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VII. MULTNOMAH COUNTY WILL INCUR SEVERE CLIMATE CHANGE INJURIES THAT WILL REQUIRE HUNDREDS OF MILLIONS IN EXPENDITURES TO ABATE THE GLOBAL WARMING NUISANCE

136. Climate change impacts in Multnomah County are best understood through changes that have occurred, and are project to occur in the Pacific Northwest and in the State of Oregon. Temperatures in the Pacific Northwest increased from 1895 to 2016, with annual average temperatures increasing by about 1.5°F.¹ Oregon's annual average temperature warmed by 2.2°F per century during 1895–2015.² Annual average temperature across the Pacific Northwest is projected to increase 5°F to 8.5°F, for a low (RCP 4.5) and a high (RCP 8.5) greenhouse gas scenario by the 2080's (2070–2099) compared to the historical baseline (1976–2005).³ Oregon's annual average temperature is projected to increase by 2.1°–10.7°F by the 2080's under the same greenhouse gas scenarios compared to 1970-1999.⁴

According to recent assessments of impacts in the Pacific Northwest^{5, 6}, these increased temperatures are projected to contribute to:

- Decreasing winter snowpack and changes in the timing and volume of streamflows fed by snowmelt;
- Higher summer water demand, especially during more intense and longer summer droughts;
- An increased risk of flooding;
- An increased risk of fire in forest lands and open space;
- A higher risk for heat-related mortality during more intense summer heat waves;
- More summer air pollution and related health impacts;
- Declining summer hydropower production and higher summer energy demand, especially from air conditioning;

¹Vose, R.S., D.R. Easterling, K.E. Kunkel, A.N. LeGrande, and M.F. Wehner, 2017: Temperature changes in the United States. In: *Climate Science Special Report: Fourth National Climate Assessment, Volume I* [Wuebbles, D.J., D.W. Fahey, K.A. Hibbard, D.J. Dokken, B.C. Stewart, and T.K. Maycock (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, pp. 185-206, doi: [10.7930/JON29V45](https://doi.org/10.7930/JON29V45).

² Dalton, M.M., K.D. Dello, L. Hawkins, P.W. Mote, and D.E. Rupp (2017) The Third Oregon Climate Assessment Report, Oregon Climate Change Research Institute, College of Earth, Ocean and Atmospheric Sciences, Oregon State University, Corvallis, OR

³ Vose et al. 2017

⁴ Dalton et al. 2017

⁵ M.M. Dalton, P.W. Mote, and A.K. Snover (eds.) *Climate Change in the Northwest: Implications for Our Landscapes, Waters, and Communities*, Washington D.C.: Island Press.

⁶ Dalton et al. 2017

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- Warmer water temperatures in streams, rivers, lakes; and
- Shifts in habitat, invasive species, and insects affecting forest health; agriculture; ecosystem function; and Tribal treaty rights and cultural identity.

Warmer temperatures and more extreme heat events are expected to increase the incidence of heat-related illnesses (e.g., heat rash, heat stroke) and deaths. In Oregon, the hottest days in the 2000's resulted in about three times the rate of heat-related illness compared with days 10°F cooler.⁷

Already over the past 50 years, increases in winter temperature have contributed to the decline in snowpacks in the Pacific Northwest, including in the Clackamas River basin. In Oregon, during the winter of 2015, (the warmest year on record in Oregon⁸), precipitation was near normal, but winter temperatures were 5–6°F above average. This caused the precipitation that did fall to fall as rain instead of snow, reducing mountain snowpack accumulation. This resulted in record low snowpack across the state, earning official drought declarations for 25 of Oregon's 36 counties.⁹ Glaciers have diminished, a trend expected to continue through the next 100 years. The glaciers of Mount Hood, which borders Multnomah County, have decreased in length as much as 61 percent over the past century.¹⁰

138. Efforts to address hydrologic impacts are increasing, particularly in the areas of flood risk reduction, stormwater management, water supply planning, hydropower production, and salmon recovery.

139. Sea level is rising and is expected to accelerate due to the global-scale effects of thermal expansion, ice melt from Greenland and Antarctica, and other factors sensitive to rising temperatures. The consequences for Multnomah County are potentially significant.

140. Global mean sea level (GMSL) has risen by 7 to 8 inches since 1900, with about 3 of those inches occurring since 1993. Human-caused climate change has made a substantial contribution to GMSL rise since 1900, contributing to a rate of rise that is likely greater than during any preceding century in at least 2,800 years.¹¹ In addition to the tide gauge

⁷Dalton et al. 2013

⁸ NOAA. 2016. State of the Climate: Global Analysis for November 2016. NOAA National Centers for Environmental Information.

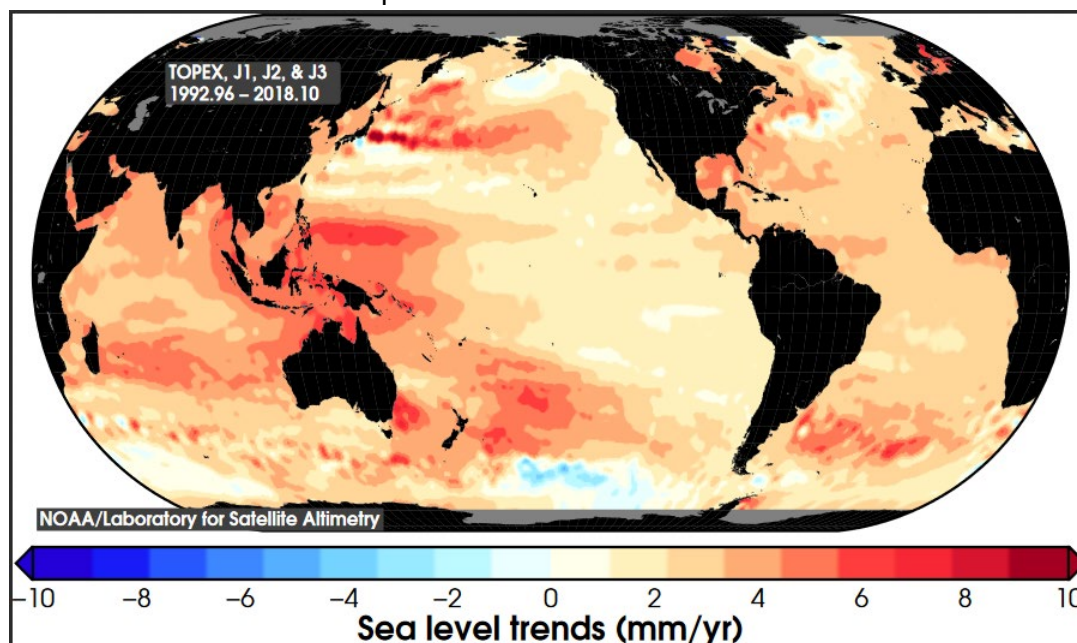
⁹ Mote PW, Rupp DE, Li S, Sharp DJ, Otto F, Uhe PF, Xiao M, Lettenmaier DP, Cullen H, Allen MR. 2016. Perspectives on the causes of exceptionally low 2015 snowpack in the western United States. Geophysical Research Letters 2016GL069965. DOI: 10.1002/2016GL069965.

¹⁰ Dalton et al. 2017

¹¹ Sweet, W.V., et al., 2017: Sea level rise. In: Climate Science Special Report: Fourth National Climate Assessment, Volume I [Wuebbles, D.J., D.W. Fahey, K.A. Hibbard, D.J. Dokken, B.C. Stewart, and T.K. Maycock (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, pp. 333-363, doi: 10.7930/J0VM49F2; <https://science2017.globalchange.gov/chapter/12/>.

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measurements, satellites also have taken measurements of sea level since late 1992. Because sea level is a long-term phenomenon, it takes approximately 25 years to establish a sea level rise trend from a dataset such as those in the satellite measurements. Thus, temporary phenomena such as El Niño and La Niña events can, over a shorter period of time, mask the true long-term effect of climate change on sea level and be misleading, as the IPCC pointed out in its 2012 assessment report.¹² This is precisely what occurred in the eastern Pacific ocean due to a period of La Niña events during three of the four winters from 2008-2013, which biased the results of the relatively short span of satellite data that was available in 2013 when the IPCC published its most recent assessment report and made it appear that sea level was falling in this area. However, the complete satellite data from 1993 to present demonstrate that the eastern Pacific ocean is experiencing sea level rise as depicted below in the global map from the U.S. National Oceanic and Atmospheric Administration:



Global sea level rise map from satellite measurements from late 1992 to present.¹³

141. Analysis of the full 25-year satellite record published in February, 2018 demonstrates that the rate of sea level rise is accelerating, primarily from the melting of the large ice sheets in Greenland and Antarctica, and therefore that previous projections of future sea level that had

¹² Church, J.A., P.U. Clark, A. Cazenave, J.M. Gregory, S. Jevrejeva, A. Levermann, M.A. Merrifield, G.A. Milne, R.S. Nerem, P.D. Nunn, A.J. Payne, W.T. Pfeffer, D. Stammer and A.S. Unnikrishnan, 2013: Sea Level Change. In: *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Stocker, T.F., D. Qin, G.-K. Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P.M. Midgley (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA

¹³ NOAA Center for Satellite Applications and Research (2018). Available from: https://www.star.nesdis.noaa.gov/sod/lisa/SeaLevelRise/slr/map_tj1j2_blue2red.pdf

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assumed a constant rate of sea level rise were too low. This acceleration means that future coastal impacts from sea level rise will be more severe than previously projected.¹⁴

142. Sea level rise affects Multnomah County, which is located at the confluence of two tidally-influenced rivers, the Columbia and Willamette Rivers. The area influenced includes the central city area of Portland, where the National Weather Service forecasts tides at Morrison Bridge. The County owns and operates six bridges over the Willamette River, each serving as a major arterial for the Portland metropolitan area. Sea level rise, in combination with extreme precipitation and flooding events, is likely to create new challenges for bridge operation and maintenance, such as increased draw bridge lifts to allow river traffic to pass. Climate change is estimated to raise the levels of the Willamette River up to 3.9 feet by 2100.¹⁵ Boat operators have already requested higher bridge heights to accommodate changes in river flow attributable to climate change.¹⁶ As bridges age and need to be replaced, raising the heights to accommodate higher river levels will add to infrastructure costs. Furthermore, the economy of Multnomah County is tied to that of coastal communities, only 80 miles west. State tourism data suggest that more than 20% of visitors to the Portland metro area also visit the coast, many accessing the region through Portland International Airport.¹⁷ Any damage to coastal destination from sea level rise could diminish tourism in the Portland area, resulting in lost revenue for local governments.

143. Projected climate impacts in Multnomah County have widespread implications for people, infrastructure, and ecosystems in the region and have direct and indirect economic impacts on Multnomah County. Localized climate impacts in Multnomah County can be primarily categorized as 1) hotter, drier summers with more high heat days; 2) Warmer winters with the potential for more intense rain events.

Hotter, drier summers would result in several significant impacts for the Portland area. By some measures, nighttime heat waves have already increased in western Oregon over the last century, causing problems for public health.¹⁸ Higher temperatures will lead to increased surface water temperatures, reduced flows in streams and negative impacts on aquatic habitats

¹⁴ R.S. Nerem, et al., Climate-Change-Driven Accelerated Sea Level Rise Detected in the Altimeter Era, 115 Proceedings of the National Academy of Sciences 2022 (Feb. 27, 2018), <http://www.pnas.org/content/115/9/2022>

¹⁵ Friebel, Jenna (Parametrix) Technical Memorandum - Willamette River Stage and the Effect of Global Climate Change, January 2010.

¹⁶ Rivera, D. (2011). "Rising water worries prompt cruise boat to seek higher bridge clearance". *The Oregonian*. Available from http://www.oregonlive.com/news/index.ssf/2009/11/portland_spirit_sees_a_trimet.html

¹⁷ Longwoods International. (2013). Oregon 2013 Regional Visitor Report Greater Portland. Available at <https://www.travelportland.com/about-us/visitor-statistics-research/>

¹⁸ Bumbaco, K.A., K.D. Dello, & N.A. Bond (2013). History of Pacific Northwest Heat Waves: Synoptic Pattern and Trends. *Journal of Applied Meteorology and Climatology*. 52, 1618–1631. doi: <http://dx.doi.org/10.1175/JAMC-D-12-094.1> In press.

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and the fish and wildlife they support. There is also a potential for increased major forest pest damage and mortality of plant and tree species now common to the area. Over time increased wildfires in the urban forest, natural parks and open-space areas within Multnomah County's urban environment is also possible. This will harm air quality and human health, and damage or destroy public and private property, in addition to harming wildlife, habitat and recreation areas. Higher temperatures will also result in increased illness and death. Air pollution, such as ground-level ozone and pollen counts, exacerbates Multnomah County's already high rates of respiratory illness and allergies. Many of the areas most impacted by urban heat island effect include downtown Portland, along major roads and in and around industrial areas. Many of these urban heat island areas occur where populations most vulnerable to heat live, including older adults living alone and people with health conditions that can be exacerbated by heat and reduced air quality such as asthma.

In addition, more rain falling in the winter will continue to stress the Portland region's systems for managing stormwater runoff and urban flooding. Wetter winters may also increase the incidence of landslides, particularly following prolonged periods of precipitation when the soil is already saturated with water. Additional costs due to emergency response, business closures, lost productivity and cleanup activities can be expected.

More intense rain events in the winter may have far-reaching impacts locally. Potential economic, social and environmental impacts from flooding may include water damage to homes and businesses, as well as roads, railroad tracks, levees, bridges and culverts. In addition, more rain falling in the winter will continue to stress Multnomah County's systems for managing stormwater runoff and urban flooding. Wetter winters may also increase the incidence of landslides, particularly following prolonged periods of precipitation when the soil is already saturated with water. Additional costs due to emergency response, business closures, lost productivity and cleanup activities can be expected.

All people in Multnomah County will be affected by climate change, but not all communities have the same ability to respond. As a result, some are more vulnerable than others. In Multnomah County, communities of color and low-income populations experience disparities that result in disproportionate vulnerabilities to the impacts of climate change. These disparities include greater risk of poor health, reduced access to quality affordable housing, limited access to transportation options and parks, higher mortality rates and other legacies of inequitable public policies.¹⁹

144. Impacts on water supply and salmon. Decreasing snowpack and changes in precipitation create additional uncertainty for some regional water suppliers, and will require a sustained effort to understand and prepare for the impacts of climate change.²⁰ Hydrologic impacts will

¹⁹ Portland/Multnomah Climate Action Plan (2015)

²⁰ Water Supply Forum, Regional Water Supply Resiliency Project: Climate Change Resiliency Assessment Technical Memorandum (2016), available at:

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also affect availability of water for irrigation, hydropower production, and habitat needs. Hydrologic changes will affect salmon across life stages, increasing the urgency and scale of habitat restoration and riparian shading needed to recover salmon that are relied upon by Treaty Tribes and commercial fishers. Additional investment will be needed to help address the growing challenges for summer water supply, particularly as it relates to the needs for salmon recovery and irrigation.

145. Impacts on Multnomah County Assets and Infrastructure. Climate change will require retrofitting and/or replacing many Multnomah County-owned assets and infrastructure to reduce the potential for damage associated with increased flooding, sea level rise, stormwater, and other impacts. Higher costs for maintenance, operations, and emergency repairs are also expected. Additional study will be needed in many cases to determine how to most effectively prepare County assets for climate change. For example:

- Drainage and stormwater infrastructure. Current pipes, culverts, ditches, and other drainage conveyances located within Multnomah County Roads right-of-ways and other locations will not sufficiently accommodate the greater quantities of water anticipated as a function of climate change. A likely result is more road failures, washouts, and road closures throughout the Multnomah County road network.
- Bridges. Many of Multnomah County's bridges are older and likely to experience more frequent closures due to higher flood water elevations exceeding the height of these bridges. Higher river flows also increase the potential for scour, erosion, and depositional processes around bridge abutments. Working together, these processes weaken the structural integrity of a bridge. As a result, it is anticipated that climate change will result in more frequent bridge closures, repairs and potentially replacements.
- Roads. Portions of Multnomah County's road network are vulnerable to landslides, slope failures, and chronic riverine flooding as a function of heavy rain events, creating delays for motorists, stranding properties cut off by flood waters or slides, and damaging road infrastructure. The current frequency and geographic extent of road closures due to flooding and slides will likely increase with the potential for more intense heavy rain events and river flooding. More damage, more extensive or permanent road closures and detours, and an increased need for capital investments are likely.

146. Impacts on Public Health. Multnomah County is the local public health authority responsible for preserving health and preventing disease in the county. Climate change impacts on Multnomah County residents' health include the potential for: higher demands on emergency medical services with more heat-related illness and mortality; increased respiratory and cardiovascular disease due to projected increases in wildfire smoke, ground-level ozone, and allergens; an increased risk of poisoning from cyanotoxins produced by harmful algal blooms; an increased risk of illness associated with the anticipated spread of vector-borne diseases carried by mosquitoes, rodents, and ticks; and, increased mental health stress and risk of injury

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or death associated with more extreme climate or weather-related events.^{21,22,23} Without preventive action, increased exposure to extreme heat is expected to result in an additional 81-118 deaths in 2050 under a medium emissions scenario.²⁴ Already, health agencies have documented an increase in emergency department visits for respiratory symptoms coinciding with wildfire smoke. During the 2017 Eagle Creek Fire, such visits increased 29% in the Portland metropolitan area.²⁵ Air monitor data for Multnomah County show that since 2008, the only days rated “Unhealthy for all groups” were associated with wildfire smoke.²⁶ These impacts will exacerbate pre-existing inequities in health, housing, employment, and income and are expected to have disproportionate effects on children, older adults, outdoor workers, communities of color, low-income households, people who are socially or linguistically isolated, pregnant women, and people with chronic medical conditions. Additionally, lower cost and substandard quality housing is more likely to be co-located in proximity to significant industrial and transportation pollution sources and in the hottest parts of urban areas²⁷, exacerbating health impacts. Lower income populations are also less likely to have the resources needed to mitigate impacts through actions like flood proofing, home insulation, installing air conditioning, or easily accessing a shady park or air-conditioned public space.^{28,29} Finally, climate change will influence migration patterns, increasing needs for refugee support services and accompanying healthcare.³⁰

147. Climate change will require significant investments in public health services to meet these growing demands. Necessary actions will include expanding or developing early warning systems for climate-related health impacts to provide timely information for Public Health action, such as health impacts associated with pollution, wildfire smoke, heat impacts and infectious disease (e.g., foodborne, waterborne, vector-borne); investing in emergency preparedness and response capabilities for event-based climate change health risks (e.g., flooding, mudslides,

²¹ Dalton, M.M., P.W. Mote, and A.K. Snover [Eds.]. 2013. *Climate Change in the Northwest: Implications for Our Landscapes, Waters, and Communities*. Washington, DC: Island Press.

²² Haggerty B, York E, Early-Alberts J, Cude C. Oregon Climate and Health Profile Report. Oregon Health Authority. September 2014: Portland, OR

²³ Dalton et al. 2017

²⁴ Schwartz, J. D., Lee, M., Kinney, P. L., Yang, S., Mills, D., Sarofim, M. C., ... & Horton, R. M. (2015). Projections of temperature-attributable premature deaths in 209 US cities using a cluster-based Poisson approach. *Environmental Health*, 14(1), 85.

²⁵ Oregon Health Authority. (2017). Short Surveillance Report Statewide Fire Activation (9/5/17-9/6/17).

²⁶ US EPA. (2018). U.S. EPA AirData. [data files]. Available from <https://www.epa.gov/air-data>. Accessed May 15, 2018

²⁷ Voelkel, J., Hellman, D., Sakuma, R., & Shandas, V. (2018). Assessing vulnerability to urban heat: a study of disproportionate heat exposure and access to refuge by socio-demographic status in Portland, Oregon. *International journal of environmental research and public health*, 15(4), 640.

²⁸ Haggerty et al. 2014

²⁹ Voelkel et al. 2018

³⁰ Whitely Binder, L.C. and J. Jurjevich. 2016. *The Winds of Change? Exploring Climate Change-Driven Migration and Related Impacts in the Pacific Northwest: Symposium Summary*. June 24, 2016, Portland, Oregon: Portland State University Population Research Center (Portland, Oregon) and the University of Washington Climate Impacts Group (Seattle, Washington).

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wildfires, heat events); increasing support for community health clinics and medical support services provided by the County; and expanding outreach and partnership efforts to help Multnomah County residents and organizations understand, prepare for, and adapt to the risks of climate change on public health. Retrofitting and operating public buildings to protect occupants from extreme heat and air pollution will require major investments. An estimated two-thirds of school buildings in Multnomah County lack air conditioning, and many have no air filtration.

148. Impacts on Multnomah County risk management. Nationally, more frequent and severe storms and flood disasters are leading businesses and insurers to take steps to mitigate risks, triggering changes in insurance costs and availability.³¹ Many insurance carriers are now aggressively pushing for substantial rate increases, especially for clients with catastrophe (CAT) exposure. Property insurers are carefully reviewing their CAT accumulations in their portfolios and may cut capacity and/or substantially increase rates to help offset the impact of these losses.

149. Multnomah County must adapt now to the ongoing impacts of climate change to abate ongoing damage to property, facilities, and equipment, with risks of increasing damage in the future.

150. Multnomah County is already experiencing, and working to abate, current harms caused by climate change. Multnomah County's commitment to confronting climate change is documented in the County's Climate Change and Public Health Preparation Plan (2013)³² and Climate Risk and Vulnerability Assessment (2014)³³ and Climate Action Plan (Adopted in 2009, updated in 2015)³⁴. These plans include an assessments of current projected climate impacts on critical public infrastructure and services owned or managed by Multnomah County and recommend near-term priority actions to reduce greenhouse gas emissions and reduce climate risks to County operations, infrastructure, and residents.

151. Multnomah County has also described projected climate impacts and adopted formal policies directing programmatic actions and investments to reduce greenhouse gas emissions and prepare for climate impacts as part of the Multnomah County Comprehensive Plan. The Comprehensive Plan is the long-range guiding policy document for all land use and

³¹ National Association of Insurance Commissioners. (2008). *The Potential Impact of Climate Change on Insurance Regulation*. Available from:

http://www.naic.org/documents/cipr_potential_impact_climate_change.pdf

³² Lyons-Eubanks K., Davis M., Simon A. (2013). Climate Change and Public Health Preparation Plan. Available from:

https://multco.us/sites/default/files/documents/multnomah_county_climate_change_and_public_health_preparation_plan_2013.pdf

³³ Multnomah County and City of Portland. (2014). Climate Change Preparation Strategy Risk and Vulnerabilities Assessment. Available from: <https://multco.us/file/36550/download>

³⁴ Multnomah County and City of Portland. (2015). Climate Action Plan. Available from: <https://multco.us/file/42548/download>

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development regulations in unincorporated Multnomah County. The 2016 Comprehensive Plan³⁵ included recommendations for evaluation and consideration of the potential impacts of climate change, such as more severe winter flooding, disaster preparedness updates, levee investment, and land use plans, as well as development regulations.

152. In 2013 Multnomah County and a number of key partners convened the Levee Ready Columbia collaborative, to ensure that the levee system along the Columbia River, from Sauvie Island to the Sandy River, meets the requirements for participation in federal programs and continues to reduce the risk of flooding for important regional assets in the area. In so doing, Levee Ready Columbia will help provide a safe and stable future for the residential, commercial, industrial, ecological and recreational land-uses now present in the area.³⁶ The Columbia River levee system in Multnomah County protects \$12 billion in property value, 40% of port facilities, 10% of jobs, and thousands of residences. Climate change poses significant potential risks to the levee system from increased river flows due to changing precipitation patterns and sea level rise. These risks are currently being assess by the Army Corps of Engineers and the findings will be incorporated into the levee investment strategy developed as part of Levee Ready Columbia. The costs of these investments will be directly born by business and residents of Multnomah County, the County itself, and the State of Oregon.

153. While actions are being taken to protect Multnomah County and its residents from the impacts of climate change, the scope, scale, and cost of investment must increase over time to address the magnitude of projected impacts and associated risks tied to rising greenhouse gas emissions. Pervasive fossil fuel combustion and greenhouse gas emissions to date will cause ongoing and future harms regardless of future fossil fuel combustion or future greenhouse gas emissions. Future production and use of fossil fuels will accelerate the rate of temperature change and sea level rise, requiring even greater expenditures to abate the injuries. Multnomah County must plan for and adapt to future harms related to climate change now to ensure that abatement of ongoing and future harms is done most efficiently and effectively and in order to protect human well-being and public and private property before it is too late. Additionally, the significant infrastructure needed to abate global warming requires long lead times for planning, financing, and implementation.

154. Sea level rise, storm surges, and flooding caused by global warming threaten not only the physical infrastructure and property of Multnomah County and its citizens, but also the safety, lives, daily way of life, sense of community, and security of Multnomah County residents. The risk of harm to Multnomah County and its citizens will increase, just as rising sea levels and other climate change impacts will continue due to past and current greenhouse gas emissions.

155. Defendants relied upon their knowledge about climate change science to protect their own business assets from expected rising seas and melting permafrost by incorporating climate

³⁵ Mult Co Comprehensive Plan

³⁶ <http://www.leveereadycolumbia.org/>

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change science into their engineering standards for construction of their pipelines, offshore oil platforms, and other projects, the same thing that the County now must do. Exxon has stated that since its operations may be disrupted by “severe weather events” and “natural disasters,” to protect business assets such as its offshore production facilities, coastal refining operations, and petrochemical plants in vulnerable areas, its designs should account for the “engineering uncertainties that climate change and other events may potentially introduce.”³⁷ Chevron also takes into account potential risks to its operations and assets, including “storm severity and frequency” and “sea level rise” to “plan for their resiliency.”³⁸ Likewise, ConocoPhillips has warned that it could incur increased expenses for its assets and operations if there are “significant changes in the Earth’s climate, such as more severe or frequent weather conditions.”³⁹ Defendants thus recognize that protecting infrastructure and operations from climate change is necessary and entails additional planning and costs than would otherwise be required. In the same way, the County seeks to be able to more fully protect itself from climate change impacts to which Defendants have substantially contributed.

VIII. DEFENDANTS’ CONDUCT IS ONGOING, AND IS CAUSING CONTINUOUS AND RECURRING INJURIES TO THE COUNTY

156. Defendants’ conduct is causing a continuous encroachment upon and interference with the County’s property. For example, areas of the County that were once above the mean high tide line now experience regular tidal inundation. This sea level rise will inevitably grow worse, regularly inundating additional County-owned property, and eventually portions of coastal areas owned by the County may be continuously submerged.

157. Defendants’ conduct is also causing recurring harms to the County. These harms include encroachments upon and interferences with the County’s property from higher storm surges and more intense heavy rain events, as well as injuries to public health resulting from more frequent and more intense heat waves and flooding. These recurring harms will also grow worse and more frequent in the future.

³⁷ Exxon Mobil Corporation, 2016 Form 10-K at 4 (Feb. 21, 2017), available at <https://www.sec.gov/Archives/edgar/data/34088/000003408817000017/xom10k2016.htm>.

³⁸ Chevron Corporation, 2016 Form 10-K at 20 (Feb. 23, 2017), available at <https://www.sec.gov/Archives/edgar/data/93410/000009341017000013/cvx-123116x10kdoc.htm>

³⁹ ConocoPhillips, 2016 Form 10-K at 25 (Feb. 21, 2017), available at <https://www.sec.gov/Archives/edgar/data/1163165/000119312517050077/d264316d10k.htm>