456	785,542	1,072,560
%CHYA	38 0%	6 7%	2 4%	3 3%	6 0%	-15 9%	4 7%	5 0%	25 1%	16 8%
REFUNDS	64,687	156,272	530,800	360,618	1,112,377	52,211	109,503	536,506	383,176	1,081,397
%CHYA	-29 9%	3 1%	22 7%	5 9%	9 4%	-19 3%	-29 9%	1 1%	6 3%	-2 8%
OTHER	(165,933)	-	-	193,614	27,681	(193,614)	-	-	201,367	7,753
TOTAL	1,285,451	1,403,230	1,134,237	2,029,966	5,852,884	1,294,521	1,505,486	1,219,407	2,247,042	6,266,457
%CHYA	10 8%	10 1%	-1 6%	4 9%	6 0%	0 7%	7 3%	7 5%	10 7%	7 1%

	2013:3	2013:4	2014:1	2014:2	FY 2014	2014:3	2014:4	2015:1	2015:2	FY 2015
WITHHOLDING	1,333,946	1,435,630	1,442,755	1,420,313	5,632,644	1,455,822	1,523,453	1,576,188	1,505,337	6,060,801
%CHYA	5 7%	5 2%	6 5%	7 5%	6 2%	9 1%	6 1%	9 2%	6 0%	7 6%
EST PAYMENTS	221,695	214,342	247,826	357,218	1,041,080	264,823	236,303	305,582	408,957	1,215,665
%CHYA	7 9%	34 7%	-11 0%	11 0%	7 9%	19 5%	10 2%	23 3%	14 5%	16 8%
FINAL PAYMENTS	83,096	112,495	139,923	730,795	1,066,309	92,647	144,239	156,188	847,330	1,240,403
%CHYA	15 1%	23 2%	13 3%	-7 0%	-0 6%	11 5%	28 2%	11 6%	15 9%	16 3%
REFUNDS	67,098	197,448	472,018	354,437	1,091,001	100,729	173,522	520,272	375,119	1,169,642
%CHYA	28 5%	80 3%	-12 0%	-7 5%	0 9%	50 1%	-12 1%	10 2%	5 8%	7 2%
OTHER	(201,367)	-	-	180,356	(21,011)	(180,356)	-	-	163,398	(16,959)
TOTAL	1,370,272	1,565,018	1,358,485	2,334,246	6,628,021	1,532,207	1,730,473	1,517,685	2,549,903	7,330,268
%CHYA	5 9%	4 0%	11 4%	3 9%	5 8%	11 8%	10 6%	11 7%	9 2%	10 6%

	2015:3	2015:4	2016:1	2016:2	FY 2016	2016:3	2016:4	2017:1	2017:2	FY 2017
WITHHOLDING	1,551,517	1,644,209	1,711,568	1,634,728	6,542,022	1,675,744	1,705,280	1,835,155	1,769,354	6,985,533
%CHYA	6 6%	7 9%	8 6%	8 6%	7 9%	8 0%	3 7%	7 2%	8 2%	6 8%
EST PAYMENTS	309,470	141,009	327,008	423,839	1,201,325	300,866	319,225	382,445	450,241	1,452,777
%CHYA	16 9%	-40 3%	7 0%	5 7%	-0 5%	-2 8%	126 4%	17 0%	6 2%	20 9%
FINAL PAYMENTS[1]	99,618	321,345	141,818	813,132	1,375,913	103,631	144,248	175,235	919,186	1,342,301
%CHYA	7 5%	122 8%	-9 2%	-4 9%	10 2%	4 0%	-55 1%	23 6%	13 0%	-2 4%
REFUNDS	85,113	203,981	577,546	562,601	1,429,241	138,825	254,851	574,417	454,899	1,422,992
%CHYA	-15 5%	17 6%	11 0%	50 0%	22 2%	63 1%	24 9%	-0 5%	-19 1%	-0 4%
OTHER	(163,398)	-	-	236,108	72,710	(236,108)	-	-	192,251	(43,856)
TOTAL	1,712,094	1,902,583	1,602,848	2,545,205	7,762,729	1,705,308	1,913,902	1,818,419	2,876,134	8,313,763
%CHYA	11 7%	9 9%	5 6%	-0 2%	5 9%	-0 4%	0 6%	13 4%	13 0%	7 1%

	2017:3	2017:4	2018:1	2018:2	FY 2018	2018:3	2018:4	2019:1	2019:2	FY 2019
WITHHOLDING	1,748,844	1,836,249	2,011,564	1,851,177	7,447,834	1,925,880	2,039,120	2,079,900	1,999,015	8,043,914
%CHYA	4 4%	7 7%	9 6%	4 6%	6 6%	10 1%	11 0%	3 4%	8 0%	8 0%
EST PAYMENTS	321,032	451,037	464,534	512,671	1,749,274	367,772	284,002	321,858	532,273	1,505,905
%CHYA	6 7%	41 3%	21 5%	13 9%	20 4%	14 6%	-37 0%	-30 7%	3 8%	-13 9%
FINAL PAYMENTS[1]	92,364	169,785	174,096	878,587	1,314,832	104,644	156,592	225,515	1,385,562	1,872,312
%CHYA	-10 9%	17 7%	-0 6%	-4 4%	-2 0%	13 3%	-7 8%	29 5%	57 7%	42 4%
REFUNDS	133,143	266,467	686,100	610,486	1,696,196	140,701	335,635	546,225	445,573	1,468,133
%CHYA	-4 1%	4 6%	19 4%	34 2%	19 2%	5 7%	26 0%	-20 4%	-27 0%	-13 4%
OTHER	(192,251)	-	-	237,300	45,049	(237,300)	-	-	222,477	(14,823)
TOTAL	1,836,845	2,190,604	1,964,094	2,869,249	8,860,793	2,020,295	2,144,078	2,081,049	3,693,754	9,939,176
%CHYA	7 7%	14 5%	8 0%	-0 2%	6 6%	10 0%	-2 1%	6 0%	28 7%	12 2%

Note: "Other" includes July withholding accrued to June
Tax law impacts are reflected in the collections numbers to produce more meaningful projections

TABLE B.4 **OREGON PERSONAL INCOME TAX REVENUE FORECAST - QUARTERLY COLLECTIONS**

Thousands of Dollars - Not Seasonally Adjusted **March 2020**

	2019:3	2019:4	2020:1	2020:2	FY 2020	2020:3	2020:4	2021:1	2021:2	FY 2021
WITHHOLDING	2,059,715	2,223,410	2,261,588	2,078,408	8,623,121	2,142,154	2,310,141	2,319,949	2,172,734	8,944,978
%CHYA	6 9%	9 0%	8 7%	4 0%	7 2%	4 0%	3 9%	2 6%	4 5%	3 7%
EST PAYMENTS	413,316	296,072	374,820	475,226	1,559,433	369,458	264,655	341,384	492,290	1,467,787
%CHYA	12 4%	4 3%	16 5%	-10 7%	3 6%	-10 6%	-10 6%	-8 9%	3 6%	-5 9%
FINAL PAYMENTS[1]	131,560	195,074	157,333	514,040	998,007	91,361	114,318	168,845	1,069,091	1,443,615
%CHYA	25 7%	24 6%	-30 2%	-62 9%	-46 7%	-30 6%	-41 4%	7 3%	108 0%	44 6%
REFUNDS	144,251	289,464	1,119,443	880,271	2,433,428	185,115	421,954	870,080	657,599	2,134,749
%CHYA	2 5%	-13 8%	104 9%	97 6%	65 7%	28 3%	45 8%	-22 3%	-25 3%	-12 3%
OTHER	(222,477)	-	-	215,273	(7,203)	(215,273)	-	-	226,305	11,032
TOTAL	2,237,864	2,425,092	1,674,297	2,402,676	8,739,929	2,202,585	2,267,159	1,960,097	3,302,822	9,732,663
%CHYA	10 8%	13 1%	-19 5%	-35 0%	-12 1%	-1 6%	-6 5%	17 1%	37 5%	11 4%

	2021:3	2021:4	2022:1	2022:2	FY 2022	2022:3	2022:4	2023:1	2023:2	FY 2023
WITHHOLDING	2,249,792	2,436,737	2,437,746	2,283,287	9,407,563	2,364,161	2,560,566	2,560,353	2,397,957	9,883,038
%CHYA	5 0%	5 5%	5 1%	5 1%	5 2%	5 1%	5 1%	5 0%	5 0%	5 1%
EST PAYMENTS	398,326	285,334	366,818	532,690	1,583,168	414,044	296,593	381,422	555,773	1,647,832
%CHYA	7 8%	7 8%	7 5%	8 2%	7 9%	3 9%	3 9%	4 0%	4 3%	4 1%
FINAL PAYMENTS[1]	119,331	171,156	193,741	1,135,389	1,619,617	128,721	181,252	186,354	1,147,044	1,643,372
%CHYA	30 6%	49 7%	14 7%	6 2%	12 2%	7 9%	5 9%	-3 8%	1 0%	1 5%
REFUNDS	142,534	315,455	888,197	628,926	1,975,112	152,348	336,319	922,183	719,052	2,129,902
%CHYA	-23 0%	-25 2%	2 1%	-4 4%	-7 5%	6 9%	6 6%	3 8%	14 3%	7 8%
OTHER	(226,305)	-	-	290,057	63,751	(290,057)	-	-	293,214	3,158
TOTAL	2,398,610	2,577,772	2,110,108	3,612,497	10,698,986	2,464,522	2,702,093	2,205,945	3,674,937	11,047,497
%CHYA	8 9%	13 7%	7 7%	9 4%	9 9%	2 7%	4 8%	4 5%	1 7%	3 3%

	2023:3	2023:4	2024:1	2024:2	FY 2024	2024:3	2024:4	2025:1	2025:2	FY 2025
WITHHOLDING	2,481,576	2,687,695	2,689,867	2,519,664	10,378,802	2,606,856	2,823,337	2,829,869	2,651,503	10,911,566
%CHYA	5 0%	5 0%	5 1%	5 1%	5 0%	5 0%	5 0%	5 2%	5 2%	5 1%
EST PAYMENTS	431,759	309,283	397,976	583,310	1,722,328	453,039	324,527	417,706	613,879	1,809,151
%CHYA	4 3%	4 3%	4 3%	5 0%	4 5%	4 9%	4 9%	5 0%	5 2%	5 0%
FINAL PAYMENTS[1]	124,294	179,109	205,606	1,197,968	1,706,977	137,505	194,053	214,944	1,258,793	1,805,295
%CHYA	-3 4%	-1 2%	10 3%	4 4%	3 9%	10 6%	8 3%	4 5%	5 1%	5 8%
REFUNDS	164,088	361,354	970,257	756,468	2,252,168	173,018	379,967	1,017,655	793,738	2,364,378
%CHYA	7 7%	7 4%	5 2%	5 2%	5 7%	5 4%	5 2%	4 9%	4 9%	5 0%
OTHER	(293,214)	-	-	330,285	37,070	(330,285)	-	-	319,649	(10,635)
TOTAL	2,580,326	2,814,733	2,323,192	3,874,759	11,593,010	2,694,098	2,961,950	2,444,864	4,050,086	12,150,998
%CHYA	4 7%	4 2%	5 3%	5 4%	4 9%	4 4%	5 2%	5 2%	4 5%	4 8%

	2025:3	2025:4	2026:1	2026:2	FY 2026	2026:3	2026:4	2027:1	2027:2	FY 2027
WITHHOLDING	2,731,724	2,958,525	2,966,595	2,779,833	11,436,677	2,860,874	3,098,354	3,115,028	2,909,298	11,983,554
%CHYA	4 8%	4 8%	4 8%	4 8%	4 8%	4 7%	4 7%	5 0%	4 7%	4 8%
EST PAYMENTS	474,782	340,102	437,836	644,682	1,897,402	498,076	356,788	459,334	676,564	1,990,762
%CHYA	4 8%	4 8%	4 8%	5 0%	4 9%	4 9%	4 9%	4 9%	4 9%	4 9%
FINAL PAYMENTS[1]	143,181	202,393	223,151	1,311,498	1,880,222	148,586	210,031	233,754	1,381,613	1,973,984
%CHYA	4 1%	4 3%	3 8%	4 2%	4 2%	3 8%	3 8%	4 8%	5 3%	5 0%
REFUNDS	182,196	399,846	1,100,505	865,238	2,547,786	191,794	420,688	1,155,618	908,534	2,676,634
%CHYA	5 3%	5 2%	8 1%	9 0%	7 8%	5 3%	5 2%	5 0%	5 0%	5 1%
OTHER	(319,649)	-	-	269,132	(50,517)	(269,132)	-	-	283,715	14,582
TOTAL	2,847,841	3,101,174	2,527,077	4,139,907	12,615,998	3,046,609	3,244,485	2,652,497	4,342,656	13,286,248
%CHYA	5 7%	4 7%	3 4%	2 2%	3 8%	7 0%	4 6%	5 0%	4 9%	5 3%

	2027:3	2027:4	2028:1	2028:2	FY 2028	2028:3	2028:4	2029:1	2029:2	FY 2029
WITHHOLDING	3,007,059	3,256,633	3,262,448	3,056,650	12,582,790	3,171,691	3,424,057	3,427,768	3,211,200	13,234,716
%CHYA	5 2%	5 2%	4 8%	5 1%	5 1%	5 5%	5 1%	5 1%	5 1%	5 2%
EST PAYMENTS	524,970	376,053	484,001	710,944	2,095,969	552,056	395,456	508,934	747,007	2,203,452
%CHYA	5 5%	5 5%	5 4%	5 2%	5 4%	5 2%	5 2%	5 2%	5 1%	5 1%
FINAL PAYMENTS1	156,362	221,496	246,255	1,455,372	2,079,487	164,698	233,399	258,895	1,528,898	2,185,890
%CHYA	5 3%	5 5%	5 4%	5 4%	5 4%	5 3%	5 4%	5 1%	5 1%	5 1%
REFUNDS	200,566	439,854	1,207,811	949,566	2,797,797	209,497	459,401	1,267,041	996,275	2,932,215
%CHYA	4 5%	4 5%	4 4%	4 4%	4 4%	4 5%	4 4%	4 9%	4 9%	4 8%
OTHER	(283,715)	-	-	369,073	85,358	(369,073)	-	-	372,757	3,685
TOTAL	3,204,111	3,414,328	2,784,893	4,642,473	14,045,806	3,309,874	3,593,511	2,928,556	4,863,587	14,695,528
%CHYA	5 3%	5 3%	5 1%	7 0%	5 8%	3 3%	5 2%	5 2%	4 8%	4 6%

Note: "Other" includes July withholding accrued to June Tax law impacts are reflected in the collections numbers to produce more meaningful projections

Table B.5 Oregon Corporate Income Tax Revenue Forecast

TABLE B.5 **OREGON CORPORATE INCOME TAX REVENUE FORECAST - QUARTERLY COLLECTIONS**

Thousands of Dollars - Not Seasonally Adjusted **March 2020**

	2009:3	2009:4	2010:1	2010:2	FY 2010	2010:3	2010:4	2011:1	2011:2	FY 2011
ADVANCE PAYMENTS	79,579	163,877	66,451	147,313	457,220	115,286	175,561	76,405	165,354	532,606
%CHYA	-20 9%	12 8%	4 2%	51 3%	12 3%	44 9%	7 1%	15 0%	12 2%	16 5%
FINAL PAYMENTS	20,404	24,009	38,412	45,714	128,539	21,781	21,206	35,770	40,805	119,562
%CHYA	-13 2%	-10 2%	72 1%	109 5%	36 2%	6 8%	-11 7%	-6 9%	-10 7%	-7 0%
REFUNDS	29,072	137,244	40,080	25,774	232,170	23,130	89,877	39,065	31,489	183,562
%CHYA	3 3%	9 9%	-40 6%	-30 7%	-9 9%	-20 4%	-34 5%	-2 5%	22 2%	-20 9%
TOTAL	70,910	50,642	64,784	167,254	353,589	113,936	106,890	73,111	174,670	468,606
%CHYA	-26 1%	7 3%	247 5%	104 0%	45 1%	60 7%	111 1%	12 9%	4 4%	32 5%

	2011:3	2011:4	2012:1	2012:2	FY 2012	2012:3	2012:4	2013:1	2013:2	FY 2013
ADVANCE PAYMENTS	120,766	154,290	86,873	156,652	518,581	130,348	110,207	80,942	282,526	604,023
%CHYA	4 8%	-12 1%	13 7%	-5 3%	-2 6%	7 9%	-28 6%	-6 8%	80 4%	16 5%
FINAL PAYMENTS	19,117	26,841	32,512	33,322	111,792	16,387	21,377	36,660	34,009	108,433
%CHYA	-12 2%	26 6%	-9 1%	-18 3%	-6 5%	-14 3%	-20 4%	12 8%	2 1%	-3 0%
REFUNDS	34,927	91,252	55,051	18,153	199,384	33,212	17,832	25,595	182,929	259,568
%CHYA	51 0%	1 5%	40 9%	-42 4%	8 6%	-4 9%	-80 5%	-53 5%	907 7%	30 2%
TOTAL	104,955	89,878	64,335	171,820	430,989	113,524	113,751	92,007	133,606	452,888
%CHYA	-7 9%	-15 9%	-12 0%	-1 6%	-8 0%	8 2%	26 6%	43 0%	-22 2%	5 1%

	2013:3	2013:4	2014:1	2014:2	FY 2014	2014:3	2014:4	2015:1	2015:2	FY 2015
ADVANCE PAYMENTS	123,591	187,195	150,401	183,348	644,535	193,248	206,088	106,689	183,611	689,637
%CHYA	-5 2%	69 9%	85 8%	-35 1%	6 7%	56 4%	10 1%	-29 1%	0 1%	7 0%
FINAL PAYMENTS	27,794	18,162	32,218	52,283	130,456	28,815	73,552	57,268	71,415	231,051
%CHYA	69 6%	-15 0%	-12 1%	53 7%	20 3%	3 7%	305 0%	77 8%	36 6%	77 1%
REFUNDS	20,123	118,303	109,296	32,511	280,232	49,952	155,439	58,361	35,167	298,918
%CHYA	-39 4%	563 4%	327 0%	-82 2%	8 0%	148 2%	31 4%	-46 6%	8 2%	6 7%
TOTAL	131,262	87,054	73,323	203,120	494,759	172,111	124,202	105,597	219,860	621,770
%CHYA	15 6%	-23 5%	-20 3%	52 0%	9 2%	31 1%	42 7%	44 0%	8 2%	25 7%

	2015:3	2015:4	2016:1	2016:2	FY 2016	2016:3	2016:4	2017:1	2017:2	FY 2017
ADVANCE PAYMENTS	173,329	220,326	118,673	202,813	715,141	136,698	215,677	102,663	195,412	650,449
%CHYA	-10 3%	6 9%	11 2%	10 5%	3 7%	-21 1%	-2 1%	-13 5%	-3 6%	-9 0%
FINAL PAYMENTS	67,305	59,752	63,509	70,433	260,998	44,746	93,441	52,164	81,824	272,175
%CHYA	133 6%	-18 8%	10 9%	-1 4%	13 0%	-33 5%	56 4%	-17 9%	16 2%	4 3%
REFUNDS	42,388	156,984	85,446	81,453	366,271	39,680	166,537	73,066	57,733	337,016
%CHYA	-15 1%	1 0%	46 4%	131 6%	22 5%	-6 4%	6 1%	-14 5%	-29 1%	-8 0%
TOTAL	198,245	123,094	96,736	191,793	609,868	141,764	142,581	81,761	219,503	585,608
%CHYA	15 2%	-0 9%	-8 4%	-12 8%	-1 9%	-28 5%	15 8%	-15 5%	14 4%	-4 0%

	2017:3	2017:4	2018:1	2018:2	FY 2018	2018:3	2018:4	2019:1	2019:2	FY 2019
ADVANCE PAYMENTS	179,603	185,787	182,395	303,835	851,620	222,891	249,768	158,748	264,445	895,852
%CHYA	31 4%	-13 9%	77 7%	55 5%	30 9%	24 1%	34 4%	-13 0%	-13 0%	5 2%
FINAL PAYMENTS	42,600	66,460	46,270	108,539	263,869	74,735	102,942	68,818	174,861	421,356
%CHYA	-4 8%	-28 9%	-11 3%	32 6%	-3 1%	75 4%	54 9%	48 7%	61 1%	59 7%
REFUNDS	72,225	129,963	122,291	54,224	378,703	43,428	167,871	128,586	50,616	390,501
%CHYA	82 0%	-22 0%	67 4%	-6 1%	12 4%	-39 9%	29 2%	5 1%	-6 7%	3 1%
TOTAL	149,978	122,284	106,374	358,150	736,786	254,198	184,839	98,980	388,690	926,707
%CHYA	5 8%	-14 2%	30 1%	63 2%	25 8%	69 5%	51 2%	-7 0%	8 5%	25 8%

TABLE B.5 **OREGON CORPORATE INCOME TAX REVENUE FORECAST - QUARTERLY COLLECTIONS**

Thousands of Dollars - Not Seasonally Adjusted **March 2020**

	2019:3	2019:4	2020:1	2020:2	FY 2020	2020:3	2020:4	2021:1	2021:2	FY 2021
ADVANCE PAYMENTS	236,341	240,731	128,479	212,002	817,553	160,906	195,802	114,065	197,675	668,448
%CHYA	6 0%	-3 6%	-19 1%	-19 8%	-8 7%	-31 9%	-18 7%	-11 2%	-6 8%	-18 2%
FINAL PAYMENTS	67,657	157,255	123,901	102,506	451,319	47,298	140,143	114,432	90,669	392,541
%CHYA	-9 5%	52 8%	80 0%	-41 4%	7 1%	-30 1%	-10 9%	-7 6%	-11 5%	-13 0%
REFUNDS	73,866	253,661	156,953	53,558	538,038	54,577	216,278	146,374	61,933	479,163
%CHYA	70 1%	51 1%	22 1%	5 8%	37 8%	-26 1%	-14 7%	-6 7%	15 6%	-10 9%
TOTAL	230,132	144,325	95,427	260,950	730,835	153,627	119,666	82,123	226,410	581,826
%CHYA	-9 5%	-21 9%	-3 6%	-32 9%	-21 1%	-33 2%	-17 1%	-13 9%	-13 2%	-20 4%

	2021:3	2021:4	2022:1	2022:2	FY 2022	2022:3	2022:4	2023:1	2023:2	FY 2023
ADVANCE PAYMENTS	161,169	198,939	118,048	206,113	684,268	166,912	206,362	123,170	215,053	711,496
%CHYA	0 2%	1 6%	3 5%	4 3%	2 4%	3 6%	3 7%	4 3%	4 3%	4 0%
FINAL PAYMENTS	51,013	155,488	124,719	103,892	435,112	58,681	174,465	137,782	119,125	490,053
%CHYA	7 9%	11 0%	9 0%	14 6%	10 8%	15 0%	12 2%	10 5%	14 7%	12 6%
REFUNDS	52,352	222,892	150,160	63,582	488,987	53,792	236,364	158,557	66,943	515,656
%CHYA	-4 1%	3 1%	2 6%	2 7%	2 1%	2 8%	6 0%	5 6%	5 3%	5 5%
TOTAL	159,829	131,535	92,607	246,422	630,393	171,800	144,463	102,394	267,236	685,893
%CHYA	4 0%	9 9%	12 8%	8 8%	8 3%	7 5%	9 8%	10 6%	8 4%	8 8%

	2023:3	2023:4	2024:1	2024:2	FY 2024	2024:3	2024:4	2025:1	2025:2	FY 2025
ADVANCE PAYMENTS	171,747	212,322	127,686	223,058	734,812	177,930	220,315	132,510	231,440	762,196
%CHYA	2 9%	2 9%	3 7%	3 7%	3 3%	3 6%	3 8%	3 8%	3 8%	3 7%
FINAL PAYMENTS	67,417	194,017	175,755	145,945	583,134	84,226	261,219	207,496	172,465	725,407
%CHYA	14 9%	11 2%	27 6%	22 5%	19 0%	24 9%	34 6%	18 1%	18 2%	24 4%
REFUNDS	57,052	256,185	194,407	80,542	588,186	66,184	322,819	225,246	92,304	706,553
%CHYA	6 1%	8 4%	22 6%	20 3%	14 1%	16 0%	26 0%	15 9%	14 6%	20 1%
TOTAL	182,112	150,154	109,034	288,461	729,761	195,973	158,715	114,760	311,602	781,050
%CHYA	6 0%	3 9%	6 5%	7 9%	6 4%	7 6%	5 7%	5 3%	8 0%	7 0%

	2025:3	2025:4	2026:1	2026:2	FY 2026	2026:3	2026:4	2027:1	2027:2	FY 2027
ADVANCE PAYMENTS	186,385	230,522	138,431	241,458	796,796	192,900	239,609	143,989	250,337	826,835
%CHYA	4 8%	4 6%	4 5%	4 3%	4 5%	3 5%	3 9%	4 0%	3 7%	3 8%
FINAL PAYMENTS	101,761	319,186	214,620	190,741	826,307	112,395	326,852	221,895	209,507	870,649
%CHYA	20 8%	22 2%	3 4%	10 6%	13 9%	10 5%	2 4%	3 4%	9 8%	5 4%
REFUNDS	73,293	374,613	227,640	93,373	768,918	74,851	381,035	232,451	95,408	783,744
%CHYA	10 7%	16 0%	1 1%	1 2%	8 8%	2 1%	1 7%	2 1%	2 2%	1 9%
TOTAL	214,852	175,095	125,411	338,827	854,185	230,444	185,427	133,433	364,436	913,740
%CHYA	9 6%	10 3%	9 3%	8 7%	9 4%	7 3%	5 9%	6 4%	7 6%	7 0%

	2027:3	2027:4	2028:1	2028:2	FY 2028	2028:3	2028:4	2029:1	2029:2	FY 2029
ADVANCE PAYMENTS	200,534	248,826	148,596	257,942	855,898	206,333	254,565	150,930	262,071	873,899
%CHYA	4 0%	3 8%	3 2%	3 0%	3 5%	2 9%	2 3%	1 6%	1 6%	2 1%
FINAL PAYMENTS	124,809	334,939	227,264	226,091	913,103	135,246	339,867	230,497	235,954	941,564
%CHYA	11 0%	2 5%	2 4%	7 9%	4 9%	8 4%	1 5%	1 4%	4 4%	3 1%
REFUNDS	76,555	385,035	234,210	96,239	792,038	77,469	388,219	236,431	97,224	799,342
%CHYA	2 3%	1 0%	0 8%	0 9%	1 1%	1 2%	0 8%	0 9%	1 0%	0 9%
TOTAL	248,788	198,731	141,650	387,794	976,963	264,110	206,214	144,996	400,801	1,016,121
%CHYA	8 0%	7 2%	6 2%	6 4%	6 9%	6 2%	3 8%	2 4%	3 4%	4 0%

Table B.6 Cigarette and Tobacco Tax Distribution

TABLE B.6 March 2020

Cigarette & Tobacco Tax Distribution (Millions of $)

	Cigarette Tax Distribution*							Other Tobacco Tax Distribution			
	General Fund	Health Plan	Tobacco Use Reduction	Mental Health	State Total	Cities, Counties & Public Trans t	Total	General Fund	Hea th Plan	Tobacco Use Reduction	State Total
Distribution Forecast*											
2019-20	32.439	126.425	5.043	22.118	186.024	10.086	196.110	32.078	24.749	2.753	59.580
2020-21	31.888	124.275	4.957	21.742	182.862	9.914	192.776	32.811	25.315	2.816	60.942
2019-21 Biennium	64.327	250.700	10.000	43.859	368.886	20.000	388.886	64.889	50.065	5.568	120.521
2021-22	31.325	122.081	4.870	21.358	179.633	9.739	189.372	33.236	25.643	2.852	61.732
2022-23	30.764	119.894	4.782	20.975	176.416	9.565	185.980	33.795	26.075	2.900	62.770
2021-23 Biennium	62.088	241.976	9.652	42.333	356.049	19.304	375.353	67.032	51.718	5.752	124.502
2023-24	30.320	118.164	4.713	20.672	173.869	9.427	183.296	34.175	26.368	2.933	63.475
2024-25	29.604	115.374	4.602	20.184	169.764	9.204	178.968	34.416	26.554	2.953	63.923
2023-25 Biennium	59.923	233.537	9.315	40.857	343.633	18.631	362.264	68.591	52.921	5.886	127.399
2025-26	28.975	112.924	4.504	19.756	166.160	9.009	175.169	34.623	26.713	2.971	64.307
2026-27	28.422	110.768	4.418	19.379	162.987	8.837	171.824	34.800	26.850	2.986	64.636
2025-27 Biennium	57.397	223.693	8.923	39.135	329.147	17.845	346.993	69.423	53.563	5.957	128.943
2027-28	27.934	108.866	4.342	19.046	160.188	8.685	168.873	34.951	26.966	2.999	64.916
2028-29	27.502	107.185	4.275	18.752	157.714	8.551	166.265	35.080	27.066	3.010	65.156
2027-29 Biennium	55.436	216.051	8.618	37.798	317.903	17.236	335.138	70.031	54.032	6.009	130.072

Table B.7 Revenue Distribution to Local Governments

TABLE B.7 **March 2020**

Liquor Apportionment and Revenue Distribution to Local Governments (Millions of $)

	Liquor Apportionment Distribution								
					City Revenue				
	Total Liquor Revenue Available	General Fund (56%)	Mental Health[1]	Oregon Wine Board	Revenue Sharing	Regular	Total	Counties	Cigarette Tax Distribution[2]
2019-20	294.383	167.298	9.518	0.336	53.287	37.301	90.587	26.643	10.086
2020-21	318.914	181.239	10.311	0.364	57.727	40.409	98.136	28.864	9.914
2019-21 Biennium	613.297	348.537	19.829	0.701	111.014	77.710	188.724	55.507	20.000
2021-22	307.245	166.083	10.258	0.364	59.337	41.536	100.873	29.668	9.739
2022-23	321.058	173.776	10.494	0.373	62.007	43.405	105.412	31.003	9.565
2021-23 Biennium	628.303	339.859	20.751	0.736	121.344	84.941	206.285	60.672	19.304
2023-24	335.143	181.627	10.735	0.382	64.727	45.309	110.036	32.363	9.427
2024-25	350.215	190.035	10.982	0.392	67.640	47.348	114.987	33.820	9.204
2023-25 Biennium	685.358	371.661	21.717	0.774	132.366	92.657	225.023	66.183	18.631
2025-26	365.608	198.627	11.234	0.401	49.428	70.611	120.039	35.306	9.009
2026-27	382.056	207.817	11.493	0.411	51.652	73.789	125.441	36.894	8.837
2025-27 Biennium	747.664	406.444	22.727	0.813	101.080	144.400	245.480	72.200	17.845
2027-28	398.875	216.959	12.010	0.430	53.924	77.034	130.958	38.517	8.685
2028-29	416.820	226.720	12.550	0.449	56.350	80.500	136.850	40.250	8.551
2027-29 Biennium	815.694	443.680	24.560	0.879	110.274	157.534	267.809	78.767	17.236

[1] Mental Health Alcoholism and Drug Services Account, per ORS 471.810

[2] For details on cigarette revenues see TABLE B.6 on previous page

Table B.8 Track Record for the September 2019 Forecast

Table B.8 Track Record for the December 2019 Forecast

(Quarter ending December 31, 2019)

Personal Income Tax	Forecast Comparison			Year/Year Change	
(Millions of dollars)	Actual Revenues	Latest Forecast	Percent Difference	Prior Year	Percent Change
Withholding	$2,223.4	$2,176.5	2.2%	$2,039.1	9.0%
Dollar difference		$46.9		$131.0	
Estimated Payments*	$296.1	$295.0	0.4%	$284.0	4.3%
Dollar difference		$1.1		$131.8	
Final Payments*	$195.1	$218.6	-10.8%	$156.6	24.6%
Dollar difference		-$23.6		$25.5	
Refunds	-$289.5	-$301.0	-3.8%	-$335.6	-13.8%
Dollar difference		$11.5		$46.2	
Total Personal Income Tax	**$2,425.1**	**$2,389.1**	**1.5%**	**$2,144.1**	**13.1%**
Dollar difference		$35.9		$281.0	

Corporate Income Tax	Forecast Comparison			Year/Year Change	
(Millions of dollars)	Actual Revenues	Latest Forecast	Percent Difference	Prior Year	Percent Change
Advanced Payments	$240.7	$265.8	-9.4%	$249.8	-3.6%
Dollar difference		-$25.1		-$9.0	
Final Payments	$157.3	$96.7	62.6%	$102.9	52.8%
Dollar difference		$60.5		$54.3	
Refunds	-$253.7	-$179.2	41.6%	-$167.9	51.1%
Dollar difference		-$74.5		-$85.8	
Total Corporate Income Tax	**$144.3**	**$183.3**	**-21.3%**	**$184.8**	**-21.9%**
Dollar difference		-$39.0		-$40.5	

Total Income Tax	Forecast Comparison			Year/Year Change	
(Millions of dollars)	Actual Revenues	Latest Forecast	Percent Difference	Prior Year	Percent Change
Corporate and Personal Tax	**$2,569.4**	**$2,572.5**	**-0.1%**	**$2,328.9**	**10.3%**
Dollar difference		-$3.1		$240.5	

* Data separating estimated and other personal income tax payments is no longer available. Tracking represents estimates based on banking data.

Table B.9 Summary of Lottery Resources

TABLE B.9 **Mar 2020 Forecast**
Summary of Lottery Resources

(in millions of dollars)	2019-21 Current Forecast	2019-21 *Change from Dec-19*	2019-21 *Change from COS 2019*	2021-23 Current Forecast	2021-23 *Change from Dec-19*	2023-25 Current Forecast	2023-25 *Change from Dec-19*	2025-2027 Current Forecast	2025-2027 *Change from Dec-19*	2027-29 Current Forecast	2027-29 *Change from Dec-19*
LOTTERY EARNINGS											
Traditional Lottery	147.323	*1.023*	*(7.577)*	149.977	*(0.354)*	150.468	(0.111)	149.359	(1.048)	149.429	(0.990)
Video Lottery	1,329.717	*8.702*	*24.774*	1,433.362	*11.880*	1,562.201	14.298	1,691.940	42.208	1,797.001	47.308
Scoreboard (Sports Betting)[1]	8.252	*0.000*	*8.252*	29.425	*0.000*	42.198	0.000	46.404	0.000	49.901	0.000
Administrative Actions	0.000	*0.000*	*0.000*	0.000	*0.000*	0.000	0.000	0.000	0.000	0.000	0.000
Total Available to Transfer	1,485.293	*9.725*	*25.449*	1,612.764	*11.526*	1,754.867	14.187	1,887.703	41.160	1,996.332	46.318
ECONOMIC DEVELOPMENT FUND											
Beginning Balance	65.340	*0.000*	*0.000*	0.000	*0.000*	0.000	0.000	0.000	0.000	0.000	0.000
Transfers from Lottery	1,485.293	*9.725*	*25.449*	1,612.764	*11.526*	1,754.867	14.187	1,887.703	41.160	1,996.332	46.318
Other Resources[2]	5.731	*0.000*	*0.000*	2.000	*0.000*	2.000	0.000	2.000	0.000	2.000	0.000
Total Available Resources	1,556.363	*9.725*	*25.449*	1,614.764	*11.526*	1,756.867	14.187	1,889.703	41.160	1,998.332	46.318
ALLOCATION OF RESOURCES											
Constitutional Distributions											
Education Stability Fund[3]	267.353	*1.751*	*4.581*	105.025	(183.197)	154.972	(158.351)	124.497	(207.880)	131.161	(219.841)
Oregon Capital Matching Fund[3]	0.000	*0.000*	*0.000*	154.393	154.393	134.087	134.087	179.408	179.408	190.184	190.184
Parks and Natural Resources Fund[4]	222.794	*1.459*	*3.817*	241.915	1.729	263.230	2.128	283.155	6.174	299.450	6.948
Veterans' Services Fund[5]	22.279	*0.146*	*0.382*	24.191	0.173	26.323	0.213	28.316	0.617	29.945	0.695
Other Distributions											
Outdoor School Education Fund[6]	45.306	*0.000*	*0.000*	49.656	(0.201)	52.169	(0.106)	54.950	0.139	57.615	0.146
County Economic Development	50.231	*0.000*	*0.000*	54.955	0.455	59.895	0.548	64.869	1.618	68.897	1.814
HECC Collegiate Athletic & Scholarships[7]	14.100	*0.000*	*0.000*	16.128	0.115	17.549	0.142	18.877	0.412	19.963	0.463
Gambling Addiction [7]	14.593	*0.000*	*0.000*	16.128	0.115	17.549	0.142	18.877	0.412	19.963	0.463
County Fairs	3.828	*0.000*	*0.000*	3.828	0.000	3.828	0.000	3.828	0.000	3.828	0.000
Other Legislatively Adopted Allocations[8]	879.210	*0.000*	*0.000*	238.900	0.000	234.300	0.000	234.300	0.000	234.300	0.000
Employer Incentive Fund (PERS)[1]	8.252	*0.000*	*8.252*	29.425	0.000	42.198	0.000	46.404	0.000	49.901	0.000
Total Distributions	1,527.946	*3.355*	*17.032*	934.544	(26.417)	1,006.099	(21.197)	1,057.480	(19.100)	1,105.207	(19.129)
Ending Balance/Discretionary Resources	28.417	*6.370*	*8.417*	680.220	37.943	750.768	35.383	832.223	60.261	893.124	65.446

Note: Some totals may not foot due to rounding.

1. Per SB 1049 (2019), Sports Betting revenues are transferred to Economic Development Fund making them subject to the constitutional distributions, then an equal amount is transferred to the Employer Incentive Fund
2. Includes reversions (unspent allocations from previous biennium) and interest earnings on Economic Development Fund.
3. Eighteen percent of proceeds accrue to the Ed. Stability Fund, until the balance equals 5% of GF Revenues. Thereafter, 15% of proceeds accrue to the School Capital Matching Fund.
4. The Parks and Natural Resources Fund Constitutional amendment requires 15% of net proceeds be transferred to this fund.
5. Per Ballot Measure 96 (2016), 1.5% of net lottery proceeds are dedicated to the Veterans' Services Fund
6. Per Ballot Measure 99 (2016), the lesser of 4% of Lottery transfers or $22 million per year is transferred to the Outdoor Education Account. Adjusted annually for inflation.
7. Approximately one percent of net lottery proceeds are dedicated to each program. Certain limits are imposed by the Legislature.
8. Includes Debt Service Allocatons, Allocations to State School Fund and Other Agency Allocations

Table B.10 Budgetary Reserve Summary and Outlook

Table B.10: Budgetary Reserve Summary and Outlook **Mar 2020**

Rainy Day Fund

(Millions)	2017-19	2019-21	2021-23	2023-25	2025-27	2027-29
Beginning Balance	$376.4	$666.6	$962.8	$1,306.2	$1,708.9	$2,164.1
Interest Earnings	$23.5	$33.8	$54.3	$83.5	$109.1	$137.1
Deposits[1]	$266.7	$262.4	$289.1	$319.1	$346.2	$373.8
Triggered Withdrawals	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Ending Balance[2]	**$666.6**	**$962.8**	**$1,306.2**	**$1,708.9**	**$2,164.1**	**$2,675.1**

Education Stability Fund[3]

(Millions)	2017-19	2019-21	2021-23	2023-25	2025-27	2027-29
Beginning Balance	$384.2	$621.1	$860.3	$954.8	$1,094.3	$1,206.3
Interest Earnings[4]	$22.4	$32.3	$46.8	$61.1	$69.5	$76.5
Deposits[5]	$235.9	$240.6	$94.5	$139.5	$112.0	$118.0
Distributions	$22.4	$32.3	$46.8	$61.1	$69.5	$76.5
Oregon Education Fund	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Oregon Opportunity Grant	$22.4	$32.3	$46.8	$61.1	$69.5	$76.5
Withdrawals	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Ending Balance	**$621.1**	**$860.3**	**$954.8**	**$1,094.3**	**$1,206.3**	**$1,324.4**

Total Reserves

(Millions)	2017-19	2019-21	2021-23	2023-25	2025-27	2027-29
Ending Balances	**$1,287.7**	**$1,823.1**	**$2,261.0**	**$2,803.1**	**$3,370.5**	**$3,999.5**
Percent of General Fund Revenues	5.9%	8.6%	9.3%	10.5%	11.6%	12.4%

Footnotes:
1. Includes transfer of ending General Fund balances up to 1% of budgeted appropriations as well as private donations. Assumes future appropriations equal to 98.75 percent of available resources. Includes forecast for corporate income taxes above rate of 6.6% for the biennium are deposited on or before Jun 30 of each odd-numbered year.
2. Available funds in a given biennium equal 2/3rds of the beginning balance under current law.
3. Excludes funds in the Oregon Growth and the Oregon Resource and Technology Development subaccounts.
4. Interest earnings are distr buted to the Oregon Education Funds (75%) and the State Scholarship Fund (25%), provided there remains debt outstanding. In the event that debt is paid off, all interest earnings distributed to the State Scholarship Fund.
5. Contributions to the ESF are capped at 5% of the prior biennium's General Fund revenue total. Quarterly contributions are made until the balance exceeds the cap.

Table B.11 Recreational Marijuana Resources and Distributions

TABLE B.11 **Mar 2020**

Summary of Marijuana Resources

(in millions of dollars)	2019-21 Current Forecast	2019-21 *Change from Dec-19*	2019-21 *Change from COS 2019*	2021-23 Current Forecast	2021-23 *Change from Dec-19*	2023-25 Current Forecast	2023-25 *Change from Dec-19*	2025-27 Current Forecast	2025-27 *Change from Dec-19*	2027-29 Current Forecast	2027-29 *Change from Dec-19*
MARIJUANA EARNINGS											
+ Tax Revenue [1]	251.485	*3.277*	*13.516*	298.841	*0.000*	326.435	0.000	352.873	0.000	379.312	0.000
- Administrative Costs [2]	14.246	*0.000*	*0.052*	14.193	*0.000*	14.193	0.000	14.193	0.000	14.193	0.000
Net Available to Transfer	237.240	*3.277*	*13.464*	284.648	*0.000*	312.242	*0.000*	338.680	*0.000*	365.118	*0.000*
OREGON MARIJUANA ACCOUNT											
Beginning Balance	28.765	*0.000*	*0.000*	11.027	*2.622*	0.000	0.000	0.000	0.000	0.000	0.000
Revenue Transfers	237.240	*3.277*	*13.464*	284.648	*0.000*	312.242	0.000	338.680	0.000	365.118	0.000
Other Resources	0.000	*0.000*	*0.000*	0.000	*0.000*	0.000	0.000	0.000	0.000	0.000	0.000
Total Available Resources	266.005	*3.277*	*13.464*	295.675	*2.622*	312.242	*0.000*	338.680	*0.000*	365.118	*0.000*
ALLOCATION OF RESOURCES											
State School Fund (40%)	103.765	*0.000*	*0.000*	119.373	*1.311*	124.897	0.000	135.472	0.000	146.047	0.000
Mental Health, Alcoholism, & Drug Services (20%)	51.882	*0.000*	*0.000*	59.686	*0.655*	62.448	0.000	67.736	0.000	73.024	0.000
State Police (15%)	38.912	*0.000*	*0.000*	44.765	*0.492*	46.836	0.000	50.802	0.000	54.768	0.000
Cities (10%)	23.724	*0.328*	*1.346*	28.465	*0.000*	31.224	0.000	33.868	0.000	36.512	0.000
Counties (10%)	23.724	*0.328*	*1.346*	28.465	*0.000*	31.224	0.000	33.868	0.000	36.512	0.000
Alcohol & Drug Abuse Prevention, Intervention & Treatment (5%)	12.971	*0.000*	*0.000*	14.922	*0.164*	15.612	0.000	16.934	0.000	18.256	0.000
Total Distributions	254.978	*0.655*	*2.693*	295.675	*2.622*	312.242	*0.000*	338.680	*0.000*	365.118	*0.000*
Ending Balance	11.027	*2.622*	*10.891*	0.000	*0.000*	0.000	0.000	0.000	0.000	0.000	0.000

Note: Some totals may not foot due to rounding.

1. Retailers pay taxes monthly, however taxes are not available for distribution to recepient programs until the Department of Revenue receives and processes retailers' quarterly tax returns. As such, there is a one to two quarter lag between when the initial monthly payments are made and when monies be come available to distribute.

2. Administrative Costs reflect monthly collection costs for the Department of Revenue in addition to distributions to the Criminal Justice Commission and OLCC per SB 1544 (2018)

Table B.12 Fund for Student Success (Corporate Activity Tax)

TABLE B.12 **Mar 2020**

Summary of Corporate Activity Tax Resources

	2019-21			2021-23		2023-25		2025-27		2027-29	
(in millions of dollars)	Current Forecast	*Change from Dec-19*	*Change from COS 2019*	Current Forecast	*Change from Dec-19*	Current Forecast	*Change from Dec-19*	Current Forecast	*Change from Dec-19*	Current Forecast	*Change from Dec-19*
Corporate Activity Tax											
+ Tax Revenue	1,596.267	*0.000*	0.000	2,806.156	*0.000*	3,063.290	*0.000*	3,344.575	*0.000*	3,657.172	*0.000*
- Administrative Costs	9.520	*0.000*	0.000	19.200	*0.000*	21.312	*0.000*	23.656	*0.000*	26.259	*0.000*
Net Available to Transfer	1,586.747	0.000	0.000	2,786.956	0.000	3,041.978	0.000	3,320.918	0.000	3,630.913	0.000
Fund for Student Success											
Beginning Balance	0.000	*0.000*	0.000	34.760	*0.000*	0.000	*0.000*	0.000	*0.000*	0.000	*0.000*
Revenue Transfers	1,586.747	*0.000*	0.000	2,786.956	*0.000*	3,041.978	*0.000*	3,320.918	*0.000*	3,630.913	*0.000*
Other Resources	0.000	*0.000*	0.000	0.000	*0.000*	0.000	*0.000*	0.000	*0.000*	0.000	*0.000*
Total Available Resources	1,586.747	0.000	0.000	2,821.716	0.000	3,041.978	0.000	3,320.918	0.000	3,630.913	0.000
ALLOCATION OF RESOURCES											
State School Fund	643.000	*0.000*	0.000	739.000	*0.000*	796.686	*0.000*	869.740	*0.000*	950.927	*0.000*
Student Investment Account	472.740	*0.000*	0.000	1,041.358	*0.000*	1,122.646	*0.000*	1,225.589	*0.000*	1,339.993	*0.000*
Statewide Education Initiative Account	265.122	*0.000*	0.000	624.815	*0.000*	673.588	*0.000*	735.354	*0.000*	803.996	*0.000*
Early Learning Account	171.125	*0.000*	0.000	416.543	*0.000*	449.058	*0.000*	490.236	*0.000*	535.997	*0.000*
Total Distributions	1,551.987	0.000	0.000	2,821.716	0.000	3,041.978	0.000	3,320.918	0.000	3,630.913	0.000
Ending Balance	34.760	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Note: Some totals may not foot due to rounding.

APPENDIX C: POPULATION FORECASTS BY AGE AND SEX

Table C.1 Oregon's Population Forecasts and Component of Change 1990-2029

Year		Population Change		Births		Deaths		Natural	Net Migration	
(July 1)	Population	Number	Percent	Number	Rate/1000	Number	Rate/1000	Increase	Number	Rate/1000
1990	2,860,400	69,800	2 50	42,008	14 87	24,763	8 76	17,245	52,555	18 60
1991	2,928,500	68,100	2 38	42,682	14 75	24,944	8 62	17,738	50,362	17 40
1992	2,991,800	63,300	2 16	42,427	14 33	25,166	8 50	17,261	46,039	15 55
1993	3,060,400	68,600	2 29	41,442	13 69	26,543	8 77	14,899	53,701	17 75
1994	3,121,300	60,900	1 99	41,487	13 42	27,564	8 92	13,923	46,977	15 20
1995	3,184,400	63,100	2 02	42,426	13 46	27,552	8 74	14,874	48,226	15 30
1990-1995		**324,000**		**210,464**		**131,769**		**78,695**	**245,305**	
1996	3,247,100	62,700	1 97	43,196	13 43	28,768	8 95	14,428	48,272	15 01
1997	3,304,300	57,200	1 76	43,625	13 32	29,201	8 91	14,424	42,776	13 06
1998	3,352,400	48,100	1 46	44,696	13 43	28,705	8 62	15,991	32,109	9 65
1999	3,393,900	41,500	1 24	45,188	13 40	29,848	8 85	15,340	26,160	7 76
2000	3,431,100	37,200	1 10	45,534	13 34	28,909	8 47	16,625	20,575	6 03
1995-2000		**246,700**		**222,239**		**145,431**		**76,808**	**169,892**	
2001	3,470,400	39,300	1 15	45,536	13 20	29,934	8 67	15,602	23,698	6 87
2002	3,502,600	32,200	0 93	44,995	12 91	30,828	8 84	14,167	18,033	5 17
2003	3,538,600	36,000	1 03	45,686	12 98	30,604	8 69	15,082	20,918	5 94
2004	3,578,900	40,300	1 14	45,599	12 81	30,721	8 63	14,878	25,422	7 14
2005	3,626,900	48,000	1 34	45,892	12 74	30,717	8 53	15,175	32,825	9 11
2000-2005		**195,800**		**227,708**		**152,804**		**74,904**	**120,896**	
2006	3,685,200	58,300	1 61	46,946	12 84	30,771	8 42	16,175	42,125	11 52
2007	3,739,400	54,200	1 47	49,404	13 31	31,396	8 46	18,008	36,192	9 75
2008	3,784,200	44,800	1 20	49,659	13 20	32,008	8 51	17,651	27,149	7 22
2009	3,815,800	31,600	0 84	47,960	12 62	31,382	8 26	16,578	15,022	3 95
2010	3,837,300	21,500	0 56	46,256	12 09	31,689	8 28	14,567	6,933	1 81
2005-2010		**210,400**		**240,225**		**157,246**		**82,979**	**127,421**	
2011	3,857,625	20,325	0 53	45,381	11 80	32,437	8 43	12,944	7,381	1 92
2012	3,883,735	26,110	0 68	44,897	11 60	32,804	8 47	12,093	14,017	3 62
2013	3,919,020	35,285	0 91	44,969	11 53	33,168	8 50	11,801	23,484	6 02
2014	3,962,710	43,690	1 11	45,447	11 53	33,731	8 56	11,716	31,974	8 11
2015	4,013,845	51,135	1 29	45,660	11 45	35,318	8 86	10,342	40,793	10 23
2010-2015		**176,545**		**226,354**		**167,458**		**58,896**	**117,649**	
2016	4,076,350	62,505	1 56	45,647	11 28	35,339	8 74	10,308	52,197	12 90
2017	4,141,100	64,750	1 59	44,602	10 86	36,773	8 95	7,829	56,921	13 85
2018	4,195,300	54,200	1 31	42,906	10 29	36,268	8 70	6,638	47,562	11 41
2019	4,236,400	41,099	0 98	42,200	10 01	36,750	8 72	5,450	35,649	8 46
2020	4,276,700	40,300	0 95	42,635	10 02	38,095	8 95	4,540	35,760	8 40
2015-2020		**262,854**		**217,990**		**183,225**		**34,765**	**228,089**	
2021	4,316,600	39,901	0 93	42,603	9 92	38,843	9 04	3,760	36,141	8 41
2022	4,355,800	39,200	0 91	42,536	9 81	39,630	9 14	2,906	36,294	8 37
2023	4,394,300	38,500	0 88	42,522	9 72	40,477	9 25	2,045	36,455	8 33
2024	4,432,200	37,900	0 86	42,522	9 64	41,408	9 38	1,114	36,786	8 34
2025	4,469,500	37,301	0 84	42,502	9 55	42,373	9 52	129	37,172	8 35
2020-2025		**192,801**		**212,686**		**202,732**		**9,954**	**182,847**	
2026	4,506,300	36,799	0 82	42,567	9 48	43,355	9 66	-788	37,587	8 38
2027	4,542,500	36,201	0 80	42,617	9 42	44,401	9 81	-1,784	37,985	8 40
2028	4,577,700	35,199	0 77	42,673	9 36	45,553	9 99	-2,880	38,079	8 35
2029	4,612,000	34,301	0 75	42,712	9 30	46,673	10 16	-3,962	38,262	8 33
1990-2000		**570,700**		**432,703**		**277,200**		**155,503**	**415,197**	13 10
2000-2010		**406,200**		**467,933**		**310,050**		**157,883**	**248,317**	6 83
2010-2020		**439,400**		**444,344**		**350,683**		**93,661**	**345,739**	8 57
2019-2029		**375,600**		**425,889**		**420,809**		**5,080**	**370,520**	8 37

Sources: 1990-1999 population - U S Census Bureau; 2000-2009 population - intercensal estimates by Office of Economic Analysis; population estimates 2010-2018 by Population Research Center, PSU; births and deaths 1990-2018: Oregon Center for Health Statistics

Table C.2 Population Forecasts by Age and Sex: 2010-2029

	2010			2011			2012			2013			2014		
Age	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
0-4	122,327	116,130	238,457	121,092	115,088	236,180	119,516	113,359	232,875	118,293	111,850	230,143	117,872	111,493	229,365
5- 9	121,539	116,369	237,908	121,767	115,893	237,660	122,733	116,900	239,634	124,024	117,953	241,977	124,734	118,038	242,772
10-14	124,508	118,732	243,241	124,074	119,044	243,118	123,603	118,287	241,890	123,386	118,206	241,593	123,403	118,463	241,865
15-19	131,126	124,540	255,667	129,068	121,927	250,996	127,517	120,587	248,104	126,643	119,875	246,518	126,847	119,972	246,819
20-24	128,787	124,903	253,689	130,576	126,691	257,267	132,853	128,787	261,640	135,293	130,705	265,998	136,741	132,080	268,821
25-29	134,019	131,816	265,835	133,302	130,829	264,132	132,463	129,927	262,390	132,508	130,403	262,911	134,578	132,874	267,452
30-34	131,489	128,325	259,814	133,512	130,743	264,255	135,689	133,329	269,018	137,321	135,074	272,395	139,932	137,412	277,344
35-39	128,070	123,596	251,665	125,924	121,787	247,710	126,018	122,275	248,293	128,683	124,338	253,022	130,858	126,562	257,420
40-44	125,969	122,843	248,811	128,974	125,358	254,332	130,795	126,620	257,415	131,483	127,467	258,950	131,047	126,698	257,745
45-49	130,825	132,538	263,363	127,795	128,542	256,337	125,434	124,976	250,410	123,864	122,179	246,043	124,309	121,474	245,783
50-54	135,129	141,565	276,693	134,682	140,654	275,335	133,445	139,197	272,643	132,080	137,545	269,625	131,568	136,140	267,708
55-59	133,011	140,802	273,812	134,009	142,349	276,358	134,403	143,058	277,461	134,376	142,746	277,122	133,344	142,041	275,385
60-64	115,236	121,045	236,281	121,440	127,818	249,258	122,921	129,548	252,470	124,925	132,821	257,745	127,753	136,837	264,590
65-69	81,854	87,917	169,771	84,425	90,852	175,277	92,096	98,785	190,881	97,983	105,059	203,042	103,544	110,487	214,031
70-74	56,925	62,949	119,874	59,485	65,640	125,125	62,496	69,113	131,609	67,184	73,899	141,083	71,303	78,473	149,776
75-79	40,932	50,101	91,034	41,549	50,075	91,624	42,654	50,692	93,346	44,224	52,064	96,287	46,443	54,145	100,588
80-84	30,391	42,734	73,126	30,500	42,287	72,787	30,560	41,822	72,381	30,774	41,257	72,031	31,046	40,788	71,834
85+	26,800	51,458	78,258	27,598	52,275	79,874	28,360	52,915	81,276	28,995	53,538	82,533	29,522	53,890	83,411
Total	1,898,938	1,938,362	3,837,300	1,909,773	1,947,852	3,857,625	1,923,557	1,960,178	3,883,735	1,942,040	1,976,980	3,919,020	1,964,844	1,997,866	3,962,710
Mdn. Age	37.2	39.4	38.3	37.4	39.7	38.5	37.6	39.9	38.7	37.8	40.0	38.9	38.0	40.1	39.0

	2015			2016			2017			2018			2019		
Age	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
0-4	118,065	111,542	229,607	119,058	112,182	231,240	119,559	112,674	232,233	118,627	111,690	230,317	116,542	109,803	226,345
5- 9	125,502	118,321	243,824	125,540	118,120	243,660	125,252	117,280	242,531	124,739	116,196	240,935	124,538	115,923	240,461
10-14	122,975	118,328	241,303	123,807	118,633	242,441	125,567	120,565	246,131	127,250	122,070	249,320	128,076	122,246	250,322
15-19	127,735	120,633	248,368	128,448	121,638	250,085	129,147	121,888	251,034	129,234	121,975	251,209	128,956	122,036	250,992
20-24	137,304	132,672	269,977	137,526	132,652	270,178	138,147	133,318	271,465	138,209	133,517	271,726	138,190	133,091	271,281
25-29	137,959	137,056	275,015	143,647	143,914	287,560	149,359	150,280	299,638	154,060	155,138	309,198	155,764	156,968	312,732
30-34	141,525	138,707	280,232	144,070	140,722	284,792	146,202	142,878	289,080	148,128	145,381	293,509	150,901	148,924	299,825
35-39	134,484	129,808	264,292	138,181	133,110	271,291	142,318	136,982	279,300	145,109	139,398	284,507	148,225	142,072	290,297
40-44	130,040	125,302	255,342	129,051	124,315	253,366	130,214	125,671	255,885	133,579	128,172	261,750	135,893	130,445	266,338
45-49	127,060	123,545	250,606	131,246	126,804	258,051	134,156	128,832	262,987	135,464	130,093	265,557	135,096	129,365	264,461
50-54	129,981	133,569	263,550	127,847	130,622	258,469	126,390	127,827	254,217	125,327	125,447	250,774	125,957	124,706	250,662
55-59	133,245	142,271	275,516	133,803	142,713	276,516	133,263	142,247	275,510	132,344	141,185	273,530	131,803	139,755	271,558
60-64	130,407	139,689	270,096	132,872	142,414	275,286	134,429	144,218	278,648	135,169	144,564	279,732	134,220	143,968	278,188
65-69	109,922	117,550	227,472	116,860	124,952	241,812	119,220	127,459	246,679	121,855	131,174	253,029	124,814	135,211	260,025
70-74	74,860	82,510	157,370	77,688	85,607	163,296	85,391	93,610	179,000	91,362	99,866	191,228	96,776	105,112	201,888
75-79	48,615	56,084	104,698	51,000	58,692	109,692	53,744	62,024	115,768	57,996	66,478	124,474	61,662	70,637	132,299
80-84	31,707	40,809	72,517	32,509	40,934	73,443	33,586	41,565	75,152	35,052	42,789	77,840	36,912	44,542	81,454
85+	30,095	53,967	84,062	30,836	54,337	85,173	31,428	54,414	85,842	32,159	54,506	86,665	32,810	54,462	87,272
Total	1,991,483	2,022,363	4,013,845	2,023,989	2,052,361	4,076,350	2,057,371	2,083,730	4,141,100	2,085,663	2,109,637	4,195,300	2,107,135	2,129,265	4,236,400
Mdn. Age	38.1	40.2	39.1	38.2	40.2	39.2	38.3	40.2	39.2	38.5	40.4	39.4	38.7	40.5	39.6

	2020			2021			2022			2023			2024		
Age	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
0-4	114,550	108,007	222,556	112,634	106,252	218,886	111,377	105,110	216,487	111,144	104,902	216,046	111,318	105,063	216,381
5- 9	124,635	115,897	240,532	125,105	116,235	241,340	124,914	116,051	240,964	123,492	114,789	238,281	121,312	112,847	234,159
10-14	128,824	122,433	251,256	128,578	121,896	250,474	127,792	120,505	248,297	127,050	119,161	246,211	126,846	118,883	245,729
15-19	128,140	121,676	249,816	128,593	121,680	250,273	129,857	123,188	253,045	131,412	124,569	255,981	132,267	124,737	257,005
20-24	138,555	133,032	271,587	138,356	133,203	271,559	137,889	132,154	270,043	137,501	131,861	269,362	137,201	131,923	269,124
25-29	155,691	156,751	312,441	154,425	154,673	309,098	153,248	153,399	306,647	152,367	152,333	304,700	152,359	151,884	304,243
30-34	154,331	153,477	307,808	159,156	159,561	318,717	163,855	165,040	328,895	167,771	168,884	336,656	169,595	170,768	340,363
35-39	149,852	143,455	293,307	151,690	145,074	296,763	152,870	146,448	299,318	154,195	148,601	302,796	157,099	152,234	309,333
40-44	139,497	133,614	273,111	142,881	136,719	279,600	146,338	140,009	286,347	148,877	142,293	291,170	152,078	145,031	297,109
45-49	133,924	127,876	261,800	132,455	126,589	259,044	133,121	127,495	260,616	136,232	129,821	266,053	138,591	132,131	270,722
50-54	128,725	126,636	255,362	132,587	129,617	262,204	135,023	131,230	266,252	135,997	132,292	268,289	135,604	131,572	267,177
55-59	130,083	136,902	266,985	127,661	133,417	261,078	125,815	130,165	255,980	124,583	127,466	252,049	125,212	126,743	251,955
60-64	133,933	144,048	277,981	133,933	143,982	277,915	132,967	143,096	276,064	131,698	141,696	273,394	131,160	140,288	271,448
65-69	127,370	137,903	265,273	129,282	140,222	269,504	130,397	141,584	271,981	130,766	141,712	272,478	129,841	141,186	271,027
70-74	102,753	111,774	214,528	108,805	118,530	227,335	110,777	120,709	231,486	113,015	124,145	237,161	115,761	128,031	243,791
75-79	64,821	74,227	139,048	67,169	76,931	144,100	73,836	84,104	157,941	79,007	89,808	168,815	83,672	94,610	178,283
80-84	38,721	46,162	84,883	40,546	48,348	88,894	42,687	51,123	93,811	46,046	54,894	100,940	48,971	58,431	107,402
85+	33,779	54,646	88,424	34,645	55,173	89,818	35,670	55,956	91,626	36,858	57,061	93,918	38,382	58,569	96,951
Total	2,128,184	2,148,516	4,276,700	2,148,500	2,168,100	4,316,600	2,168,434	2,187,367	4,355,800	2,188,012	2,206,288	4,394,300	2,207,269	2,224,931	4,432,200
Mdn. Age	39.0	40.7	39.8	39.2	40.9	40.0	39.4	41.1	40.2	39.6	41.3	40.5	39.9	41.5	40.7

	2025			2026			2027			2028			2029		
Age	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
0-4	111,266	105,006	216,272	111,271	104,995	216,265	111,339	105,042	216,381	111,436	105,119	216,555	111,546	105,211	216,758
5- 9	119,256	111,009	230,265	117,291	109,213	226,504	116,020	108,043	224,063	115,806	107,830	223,637	116,015	107,999	224,014
10-14	126,949	118,867	245,816	127,426	119,223	246,649	127,224	119,043	246,266	125,765	117,753	243,518	123,543	115,766	239,310
15-19	133,068	124,934	258,002	132,849	124,394	257,244	132,061	122,967	255,028	131,299	121,574	252,873	131,084	121,272	252,355
20-24	136,348	131,565	267,913	136,854	131,597	268,451	138,228	133,270	271,498	139,911	134,799	274,710	140,846	135,036	275,881
25-29	152,829	151,926	304,755	152,712	152,244	304,956	152,319	151,222	303,541	151,997	151,041	303,038	151,757	151,260	303,016
30-34	169,564	170,532	340,096	168,265	168,340	336,605	167,105	167,097	334,202	166,259	166,053	332,312	166,376	165,691	332,067
35-39	160,742	156,923	317,665	165,814	163,156	328,971	170,723	168,722	339,445	174,782	172,596	347,377	176,677	174,482	351,159
40-44	153,772	146,456	300,229	155,695	148,128	303,823	156,944	149,549	306,493	158,339	151,758	310,097	161,352	155,473	316,825
45-49	142,303	135,371	277,674	145,790	138,532	284,322	149,361	141,880	291,241	151,996	144,204	296,200	155,303	146,993	302,295
50-54	134,470	130,095	264,565	133,054	128,822	261,876	133,778	129,788	263,566	136,947	132,195	269,142	139,350	134,588	273,939
55-59	127,987	128,764	256,751	131,877	131,844	263,721	134,362	133,547	267,909	135,401	134,688	270,088	135,075	134,012	269,087
60-64	129,501	137,490	266,992	127,170	134,031	261,201	125,424	130,815	256,239	124,284	128,166	252,451	125,006	127,523	252,529
65-69	129,633	141,366	270,999	129,721	141,364	271,086	128,883	140,559	269,443	127,745	139,250	266,995	127,303	137,921	265,223
70-74	118,186	130,686	248,872	120,017	132,921	252,939	121,144	134,261	255,405	121,585	134,460	256,045	120,810	134,029	254,839
75-79	88,834	100,689	189,524	94,053	106,734	200,787	95,894	108,817	204,711	97,967	112,051	210,017	100,456	115,638	216,094
80-84	51,512	61,492	113,004	53,414	63,756	117,170	58,931	69,913	128,844	63,287	74,826	138,113	67,158	78,913	146,070
85+	40,028	60,078	100,106	41,715	62,017	103,732	43,707	64,518	108,225	46,614	67,917	114,531	49,301	71,237	120,538
Total	2,226,249	2,243,252	4,469,500	2,244,988	2,261,311	4,506,300	2,263,447	2,279,053	4,542,500	2,281,420	2,296,279	4,577,700	2,298,958	2,313,043	4,612,000
Mdn. Age	40.1	41.7	40.9	40.3	41.9	41.1	40.5	42.1	41.3	40.7	42.3	41.5	40.9	42.5	41.7

Table C.3 Population of Oregon: 1990-2029

Year (July 1)	Total Population	Change from previous year Number	Percent
1990	2,860,400	-	-
1991	2,928,500	68,100	2.38%
1992	2,991,800	63,300	2.16%
1993	3,060,400	68,600	2.29%
1994	3,121,300	60,900	1.99%
1995	3,184,400	63,100	2.02%
1996	3,247,100	62,700	1.97%
1997	3,304,300	57,200	1.76%
1998	3,352,400	48,100	1.46%
1999	3,393,900	41,500	1.24%
2000	3,431,100	37,200	1.10%
2001	3,470,400	39,300	1.15%
2002	3,502,600	32,200	0.93%
2003	3,538,600	36,000	1.03%
2004	3,578,900	40,300	1.14%
2005	3,626,900	48,000	1.34%
2006	3,685,200	58,300	1.61%
2007	3,739,400	54,200	1.47%
2008	3,784,200	44,800	1.20%
2009	3,815,800	31,600	0.84%
2010	3,837,300	21,500	0.56%
2011	3,857,625	20,325	0.53%
2012	3,883,735	26,110	0.68%
2013	3,919,020	35,285	0.91%
2014	3,962,710	43,690	1.11%
2015	4,013,845	51,135	1.29%
2016	4,076,350	62,505	1.56%
2017	4,141,100	64,750	1.59%
2018	4,195,300	54,200	1.31%
2019	4,236,400	41,099	0.98%
2020	4,276,700	40,300	0.95%
2021	4,316,600	39,901	0.93%
2022	4,355,800	39,200	0.91%
2023	4,394,300	38,500	0.88%
2024	4,432,200	37,900	0.86%
2025	4,469,500	37,301	0.84%
2026	4,506,300	36,799	0.82%
2027	4,542,500	36,201	0.80%
2028	4,577,700	35,199	0.77%
2029	4,612,000	34,301	0.75%

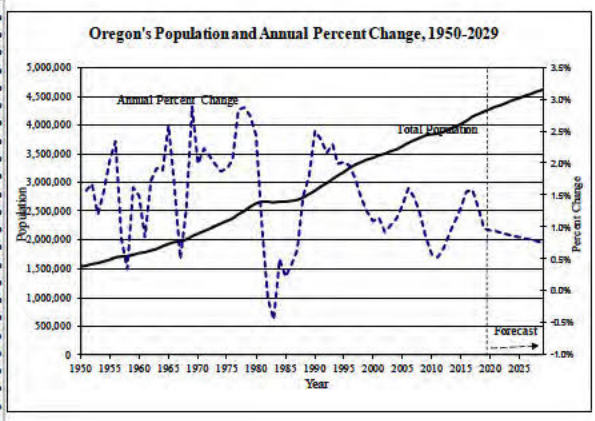


Table C.4 Children: Ages 0-4

Table C.5 School Age Population: Ages 5-17

Table C.6 Young Adult Population: Ages 18-24

Year (July 1)	Population	% Change from previous decade/yr. Number	Percent	Population	% Change from previous decade/yr. Number	Percent	Population	% Change from previous decade/yr. Number	Percent
1980	199,525	---	---	524,446	---	---	329,407	---	---
1990	209,638	10,113	5.07%	532,727	8,281	1.58%	268,134	-61,273	-18.60%
2000	223,207	13,569	6.47%	624,316	91,589	17.19%	330,328	62,194	23.20%
2001	224,645	1,438	0.64%	624,675	358	0.06%	336,660	6,333	1.92%
2002	225,084	439	0.20%	624,611	-64	-0.01%	340,778	4,118	1.22%
2003	226,652	1,568	0.70%	624,349	-262	-0.04%	345,266	4,487	1.32%
2004	228,353	1,701	0.75%	625,461	1,112	0.18%	349,138	3,873	1.12%
2005	230,008	1,655	0.72%	628,326	2,865	0.46%	351,076	1,938	0.55%
2006	231,882	1,874	0.81%	633,646	5,320	0.85%	354,328	3,252	0.93%
2007	236,160	4,278	1.85%	635,720	2,074	0.33%	356,311	1,983	0.56%
2008	239,340	3,180	1.35%	635,372	-348	-0.05%	358,967	2,656	0.75%
2009	239,929	589	0.25%	633,575	-1,797	-0.28%	360,134	1,166	0.32%
2010	238,457	-1,472	-0.61%	630,741	-2,835	-0.45%	359,764	-370	-0.10%
2011	236,180	-2,277	-0.95%	628,366	-2,375	-0.38%	360,675	911	0.25%
2012	232,875	-3,305	-1.40%	628,688	323	0.05%	362,580	1,904	0.53%
2013	230,143	-2,733	-1.17%	630,161	1,473	0.23%	365,925	3,346	0.92%
2014	229,365	-777	-0.34%	631,753	1,592	0.25%	368,525	2,600	0.71%
2015	229,607	242	0.11%	633,304	1,550	0.25%	370,167	1,642	0.45%
2016	231,240	1,632	0.71%	635,485	2,182	0.34%	370,880	712	0.19%
2017	232,233	993	0.43%	638,087	2,602	0.41%	373,075	2,196	0.59%
2018	230,317	-1,915	-0.82%	638,311	224	0.04%	374,877	1,802	0.48%
2019	226,345	-3,972	-1.72%	638,760	449	0.07%	374,295	-582	-0.16%
2020	222,556	-3,789	-1.67%	640,460	1,700	0.27%	372,732	-1,564	-0.42%
2021	218,886	-3,671	-1.65%	641,947	1,487	0.23%	371,699	-1,033	-0.28%
2022	216,487	-2,398	-1.10%	641,175	-771	-0.12%	371,174	-525	-0.14%
2023	216,046	-442	-0.20%	638,688	-2,488	-0.39%	371,147	-26	-0.01%
2024	216,381	335	0.16%	634,553	-4,135	-0.65%	371,464	317	0.09%
2025	216,272	-109	-0.05%	629,634	-4,919	-0.78%	372,363	899	0.24%
2026	216,265	-6	0.00%	624,452	-5,182	-0.82%	374,395	2,032	0.55%
2027	216,381	116	0.05%	620,183	-4,269	-0.68%	376,672	2,277	0.61%
2028	216,555	174	0.08%	616,221	-3,962	-0.64%	378,515	1,843	0.49%
2029	216,758	202	0.09%	613,177	-3,044	-0.49%	378,384	-132	-0.03%

Table C.7 Criminally At Risk Population (males): Ages 15-39

Table C.8 Prime Wage Earners: Ages 25-44

Table C.9 Older Wage Earners: Ages 45-64

Year (July 1)	Population	% Change from previous decade/yr. Number	Percent	Population	% Change from previous decade/yr. Number	Percent	Population	% Change from previous decade/yr. Number	Percent
1980	561,931	---	---	790,750	---	---	491,249	---	---
1990	544,738	-17,193	-3.06%	926,326	135,576	17.15%	531,181	39,932	8.13%
2000	616,988	72,250	13.26%	996,500	70,174	7.58%	817,510	286,329	53.90%
2001	618,906	1,918	0.31%	994,587	-1,913	-0.19%	847,276	29,766	3.64%
2002	620,252	1,347	0.22%	989,996	-4,591	-0.46%	876,242	28,966	3.42%
2003	622,211	1,959	0.32%	987,755	-2,241	-0.23%	903,499	27,257	3.11%
2004	626,423	4,212	0.68%	988,932	1,177	0.12%	930,032	26,533	2.94%
2005	633,901	7,478	1.19%	994,575	5,644	0.57%	957,826	27,793	2.99%
2006	644,210	10,309	1.63%	1,004,110	9,535	0.96%	985,638	27,813	2.90%
2007	652,287	8,077	1.25%	1,014,565	10,455	1.04%	1,008,986	23,348	2.37%
2008	657,248	4,961	0.76%	1,022,060	7,495	0.74%	1,025,501	16,515	1.64%
2009	657,327	79	0.01%	1,024,971	2,911	0.28%	1,039,689	14,188	1.38%
2010	653,491	-3,836	-0.58%	1,026,126	1,155	0.11%	1,050,150	10,461	1.01%
2011	652,382	-1,109	-0.17%	1,030,430	4,304	0.42%	1,057,288	7,138	0.68%
2012	654,540	2,158	0.33%	1,037,116	6,686	0.65%	1,052,983	-4,305	-0.41%
2013	660,449	5,909	0.90%	1,047,277	10,162	0.98%	1,050,536	-2,447	-0.23%
2014	668,956	8,507	1.29%	1,059,961	12,683	1.21%	1,053,466	2,930	0.28%
2015	679,008	10,051	1.50%	1,074,881	14,920	1.41%	1,059,767	6,301	0.60%
2016	691,871	12,863	1.89%	1,097,009	22,128	2.06%	1,068,321	8,554	0.81%
2017	705,172	13,301	1.92%	1,123,902	26,894	2.45%	1,071,362	3,041	0.28%
2018	714,740	9,568	1.36%	1,148,964	25,062	2.23%	1,069,594	-1,769	-0.17%
2019	722,037	7,297	1.02%	1,169,193	20,229	1.76%	1,064,869	-4,724	-0.44%
2020	726,568	4,531	0.63%	1,186,667	17,474	1.49%	1,062,128	-2,741	-0.26%
2021	732,220	5,652	0.78%	1,204,178	17,511	1.48%	1,060,240	-1,888	-0.18%
2022	737,719	5,500	0.75%	1,221,207	17,029	1.41%	1,058,913	-1,328	-0.13%
2023	743,247	5,527	0.75%	1,235,322	14,115	1.16%	1,059,785	872	0.08%
2024	748,521	5,274	0.71%	1,251,047	15,725	1.27%	1,061,301	1,516	0.14%
2025	752,551	4,031	0.54%	1,262,745	11,698	0.94%	1,065,982	4,681	0.44%
2026	756,495	3,943	0.52%	1,274,354	11,609	0.92%	1,071,120	5,138	0.48%
2027	760,436	3,941	0.52%	1,283,682	9,327	0.73%	1,078,955	7,835	0.73%
2028	764,248	3,812	0.50%	1,292,824	9,143	0.71%	1,087,881	8,926	0.83%
2029	766,739	2,491	0.33%	1,303,067	10,243	0.79%	1,097,851	9,970	0.92%

Table C.10 Elderly Population by Age Group

Year (July 1)	Ages 65+	%Change from previous decade/yr	Ages 65-74	%Change from previous decade/yr	Ages 75-84	%Change from previous decade/yr	Ages 85+	%Change from previous decade/yr
1980	305,841	---	185,863	---	91,137	---	28,841	---
1990	392,369	28 29%	224,772	20 93%	128,813	41 34%	38,784	34 48%
2000	439,239	11 95%	218,997	-2 57%	162,187	25 91%	58,055	49 69%
2001	442,558	0 76%	218,838	-0 07%	163,878	1 04%	59,843	3 08%
2002	445,890	0 75%	219,614	0 35%	165,109	0 75%	61,167	2 21%
2003	451,080	1 16%	222,361	1 25%	165,669	0 34%	63,050	3 08%
2004	456,984	1 31%	226,373	1 80%	165,842	0 10%	64,769	2 73%
2005	465,089	1 77%	231,926	2 45%	166,077	0 14%	67,087	3 58%
2006	475,596	2 26%	239,931	3 45%	165,787	-0 17%	69,877	4 16%
2007	487,657	2 54%	250,131	4 25%	165,148	-0 39%	72,379	3 58%
2008	502,959	3 14%	264,201	5 63%	164,354	-0 48%	74,403	2 80%
2009	517,502	2 89%	277,606	5 07%	163,513	-0 51%	76,383	2 66%
2010	532,062	2 81%	289,645	4 34%	164,159	0 40%	78,258	2 45%
2011	544,686	2 37%	300,402	3 71%	164,410	0 15%	79,874	2 06%
2012	569,493	4 55%	322,490	7 35%	165,727	0 80%	81,276	1 75%
2013	594,977	4 47%	344,125	6 71%	168,319	1 56%	82,533	1 55%
2014	619,639	4 15%	363,807	5 72%	172,422	2 44%	83,411	1 06%
2015	646,119	4 27%	384,842	5 78%	177,215	2 78%	84,062	0 78%
2016	673,416	4 22%	405,107	5 27%	183,136	3 34%	85,173	1 32%
2017	702,441	4 31%	425,679	5 08%	190,920	4 25%	85,842	0 79%
2018	733,237	4 38%	444,257	4 36%	202,314	5 97%	86,665	0 96%
2019	762,937	4 05%	461,913	3 97%	213,752	5 65%	87,272	0 70%
2020	792,157	3 83%	479,801	3 87%	223,931	4 76%	88,424	1 32%
2021	819,651	3 47%	496,839	3 55%	232,993	4 05%	89,818	1 58%
2022	846,844	3 32%	503,467	1 33%	251,751	8 05%	91,626	2 01%
2023	873,312	3 13%	509,639	1 23%	269,755	7 15%	93,918	2 50%
2024	897,454	2 76%	514,818	1 02%	285,684	5 91%	96,951	3 23%
2025	922,504	2 79%	519,871	0 98%	302,528	5 90%	100,106	3 25%
2026	945,713	2 52%	524,024	0 80%	317,956	5 10%	103,732	3 62%
2027	966,627	2 21%	524,847	0 16%	333,555	4 91%	108,225	4 33%
2028	985,703	1 97%	523,041	-0 34%	348,131	4 37%	114,531	5 83%
2029	1 002 764	1 73%	520 062	-0 57%	362 164	4 03%	120 538	5 24%

BEFORE THE

PUBLIC UTILITY COMMISSION OF OREGON

UG 388

OPENING TESTIMONY

OF THE

OREGON CITIZENS' UTILITY BOARD

ADVERTISING EXPENSES

EXHIBIT 300

Redacted Version

I. INTRODUCTION AND SUMMARY

Q. Please state your names, occupations, and business addresses.

A. My name is Sudeshna Pal. I am an Economist employed by the Oregon Citizens' Utility Board (CUB). My name is William Gehrke. I am an Economist employed by CUB. Our business address is 610 SW Broadway, Ste. 400 Portland, Oregon 97205.

Q. Please describe your educational background and work experience.

A. Sudeshna Pal's witness qualification statement is found in exhibit CUB/301. William Gehrke's witness qualification statement is found in exhibit CUB/201.

Q. What is the purpose of your testimony?

A. The purpose of this testimony is to examine the appropriateness of the Category A Advertising Expenses NW Natural (NWN or the Company) is requesting recovery of in this general rate case proceeding.

Q. Please summarize your testimony.

A. In this exhibit, CUB provides substantive arguments and evidence to prove that NW Natural has failed to successfully demonstrate that its proposed Category A expenses that are above the recovery threshold set by Oregon Administrative Rule (OAR) 860-026-0022 are just and reasonable. Therefore, CUB recommends that the Oregon Public Utility Commission (Commission) not allow NWN recovery for any Category A advertising expense beyond the 0.125% of gross retail operating revenues limit sought by the Company. This testimony also proposes that the Company should be allowed to recover Category A advertising expense up to 0.125% of its gross operating revenue.

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II. CATEGORY A ADVERTISING EXPENSES

Q. What OAR applies to NW Natural's Category A advertising expense?

A. OAR 860-026-0022 provides that certain utility advertising expenses are presumed reasonable in general rate case proceedings. This administrative rule defines Category A advertising expenses as "[e]nergy efficiency or conservation advertising expenses that do not relate to a Commission-approved program, utility service advertising expenses, and utility information advertising expenses."[1] In rate proceedings, Category A expenses below 0.125% of gross retail operating revenues are presumed to be just and reasonable by the Commission.[2] The utility bears the burden of proof to demonstrate Category A expenses above 0.125% of gross retail operating revenues are just and reasonable.[3]

Q. What is 0.125% of the Company's gross retail operating revenues in the proposed Test Year?

A. The Company is able to recover up to $754,495 for Category A communications expense based on its 2018 revenues, which amounts to about $1.14 per customer.[4]

Q. What Category A advertising expense is the Company seeking to recover?

A. The Company is seeking to recover $1,750,000 in Category A expenditures.[5] Under that scenario, the per customer expense would be $2.54.[6] Therefore, the Company

[1] OAR 860-026-0022(2)(a).
[2] OAR 860-026-0022(3)(a).
[3] UG 388 – NW Natural/800/Beck/5, lines 17-19.
[4] UG 388 – NW Natural/800/Beck/4, lines 12-14.
[5] UG 388 – NW Natural/800/Beck/3, lines 16-17.
[6] UG 388 – NW Natural/800/Beck/4, lines 4-5.

is seeking an additional $995,505[7] in Category A expenditures beyond what is presumed to be just and reasonable by administrative rule.

Q. Why is NW Natural seeking to recover expenses past the OAR cap?

A. The Company argues that the gross retail revenue-based formula produces skewed results because the Company's gross retail revenues are driven by natural gas commodity costs.[8] This means that when natural gas prices are low, the allowed advertising expenses under OAR 860-026-0022 are reduced. In response to low natural gas prices, the Company argues that they should be allowed rate recovery in line with electric utilities on a per customer basis.

Q. What is CUB's response to the Company's arguments?

A. Portland General Electric and PacifiCorp both operate natural gas-fired electric generation facilities. The cost of natural gas is passed through the electric utilities' net variable power cost proceedings. Local distribution companies (LDC) like NWN distribute natural gas to their customers. In some cases, the LDC purchases natural gas for its customers. This means that both electric utilities and natural gas utilities have experienced decreased costs due to lower natural gas prices.

The electric generation and the natural gas distribution industries are different energy industries. LDC provides natural gas to its customers. The natural gas sold by LDCs is primarily used for heating during the colder months. Electric utilities provide electricity to their customers, which is used throughout the year. Electricity

[7] ($1,750,000 - $754,495).
[8] UG 388 – NW Natural/800/Beck/4, lines 18-20.

generation in Oregon is produced using a variety of energy sources such as biomass, photovoltaic, wind, coal, gas, geothermal and hydro power.

In the Company's last three general rate cases, it has requested recovery of expenses in excess of to surpass the OAR 860-026-0022 cap. If NW Natural is allowed to surpass the cap each rate case, the OAR cap would no longer serve as a reasonable advertising spending limit. In all likelihood, without a rule-based standard, other utilities would also request increasing the amount of advertising charged to customers.

Q. Do all items listed by NWN as Category A communications qualify as such? Explain.

A. It is not clear to CUB that all of the Company's requested advertising expense would qualify as Category A expense. In particular, CUB has concerns about the Company's "Less We Can" communications campaign.[9] While some education about the potential to add RNG to its system may qualify as a Category A expense, advertising that is designed to associate the Company with renewable products should be considered corporate image advertising (Category C). The Company currently does not have RNG in its system. Therefore, CUB does not believe it is appropriate for the Company to spend large sums to advertise for RNG under Category A advertising. NW Natural's communications about the Company's "pursuit" of RNG should be carefully scrutinized as a promotional advertising or corporate imaging expense. In addition, advertising that just promotes the slogan

[9] UG 388 – NW Natural/800/Beck/12, lines 12-22 and NW Natural/800/Beck/13, lines 1-3.

"Less We Can" should not be recoverable from customers as it does not provide any valuable information. Under OAR 860-026-0022 (2c), institutional and promotional advertising expenses are Category C and the utility bears the burden of proof to show that these expenses are just and reasonable for rate-making purposes.

Q. What must the company demonstrate in order to recover expenditures in excess of 0.125 percent of gross retail operating revenues?

A. Under OAR 860-026-0022, the Company must demonstrate with sufficient evidence the expenditures are just and reasonable in order to collect more than 0.125% of gross retail operating revenues. The Company has provided four reasons as evidence for the additional expenditure: an increase in TV media costs in its Portland market, geographical diversity of its service territory, media consumption habits and audience demographics coupled with media fragmentation, and, continued investment in educational resources including pursuit of RNG under SB 98 legislation.[10] CUB will address each of the Company's arguments in turn.

Q. Why have television media costs risen in NW Natural's Portland service area?

A. The main driver behind the rise in cost is declining viewership. According to a sample data[11] provided by NW Natural, the rate per TV spot has gone down from $250 in 2017 to $200 in 2018 for a Portland-based TV channel. NWN measures the net cost per spot, the Cost Per Point (CPP), by dividing the per spot rate by the corresponding Target Rating Point (TRP) for a given population. The CPP represents the cost to reach 1% of the target population and is a measure of cost efficiency. The TRP has gone down from 1.2 to 0.5 between 2017-2018 for the TV

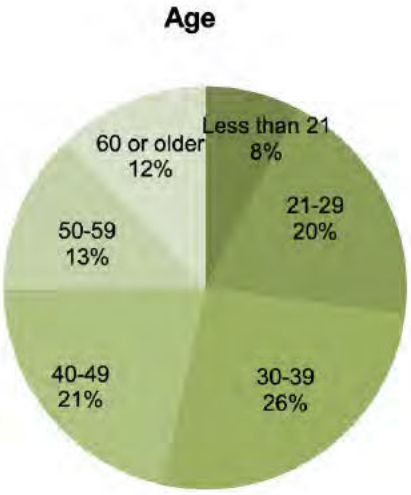
[10] UG 388 – NW Natural/800/Beck/6, lines 7-22.
[11] UG 388 – NW Natural/800/Beck/8, lines 3-9.

channel, which drove up the net cost per spot from about $208 to around $400, almost doubling it.[12]

Q. What information do we have regarding effectiveness of television as a media channel?

A. According to a recent New York (NY) Times article, TV viewership is on a decline even at the national level, and that, coupled with rising prices, is making big brands rethink their advertising strategies. The same article also ascertains that TV viewership is especially low for the younger population, a significant number of whom do not even own a TV.[13] A Nielsen report from August 2019 also shows that majority (56%) of adults in the United States streamed non-linear video to their TV from the internet. The share of streaming population is even larger in the younger age group (18-54 years). Older adults (55 years and older) are more likely to be exposed to more traditional linear broadcast and cable content.[14] Both the NY Times report and the Nielsen study are particularly relevant for NWN's customer base. NWN's Exhibit 806 presents a demographics chart of its customers prepared by a third-party. As seen in the chart, 75% of NWN's gas customers who participated in the survey on climate change awareness are below 50 years of age group and therefore technically belong to the younger adult group discussed above. The chart from NWN is shown below:[15]

[12] *Id.*
[13] https://www.nytimes.com/2018/05/13/business/media/television-advertising html.
[14] Nielsen Local Watch Report August 2019 – TV Streaming Across Cities, p7.
[15] Chart taken from UG 388 – NW Natural/806/Beck/1.



The age demographics is one reason why NW Natural's increased spending on TV media to inform customers will not be cost effective. Since the majority of NWN's customers are in the age group that is viewing less and less TV, it is unlikely that NWN's increased TV spending will be effective. In fact, the Company itself cites a study that ranks Portland as "number one for millennial population[16] change in the country; a 22.8% growth representing 18.6% of the population".[17] [redacted] [18] This further reinforces the claim that TV commercials are not the most impactful means to inform and educate customers and therefore excess spending on TV media is not justifiable.

[16] The Millennial population is defined as those born between 1981-1996, hence in the 24-39 yrs. age group.
[17] UG 388 – NW Natural/800/Beck/11.
[18] CUB Exhibit 302. This exhibit was a confidential attachment to NW Natural's response to CUB DR 19.

Q. What is the second piece of evidence NWN claims has led to a rise in Category A expenses?

A. NWN claims that the geographical diversity of its service area is a significant contributor to Category A expenses.

Q. Is geographical diversity of NWN's service area a significant contributor to increased Category A expenses?

A. No. This should not be the case. First, NW Natural's service area is not geographically diverse. NWN customers are largely concentrated in Portland followed by Eugene. As shown in CUB Exhibit 302, 91% of NW Natural's customers live in its Portland DMA while 9% live in the Eugene service area.[19] It is difficult to justify that there is considerable geographical diversity across these two service areas linked by the I-5 corridor that would lead to a substantive impact on overall media costs.

Moreover, according to a 2017 report, cost per spot in TV media is significantly lower in Eugene.[20] There is no reason to expect a significant increase in Eugene media costs since then. To summarize, the geographical argument reasoning provided by NW Natural driving increase in Category A expenses does not hold water on two grounds. First, only two designated largely urban market areas do not qualify as a geographically diverse service territory. Second, media costs in Eugene are significantly lower than Portland. Therefore, CUB finds it unreasonable for the

[19] CUB Exhibit 303.
[20] *See* UG 344 – CUB/113.

Company to use geographical diversity as a factor contributing to increases in communications expenses.

Q. How can media fragmentation affect NW Natural's communications spending?

A. As NWN rightly pointed out, a large fraction of US adults engages in streaming non-linear content to internet-connected TV devices, smartphones, tablets, and computers. This finding is also supported by other media usage tracking agencies like Nielsen, as discussed earlier. The Company also suggests that, both media viewing trends and age demographics in NW Natural's largest service area (Portland) are evolving to reflect this national trend in media consumption.

NW Natural already uses a wide variety of media outlets including bill inserts, customer brochures, e-newsletters, the internet, and TV. Media costs vary widely with TV commercials being the most expensive. The following sample table from NW Natural's response to Staff DR 198 shows widely divergent media costs: [21]

Table 1		
Project: Category A Environmental / Emission throughout the NW Natural service territory: Development of a :30 second TV commercial and digital advertising addressing the efficient use of natural gas, information about the ways NW Natural's pipeline system and customers can reduce greenhouse gas emissions and education about renewable natural gas and associated benefits for customers and the climate.	Estimated OR Customer Reach in 2019	Actual Cost in 2019
TV	**20,497,170**	**$187,690.00**
Internet (Digital)	**12,183,582**	**$ 76,204.00**

[21] CUB Exhibit 304.

The above Table 1 suggests that NW Natural should reallocate TV communications funds in favor of digital advertising and work on increasing customer outreach via the internet. In this example, digital advertising cost to reach a customer is around 0.63 cents whereas the cost to reach a customer with TV commercial is 0.92 cents. A reallocation across media channels would allow the Company minimize advertising expenses which are largely discretionary in nature. In this case, media fragmentation should result in lower Category A expenses through reallocation of costs among various media channels.

Q. Should NW Natural customers pay the Company for additional information on RNG and SB 98?

A. As explained earlier, CUB is concerned about throwing away advertising rules designed to protect customers in order to promote a product that is not yet in the utility's system. The "Less We Can" campaign informing customers about RNG is partially a corporate imaging strategy. The Company has purchased banner advertisements, which state "NW Natural: Less We Can" at Providence Park in Portland, Oregon.[22] The Company has passed out sandwich holders and magnets, which state "NW Natural: Less We Can."[23] While CUB does acknowledge that these advertisements were initially paid for with shareholders dollars, the use cases around the "Less We Can" program indicate that it is used as a corporate imaging program which should partially be paid for by shareholders. Information about Oregon's climate goals and SB 98 are already available for customers for no extra cost.

[22] CUB Exhibit 305.
[23] CUB Exhibit 306.

Q. Should NW Natural's Category A budget respond to changing economic conditions?

A. Yes. These are discretionary expenditures. As the current economy goes into a recession with rising unemployment rates, people will struggle to pay their utility bills. In these circumstances, the Commission should not allow NW Natural additional advertising expenditures.

Q. What Communications A expense should the Company be allowed to recover?

A. The Company should be allowed to recover up to 0.125% of Gross Operating Revenue in Communication A expense. The Company has failed to demonstrate how the additional $995,505 in expenditure is just and reasonable.

Q. Does this conclude your testimony?

A. Yes.

WITNESS QUALIFICATION STATEMENT

NAME: Sudeshna Pal

EMPLOYER: Oregon Citizens' Utility Board

TITLE: Economist

ADDRESS: 610 SW Broadway, Suite 400
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EDUCATION: Ph.D., Economics
West Virginia University, Morgantown, WV

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EXPERIENCE: Provided comments in several Oregon Commission dockets including LC 73, LC 70, LC 74. Worked as Assistant Professor of Economics at Georgia College and State University (2003 -2008). Employed part-time as Adjunct Faculty in the Department of Economics at Portland State University (2014 – present).

Exhibit 302 is confidential and will be provided to parties who have signed Protective Order No. 19-437.

State	County	Accounts	Portland	Eugene
Oregon	Benton	19435	0	1
Oregon	Clackamas	92486	1	0
Oregon	Clatsop	13365	1	0
Oregon	Columbia	8452	1	0
Oregon	Coos	1821	0	1
Oregon	Hood River	4020	1	0
Oregon	Lane	41319	0	1
Oregon	Lincoln	10655	1	0
Oregon	Linn	23852	1	0
Oregon	Marion	66198	1	0
Oregon	Multnomah	202196	1	0
Oregon	Polk	14747	1	0
Oregon	Wasco	2043	1	0
Oregon	Washington	141020	1	0
Oregon	Yamhill	12498	1	0
Washington	Clark	79582	1	0
Washington	Klicktat	1514	1	0
Washington	Skamania	513	1	0

County Source: DMA County Coverage
Nielsen Media Research

Percentage of NW Natural Customers in Portland Media Market	91%
Percentage of NW Natural Customers in Eugene Media Market	9%

UG 388
Data Request 153

Project Number	Category A Customer Communication Description	Media Channel	Final Copy of Communication	Estimated OR Customer Reach	Estimated OR Non-Customer Reach	Budget	Actual Cost
1	January Comfort Zone - Customer newsletter addressing topics such as the efficient use of natural gas; payment and program options; online customer service options; price changes; cost, performance and environmental benefits of high-efficiency natural gas equipment; information about the ways NW Natural's pipeline system and customers can reduce greenhouse gas emissions; phone numbers and contact information; important safety information.	Customer Bill Insert	BillInsert ComfortZone JAN 2019.PDF	500,000	0	$ 18,000.00	$ 18,028.00
2	January ETO Sponsored Cash Incentives Insert - Customer insert introducing the energy-saving benefits and incentives for high-efficiency natural gas equipment. Insert was funded by Energy Trust of Oregon.	Customer Bill Insert	BillInsert ETOIncentives JAN 2019.pdf	500,000	0	$ -	$ -
3	February High-Efficiency Heating Bill Insert - Bill insert discussing the cost advantage, performance and environmental benefits of high-efficiency natural gas heating equipment.	Customer Bill Insert	BillInsert Furnace FEB 2019.pdf	500,000	0	$ 75,000.00	$ 9,212.00
4	March Comfort Zone - Customer newsletter addressing topics such as the efficient use of natural gas; payment and program options; online customer service options; price changes; cost, performance and environmental benefits of high-efficiency natural gas equipment; information about the ways NW Natural's pipeline system and customers can reduce greenhouse gas emissions; phone numbers and contact information; important safety information.	Customer Bill Insert	BillInsert ComfortZone MAR 2019.pdf	500,000	0	$ 18,000.00	$ 17,806.00
5	March Tune-Up Bill Insert - Communicating an annual equipment tune up service option for customers to save energy and money.	Customer Bill Insert	BillInsert TuneUp MAR 2019.pdf	500,000	0	$ 7,500.00	$ 7,229.00
6	April Smart Energy Bill Insert - Customer bill insert communicating the Smart Energy service option, NW Natural's program to inform customers how to reduce their impact on the environment.	Customer Bill Insert	BillInsert SmartEnergy APR 2019.pdf	500,000	0	$ 7,500.00	$ 6,696.16
7	April Water Heater Insert and shut off procedure - Customer insert introducing the energy-saving benefits and incentives for natural gas water heating and emergency shut off procedure. Paid for by Fast Water Heater Co.	Customer Bill Insert	BillInsert WaterHeater Sticker APR 2019.pdf	452,375	0	$ -	$ -
8	May Comfort Zone - Customer newsletter addressing topics such as the efficient use of natural gas; payment and program options; online customer service options; price changes; cost, performance and environmental benefits of high-efficiency natural gas equipment; information about the ways NW Natural's pipeline system and customers can reduce greenhouse gas emissions; phone numbers and contact information; important safety information.	Customer Bill Insert	BillInsert ComfortZone MAY 2019.pdf	500,000	0	$ 18,000.00	$ 19,172.00
9	May Rights and Responsibilities insert - Communication about payment and program options; online customer service options; price changes; phone numbers and contact information.	Customer Bill Insert	BillInsert RightsResponsibilities Nonres MAY 2019.pdf BillInsert RightsResponsibilities Res MAY 2019.pdf	502,250	0	$ 25,000.00	$ 23,123.00
10	June High-Efficiency Heating Bill Insert - Bill insert discussing the cost advantage, performance and environmental benefits of high-efficiency natural gas heating equipment.	Customer Bill Insert	BillInsert Furnace JUN 2019.pdf	500,000	0	$ 7,500.00	$ 7,571.50
11	July Comfort Zone - Customer newsletter addressing topics such as the efficient use of natural gas; payment and program options; online customer service options; price changes; cost, performance and environmental benefits of high-efficiency natural gas equipment; information about the ways NW Natural's pipeline system and customers can reduce greenhouse gas emissions; phone numbers and contact information; important safety information.	Customer Bill Insert	BillInsert ComfortZone JUL 2019.pdf	499,999	0	$ 18,000.00	$ 23,476.00
12	July WARM Brochure - Communication about the WARM payment and program option for customers.	Customer Bill Insert	BillInsert WARM JUL 2019.pdf	585,000	0	$ 20,000.00	$ 20,304.00
13	August Smart Energy Bill Insert - Customer bill insert communicating the Smart Energy service option, NW Natural's program to inform customers how to reduce their impact on the environment.	Customer Bill Insert	BillInsert SmartEnergy AUG 2019.pdf	475,000	0	$ 7,500.00	$ 5,987.00
14	August Tune-Up Bill Insert - Communicating a service option for customers to have an annual equipment tune up to save energy and money.	Customer Bill Insert	BillInsert TuneUp AUG 2019.pdf	500,000	0	$ 7,500.00	$ 5,987.00
15	September High-Efficiency Heating Bill Insert - Bill insert discussing the cost advantage, performance and environmental benefits of high-efficiency natural gas heating equipment.	Customer Bill Insert	BillInsert Furnace SEPT 2019.pdf	500,000	0	$ 7,500.00	$ 8,218.00
16	September Comfort Zone - Customer newsletter addressing topics such as the efficient use of natural gas; payment and program options; online customer service options; price changes; cost, performance and environmental benefits of high-efficiency natural gas equipment; information about the ways NW Natural's pipeline system and customers can reduce greenhouse gas emissions; phone numbers and contact information; important safety information.	Customer Bill Insert	BillInsert ComfortZone SEP 2019.pdf	500,000	0	$ 25,000.00	$ 25,779.45

17	October Natural Gas Fireplace Insert - Customer insert promoting high-efficiency natural gas fireplaces. Insert was funded by Energy Trust of Oregon.	Customer Bill Insert	BillInsert Fireplace OCT 2019.pdf	500,000	0	$ -	$	-
18	October Low Income Assistance Insert - Bill insert providing information for low-income customers about qualifications needed for energy assistance funding.	Customer Bill Insert	BillInsert EnergyAssistance LowIncome OCT 2019.pdf	275,000	0	$ 7,500.00	$	6,194.00
19	November Gas Assistance Program insert - Communicating about a customer program that supports low-income energy assistance	Customer Bill Insert	BillInsert GAP NOV 2019.pdf BillInsert GAP Envelope NOV 2019.pdf	498,000	0	$ 7,500.00	$	7,381.50
20	November Comfort Zone - Customer newsletter addressing topics such as the efficient use of natural gas; payment and program options; online customer service options; price changes; cost, performance and environmental benefits of high-efficiency natural gas equipment; information about the ways NW Natural's pipeline system and customers can reduce greenhouse gas emissions; phone numbers and contact information; important safety information.	Customer Bill Insert	BillInsert ComfortZone NOV 2019.pdf	495,000	0	$ 18,000.00	$	20,865.02
21	Service Solutions Pocket Card - Informative card for service technicians to hand to customers during a service call when equipment repairs are needed.	Customer Brochure	PocketCard.pdf	10,000	10000	$ 4,472.00	$	4,472.00
22	Customer Bill Envelope Graphics (12 instances) - Graphics on the outside of customer bills promoting topics such as the efficient use of natural gas; payment and program options; online customer service options; price changes; cost, performance and environmental benefits of high-efficiency natural gas equipment; phone numbers and contact information; important safety information.	Customer Bill Envelope	EnvelopeGraphics.zip	500,000 each month	0	$ -	$	2,418.75
23	eNewsletter (12 issues) - Electronic newsletter addressing topics such as the efficient use of natural gas; payment and program options; online customer service options; price changes; cost, performance and environmental benefits of high-efficiency natural gas equipment; information about the ways NW Natural's pipeline system and customers can reduce greenhouse gas emissions; phone numbers and contact information; important safety information.	eMail	eNewsletter.zip	230,000 each month	0	$ 23,000.00	$	21,861.00
24	Category A Customer Benefit Digital Advertising Production - Cost to produce digital ads communicating the cost savings, environmental benefits and value of high efficiency natural gas equipment and customer programs.	Internet	NW Natural Campaign Ads - Static, HTML5, Preroll .docx	N/A	N/A	$ 80,000.00	$	81,498.00
25	Category A Customer Benefit Digital Advertising media throughout the NW Natural service territory.	Internet	NW Natural Campaign Ads - Static, HTML5, Preroll .docx	28,710,613	N/A	$ 140,000.00	$	139,091.00
26	Category A Environmental / Emissions TV and Digital Advertising Production - Development of a :30 second TV commercial and digital advertising addressing the efficient use of natural gas, information about the ways NW Natural's pipeline system and customers can reduce greenhouse gas emissions and education about renewable natural gas and associated benefits for customers and the climate.	TV	Environment TV Digital.zip	N/A	N/A	$ 181,750.00	$	181,750.00
27	Category A Environmental / Emission TV media throughout the NW Natural service territory	TV	NWN What If Final.mp4	20,497, 170**	N/A	$ 190,000.00	$	187,690.00
28	Environmental / Emissions Digital media throughout the NW Natural service territory	Internet	NWN RNG What.If 160x600.pdf	12, 183,582	N/A	$ 80,000.00	$	76,204.00
29	2019 media planning and buying fees	TV, Digital, Print, Strategy	2019 NW Natural Schedule 120218 Rev3.xls	N/A	N/A	$ 75,000.00	$	75,000.00
30	Telephone Directory media - Customer service contact numbers in telephone directories across the service territory. (sample includes only one directory. All directories include the same information)	Telephone Directories		1,856,576**	N/A	$ 50,000.00	$	49,999.98
31	Welcome Letter - Letter sent to new residential and commercial customers. Includes printing and postage.	Direct Mail	WelcomKit.zip	20,000 per month	0	$ 105,000.00	$	96,894.38
32	Community Event Banners - Creative development for banners displayed and community events throughout the service territory.	Community Events	Banners Final.zip	100,000	100,000	$ 8,750.00	$	8,750.00
33	Communications Planning Dashboard - Technical development for an online dashboard and database to plan and track customer communications.	Online	N/A	0	0	$ 11,000.00	$	10,960.00
34	Monthly on-hold messages - Messaging for customers while on hold waiting for a customer service representative. Messages include: efficient use of natural gas; payment and program options; online customer service options; price changes; cost, performance and environmental benefits of high-efficiency natural gas equipment; information about the ways NW Natural's pipeline system and customers can reduce greenhouse gas emissions; phone numbers and contact information; important safety information.	IVR	OnHold.zip	10,000 per month	N/A	$ 5,000.00	$	4,680.00

** Estimated reach includes total household impressions for the NW Natural service territory.


NW Natural®
LESS WE CAN™

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Rates & Regulatory Affairs
UG 388
2020 OR General Rate Revision
Data Request Response

Request No.: UG 388 CUB DR 25

25. Refer to UG 388 NWN Response to CUB DR 4, CUB requested all advertising associated with NWN's "Less We Can" campaign from 2017 to 2019. Please provide all physical "Less We Can" advertising from 2017 to January 2020. CUB defines "physical advertising" as non-digital or television advertisements. An example of a physical advertisement would be "Less We Can" ad on Trimet bus or a "Less We Can" advertising at sports arena such as Providence Park.

Response:

Please find UG 388 CUB DR 25 Attachments 1-7 for the following "physical advertising" as defined by CUB for "Less We Can" advertising from 2017 to January 2020.

Attachment 1 Less We Can Sandwich Keeper = Promotional item handed out at community events – paid for with shareholder dollars.

Attachment 2 2018 Less We Can Event Collateral = Collateral piece handed out at community events - paid for with shareholder dollars.

Attachment 3 2019 Less We Can Event Collateral = Collateral piece handed out at community events - paid for with shareholder dollars.

Attachment 4 2019 Less We Can Refrigerator Graphics = Graphics used for part of a display at community events - paid for with shareholder dollars.

Attachment 5 NW Natural Less We Can Field Board = On-field sign at Providence Park displayed during Portland Timbers and Portland Thorns matches - paid for with shareholder dollars.

Attachment 6 Less We Can Water Bottle = Water bottle given to NW Natural employees - paid for with shareholder dollars.

Attachment 7 Less We Can T-Shirt = T-Shirt given to NW Natural employees - paid for with shareholder dollars.