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May 18, 2023

Luke Masselink, ASA, EA, MAAA
Senior Actuary
Washington Office of the State Actuary
PO Box 40914
Olympia, WA 98504
Sent via email: luke.masselink@leg.wa.gov

Re: WA Cares Fund – Migration Support

Dear Luke:

Per your request, this letter provides migration metrics, assumptions, and methodology supporting our Base Plan modeling of the WA Cares Fund. The information in this letter should be considered in the context of the 2022 WA Cares Fund Actuarial Study.[1] provided on October 20, 2022 (2022 Actuarial Study), which should be read in its entirety with this letter.

Within this letter, we provide additional insight into our modeling of migration assumptions as requested by the Washington Office of the State Actuary (OSA). Specifically, we cover the following modeling assumptions:

- Percentage of Washingtonians projected to leave the state each year
- Distribution of individuals by age moving out of state
- Proportion of individuals in 2023 who have moved out-of-state by age 75

Please note, we used a combination of publicly available data sources to produce our migration assumptions. Using different sources of data would likely produce a different premium assessment for the Base Plan, as well as affect the magnitude of impact of program alternatives (such as the impact of allowing benefits to be portable).

RESULTS

Percentage of Washingtonians projected to leave the state each year

We project approximately 1.0% to 1.5% of Washingtonians will annually move out of Washington to a different U.S. state. Figure 1 illustrates this metric for select years and is consistent with the numbers presented in Exhibit 3 of our 2022 Actuarial Study. Our projections rely upon historical data from the American Community Survey (ACS) and projections from the Washington State Office of Financial Management (OFM) as a starting point. Additional background on our methodology and assumptions is included in our 2022 Actuarial Study and later in this letter.

| Figure 1 Washington Office of the State Actuary Estimated Counts under 2022 Baseline (in 000s) for Select Years*			
Fiscal Year Ending 6/30	State Residents Beginning of Year	Out-Migration State-to-State	Percentage of Washingtonians projected to leave the state annually
2025	7,900	100	1.3%
2035	8,600	125	1.5%
2045	9,200	130	1.4%
2055	9,700	120	1.2%
2065	10,200	120	1.2%
2075	10,600	120	1.1%
2085	11,000	120	1.1%
2095	11,400	120	1.1%

* Figure 1 only includes domestic migration

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[1] Giese, C. et al. (October 20, 2022). *2022 WA Cares Fund Actuarial Study*. Milliman Report. Retrieved December 14, 2022, from https://leg.wa.gov/osa/additionalservices/Documents/Report01-2022WACaresFundActuarialStudy.pdf

Distribution of individuals moving and living out of state

We assume the age-gender distribution of the individuals moving out of Washington to another U.S. state in any year will resemble the age-gender distribution of all Washingtonians living in the state in that year. Figure 2 shows the distribution of adults moving out of state by age band. Due to our modeling assumption, a graph of the distribution of adults living in Washington by age band would appear identical to Figure 2.

Figure 2: Distribution of adult Washingtonians moving out of state by age band
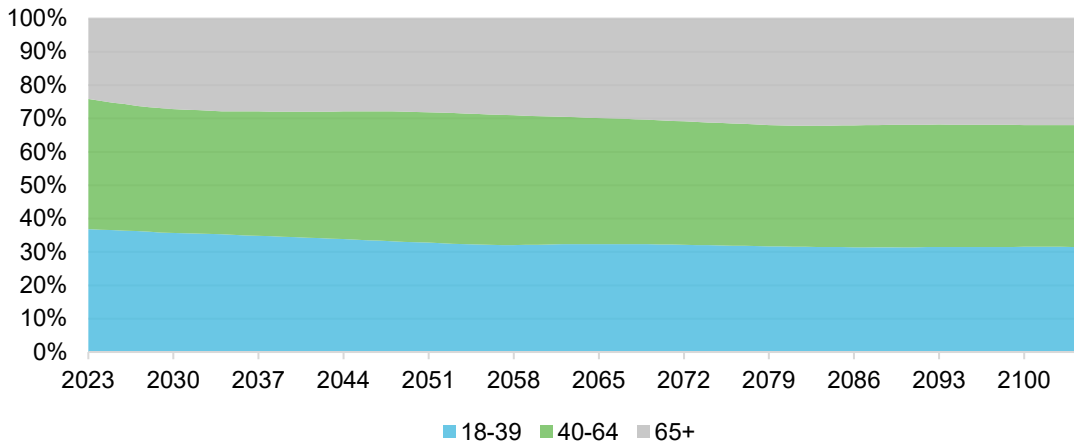
Roughly 30% of adults migrating out of Washington each year are between the ages of 18 and 39. Roughly 40% are between the ages of 40 and 64, and the remaining 30% are 65 or older. While the distribution of Washingtonians leaving the state by age band is generally consistent by year (as seen in Figure 2), the resulting distribution of previous Washingtonians *living* out of state is less consistent. As shown in Figure 3 below, individuals aging outside of the state have an accumulating effect on the distribution causing an increase to the percentage of out-migrants in the 65+ age band. For example, by 2085 roughly 10% of out-migrants are between the ages of 18 and 39, 40% are between the ages of 40 and 64, and the remaining 50% are 65 or older.

Figure 3: Count of individuals who have moved out of Washington by age band
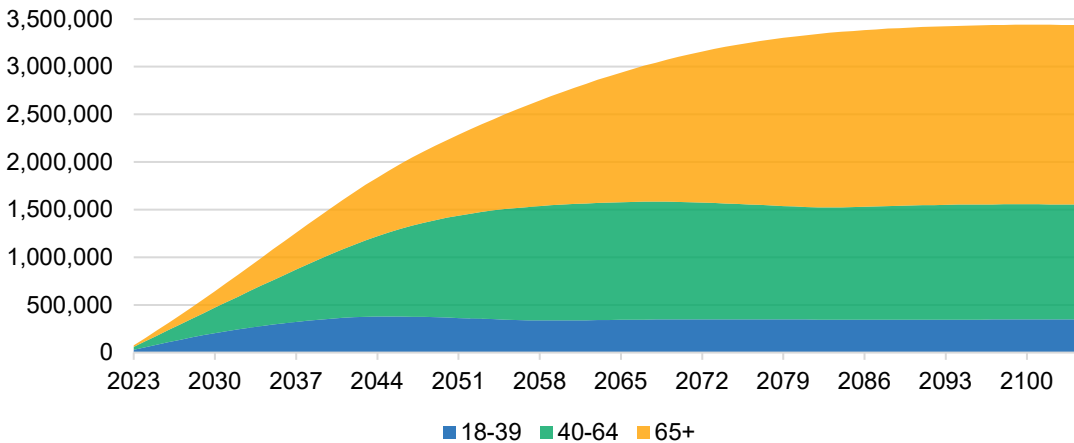
Proportion of individuals in 2023 who have moved out-of-state by age 75

For Washingtonians at various sample ages in 2023, we provide the proportion of individuals who we project to move out-of-state by age 75 in Figures 4a and 4b below. For example, our modeling suggests 53% of Washingtonians age 30 in 2023 (who survive to age 75) will move outside of Washington between the ages of 30 and 75.

Figure 4a: Proportion of surviving individuals who move out-of-state by age 75
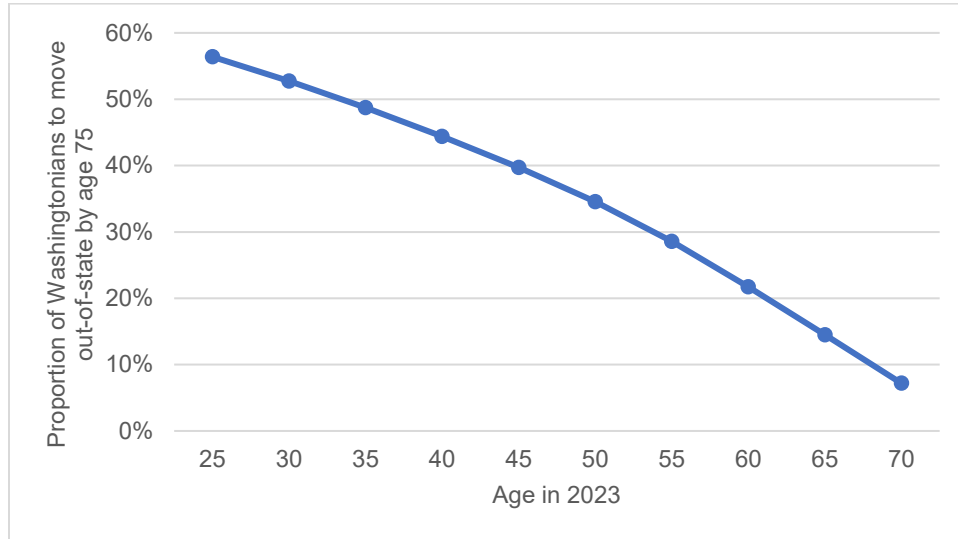

Figure 4b Washington Office of the State Actuary Proportion of Individuals in 2023 Living Out-of-State at Age 75			
Age in 2023	**Proportion**	**Age in 2023**	**Proportion**
25	56%	50	35%
30	53%	55	29%
35	49%	60	22%
40	44%	65	15%
45	40%	70	7%

MODELING CONSIDERATIONS

The following should be considered when interpreting the results and assumptions described in this letter.

- We projected migration assumptions using historical data and projections that were created outside of the context of the WA Cares Fund. We did not hypothesize on any behavioral impacts to individuals leaving or entering the state as a result of the creation of the WA Cares Fund. Similarly, we did not alter migration assumptions when testing different program features for the WA Cares Fund. For example, we did not assume that changing the portability of the program would create any changes to participant behavior and result in fewer or more individuals moving in and out of the state.

- As stated at the beginning of this letter, using different sources of data may produce a different premium assessment for the Base Plan, as well as affect the magnitude of impact of program alternatives. For example, if different out-migration assumptions were to be used, it is likely the premium assessment for the Base Plan would change, and the relative impact of the "full portability" test to the Base Plan would also change.

- While this letter focuses on migration assumptions, there are many assumptions that contribute to the projections included in the 2022 Actuarial Study. It is important to consider the migration assumptions (as well as the precision, conservatism, and materiality of those assumptions) in the context of the other assumptions used to create the projections in the 2022 Actuarial Study.

METHODOLOGY AND ASSUMPTIONS

We include methodology and assumptions related to the projection of individuals migrating in and out of the state of Washington as part of the 2022 Actuarial Study. The information in this letter should be considered along with the sources and methodology used to develop other important assumptions part of our projections, described starting on page 25 of the 2022 Actuarial Study.

We project three types of migration separately in our modeling, which we illustrate below in Figure 5.

Figure 5 Washington Office of the State Actuary Assumption Sources for Migration Counts and Distribution		
Type of Migration	**Counts Assumption Source**	**Distribution Assumption Source**
State-to-state in-migration	ACS county-to-county migration forecast, calibrated to OFM forecast	Mirror in-state population distribution
State-to-state out-migration	ACS county-to-county migration forecast, calibrated to OFM forecast	Mirror in-state population distribution
Net international immigration	2022 OASDI Trustees Report, calibrated to OFM forecast	ACS county-to-county migration forecast

1. *State-to-state in-migration* – We project the number of individuals that will move into Washington each year from another U.S. state using historical data from the ACS county-to-county migration forecast[2] as a starting point. We assume the age-gender distribution of the individuals moving into Washington from another U.S. state in any year will resemble the age-gender distribution of Washingtonians already living in the state in that year.

2. *State-to-state out-migration* – The methodology and assumptions used to project state-to-state out-migration mirrors the methodology we use to project state-to-state in-migration. We project the number of individuals that will move out of Washington each year to another U.S. state using historical data from the ACS county-to-county migration forecast as a starting point. We assume the age-gender distribution of the individuals moving out of Washington to another U.S. state in any year will resemble the age-gender distribution of all Washingtonians living in the state in that year.

3. *Net international immigration* – We project individuals who move into / out of Washington from / to a different country on a net basis (i.e., net international immigration equals individuals moving into Washington from another country minus individuals moving out of Washington to a different country). Our projection for this estimate is also based on information from the ACS county-to-county migration forecast and the 2022 Old-Age, Survivors, and Disability Insurance (OASDI) Trustees Report. The age-gender distribution for this population is based on ACS data that is specific to individuals moving into and out of the United States. We do not model or track the legal status of immigrants or emigrants.

We calibrate the total net migration resulting from the above three projections based primarily on the 2021 OFM Population Forecast. Total net migration is calculated as state-to-state in-migration minus state-to-state out-migration plus net international immigration. The OFM forecast projects net migration through calendar year 2041, at which point the ultimate annual net migration is estimated to be 61,300. Beyond 2041, we use a combination of the OFM "Forecast of the State Population" from December 2019[3] and 2021,[4] where we grade off net migration from 61,300 in

[2] American Community Survey (2017). Retrieved September 19, 2022 from
https://www.census.gov/content/census/en/data/tables/2017/demo/geographic-mobility/county-to-county-migration-2013-2017.html
[3] OFM 2019 Forecast of the State Population: Population by age and sex (2019). Retrieved January 24, 2023 from
https://ofm.wa.gov/sites/default/files/public/dataresearch/pop/stfc/stfc_2019.xlsx
[4] OFM 2021 Forecast of the State Population: Population by age and sex (2021). Retrieved January 24, 2023 from
https://ofm.wa.gov/sites/default/files/public/dataresearch/pop/stfc/stfc_2021.xlsx

2041 to 55,000 (the midpoint of the ultimate net migration from the 2019 and 2021 forecasts) in 2051. We assume annual net migration will be 55,000 for the remainder of our projection window through 2097.

CAVEATS AND LIMITATIONS ON USE

This information is intended for the use of Washington Office of the State Actuary (OSA) and the Washington Department of Social and Health Services (DSHS) and it should not be distributed, in whole or in part, to any external party without the prior written permission of Milliman, subject to the following exception:

- This report shall be a public record that shall be subject to disclosure to the State Legislature and its committees, persons participating in legislative reviews and deliberations, and parties making a request pursuant to the Washington Public Records Act

We do not intend this information to benefit any third party even if we permit the distribution of our work product to such third party.

Milliman has developed certain models to estimate the values included in this letter. The intent of the models is to project migration to support estimating required revenue under WA Cares Fund. We have reviewed the models, including their inputs, calculations, and outputs for consistency, reasonableness, and appropriateness to the intended purpose and in compliance with generally accepted actuarial practice and relevant actuarial standards of practice (ASOP). It may not be appropriate, and should not be used, for other purposes.

This information provides additional information related to migration assumptions used in the 2022 LTSS Trust Actuarial Study provided on October 20, 2022 and should be read in its entirety with this letter. In completing this analysis, we relied on information provided by OSA, DSHS, OFM, and publicly available data. We accepted without audit but reviewed the information for general reasonableness. Our summary may not be appropriate if this information is not accurate.

To provide the information requested by OSA and DSHS, we have constructed several projection models. Differences between our projections and actual amounts depend on the extent to which future experience conforms to the assumptions made for this analysis. It is certain that actual experience will not conform exactly to the assumptions used in this analysis. Actual amounts will differ from projected amounts to the extent that actual experience deviates from expected experience. Experience should be monitored as it emerges, and corrective actions should be taken when necessary.
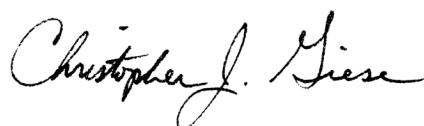
Guidelines issued by the American Academy of Actuaries require actuaries to include their professional qualifications in all actuarial communications. I am a member of the American Academy of Actuaries, and I meet the qualification standards for performing the analyses in this communication.

The terms of the Personal Service Contract with OSA effective December 2, 2021, apply to this engagement.

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Luke, please let us know if you would like to discuss further or have any other questions.

Sincerely,

Christopher J. Giese, FSA, MAAA
Principal and Consulting Actuary

CJG/zk