City of Bellevue

Transportation Commission Study Session

DATE: July 22, 2021

TO: Chair Marciante and Members of the Transportation Commission

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SUBJECT: Mobility Implementation Plan

DIRECTION REQUESTED

	Action
X	**Discussion/Direction**
	Information

Discussion: This memorandum describes the equity index methodology, shares the composite map, and further describes the indicators included in equity index.

INFORMATION

A key element of the Mobility Implementation Plan (MIP) is the integration of equity in Bellevue's transportation planning and prioritization of projects. Developing a tailored equity analysis tool, like an equity index, allows Bellevue to understand where historically disenfranchised populations are living and working and where there is a mismatch between mobility services and needs. The equity index includes a combination of traditionally underserved or transportation disadvantaged population groups, including low-income, minority, elderly, young, people with a disability, zero-vehicle, Limited English Proficiency (LEP), single-parents, and rent-burdened households. This memorandum describes the methodology used to develop the equity index, shares the equity index composite map, and provides further information on each separate metric used to measure equity.

HOW THE INDEX WILL LEAD TO PROJECT PRIORITIES

Many agencies have recently developed equity indexes to aid in transportation decision making. For example, the City of Tacoma complied an equity index to help facilitate data-driven decision-making processes to better focus resources and plan funding of programs and services to minimize inequities and maximize opportunities.

In Bellevue, the equity index will be used to analyze how well existing MMLOS performance matches the areas highlighted in the equity index. For example, do higher income areas generally rate better when it comes to existing conditions MMLOS performance? Do areas with better bicycle access align with parts of the city that have a greater need for transportation options? The equity index will also be used to evaluate future Transportation Facilities Plan projects to determine if certain parts of the city are receiving a disproportionate level of investment relative to their MMLOS performance and growth rates.

EQUITY INDEX METHODOLOGY

The equity index methodology draws on indexes developed by peer cities and other regions in the country and has been refined to meet Bellevue's unique needs. It identifies areas that traditionally are at a transportation disadvantage or have a greater reliance on needs transportation options, particularly public transit, walking, and biking.

A GIS processes was used to develop the equity index which includes 11 indicators, most using 2019 American Community Survey block group data 5-year estimates. Using readily available data creates an equity index that is resilient and able to be update easily in the future. For each indicator, block groups were given a score of 1 to 5 based on the value of groupings defined using their standard deviation, and mapped separately to show the associated breaks (see Appendix A).

The equity index composite map weights each indicator to generate a final raster dataset. Weighting gives consideration to the importance of the input data sets in determining equity across the city. The weighting is based on best practice review and revised in consultation with City staff. Table 1 shows the weights assigned to each indicator. The composite map in Figure 1 depicts Bellevue's equity index by block group. Areas of the city with multiple disparity factors, and where transportation improvements and options would best promote equity, are darker in color.

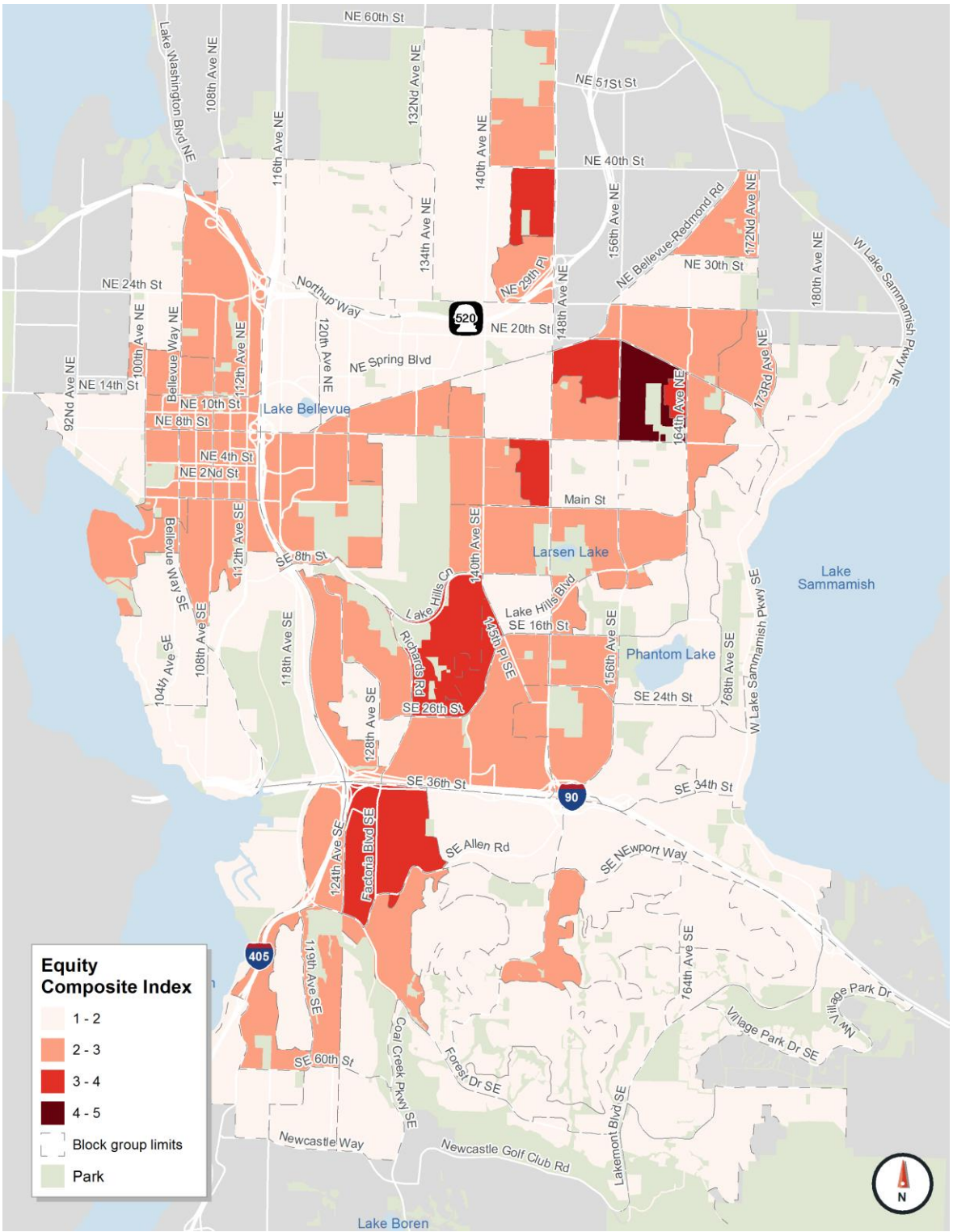
Table 1. Equity Index Indicators

Indicator	Range of individual score[(a)]	Weight assigned in Index[(b)]
Low-income households	1–5	30%
Zero-vehicle households	1–5	15%
People of color	1–5	10%
Limited English proficiency households	1–5	10%
People with a disability	1–5	5%
People over age 64	1–5	5%
People under the age of 18	1–5	5%
Housing cost as percentage of income (owner-occupied)	1–5	5%
Housing cost as percentage of income (renter-occupied)	1–5	5%
Low-income jobs	1–5	5%
Female heads of household	1–5	5%

Total	**100%**

[a] Higher scores are assigned to block groups with higher equity relevance for the specific indicator.
[b] For each indicator, the individual score (a) is multiplied by its weight (b) to obtain a weighted score, then adding the weighted scores of the 11 indicators will return the final equity index for each block group.

Figure 1. Equity index composite map



NEXT STEPS

At the Transportation Commission meeting on July 22, 2021, the consultant team will walk through the process to develop the equity index composite map. Looking further forward, staff and the consultant team will assess how well existing MMLOS performance aligns with areas highlighted in the equity index.

The equity index will also be integrated into the updated prioritization process that will be used to evaluate future Transportation Facilities Plan projects. These equity analyses will be presented alongside the MMLOS results for existing conditions and the TFP analysis over the next several Transportation Commission meetings.

APPENDIX A: EQUITY INDEX INDICATORS

The following pages summarize the metrics included in the equity index, based on best practices research and considerations surrounding completeness, availability, and adjustment to local conditions.

Indicator	Description	Source	Range of individual score
Low-income households	Percent of households below $35,000 in the last 12 months	ACS 2019 five-year estimates, table B19001	1 as the lowest percent below poverty to 5 as the highest
Zero-vehicle households	Percent of households age 16 and over with no vehicle access	ACS 2019 five-year estimates, table B25044	1 as the highest vehicle ownership to 5 as the lowest
People of color	Percent of people that do not identify as both white and non-Hispanic/Latino	ACS 2019 five-year estimates, table B03002	1 as the lowest percentage of the population to 5 as the highest
Limited English proficiency households	Percent of households with limited English proficiency	ACS 2019 five-year estimates, table C16002	1 as the lowest percentage of the population to 5 as the highest
People with a disability	Percent of population with a disability	ACS 2019 five-year estimates, table B23024	1 as the lowest percent of people with disabilities to 5 as the highest
People over age 64	Percent of population over the age of 64	ACS 2019 five-year estimates, table B01001	1 as the lowest number of older adults to 5 as the highest
People under the age of 18	Percent of population under the age of 18	ACS 2019 five-year estimates, table B01001	1 as the lowest number of older or younger adults to 5 as the highest
Housing cost as percentage of income (owner-occupied)	Percent of households spending 50% or more of their annual income on mortgage and other owner-related costs	ACS 2019 five-year estimates, table B25091	1 as the lowest percentage of households to 5 as the highest
Housing cost as percentage of income (rent-occupied)	Percent of households spending 50% or more of their annual income on rent	ACS 2019 five-year estimates, table B25070	1 as the lowest percentage of households to 5 as the highest
Low-income jobs	Workers earning less than $1,250 per month	2018 LEHD Origin-Destination Employment Statistics (LODES), Block Group. T	1 as the lowest percentage of the population to 5 as the highest
Female heads of household	Percent of households headed by mothers only and with children under 18 years old	ACS 2019 five-year estimates, table B11003	1 as the lowest number of households to 5 as the highest

PEOPLE OF COLOR

WHY IS THIS MEASURE IMPORTANT?

Minority communities are less likely to have convenient access to parks, healthcare, and healthy food, and are more likely to be located near highways and other transportation facilities that produce local reduced air quality. As Bellevue is a minority-majority City, this indicator was not weighted as high as low-income populations as one may see in other equity indexes.

WHAT IS MEASURED:

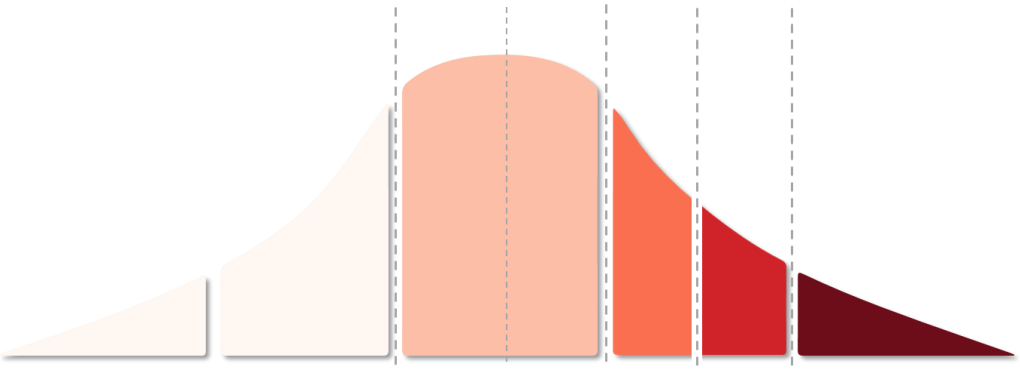
Percent of residents who identify as a minority. The percent persons of color is calculated as the number of people who identify as non-White and/or Hispanic/Latino.

DATA SOURCE:

ACS 2019 five-year estimates, table B03002

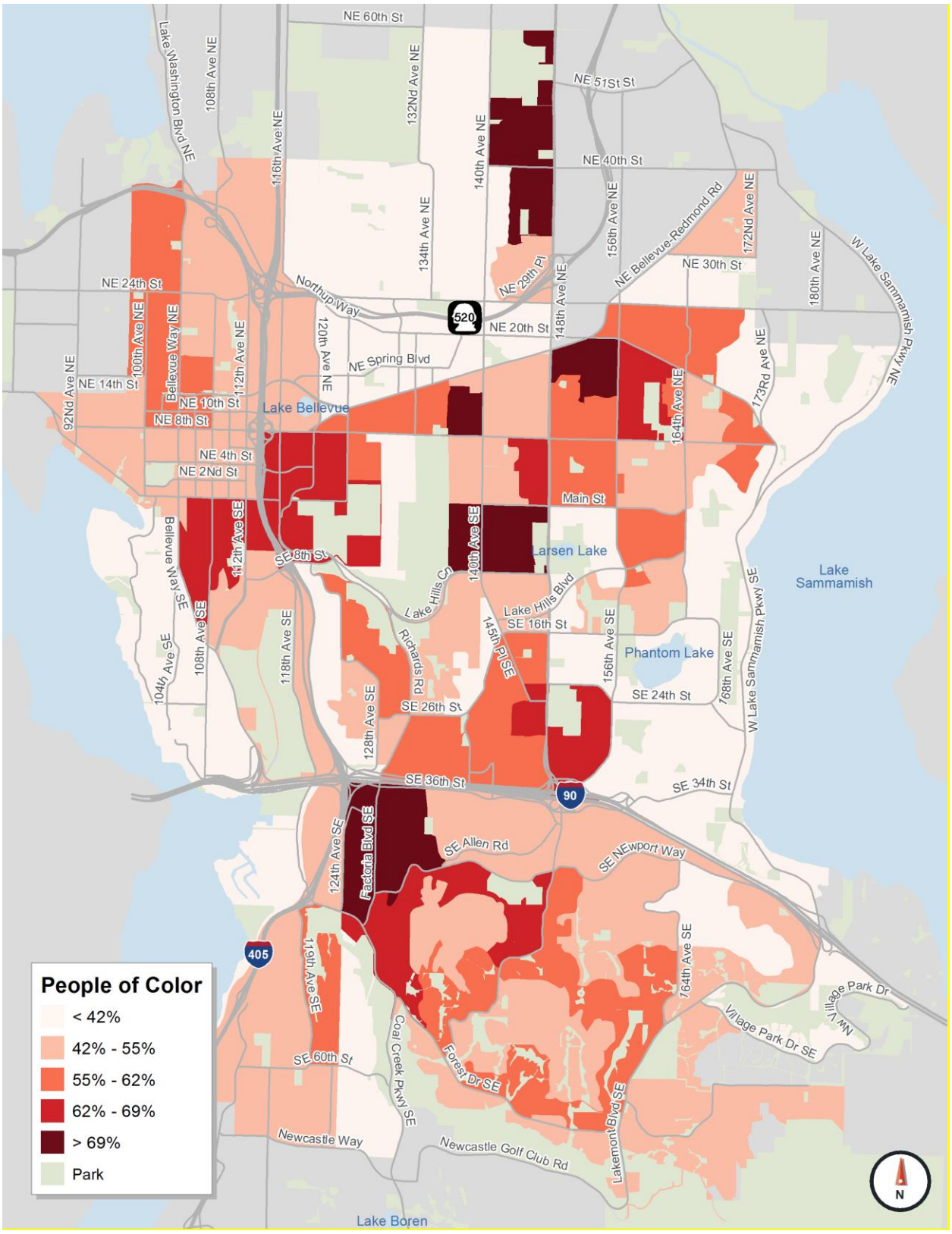
SCORING POINTS AWARDED

Distribution of people of color percent by block group



Indicator percent threshold	Points awarded
Under 42%	1
42% - 55%	2
55% - 62%	3
62% - 69 %	4
More than 69%	5

Figure 2. Percent of people of color in block group



LOW-INCOME HOUSEHOLDS

WHY IS THIS MEASURE IMPORTANT?

Past studies [1] have shown that commuting time is the biggest factor in upward mobility and lifting people out of poverty. Identifying neighborhoods with a higher concentration of households in poverty helps to guide transportation planning policy and highlights areas of focus.

WHAT IS MEASURED:

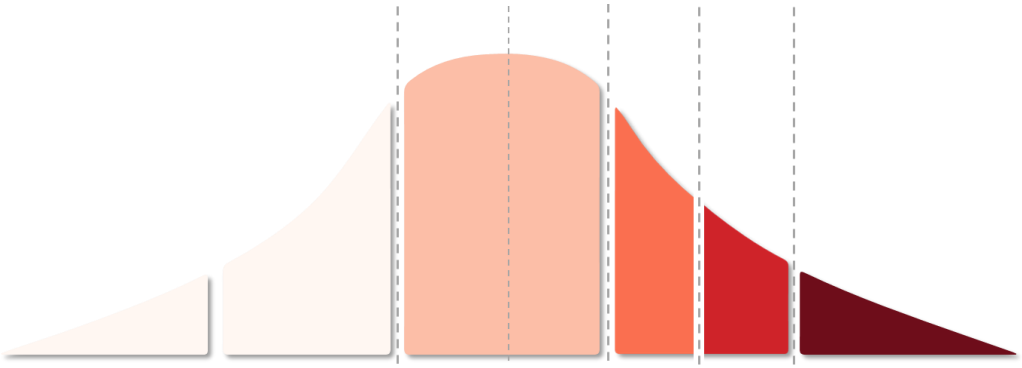
The percent of households who earn below $35,000 over the last 12 months. This threshold is based on the Department of Housing and Urban Development income limits for Washington state and the City of Bellevue's average of 2.5 persons per household.

DATA SOURCE:

ACS 2019 five-year estimates, table B19001

SCORING POINTS AWARDED

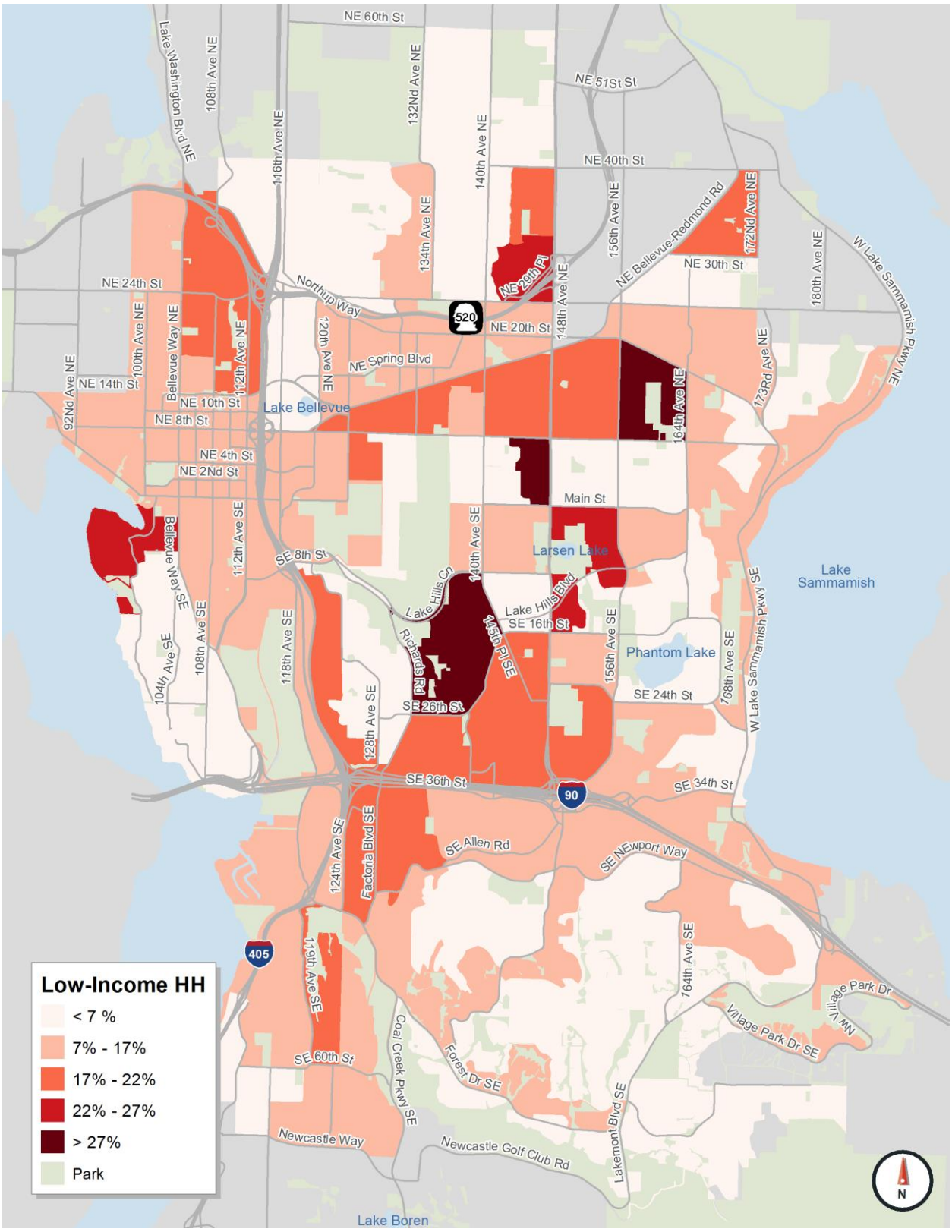
Distribution households who earn below $35,000 in the last 12 months by block group



1 Raj Chetty, Nathaniel Hendren, The Impacts of Neighborhoods on Intergenerational Mobility II: County-Level Estimates, The Quarterly Journal of Economics, Volume 133, Issue 3, August 2018, Pages 1163–1228, https://doi.org/10.1093/qje/qjy006

Indicator percent threshold	Points awarded
Under 7%	1
7% - 17%	2
17% - 22%	3
22% - 27 %	4
More than 27%	5

Figure 3. Percent of households with an annual income below $35,000 in block group



PEOPLE WITH A DISABILITY

WHY IS THIS MEASURE IMPORTANT?

Providing transportation options, particularly public transit, is important in improving access to education, employment, health care, and housing for people living with a disability. Decades of inequitable transportation policy has disproportionately impacted adults with disabilities access to affordable transportation.[2]

WHAT IS MEASURED:

The percent of population living with a disability. Disability, as defined by the ACS, includes:

- **Hearing difficulty:** deaf or has serious difficulty hearing
- **Vision difficulty**: blind or has serious difficulty seeing even with glasses
- **Cognitive difficulty**: has serious difficulty concentrating, remembering, or making decisions
- **Ambulatory difficulty**: has serious difficulty walking or climbing stairs
- **Self-care difficulty:** has difficulty dressing or bathing
- **Independent Living difficulty:** has difficulty doing errands alone such as visiting a doctor's office or shopping

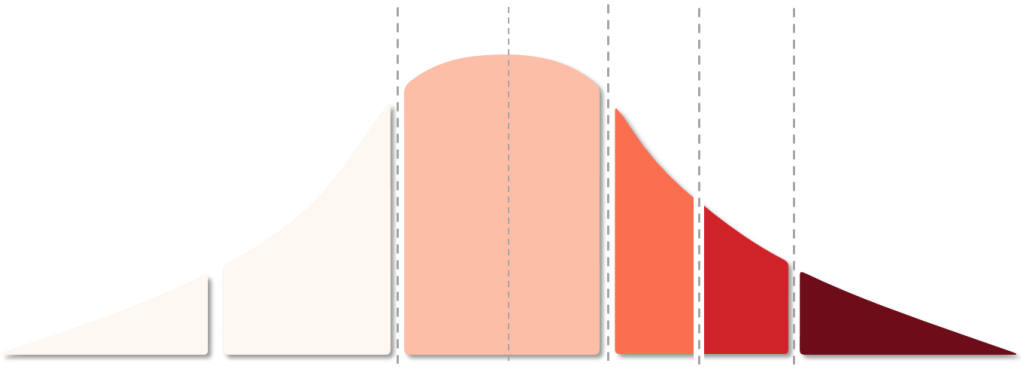
DATA SOURCE:

ACS 2019 five-year estimates, table B23024

SCORING POINTS AWARDED

Distribution of population living with a disability by block group

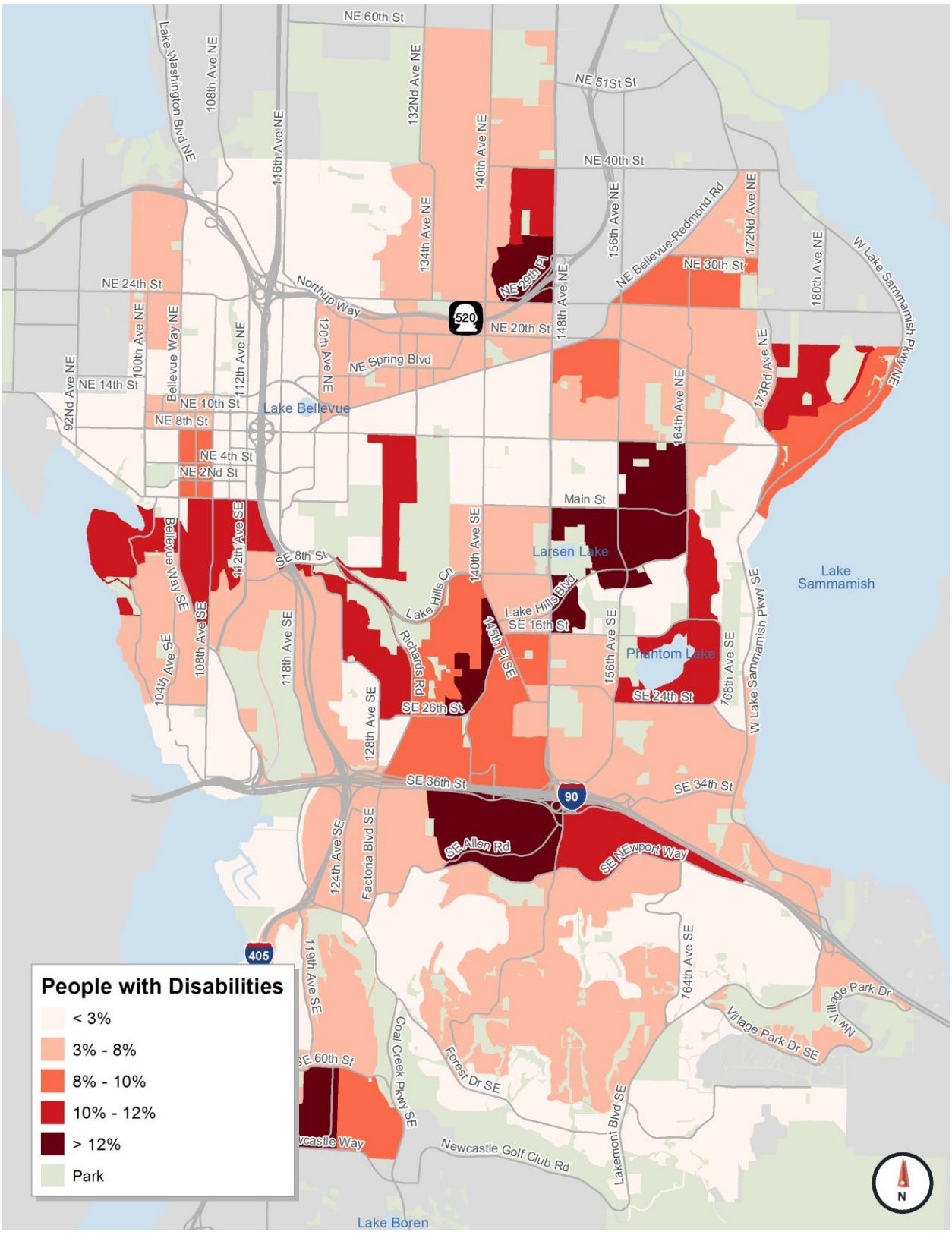
2 CDC Promoting the Health of People with Disabilities, Department of Health and Human Services, at http:// www.cdc.gov/ncbddd/disabilityandhealth/pdf/ AboutDHProgram508.pdf.



Standard deviation break	-0.5 SD	Average	+0.5 SD	+1 SD	+1.5 SD
Indicator percent threshold	3%	5%	8%	10%	12%

Indicator percent threshold	Points awarded
Under 3%	1
3% - 8%	2
8% - 10%	3
10% - 12 %	4
More than 12%	5

Figure 4. Percent of population living with a disability.



SINGLE-PARENT, FEMALE-HEADED HOUSEHOLDS

WHY IS THIS MEASURE IMPORTANT?

Single-parent, female-headed households are a vulnerable population group that regularly face transportation challenges. These households are twice as likely as their male counterparts to be among the working poor and are more likely to face job insecurity, social, and health problems.[3] Female-led households are also more likely to make child chauffeuring trips compared to single parent male-led households.[4] Transportation policy discussion around female-led households is critical for their empowerment and economic mobility.

WHAT IS MEASURED:

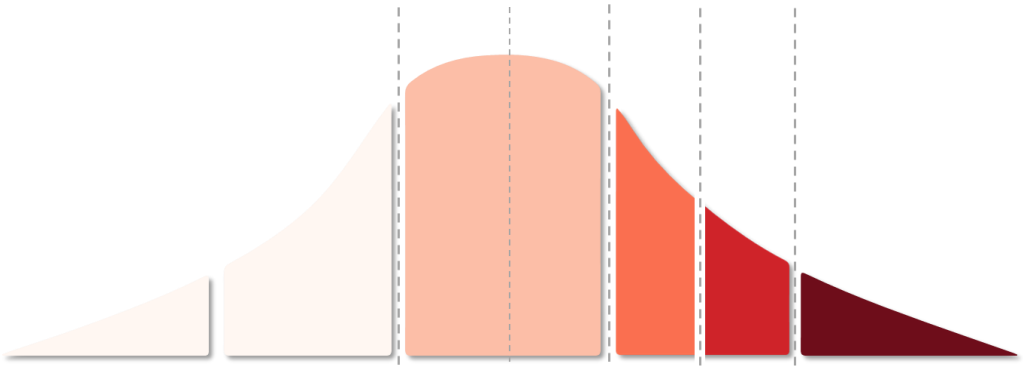
The percent of single-parent households headed by females with children under 18 years old.

DATA SOURCE:

ACS 2019 five-year estimates, table B11003

SCORING POINTS AWARDED

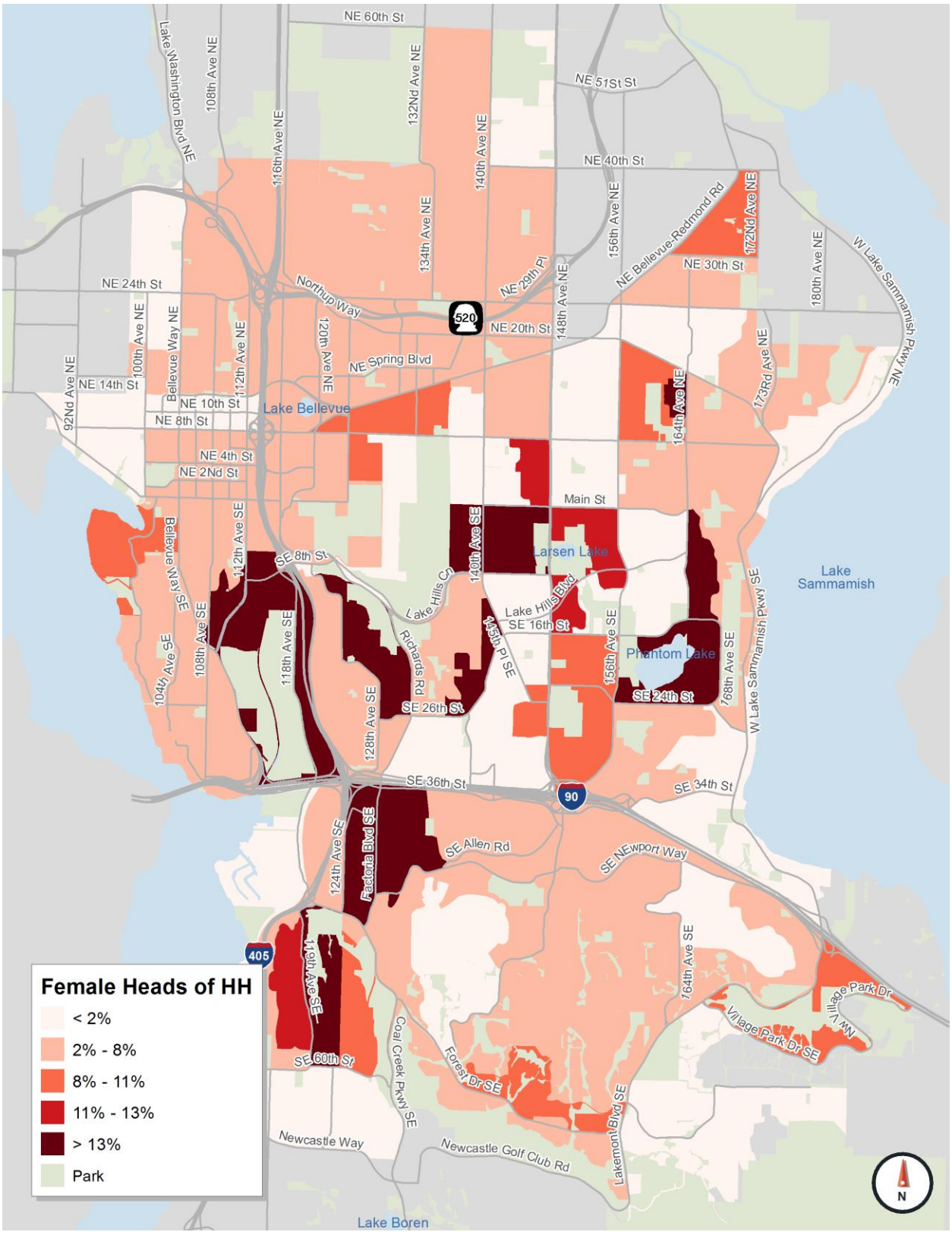
Distribution of single-parent households headed by females with children under 18 years old by block group



3 Zhao, F. and T. Gustafson. "Transportation Needs of Disadvantaged Populations: Where, When, and How?" (2013).
4 Mauch, Michael & Taylor, Brian. (1997). Gender, Race, and Travel Behavior: Analysis of Household-Serving Travel and Commuting in San Francisco Bay Area. Transportation Research Record. 1607. 147-153. 10.3141/1607-20.

Indicator percent threshold	Points awarded
Under 2%	1
2% - 8%	2
8% - 11%	3
11% - 13%	4
More than 13%	5

Figure 5. Percent of single-parent households headed by females with children under 18 years old



LIMITED ENGLISH PROFICIENCY (LEP)

WHY IS THIS MEASURE IMPORTANT?

Title VI of the Civil Rights Act of 1964 requires recipients of Federal financial assistance to take reasonable steps to make their programs, services, and activities accessible by eligible persons with limited English proficiency. For these residents, language can be a major barrier in accessing jobs, health care, and even navigating transit systems.

WHAT IS MEASURED:

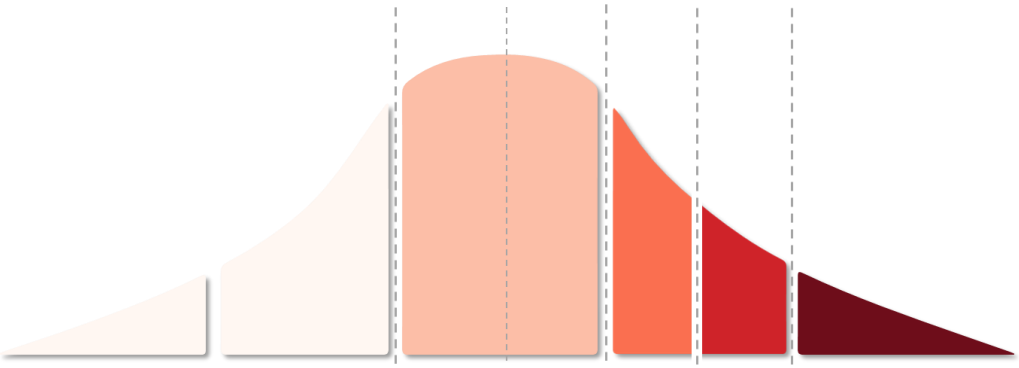
The percent of households with limited English proficiency or those who spoke English "less than very well" as defined by the ACS.

DATA SOURCE:

ACS 2019 five-year estimates, table C16002

SCORING POINTS AWARDED

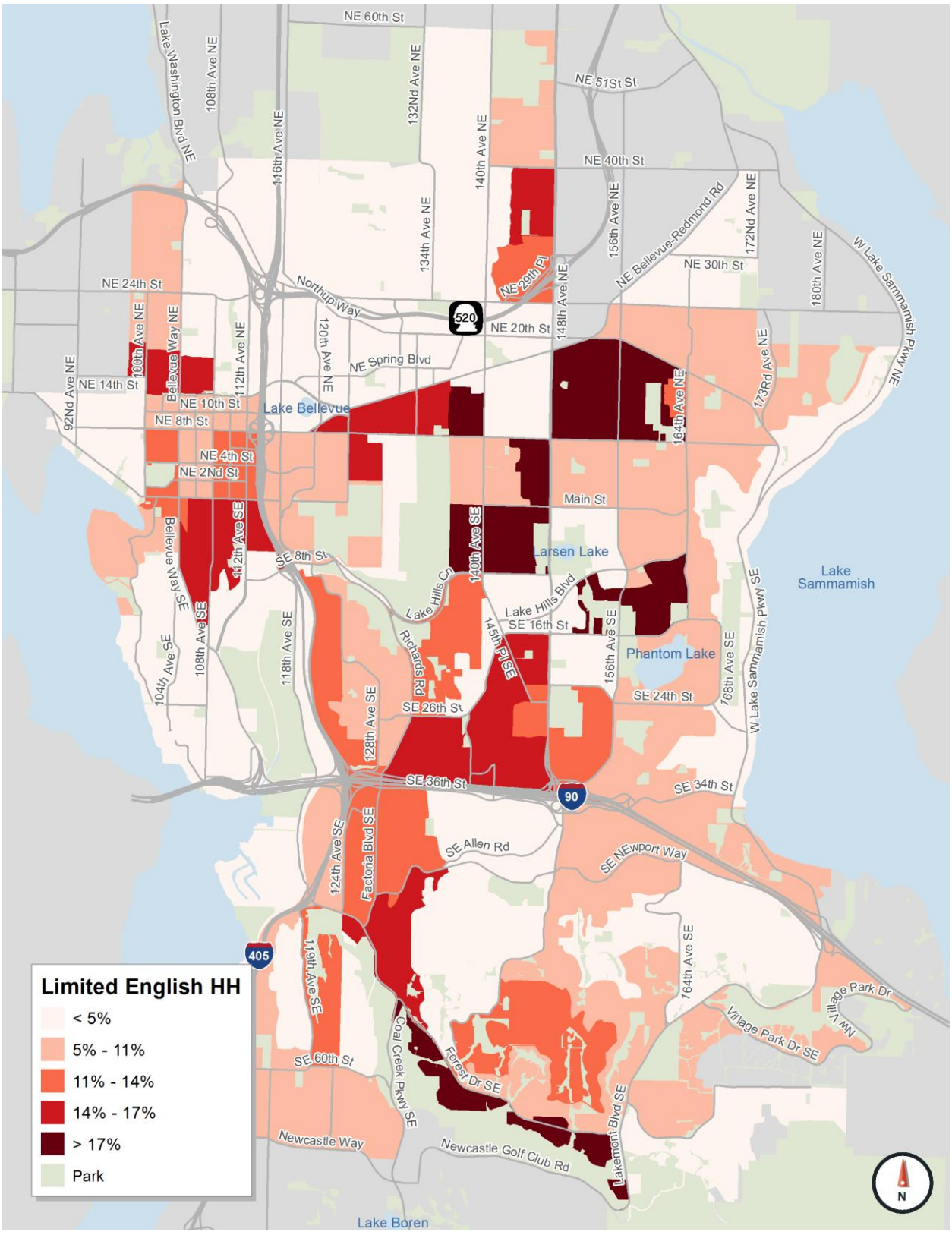
Distribution of single-parent households headed by females with children under 18 years old by block group



Standard deviation break	-0.5 SD	Average	+0.5 SD	+1 SD	+1.5 SD
Indicator percent threshold	5%	8%	11%	14%	17%

Indicator percent threshold	Points awarded
Under 5%	1
5% - 11%	2
11% - 14%	3
14% - 17%	4
More than 17%	5

Figure 6. Percent of households with limited English proficiency



PEOPLE OVER AGE 64 AND UNDER THE AGE OF 17

WHY IS THIS MEASURE IMPORTANT?

Residents over age 64 and under the age of 18 are more likely to depend on transit, walking and biking to move around the city and region. Proximity to transportation options is essential for these groups to access goods, services, and even employment.

WHAT IS MEASURED:

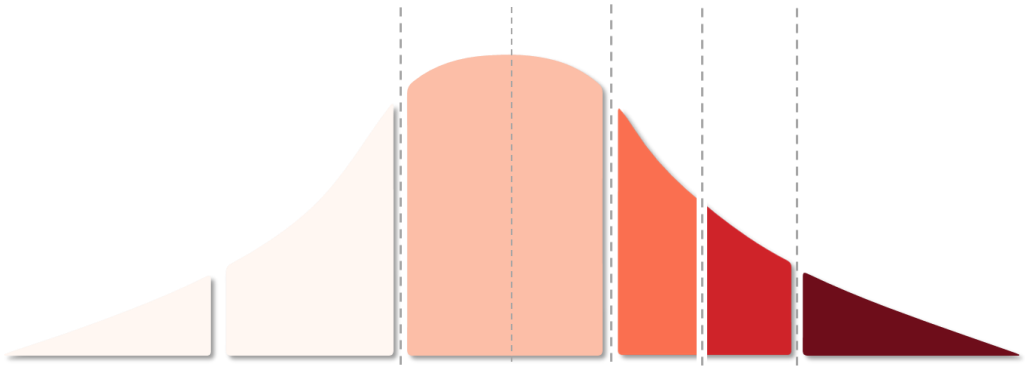
The percent of population over the age of 64 (senior population) or under the age of 18 (youth and children).

DATA SOURCE:

ACS 2019 five-year estimates, table B01001

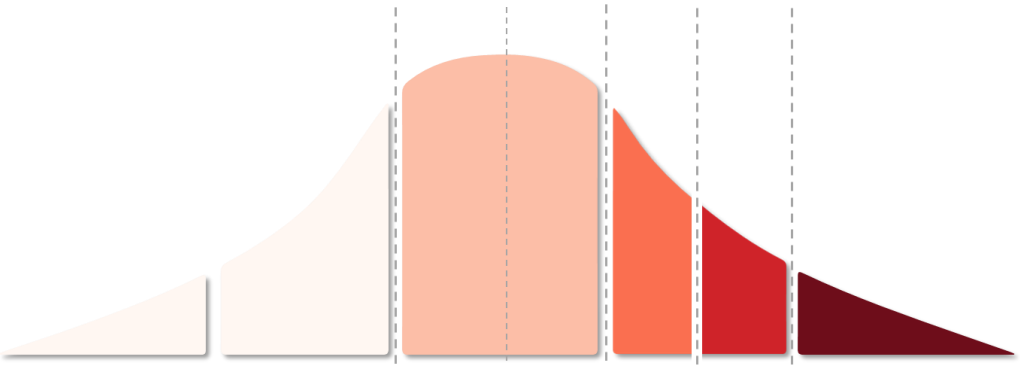
SCORING POINTS AWARDED

Distribution of population over the age of 64 (senior population) by block group



Indicator percent threshold	Points awarded
Under 11%	1
11% - 18%	2
18% - 21%	3
21% - 24%	4
More than 24%	5

Distribution of population under the age of 18 (youth and children) by block group



Standard deviation break	-0.5 SD	Average	+0.5 SD	+1 SD	+1.5 SD
Indicator percent threshold	18%	21%	24%	28%	31%

Indicator percent threshold	Points awarded
Under 18%	1
18% - 24%	2
24% - 28%	3
28% - 31%	4
More than 31%	5

Figure 7. Percent of population over the age of 64

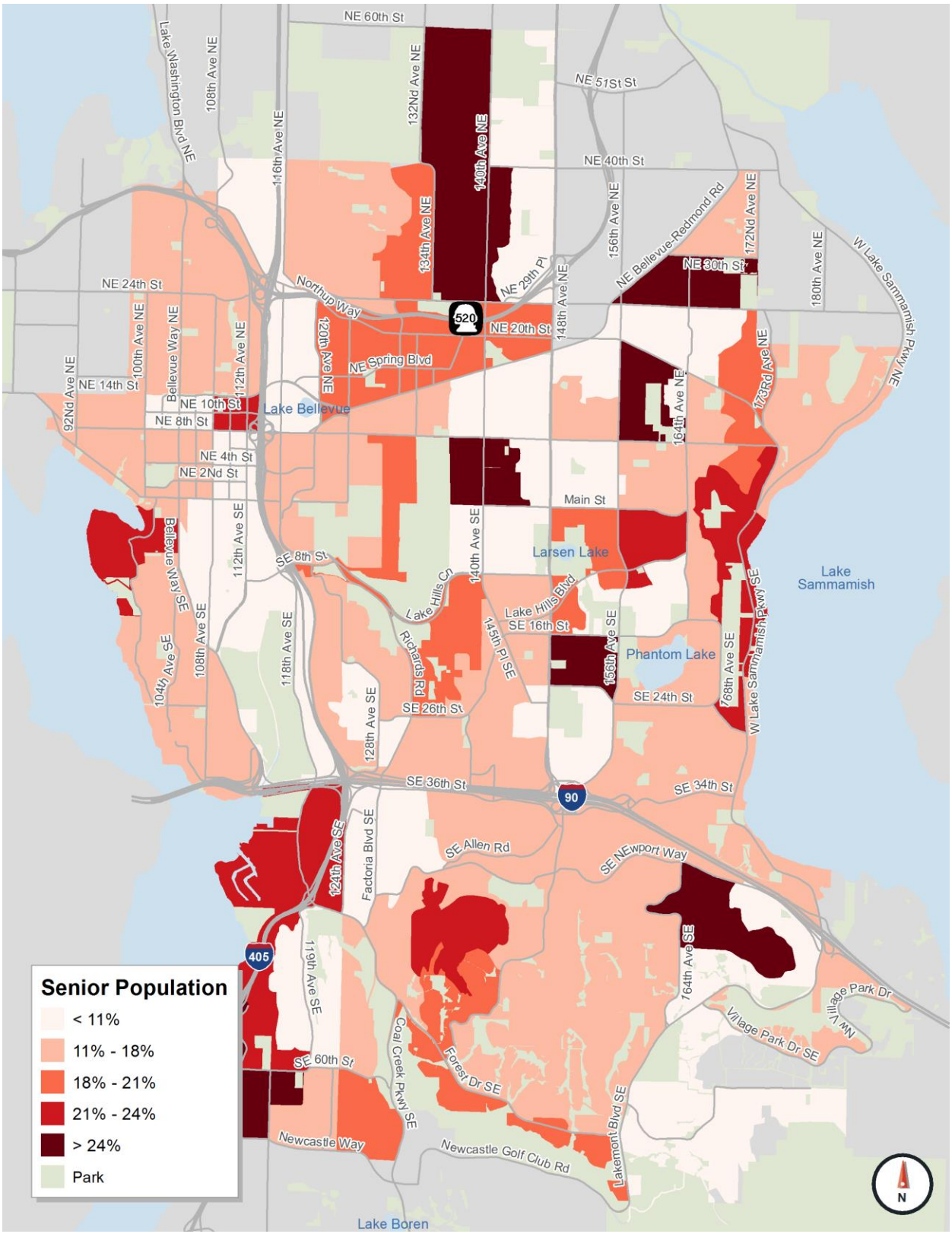
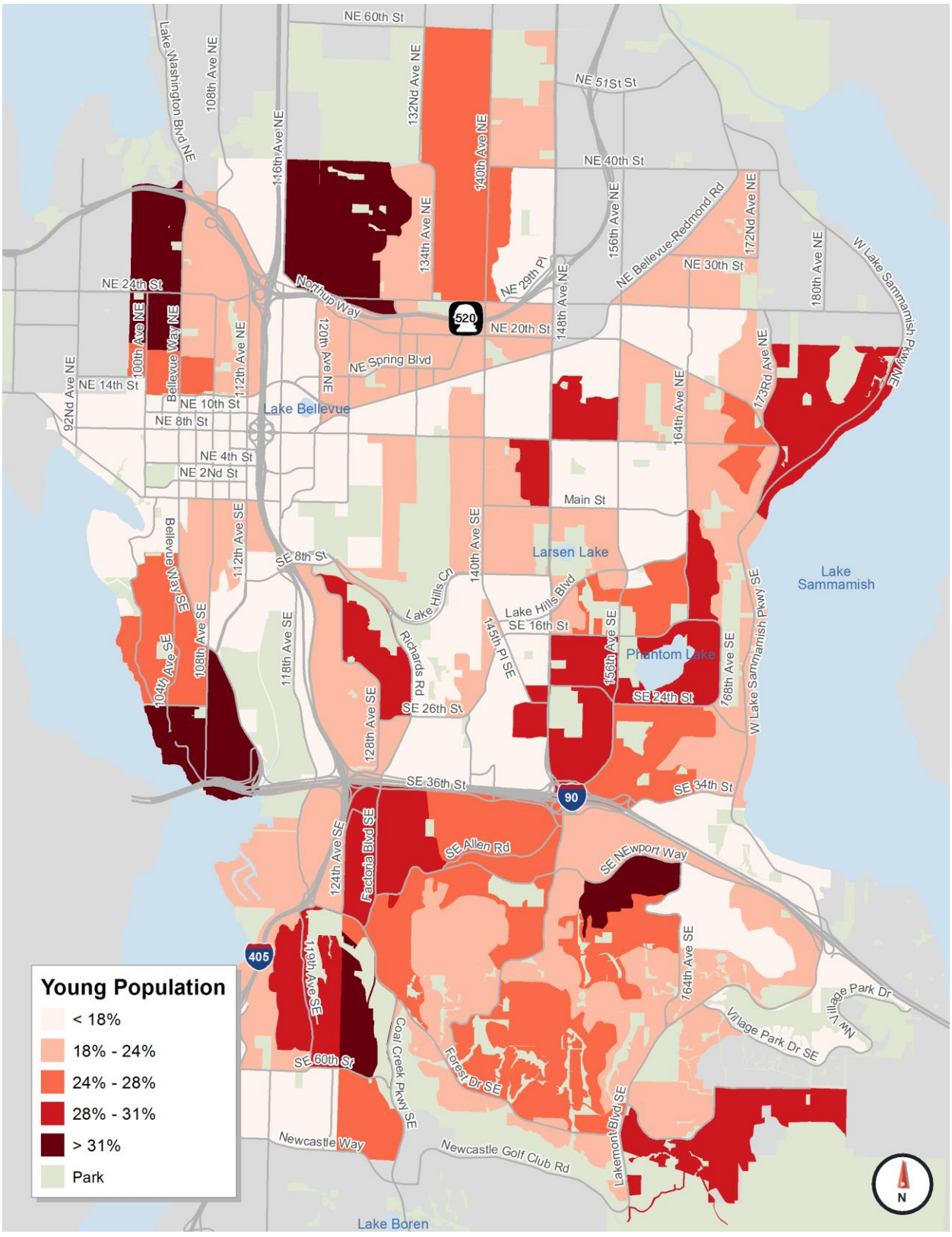


Figure 8. Percent of population under the age of 18



HOUSING COST AS PERCENTAGE OF INCOME (RENTER-OCCUPIED AND OWNER-OCCUPIED HOUSEHOLDS)

WHY IS THIS MEASURE IMPORTANT?

Housing is the single largest expense for most households, especially in Bellevue where median home prices are almost four-times the national median.[5] Low-income households face challenges related to making payments for other basic needs and investments that help in upward social and economic mobility. Trade-offs made to offset high housing costs often result in longer commute times and increased spending on transportation. Providing transportation options allows households to reduce their overall transportation costs while accessing jobs and education opportunities.

WHAT IS MEASURED:

Renter-occupied: percent of households spending 50% or more of their annual income on gross rent.

Owner-occupied: percent of households spending 50% or more of their annual income on mortgage and housing related costs.

The 50% threshold is based on national and regional definitions of "severe housing cost burdened" populations.

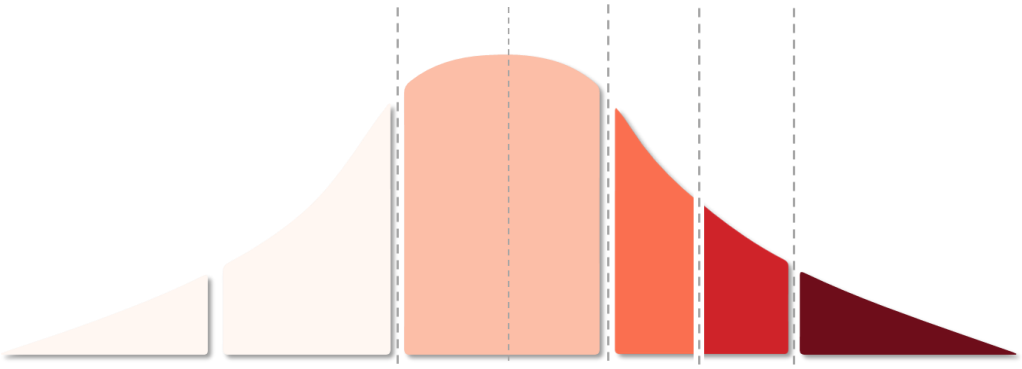
DATA SOURCE:

ACS 2019 five-year estimates, tables B25070 and B25091

SCORING POINTS AWARDED

Distribution of households spending 50% or more of their annual income on gross by block group

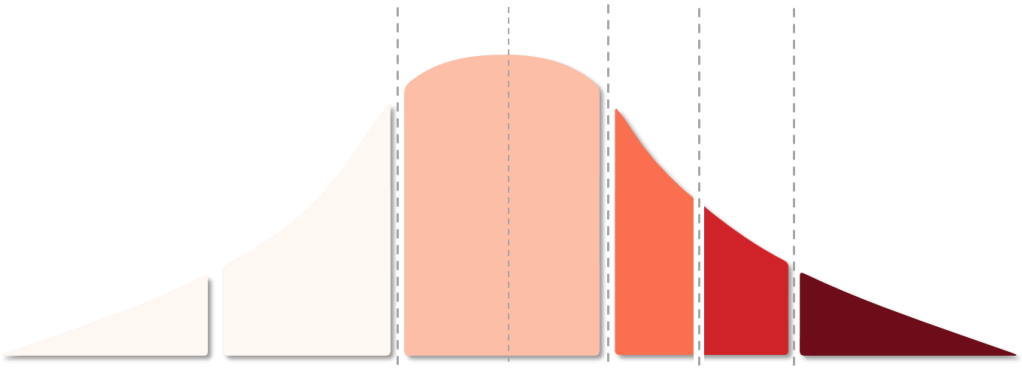
5 https://www.realtor.com/research/may-2021-data/



Standard deviation break	-0.5 SD	Average	+0.5 SD	+1 SD	+1.5 SD
Indicator percent threshold	11%	15%	18%	21%	24%

Indicator percent threshold	Points awarded
Under 11%	1
11% - 18%	2
18% - 21%	3
21% - 24%	4
More than 24%	5

Distribution households spending 50% or more of their annual income on mortgage and housing related costs



Standard deviation break	-0.5 SD	Average	+0.5 SD	+1 SD	+1.5 SD
Indicator percent threshold	11%	15%	18%	21%	24%

Indicator percent threshold	Points awarded
Under 11%	1
11% - 18%	2
18% - 21%	3
21% - 24%	4
More than 24%	5

Figure 9. Percent of households spending 50% or more of their annual income on gross rent

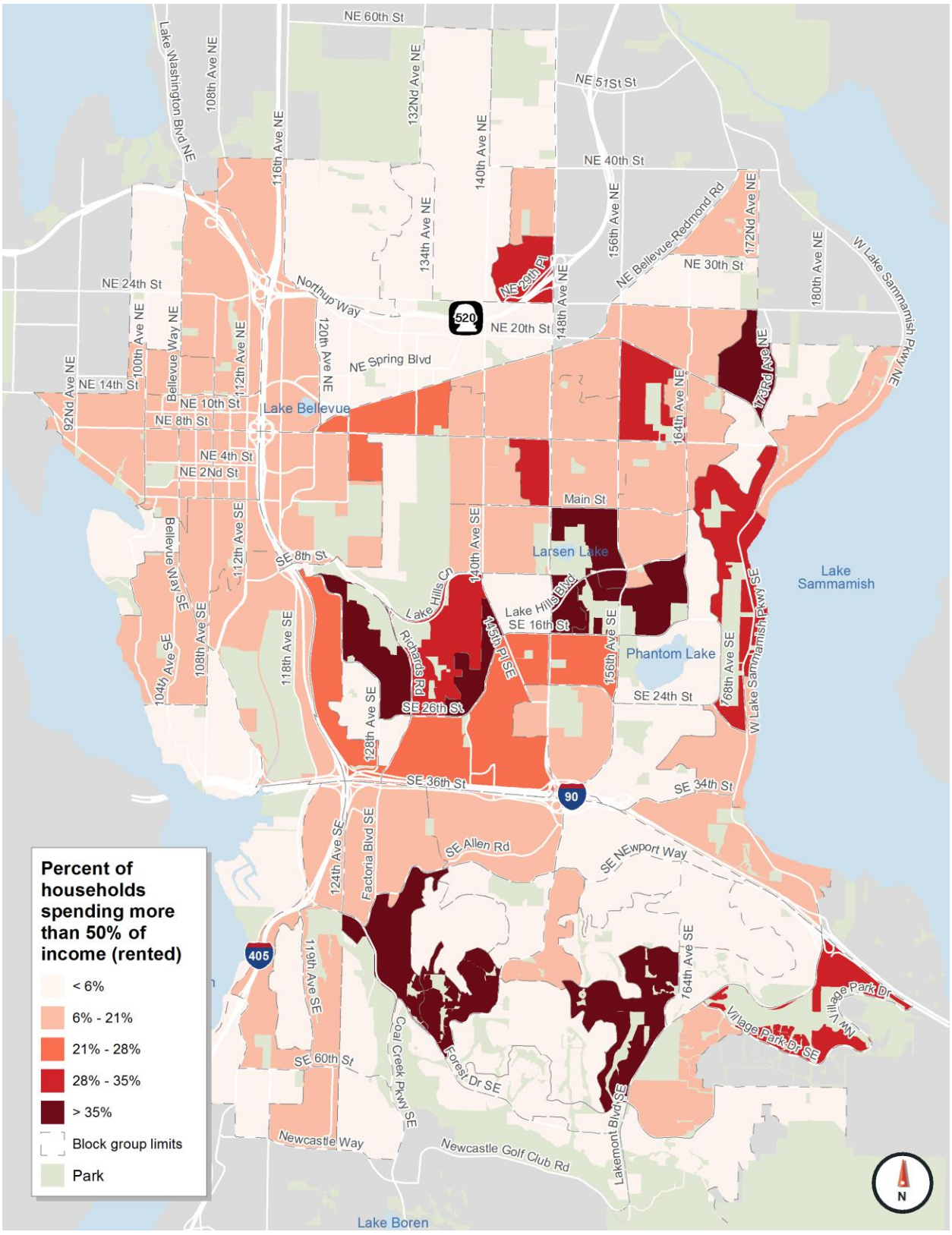
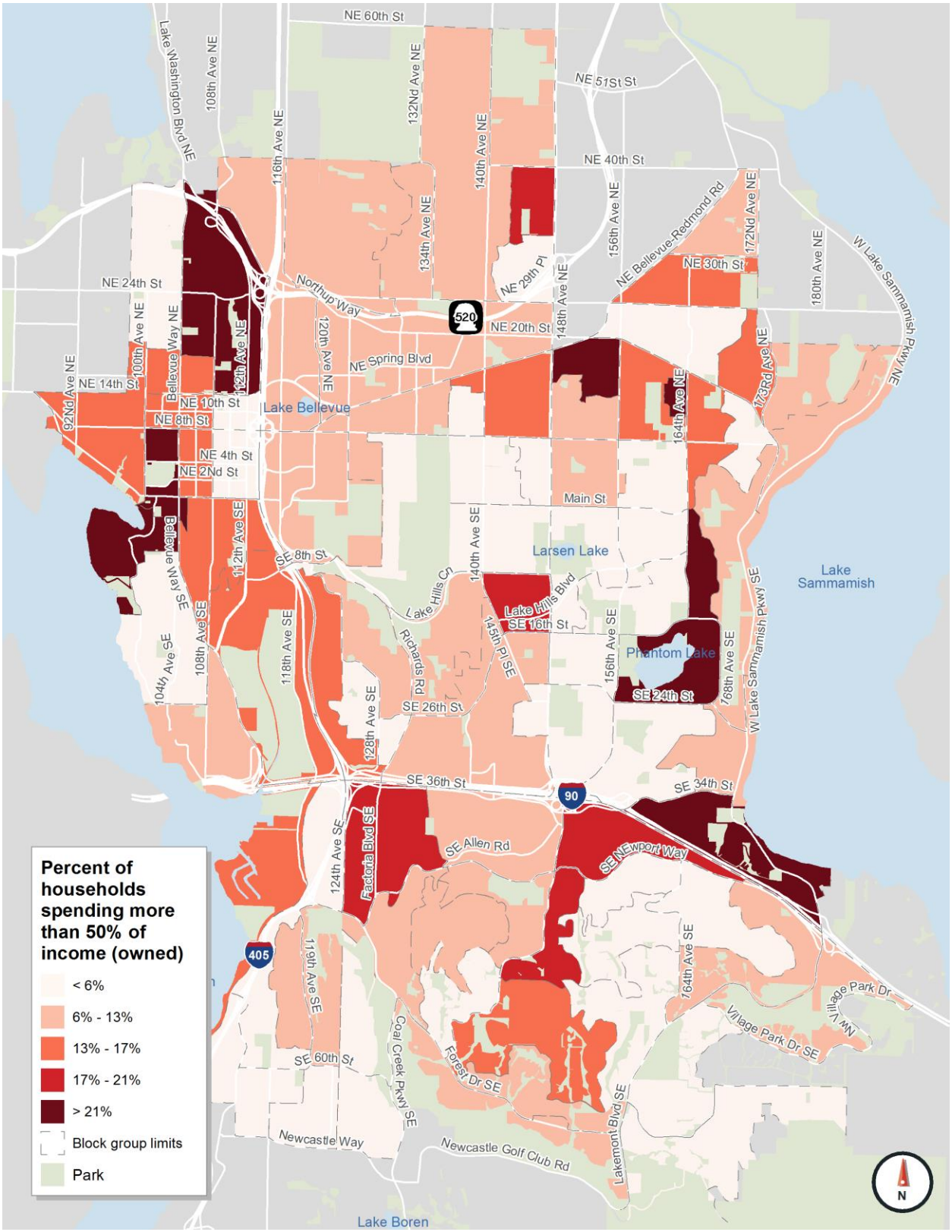


Figure 10. Percent of households spending 50% or more of their annual income on mortgage and housing related costs



ZERO-VEHICLE HOUSEHOLDS

WHY IS THIS MEASURE IMPORTANT?

Households without vehicles depend on walking, biking and, public transit to connect to opportunities such as jobs, education, social services, and retail. People that do not have access to a vehicle, do not drive, or are not able to drive must rely on multimodal transportation options.

WHAT IS MEASURED:

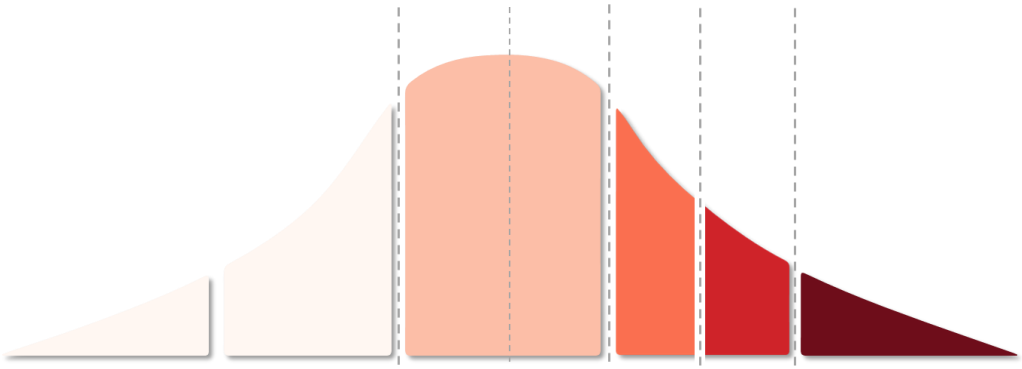
The percent of households with employed residents aged 16 and over with no vehicle access.

DATA SOURCE:

ACS 2019 five-year estimates, table B25044

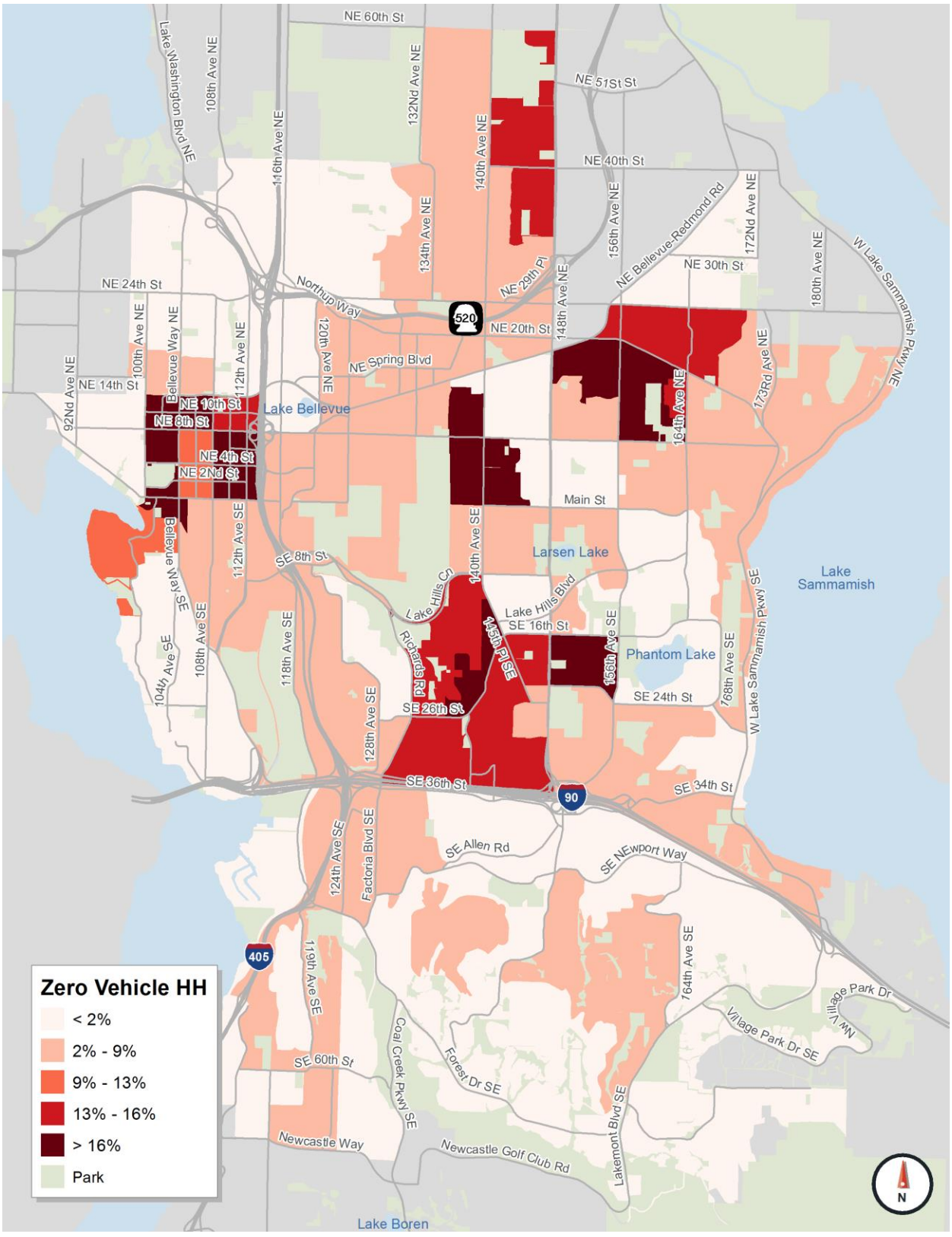
SCORING POINTS AWARDED

Distribution of people aged 16 and over with no vehicle access by block group



Indicator percent threshold	Points awarded
Under 2%	1
2% - 9%	2
9% - 13%	3
13% - 16%	4
More than 16%	5

Figure 11. Percent of households with employed residents aged 16 and over with no vehicle access



LOW-INCOME JOBS

WHY IS THIS MEASURE IMPORTANT?

Low-wage workers are less likely to own a car and tend to be more transit dependent. They also tend to have longer commute times which bolsters the need for affordable, fast transportation connecting job centers. This metric is useful for transit policymakers who can reduce disparities in access to opportunity through targeted investments,

WHAT IS MEASURED:

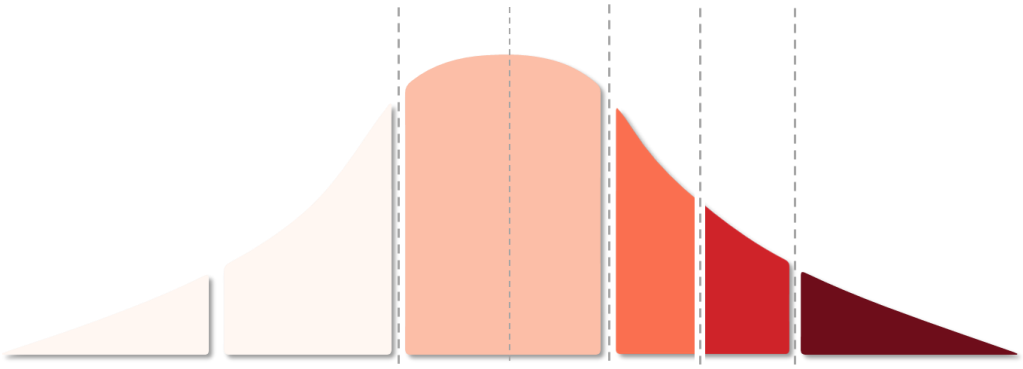
Workers within Bellevue City limits who earn less than $1,250 per month, based on job location. The earning brackets in the dataset used for this indicator (LEHD) are limited to three: less than $1,250, $1,250 - $3,333, and more than $3,333 monthly. The equity index uses the lower threshold to focus on the workers with the lowest income.

DATA SOURCE:

2018 LEHD Origin-Destination Employment Statistics (LODES), Block Group. Total jobs

SCORING POINTS AWARDED

Distribution of workers earning less than $1,500 per month by block group



Indicator percent threshold	Points awarded
0%	1
0.1% - 1%	2
2% - 3%	3
3% - 5%	4
More than 5%	5

Figure 12. Percent of workers within City of Bellevue by block group