July 6, 2023

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Thank you for requesting input on long-range employment projections for Clark County growth management. I have prepared a scenario for employment by industry for the year 2045 based on the population projection of 718,154 and the County's goal of reaching a jobs/housing ratio of 1. This memo is meant to guide readers through that scenario and make explicit the assumptions I used.

Before starting, I want to make it clear that the projections below are in no way predictions or forecasts of the future. The question I'm answering in the projections is, "if Clark County grows such that its 2045 population is 718,154, what does that imply for employment?" While the county's development will take place within a larger economic context, local policies in place and yet to be adopted will have an impact as well.

The projections are based on the implicit assumptions that local governments will zone enough land and make capital investments adequate to support the projected population and jobs.

A final note: climate change will have a growing impact on the county's economy, in all sorts of ways. To best prepare our communities for the future, we will need to develop better ways of incorporating the risks and opportunities of climate change into the planning process.

PROJECTIONS FOR CLARK COUNTY NONFARM EMPLOYMENT BY INDUSTRY, 2045

1. Population

The County has chosen a population target of 718,154 for 2045, a bit higher than the state's middle-series projection of 698,114. The target change in population of 197,254 for the 2022-2045 period is larger than the previous 23-year period (1999-2022) period (+183,275).

The projected average annual growth rate of 1.4% (middle series was 1.3%) is lower than the 1.9% growth rate for the 1999-2022 period. Statewide, the projection is for 0.9% average annual growth rate, down from 1.3% for 1999-2022.

Under this scenario, Clark County would continue to be the second-densest county in the state (behind King County), moving from 839 to 1,143 persons per square mile.

In 2021, according to the American Community Survey, Clark County averaged 2.67 persons per housing unit. An Urban Institute analysis[1] predicts that persons per household will change little over the coming decades. If we apply 2.67 to a population of 718,154, the result is just short of 269,000 housing units for 2045.

2. Population by age

The projected distribution of population by age from the 2045 middle series was applied to the County's target population. The projection shows (as expected) a substantial increase in the number and proportion of older residents (*Figure 1*). What's interesting is that currently Clark County has relatively fewer residents aged 65 and older than the state (17.3% vs. 18.5%); the 2045 projection has this reversed (23.6% vs. 22.2% for the state, see *Figure 2*). The projection also continues the dip in population in the 18 to 29-year-old range, usually attributed to students attending college outside of the county.

Three key assumptions underlying the projections are important to keep in mind.

- First, the total fertility rate (TFR) is defined as the number of children the average woman will have in her lifetime. A TFR of 2.1 is known as the replacement rate—it would mean over time that the population wasn't growing (apart from migration). The TFR for the U.S. has been declining steadily since 2007, from 2.12 down to 1.66 in 2021. Locally, births in Clark County peaked in 2008, despite an increase of 100,000 residents since then. No one knows whether the decline in the TFR will continue. The projections assume that the TFR increases slightly in Clark County, from 1.72 to 1.79. If instead it declines, then there would be proportionately fewer children in the county in 20 years than projected. The risk to the projection is that the 2045 target population would have proportionately more people in the prime working ages of 25 to 54, so employment would be higher and more land zoned for industrial and commercial uses would be required. Employment in public education would be lower.

[1] Laurie Goodman and Jun Zhu, "The Future of Headship and Homeownership", available at https://www.urban.org/sites/default/files/publication/103501/the-future-of-headship-and-homeownership_0.pdf

Figure 1. Current and projected population by age group
Clark County, 2022 and 2045
Source: Washington Office of Financial Management, middle series projection

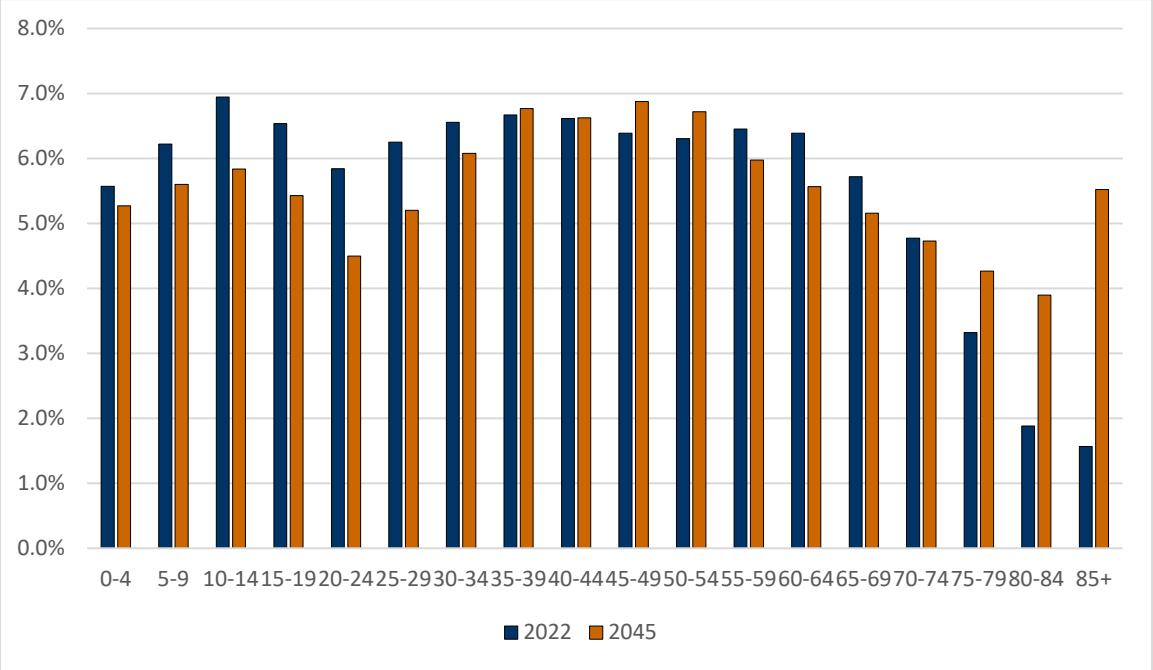
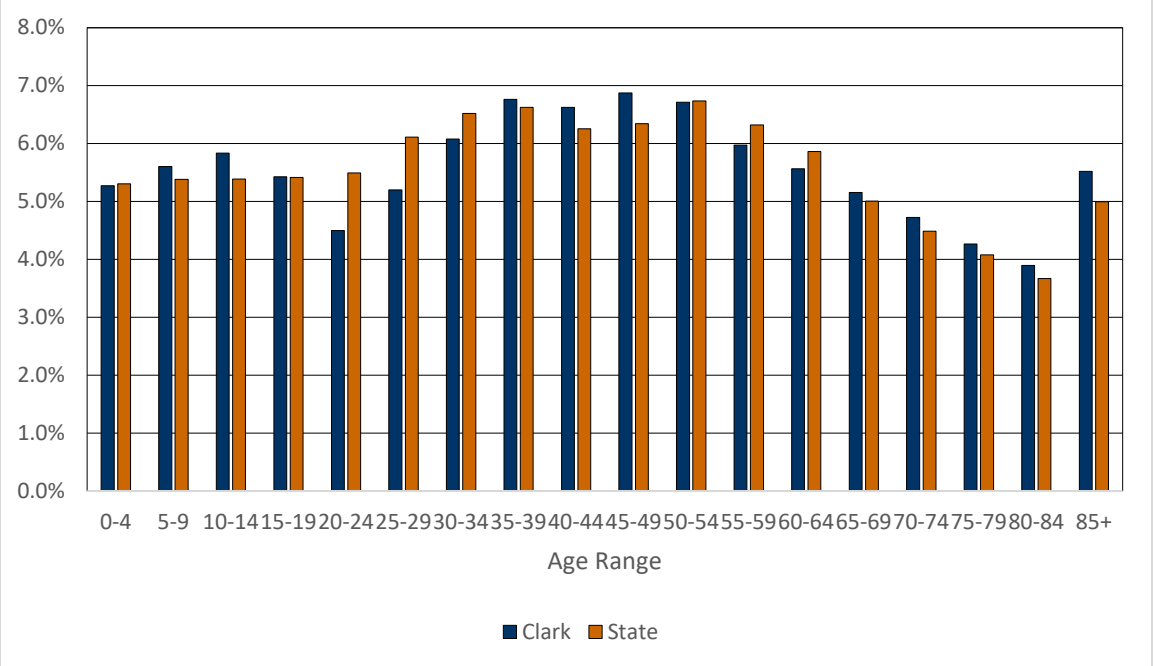
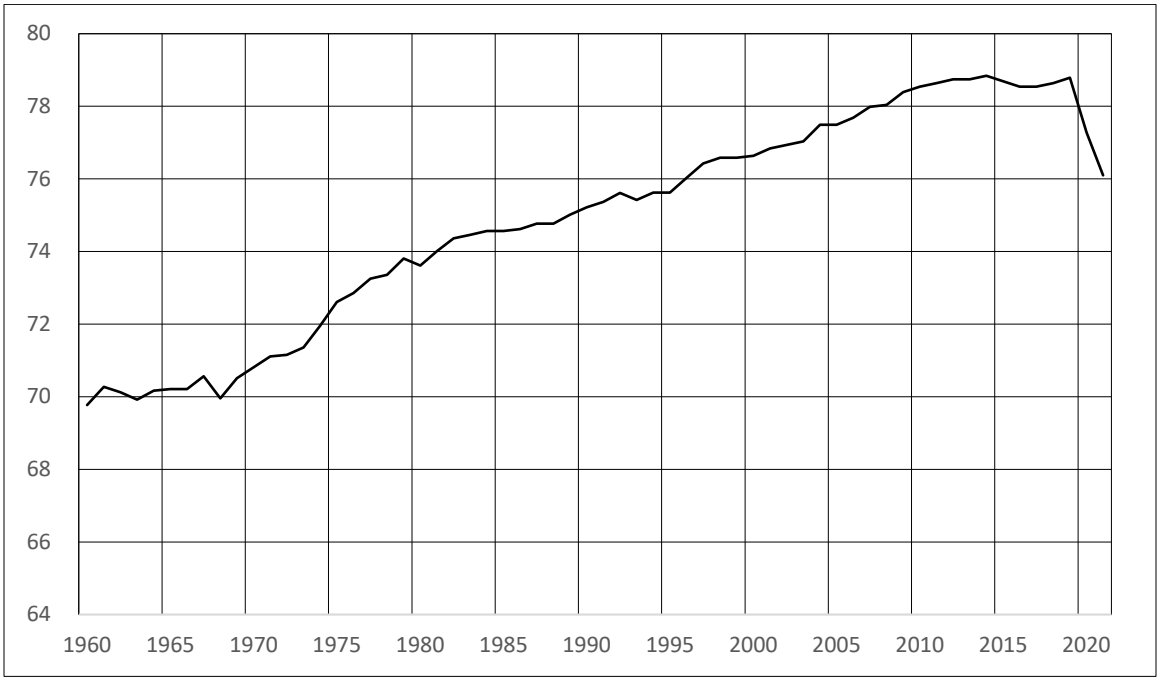


Figure 2. Projected population by age group
Clark County and Washington, 2045
Source: Washington Office of Financial Management, middle series projection



- Second, the projections assume that life expectancy in the County increases from 80.66 in 2025 to 84.21 in 2045. Nationally, life expectancy was increasing by 4 years over a 20-year period until 1993, and then slowed to +3 years until 2014. Life expectancy declined slightly in 2015 and 2016, and was unchanged in 2017, due to an increase in the "deaths of despair"—alcohol addiction, drug overdoses and suicides. This was the height of the opioid crisis. Life expectancy declined sharply in 2020 and 2021 due to COVID-19 and continued high rates of overdoses and suicides. Life expectancy varies sharply by race and gender, and the declines were more pronounced for males of any race and for Indigenous, Black and Latino Americans. Another pandemic in the next 20 years is a distinct possibility[2]. The risk to the projection is that the 2045 target population would have proportionately fewer people aged 65 and older, and proportionately more people in the prime working ages of 25 to 54, so employment would be higher and the demand for more industrial and commercial land would be higher.

Figure 3. Life expectancy
United States, 1960-2021
Source: World Bank



- Third, the projections are based upon historical net migration rates. Climate change is leading to Increased migration globally and within the U.S. It is possible that migration to Clark County could increase beyond historical rates from, say, Southern California, Arizona, Nevada, west Texas and the Midwest, if water shortages worsen and events like the current Texas heat dome become more common.
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[2] See, for example, here.

3. Labor force

The labor force is defined as the sum of people who are employed and people who are unemployed, meaning they are actively seeking work. Estimates for the county's 2045 labor force were created by applying labor force participation rates—the percent of the population that is in the labor force—by age group for men and women. The U.S. Bureau of Labor Statistics (BLS) publishes ten-year projected labor force participation rates, the latest for 2021-2031. BLS expects labor force participation to increase for older workers, but to decrease for younger workers of both sexes and for males for all age groups under the age of 54. The former seems reasonable, as more older workers continue to work either because they enjoy it and are in good health, or because of inadequate savings. The latter is questionable, because with the large cohort of retirees and relatively smaller cohort of new entrants in the future, the labor market should remain fairly tight which tends to raise the participation rate. For these reasons, the 2022 national rates were used for the population below the age of 54, and BLS projected rates were used for the population aged 55 and older. The result was an overall labor force participation rate of 59.4% and a projected 2045 labor force of 350,431.

4. From labor force to nonfarm employment

Starting from the labor force of 350,431, and assuming a long-term unemployment rate of 5%, that would mean there were 332,909 employed residents. Making adjustments for self-employed workers, unpaid family members, agricultural workers, and multiple job holders leaves us with 325,585 jobs held by county residents.

The next question is, what will cross-county employment patterns be like in 2045? How many Clark County residents will be working for an employer located in another county, and how many residents of other counties will be working for an employer in located in Clark County? A follow-up question, how many of these jobs will be remote, will be considered in the next section.

The most recent data[3] for employees indicated that in the spring of 2020, 33.1% of non-federal resident workers had an out-of-state employer (with 32.1% working for an Oregon employer and 1.0% for an employer in a different state). The number of resident employees with out-of-state employers has risen fairly steadily from almost 55,000 in 2002 to nearly 75,000 in 2019; however, as a percentage of all jobs, their share has declined slightly from 35.4% back in 2002. Conversely, 12.3% of jobs in Clark County were held by Oregonians, and 0.5% by residents of another state. The number of jobs with county employers held by out-of-state residents has been gradually increasing, from 10.3% back in 2002; the number has almost doubled, from just over 11,000 in 2002 to almost 21,000 in 2019. Cross-county employment with other counties in Washington appears to be evenly matched, with roughly a 3% incoming/outgoing balance and no clear trend over time.

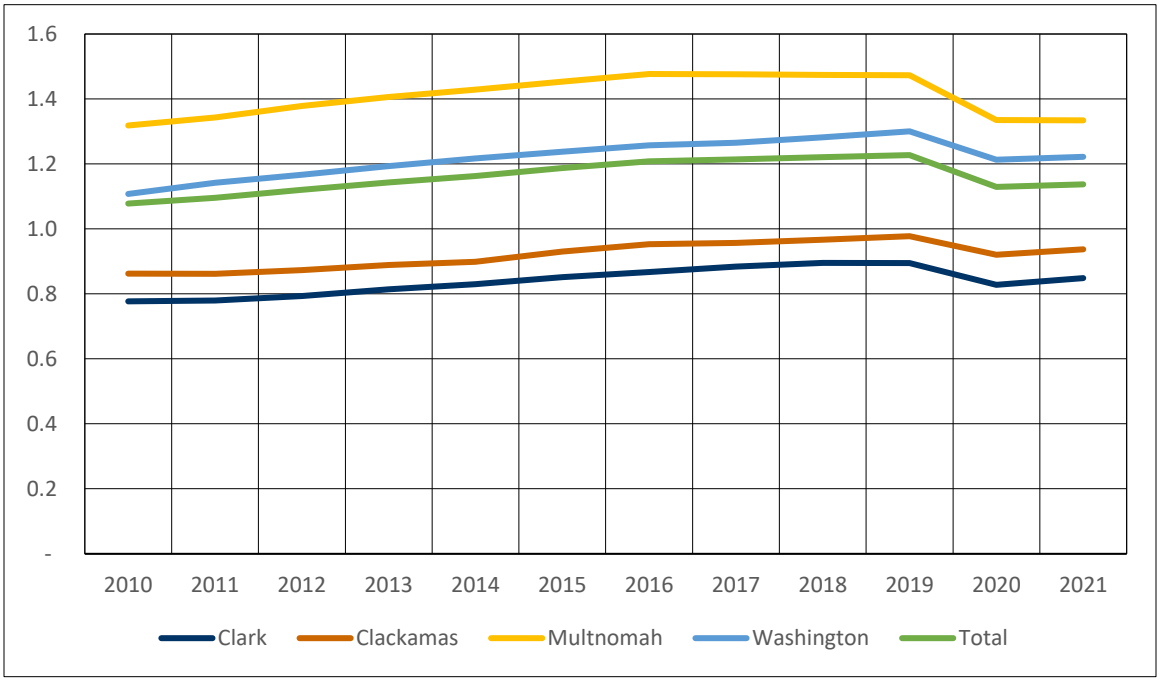
Another way of analyzing this trend is to compare the jobs/housing ratio for counties in metropolitan Portland. As *Figure 4* below shows, that ratio increased for all four counties for the 2010-2019 period, with little change in Clark County's relative position. It is worth noting that Clark and Clackamas had the same ratio in 1990.

A reasonable assumption is that cross-county employment with Oregon will continue to become more balanced over time. The five-percent decline in net cross-county employment over the past 20 years will

[3] From the Census Bureau's On The Map, at https://onthemap.ces.census.gov/.

likely accelerate, due to transportation constraints (freeway capacity and tolling). Telework may be a mitigating factor. If net cross-county employment falls from 24% to 17%, then nonfarm employment in the county would be 269,000 and the County would meet its goal of a jobs/housing ratio of 1. The average annual growth rate for jobs would be 1.7%, slightly below the 2.1% average for the past 23 years.

Figure 4. Jobs-Housing Ratio
Clark, Clackamas, Multnomah and Washington counties, 2010-2021
Source: Nonfarm employment, decennial Census, American Community Survey



5. Remote work

The percentage of county residents who reported that they worked from home was gradually increasing in the decade before the pandemic, from 5% in 2011 to 8% in 2019. Then it jumped to 21.1% in 2021, higher than the national rate of 17.9%. It's not clear how many of those workers were working totally virtual or were working some kind of hybrid schedule. Nationally, in the June 2023 Census Pulse Survey, 26% of those employed reported working at home at least some of the time. They were evenly split between completely virtual and a hybrid schedule. The number was down only slightly from the 27% in February 2023.

Over the same period, the percent who reported working at a jobsite outside of the county (again, not to be confused with the address of the employer) declined from 29.9% to 25.3%. There was a larger decline in those working out of state, and a small increase in those working in a different Washington county. That would indicate that the increase in telework of 13 percentage points was evenly split between workers with an employer located in the county and workers with an employer located outside of the county. Splitting that again between hybrid and virtual, we're left with a shift of 3% to 4% of residents with an employer in the county to a completely virtual schedule.

There's been a lot of speculation about the future of remote work. At this point, it's too new a phenomenon with too little data to base any conclusions on. For the purposes of this report, the assumption is that any changes in remote work will be minimal going forward, with insignificant impact on land use.

6. Industry trend assumptions

Listed below are the assumptions used for projecting faster or slower growth in employment for major industries in the 2022-2045 period. One of the guideposts used was national employment projections for the 2021-2031 period, produced by the Bureau of Labor Statistics.[4] Historical trends for Clark County were also a primary input. Demographic trends were also used to inform projections for several industries, particularly education and health services.

- Construction: the projected increase in population and employment, while at a slower percentage rate than in the past, is still sizable, which means construction should continued to be a big part of the local labor market. The projected growth rate is slower than that for all industries, but the industry would still be 9.1% of total jobs, vs. the current 9.9% (and the projected national figure of 4.9% in 2031).
- U.S. manufacturing is projected to shrink slightly over the next decade. Manufacturing has fared better locally, and is projected to grow at about half the average for all industries, due to continued productivity improvements.
- Both wholesale and retail trade were assumed to have average growth going forward. This is more optimistic than the national projections. For retail, faster growth is justified by the expectation that higher density will lead to more local demand, while tolling will make the trip to Portland less attractive.
- Transportation & warehousing is a bit of a wild card. We know that Amazon has purchased land locally. We know that when Amazon builds, FedEx and UPS often follow suit (as does the U.S. Post Office). The projection here splits the difference between a slower (business as usual) growth projection and a faster (Amazon and others invest) projection.
- Finance & insurance is assumed to grow slower than average, due to a slowdown in NAICS 523, securities, commodity contracts, other financial investments.
- Professional services is projected to grow at a substantially faster than average rate, as it has for a number of years.
- Business services are projected to grow slightly faster, led by temporary employment services.
- Health care & social assistance is projected to have rapid growth, especially in nursing & residential care facilities, due to the aging of the population.
- Both accommodations and restaurants are projected to grow faster than average, a consequence of the county getting larger.
- State and local educational services are expected to grow slower than average, as younger people become a smaller share of the county's population.
- State and local government offices (outside of schools) are also expected to add jobs at a lower than average pace, based on their historic trend.

[4] Available at https://www.bls.gov/emp/.

- The following industries are projected to grow at or about the average rate: information services, real estate, rental & leasing, corporate offices, private educational services, arts, entertainment & recreation, other services, and federal employment.