APPENDIX G Relationship of Climate Change Vulnerability to the Alternatives

Climate Change–Related Impacts

Climate change-related impacts may include both those contributions from proposed actions and alternatives to climate change, and the observed and reasonably foreseeable future effects of climate change on a proposed action, its alternatives, and the surrounding area, including increased vulnerabilities and their amelioration.

The City of Bellevue is conducting a Climate Vulnerability Assessment to determine the extent to which climate change is likely to affect residents, the built environment, and natural systems. Climate projections for the assessment were obtained from the University of Washington's Climate Impacts Group.

The City of Bellevue will likely experience the following over the next 50 years (Climate Impacts Group 2009; Roop et al. 2020):

- Increasing average annual air temperatures and extreme heat events
- Increasing extreme precipitation events, particularly during the winter
- Increased risk of runoff, erosion, and landslides or mudslides
- Increased frequency and extent of flood events
- More prolonged periods of drought, particularly during summers, in soil moisture and streambeds
- Increasing stream temperatures
- Increasing frequency, severity, and extent of wildfires (e.g., local risk is low but wildfire smoke will be an issue as fires increase across the Pacific Northwest)

Climate Vulnerability Index

PURPOSE OF BELLEVUE CLIMATE VULNERABILITY INDEX

The Bellevue Climate Vulnerability Index (CVI) is being developed as part of the Bellevue Climate Vulnerability Assessment. The CVI includes 30+ indicators and combines them to form an index that supports a planning-level view of climate vulnerability in Bellevue to help identify areas of the city that may be more or less vulnerable to the impacts of climate change. The indicators include metrics for climate stressors, demographics, community health, critical areas, and others relevant to the spatial variability of climate vulnerability.

Climate vulnerability in this context is defined as exposure to a changing climate based on regional climate trends for extreme heat and precipitation, and an overall vulnerability index made up of subindices:

- A sub-index reflecting local environmental conditions including flooding, air quality, and heat data
- A sub-index reflecting the inherent sensitivity of people (e.g., health or age) or environments (e.g., geologic hazards, water quality) to a changing climate
- A sub-index regarding the capacity of the community and place to cope or adapt to the impacts of a changing climate

The conceptual formula is:

Climate Vulnerability = Regional Climate Change Exposures + Local Environmental Exposures Sub-index + Sensitivity Sub-index + (Low) Adaptive Capacity Sub-index

The CVI sums over 30 indicators of climate vulnerability at the parcel level and displayed at larger and/or generalized geographies (e.g., census block groups, heat maps, etc.), which help to identify where Bellevue is more or less vulnerable to climate change. The indicators are drawn from literature and studies regarding social vulnerability, health, environment, and climate change. For example, some areas are more vulnerable due to extreme heat, such as "heat islands" with more pavement and fewer trees, or areas with a higher concentration of older residents. Some areas are vulnerable to extreme precipitation such as floodplains and landslide hazard areas, along with populations that live alone or have less access to a vehicle. The index provides information useful for Bellevue to develop strategies to enhance the city's resilience over the medium and long-term and include the strategies in plans, budgets, partnerships, and more.

INDEX INDICATORS

An index is a calculation used to summarize multiple datasets into one measure and normalizes or standardizes dissimilar data. This index uses the standard score, or z-score, which is a statistical measure that describes how many standard deviations away from the mean a given value is. Scores greater than the mean have a positive value, and scores less than the mean have a negative value. For each indicator dataset, values are standardized by calculating the corresponding z-score for each value, creating an "apples-to-apples" measure by which these dissimilar datapoints are compared.

For each component of climate vulnerability (exposure, sensitivity, and adaptive capacity), the indicators are standardized and then averaged to create an average z-score for each component. These three component

z-scores are then averaged together to create the final Climate Vulnerability Index value. To visually present the CVI, final index values are classified based on quintile categorization, which distributes the values into five groups of an equal number of values based on the total range of scores. The final group results in lower, medium-low, medium, medium-high, and higher vulnerability classifications, emphasizing the relative nature of the calculation.

Table G-1 shows the exposure, sensitivity, and adaptive capacity indicators selected for the index.

- **Regional Exposure:** Exposure indicators for extreme heat and extreme precipitation are considered in relation to local environmental exposures, sensitivity conditions, and adaptive capacity conditions in Bellevue. These extreme heat and extreme precipitation data are outside of the CVI given the fairly constant increase within the Bellevue city limits.
- **Local Exposure Sub-index:** This sub-index contributes to the CVI and is comprised of equal parts flooding, air quality, and heat considering local conditions. Regional climate exposures such as extreme precipitation could exacerbate the depth and extent of flooding. Extreme heat can exacerbate the health conditions of persons also exposed to air pollution, and extreme heat can be magnified by local environmental conditions (e.g., less trees, more pavement).
- **Sensitivity Sub-index:** Sensitivity is the component of the CVI addressing attributes inherent to the population or place that make them predisposed to increased impacts from climate exposure. The indicators for sensitivity are categorized into sub-categories of age, environment, and health conditions.
- **Adaptive Capacity Sub-index:** Adaptive capacity is the component of the CVI addressing attributes related to a population or environment's capacity to adapt to increased exposure to climate change. The indicators for adaptive capacity are categorized into sub-categories of socioeconomic, transportation, housing/built environment, employment, health, and environment/ecologic.

These components—exposure, sensitivity, and adaptive capacity—taken together create the CVI.

TABLE G-1 **Indicators for Bellevue CVI**

Sub-Category		Indicator
LOCAL EXPOSURE		
Extreme Heat	(+)	Urban heat island
Air Quality	(+)	Air Quality (PM2.5)
Extreme Precipitation	(+)	100-yr Floodplains (potentially include 500-yr Floodplains)
	(+)	Historically Flood-Prone Areas
SENSITIVITY		
Age	(+)	Under 5 years old
	(+)	Over 65 years old
Environment	(+)	Steep Slopes/Geologic Hazards (liquefaction/ landslide hazards)
	(+)	Poor Stream/Waterbody Health – 303d list for bacteria, dissolved oxygen, and temperature
Health Conditions	(+)	Diabetes – crude rate in population >= age 18
	(+)	Asthma – crude rate in population >= age 18
	(+)	Respiratory Disease - COPD – crude rate in population >= age 18
	(+)	Coronary Heart Disease – crude rate in population >= age 18
	(+)	Poor Physical Health – crude rate in population >= age 18
	(+)	Poor Mental Health – crude rate in population >= age 18

Sub-Category		Indicator
ADAPTIVE CAPACITY		
Socioeconomic	(+)	People of Color
	(+)	Population Experiencing Poverty
	(+)	Low Educational Attainment – less than high school degree
	(+)	Linguistic Isolation – households with limited English speaking at home
	(+)	Living Alone – households comprised of householder living alone
	(+)	Housing Cost Burden – renter households spending >30% of income on housing
	(+)	Access to Vehicle – households without access to a vehicle
Transportation	(-)	Access to Frequent Transit
Housing/Built Environment	(+)	Housing Condition – houses built before 1960
	(+)	Affordable Housing Inventory
	(+)	Impervious Surfaces
	(-)	Proximity to City-Owned Facilities that increase adaptive capacity (libraries, community centers, fire stations)
Employment	(+)	Unemployment
	(+)	Outdoor Professions – jobs likely to be performed outside (NAICS codes 11, 21, and 23)
Health	(+)	Adult Population Without Health Insurance
Environment/ Ecologic	(-)	Tree Canopy Coverage
	(-)	Access to Parks/Open Space

NOTES: A (+) means that a higher indicator value contributes to a *higher* index value, while a (-) means that a higher indicator value contributes to a *lower* index value.
COPD = chronic obstructive pulmonary disease.
NAICS = North American Industry Classification System

REGIONAL CLIMATE EXPOSURE

Exposure of people, ecosystems, and infrastructure to climate change could include:

- Extreme precipitation
- Extreme heat

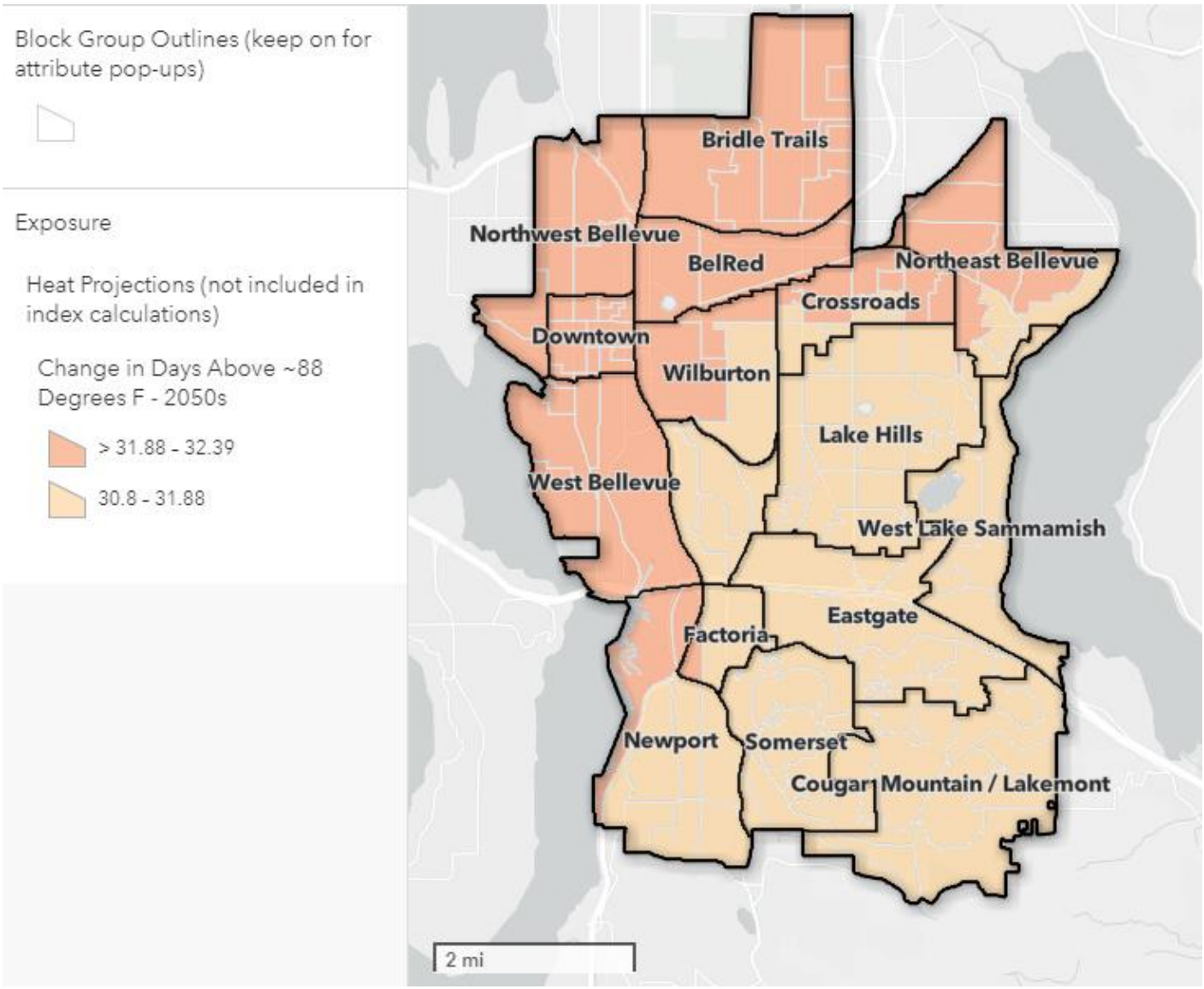
These are the regional exposures of focus in this Appendix. Other climate exposures such as wildfire smoke could also affect Bellevue and would be addressed in the Climate Vulnerability Assessment.

The projected changes are for the 2050s (2040–2069) or the 2080s (2070–2099), as compared to the historical period of 1981–2010. The climate projections are all based on Representative Concentration Pathway (RCP) 8.5, a global emissions scenario developed for the Intergovernmental Panel on Climate Change (IPCC), in which global emissions continue unabated throughout the rest of the century. There are other less extreme scenarios that were considered, namely RCP 4.5, in which emissions stabilize by mid-century, then decline sharply after. Projections also exist for the 2030s, however they show very little variability and as such, are not recommended for use in this project. For the purpose of long-range climate planning, the 2080s are used as the timeframe to look at climate projections.

Extreme Heat

Extreme high temperatures are anticipated to increase over historic conditions. In Bellevue by 2050 the change in the number of days above 88 degrees Fahrenheit humidex (heat and humidity) are projected to increase by 30.8 to 32.4 days (**Figure G-1**). Because the change in extreme heat days is less than 1 to 2 degrees across the city, it is not part of the CVI.

The change in the number of 88°F humidex days is an indicator of stress on public health. Local exposure data regarding heat islands can provide local geographic information where extreme heat would be more or less felt. Combined with impervious area, lack of tree canopy, and populations with age or health conditions, some areas of Bellevue could be more vulnerable.



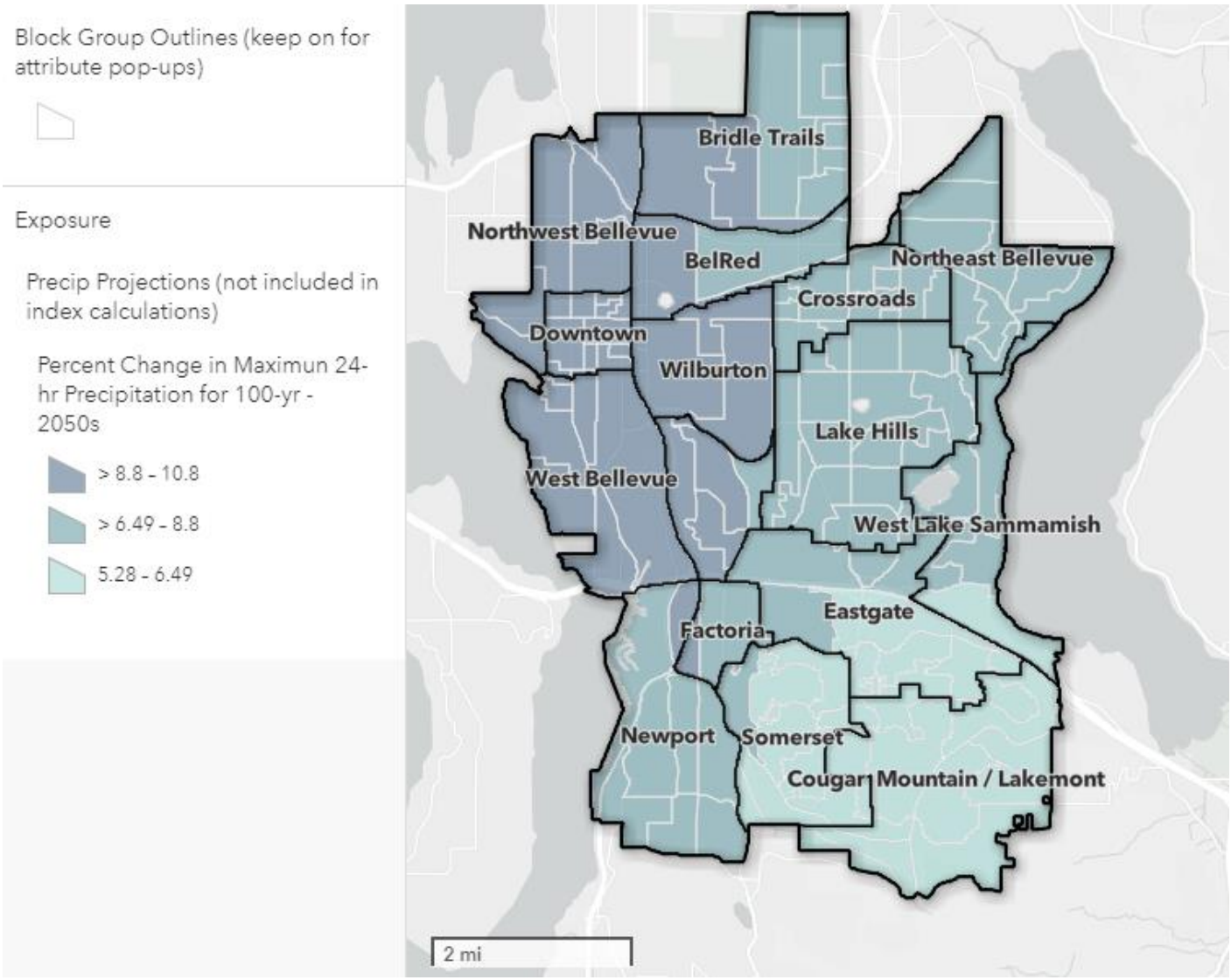
SOURCE: BERK 2023; DeVine et al. 2017

FIGURE G-1 **Extreme Heat Change in Days above 88 Degrees F Humidex – 2050s**

Extreme Precipitation

The intensity of rainstorms is anticipated to increase at greater likelihood intervals (2-year or 25-year) and at lesser likelihood storms (100-year) stressing stormwater systems. **Figure G-2** illustrates the percent change in the Maximum 24-Hour Precipitation for the 100-Year Storm by the 2050s. The percent change could differ by 5.3% to 10.8% from south to central to west Bellevue. Although the percentage change is measurable across the city, it is not part of the CVI. In the future if the city determines that the precipitation data is sufficiently granular, it could include it in the CVI in the future.

This indicator can be used to consider how climate change could affect stormwater system capacity, floodplain conditions, and erosion and landslide potential.



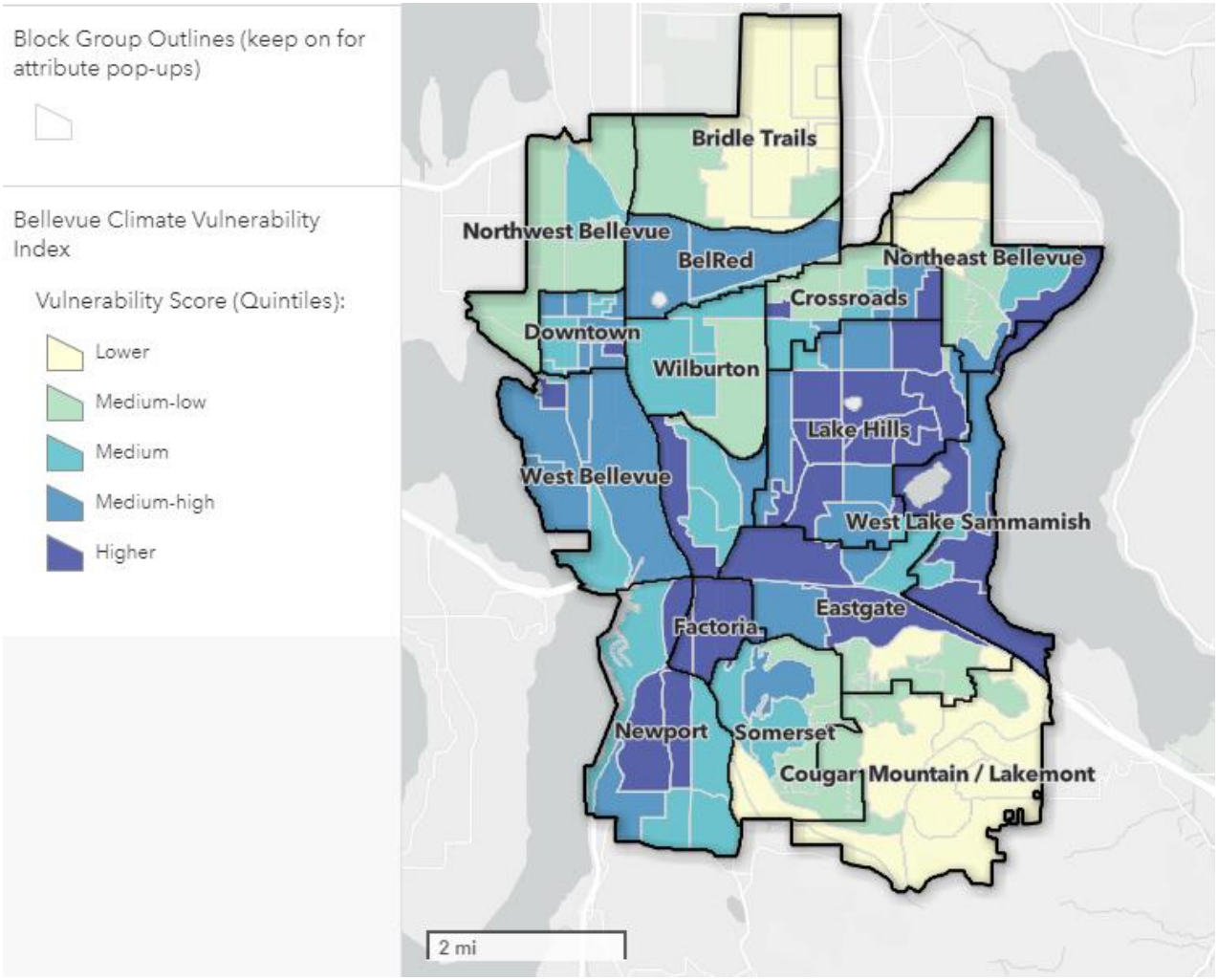
SOURCE: Climate Impacts Group 2022; BERK 2023

FIGURE G-2 **Extreme Precipitation Exposure**

CLIMATE VULNERABILITY INDEX

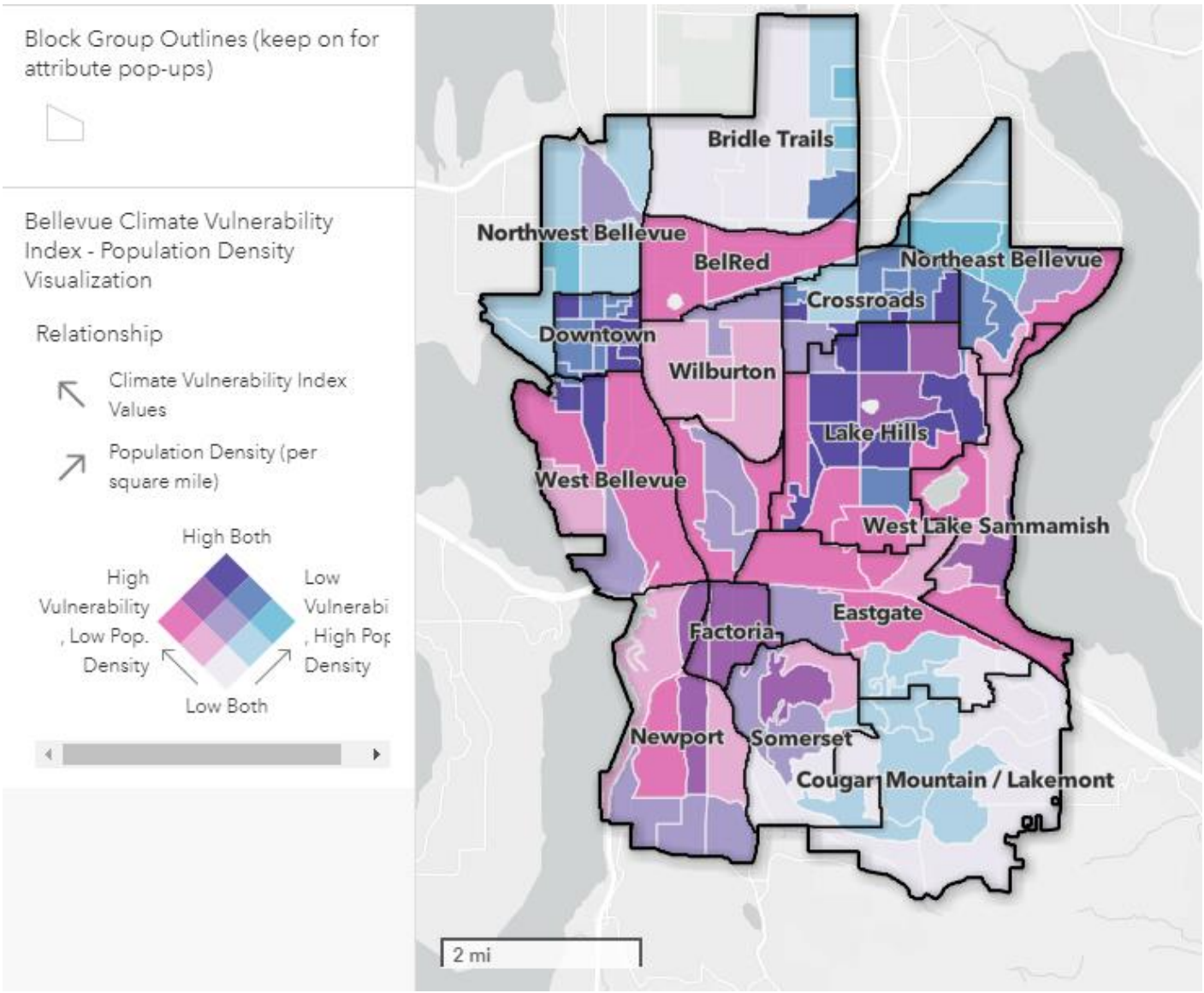
The indicators in Table G-1 were used to calculate index values and a **draft** Climate Vulnerability Index map is shared below without population density (**Figure G-3**) and with population density (**Figure G-4**). **These indices may change over time as the data changes or improves.** Maps showing individual exposures are also provided for additional context. This climate vulnerability information is meant to support the planning-level review of Comprehensive Plan growth alternatives. The city will consider multiple factors in its selection and refinement of a preferred alternative.

This map illustrates the effect of population density together with climate vulnerabilities. For example, BelRed has a medium-high index score on Figure G-3 without population density accounted for. With population accounted for in Figure G-4, BelRed is noted as a higher vulnerability and lower population density area. As the area grows, the city can consider the factors that identify this area as higher vulnerability (e.g., extreme heat exposure, urban heat island, and lower tree canopy) and employ strategies to reduce vulnerability (e.g., green infrastructure, passive cooling, etc.).



SOURCE: BERK 2023

FIGURE G-3 **Climate Vulnerability Index without Population Density**



SOURCE: BERK 2023

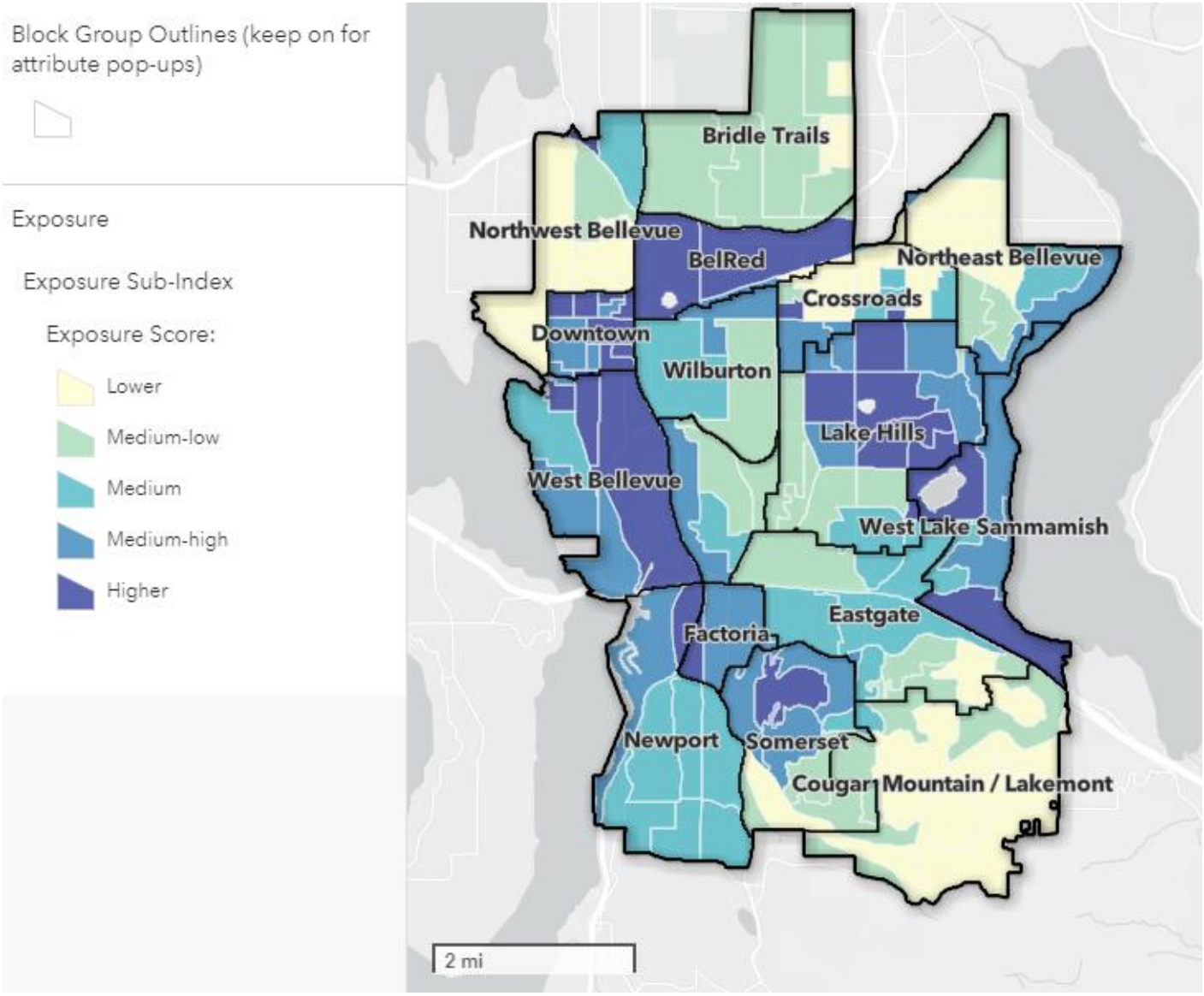
FIGURE G-4 **Climate Vulnerability Index with Current Population Density**

LOCAL EXPOSURE SUB-INDEX

Data in the sub-index includes the following, which are equally weighted by category:

- **Flooding:** Floodplains and Historical flooding hot spots
- **Air Quality:** CLINE modeled PM2.5 concentrations. This represents Average Modeled Concentration of Particulate Matter 2.5 (e.g., air particles that are 2.5 microns or less in width that pose a high risk to human health)
- **Heat:** King County evening heat index. Generally there are heat islands in west, central, and east Bellevue.

The results of the sub-index show relatively higher exposure to local environmental conditions in BelRed, Lake Hills, West Lake Sammamish, Somerset, Factoria, West Bellevue, and Downtown, in clockwise order (**Figure G-5**). In Downtown and BelRed there is greater local exposure to air pollution and heat islands. In Lake Hills and West Lake Sammamish there is local exposure to heat islands and floodplains. In West Bellevue and Factoria there is exposure to flooding hot spots, air pollution, and heat islands.

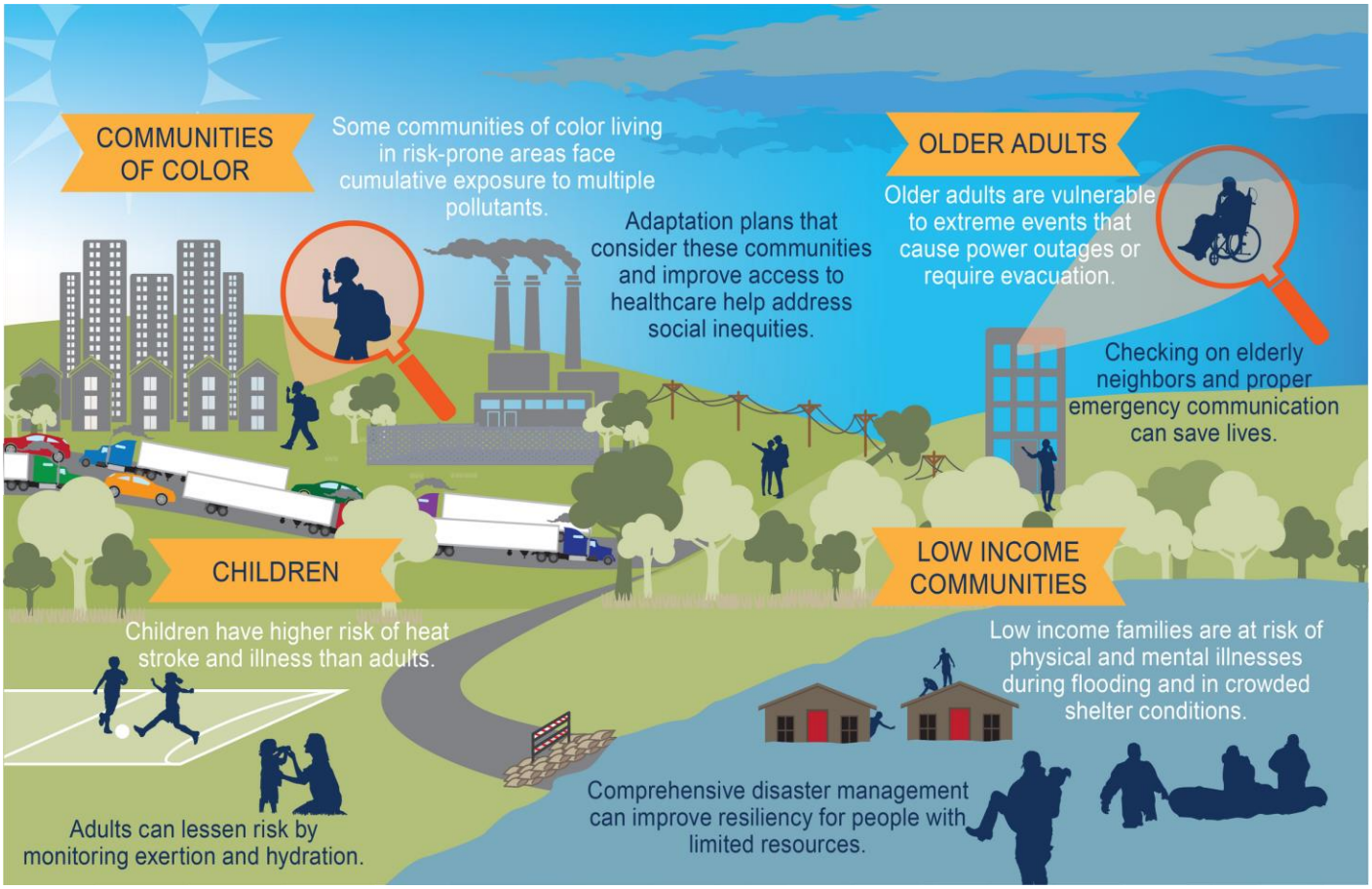


SOURCE: BERK 2023

FIGURE G-5 **Local Environmental Exposure Sub-Index**

SOCIAL VULNERABILITY AND SENSITIVITY AND ADAPTIVE CAPACITY SUB-INDICES

Based on social vulnerability and climate change research, communities that tend to be more sensitive to climate stressors include older people, children, low-income families, and people of color and immigrant communities (**Figure G-6**). People that are elderly may have more limited mobility or preexisting health conditions, and children under 5 years old may have a harder time regulating temperature and may have underdeveloped immune systems. Low-income households may be more susceptible to illnesses and have limited resources to adapt or respond to climate change. Communities of color may have cumulative exposures to pollution and health and social inequities. People who speak English less than very well may have more difficulties during evacuation and difficulties accessing post-disaster funding and other resources.



SOURCE: EPA 2018

NOTES: Examples of populations at higher risk of exposure to adverse climate-related health threats are shown, along with adaptation measures that can help address disproportionate impacts. When considering the full range of threats from climate change as well as other environmental exposures, these groups are among the most exposed, most sensitive, and have the least individual and community resources to prepare for and respond to health threats. White text indicates the risks faced by those communities, while dark text indicates actions that can be taken to reduce those risks.

FIGURE G-6 **Vulnerable Populations**

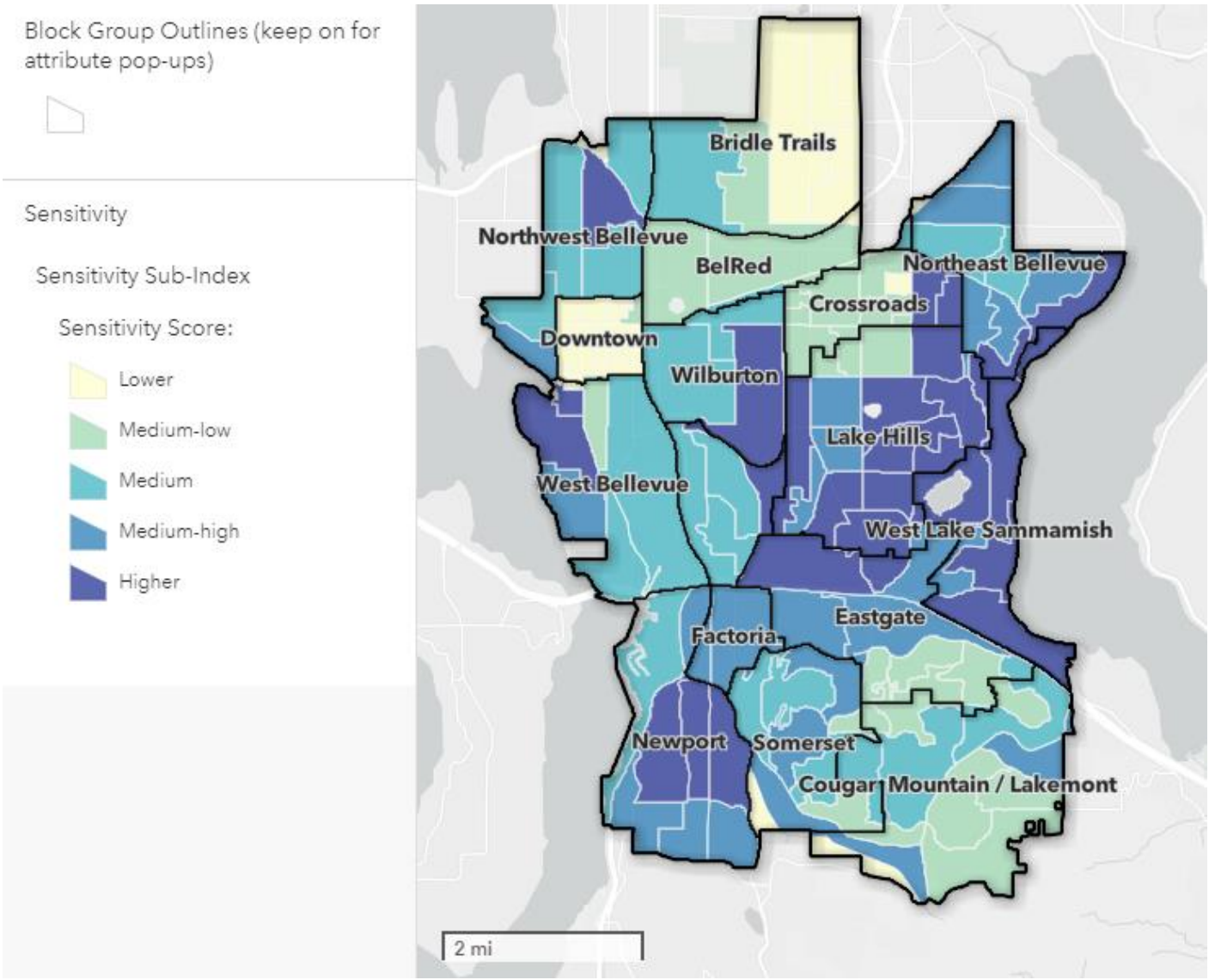
Understanding the location and number of populations that are more sensitive or less adaptable to climate change events can help communities develop strategies to increase resilience.

Examples of sensitivity indicators (e.g., under 5 years old, over 65 years old, air quality) and adaptive capacity indicators (e.g., heat island, linguistic isolation) in Bellevue are shared below in the sub-indices for sensitivity and adaptive capacity.

Sensitivity Sub-Index

The sensitivity sub-index addresses a variety of health or environmental conditions that represent conditions unchangeable at the time of the climate stressor (**Figure G-7**):

- **Age:** Under 5 years old and Over 65 years old:
  - *Population Age 65 Years or Older:* Generally higher shares in north and east Bellevue.
  - *Age under 5 Years:* Generally higher in central and west Bellevue.
- **Environment:** Steep Slopes/Geologic Hazards (liquefaction, erosion, steep slopes) and Poor Stream/Waterbody Health – 303d list for bacteria, dissolved oxygen, and temperature:
  - Seismic/liquefaction hazards are along West Lake Sammamish and West Bellevue.
  - Steep slopes are found in most neighborhoods with greater concentrations in east, south, and west areas of Bellevue.
  - Erosion is more prevalent in the northern half of Bellevue and along both lakes.
  - Poor waterbody health is found in Wilburton, West Bellevue, and the south end.
- **Health Conditions:** Diabetes, Asthma, Respiratory Disease – COPD, Coronary Heart Disease (Adults), Poor Physical Health (Adults), Poor Mental Health (Adults):
  - Poor Physical Health: Generally central and south Bellevue



SOURCE: BERK 2023

FIGURE G-7 **Sensitivity Sub-Index**

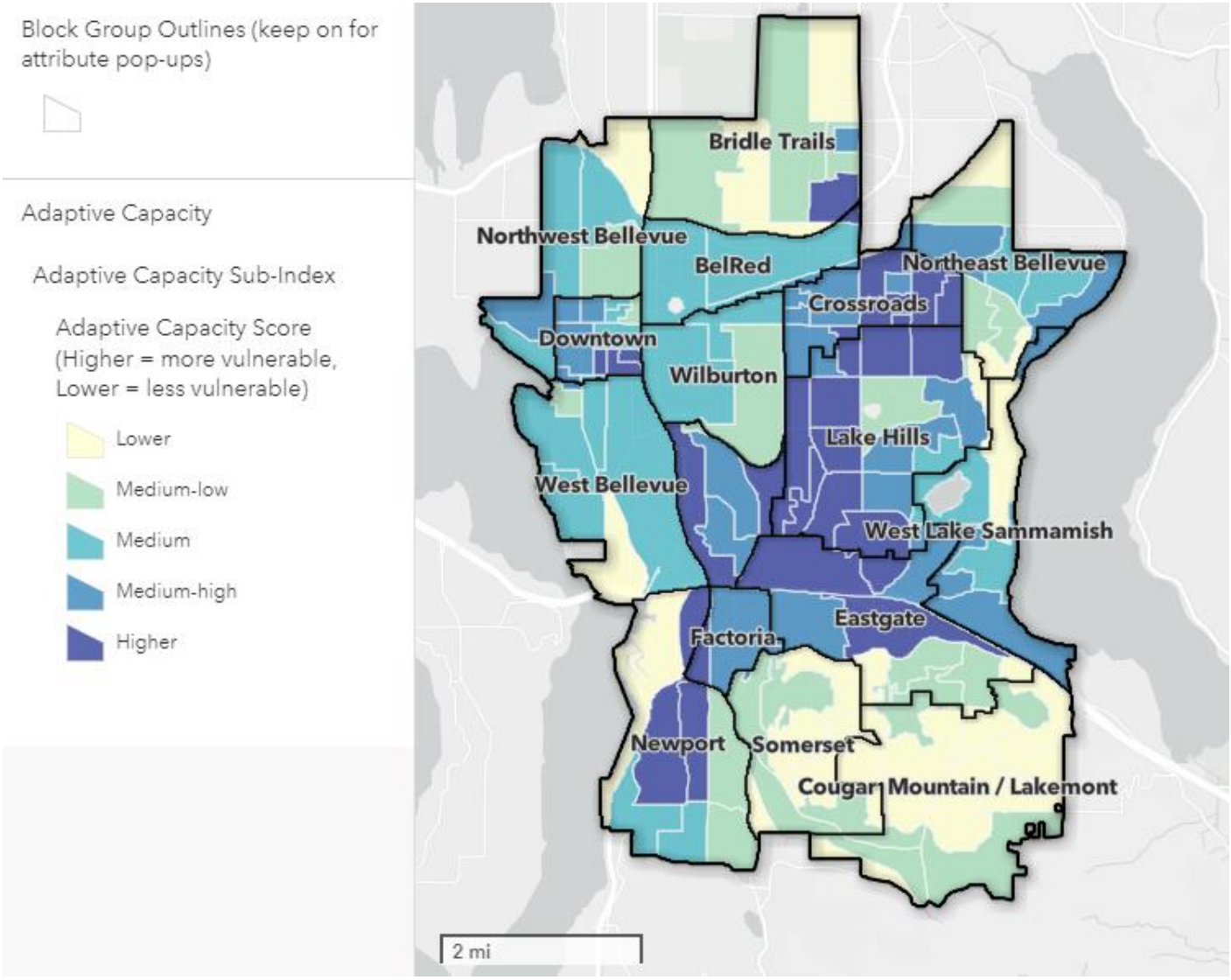
Adaptive Capacity Sub-Index

A wide variety of indicators are part of the adaptive capacity sub-index including:

- **Socioeconomic:** race, poverty, lesser education, linguistic isolation, lack of vehicle, other
- **Transportation:** Access to Frequent Transit (current)
- **Housing/Built Environment:** housing condition (built before 1960), affordable housing inventory, impervious surfaces, proximity to libraries, community centers, fire stations
- **Employment:** Unemployment, Outdoor Professions

- **Health:** Adult Population Without Health Insurance
- **Environment/Ecologic:** Tree Canopy Coverage, Access to Parks

The areas with more vulnerable populations and lower quality built environment conditions (e.g., less tree canopy, more impervious) are shown in **Figure G-8**. There are more areas with higher adaptive capacity in Crossroads, Lake Hills, Eastgate, Newport, Factoria, Woodridge, and Downtown.



SOURCE: BERK 2023

FIGURE G-8 **Adaptive Capacity Sub-Index**

Climate Vulnerability and Alternatives Analysis

For the Comprehensive Plan Periodic Update, Bellevue has identified four alternatives to test growth options: Alternative 0 (the No Action Alternative) and three Action Alternatives (Alternatives 1–3). Alternative 0 meets 2044 housing and job growth targets, and the Action Alternatives increase housing and jobs to address trends and affordable housing needs.

Under the Action Alternatives, more capacity for growth is proposed in Mixed Use Centers such as Downtown, BelRed, Wilburton-East Main, Crossroads, Eastgate, and Factoria; areas near transit corridors (referred to as transit-proximate areas) and Low Density Residential areas; and a smaller increase in Neighborhood Centers. See **Table G-2**, **Table G-3**, and **Figure G-9**.

TABLE G-2 **Housing and Job Growth Distribution by Alternative, Citywide**

Location	Alternative 0 No Action		Alternative 1		Alternative 2		Alternative 3	
	Housing	Jobs	Housing	Jobs	Housing	Jobs	Housing	Jobs
Citywide	**41,000**	**124,000**	**59,000**	**179,000**	**77,000**	**177,000**	**95,000**	**200,000**
Mixed Use Centers	31,500	119,500	45,900	171,200	52,600	168,500	60,900	184,500
Neighborhood Centers	100	2,900	100	2,800	1,600	3,800	1,700	3,800
Transit Proximate Areas	17,900	85,300	26,300	123,100	34,100	124,00	36,800	133,000
Low Density Residential	3,700	(200)	4,500	(200)	7,100	(200)	14,600	(200)

SOURCE: City of Bellevue 2023; BERK 2023

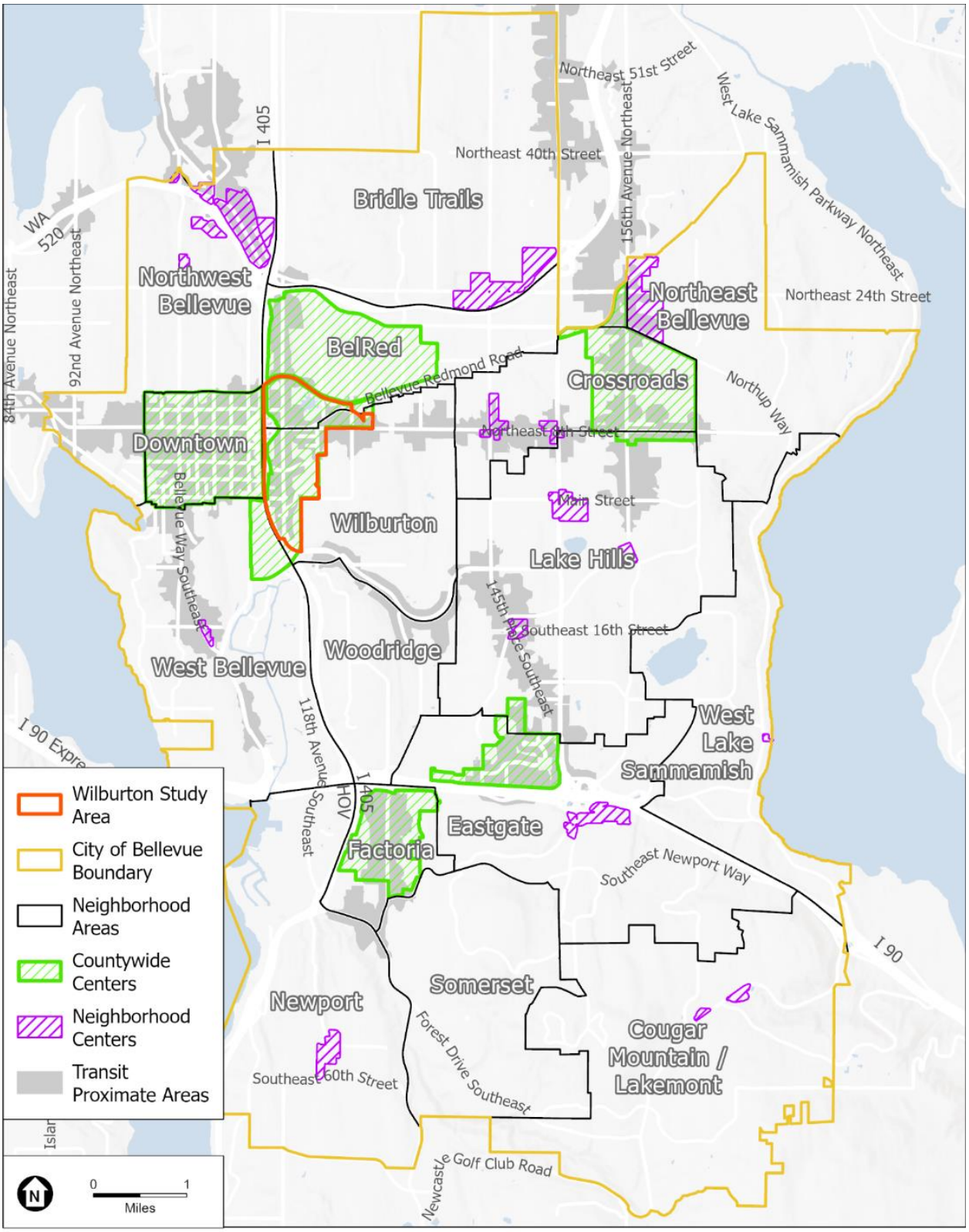
NOTE: Growth estimates are rounded to the nearest 1,000 citywide and 100 for geographic subareas. The actual pace of growth could differ or be less than what is shown.

TABLE G-3 **Comparison of Citywide Alternative Features**

Feature	Alternative 0 No Action	Alternative 1	Alternative 2	Alternative 3
Growth Pattern	Downtown and BelRed	Centers: Downtown, BelRed, Wilburton/ East Main, Eastgate, Factoria, Crossroads Other: Gentle density throughout	Mixed Use Centers, Neighborhood Centers, and areas with good access to transit/jobs Other: gentle density throughout	Mixed Use Centers, in and around Neighborhood Centers, areas with good access to transit/jobs and close to Major Employment Centers.
Housing Types	Apartments with studios, 1-bedroom units.	Apartments in Mixed Use Centers with units ranging from 0 to 2 or 3 bedrooms Duplexes, townhomes, and similar types across city	Apartments with studios, 1-bedroom units in Mixed Use and Neighborhood Centers Duplexes to small apartment buildings in areas with access to transit/jobs Duplexes on larger lots	Apartments with studios, 1-bedroom units in Mixed Use Centers. Duplexes to small apartment buildings in areas of high opportunity and near Neighborhood Centers Duplexes on larger lots Additional density allowed in existing lowest density areas
Housing Affordability	Less than 10%	Mandatory inclusionary affordability in growth corridor Increased incentives elsewhere	Tiered incentives in Mixed Use and Neighborhood Centers Increased incentives across city	Mandatory inclusionary affordability in Mixed Use Centers Increased incentives across the city
Transportation Investments	Current	6th Street Extension and multimodal investments in Wilburton study area	Similar to Alternative 1	Similar to Alternative 1 with greater extension of 6th Street.
Plan Policies	Current	Update	Updated	Updated
Code	Current	Updated	Updated	Updated

SOURCE: City of Bellevue 2023; BERK 2023

The Climate Vulnerability Assessment studies sectors including buildings and energy, zoning and development, cultural resources and practices, economic development, emergency management, human health, ecosystems, transportation, waste management, and water resources. This list of topics aligns with some, but not all, of the elements included in the Draft EIS. **Table G-4** summarizes how the alternatives may be affected by the climate-related vulnerabilities of each sector. In general, climatic changes may act as impact multipliers to the land use changes proposed in the alternatives.



SOURCE: City of Bellevue and BERK 2023

FIGURE G-9 **Bellevue Centers, Existing and Proposed**

TABLE G-4 **Climate Vulnerabilities and Comparison of Alternatives**

Sectors	Alternative 0 No Action	Alternative 1	Alternative 2	Alternative 3
Human Health	Lowest capacity for growth could increase risk of displacement of older adults, resulting in a smaller increase in demand for health services as population grows. Also less investment in infrastructure and services that could improve adaptive capacity (e.g., urban heat island and tree canopy).	Under all Action Alternatives, increases in population and employment densities (residents and commuters) and development in Bellevue. • More residents in specific areas (Downtown, BelRed, Factoria, Wilburton) may be exposed to air pollutants and diseases transmitted by food, water, and insects. • More extreme heat events will increase demand for medical services and cooling centers in the city. At-risk individuals, such as the elderly and those with existing health problems, will be more susceptible to these changes, and capacity may be constrained to provide adequate care. Action Alternatives include new policies and code and opportunities to build more resilience in buildings (e.g., building location and landscaping, passive cooling, clean air filters) and to increase human service/emergency services and information to vulnerable populations (e.g., seniors, people living alone, linguistic isolation).		
Buildings & Energy	Some growth capacity in centers and transit corridors. No new policies or code that could address adaptive capacity for tree canopy, parks, energy, and building design (e.g., passive cooling).	More growth capacity in centers and transit corridors. New policies or code that could address adaptive capacity for tree canopy, parks, energy, and building design (e.g., passive cooling).	More growth capacity and opportunity to employ improvements to buildings and infrastructure to be more resilient.	Most growth capacity in centers and transit-proximate areas. Greatest opportunity to build in energy conservation and green infrastructure in new development.
Zoning & Development	Climate stressors could damage housing and make it more challenging for lower income households to respond and exacerbate conditions for people already at risk of displacement. No Action provides the lowest increase in housing and less risk of displacement although also less housing affordability and choice measures; ability to improve adaptive capacity could be reduced. There could ultimately	Slightly greater risk of displacement but provides greater housing types and requires affordability in new units that can improve adaptive capacity and accommodate displaced households.	Greater housing supply and similar displacement risk as Alternative 1. Affordable housing options are incentive based, which may mean less improvement in cost burden.	Compared to Alternatives 0 and 1, greater likelihood of displacement but higher growth capacity and housing supply with which to accommodate displaced households. Given mandatory affordability in centers (and most growth capacity in centers), there should be improvement in cost burden adaptive capacity.

Sectors	Alternative 0 No Action	Alternative 1	Alternative 2	Alternative 3
	be greater risk of displacement as supply is constrained and prices rise, leading to households being priced out of their housing via increasing taxes or rents.			
Economic Development	Potential disruptions to job continuity due to hazards and impacts on business infrastructure. No Action provides substantial but lower growth capacity in jobs with fewer people affected (e.g., fewer commuters). Continuing existing land use, transportation, and other policies may not improve adaptive capacity to the same degree as other alternatives.	Greater capacity for job growth focused in centers with access to multimodal transportation choices (e.g., Wilburton study area). This greater amount of jobs may both expose more workers to climate stressors in Bellevue (although similar elsewhere in the Puget Sound region), but also improve adaptive capacity with greater connectivity and redundancy in systems (e.g., transportation). Improved policies and codes can potentially increase adaptive capacity as areas change and redevelop.	Similar to Alternative 1, with greater growth in jobs.	Similar to Alternative 1, with most growth in jobs focused in centers and corridors.
Cultural Resources & Practices	Lowest capacity for growth resulting in constrained supply and greatest pressure to the tear down and redevelopment of older buildings. No new policies or investments in cultural resources protection.	Under all Action Alternatives, increases in population and employment densities (residents and commuters) and development in Bellevue. • Increased growth capacity may put at risk cultural resources (e.g., historic period structures with pressure for redevelopment) that are also subject to climate-related stresses. However, increased population density may increase financial resources (e.g., taxes collected) to preserve the city's cultural and historic infrastructure (e.g., resources to retrofit existing structures). • Climate change impacts on cultural and historic infrastructure include potential damage from more extreme storms and flood events. These impacts will be especially severe for already aging or degraded infrastructure.		

Sectors	Alternative 0 No Action	Alternative 1	Alternative 2	Alternative 3
Emergency Management	Lowest capacity for growth could increase risk of displacement of older adults, resulting in a smaller increase in demand for emergency services as population grows. Also less investment in infrastructure and services that could improve adaptive capacity (e.g., urban heat island and tree canopy).	Under all Action Alternatives, increases in population and employment densities (residents and commuters) and development in Bellevue. • Increased population may increase the need for emergency management service calls, equipment, and staff capacity. Existing emergency management policies and plans will likely need to be updated and adapted to accommodate this increased population. • With climate change, emergency management response times will likely increase as access to local roads and major transportation routes in the city is disrupted, or there is structural damage from extreme weather events and flooding. Increased risk of damage to emergency management facilities from extreme storms and flooding will further strain resources. • Action Alternatives include new policies and code and opportunities to build more resilience in buildings (e.g., passive cooling, clean air filters) and stormwater systems (e.g., improvements to natural drainage and stormwater facilities), to increase tree canopy coverage and pervious surface in Mixed Use Centers and other infrastructure, and to increase information and services to vulnerable populations (e.g., seniors, people living alone, linguistic isolation).		
Ecosystems	Lower growth capacity, and similar critical area policies and codes for protection.	Under all Action Alternatives, increases in population and employment densities (residents and commuters) and development in Bellevue. • Increased development for housing and jobs under all alternatives could increase the risk that existing species and habitats may be degraded or displaced. Climate change impacts, including warming air and water temperatures, floods, and extreme storms, may affect the growth and survival of many species and will place greater stress on existing green infrastructure and open space. This includes increased drought conditions that may affect the health and survival of Bellevue's tree canopy. • Opportunity with new policies and codes to building more resilience in stormwater and landscaping requirements, addition of trees and native species, and new critical area regulations.		

Sectors	Alternative 0 No Action	Alternative 1	Alternative 2	Alternative 3
Transportation	Lower growth capacity than Action Alternatives. Continuation of city policies on transportation. Growth capacity is focused in major centers. The city would continue to implement multimodal policies.	Under all Action Alternatives, increases in population and employment densities (residents and commuters) and development in Bellevue. • Increased development and population will concentrate more people and traffic in specific neighborhoods. • With climate change, travel will likely be disrupted by extreme weather events and flooding. Aging transportation infrastructure (e.g., bridges, roads) will be at increased risk of damage from climate change. • All Action Alternatives promote more growth capacity in Mixed Use Centers and along transit corridors, particularly Alternative 3. All promote more multimodal connections (e.g., Wilburton study area), which could improve redundancy and evacuation.		
Waste Management	Lower growth capacity than Action Alternatives. Continuation of current waste and emergency response efforts.	Under all Action Alternatives, increases in population and employment densities (residents and commuters) and development in Bellevue. • Increased population will create greater demands on waste, stormwater, and wastewater collection, conveyance, and treatment services and facilities. • More extreme heat events and storms will likely stress the ability of some infrastructure to withstand more extreme conditions. There may also be constraints on residential waste pickup operations due to storms. • Opportunity with new policies and codes to address emergency recovery to greater extent.		
Water Resources	Lower growth capacity than Action Alternatives. Lower water demand. Current policies on conservation continue.	Under all Action Alternatives, increases in population and employment densities (residents and commuters) and development in Bellevue. • Increased population will likely increase demand for water resources. • There will likely be changes in impervious surface cover under all alternatives, although new and redevelopment projects in the city require stormwater runoff best management practices. Increased impervious surface cover would exacerbate the urban heat island effect and stormwater runoff. Certain redevelopment areas (e.g., BelRed and Wilburton) could result in a net gain in tree canopy and pervious surface as large parking lots are transformed into livable high-density neighborhoods. • More extreme heat events will create further demand for water for drinking water and irrigation and exacerbate the urban heat island effect. • Opportunity to improve stormwater design, water conservation, stream protections, and resilience of systems. More opportunity to integrate green infrastructure and tree canopy as redevelopment occurs (e.g., rights-of-way, parks, parking lots).		

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