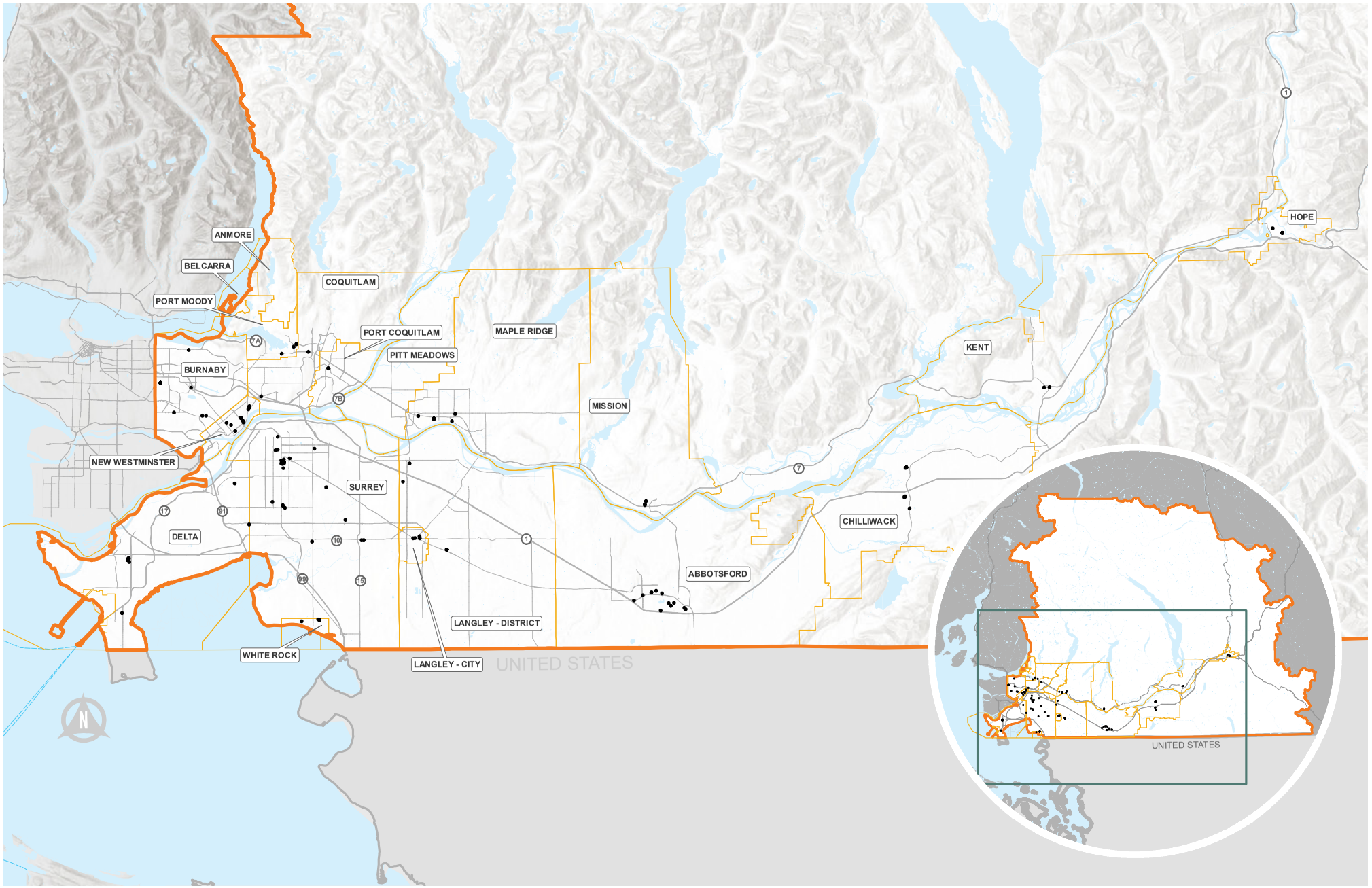
Lower Mainland Facilities Management

Moving Toward Climate Resilient Health Facilities for Fraser Health: Technical Briefing

April 2019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Context

Fraser Health's hospitals, health centers and long term care facilities must increase their resilience in our new climate reality. Our health facilities and services will be increasingly challenged by acute shocks such as unusually hot and prolonged heatwaves and by chronic stresses such as shifting precipitation patterns and retreating glaciers.

Recent extreme events strained our health system with surges in emergency room visits, physician consultations and asthma prescription medications linked to extended wildfire seasons and poor air quality; prolonged power outages to service delivery areas resulting from severe windstorms; and unprecedented flood levels near our research and specialized care facilities.

Historical climate data used to guide the design and operations of health facilities are no longer relevant. Climate projections for the year 2020 better describe current conditions than measured data from the past. Projections for 2050 and 2080 describe facilities' operating context for patients and communities of the future.

By using evidence-based climate projections to guide decision-making, Fraser Health will better ensure that our facilities are able to support health services when they are most needed. This briefing is intended to inform site-specific capital planning, design and operations for Fraser Health facilities including:

- Abbotsford Regional Hospital
- Burnaby Hospital
- Chilliwack General Hospital
- Delta Hospital
- Eagle Ridge Hospital
- Fraser Canyon Hospital
- Langley Memorial Hospital
- Mission Memorial Hospital
- Peach Arch Hospital
- Ridge Meadows Hospital
- Royal Columbian Hospital
- Surrey Memorial Hospital & Surrey Hospital

Our government[1], public sector[2] and industry professional partners are evolving their policies[3] and practices[4] to reduce climate risks and improve resilience for those they serve. Fraser Health works in step with leaders across sectors to leverage our interdependencies for health and wellness co-benefits in our built environment.

1 Metro Vancouver, Climate 2050: Strategic Framework, September 2018
2 BC Housing, Climate Adaptation Framework, 2018
3 Canadian Institute of Planners, Policy on Climate Change Planning, 2018
4 Engineers & Geoscientists BC, Climate Change Information Portal, April 2019

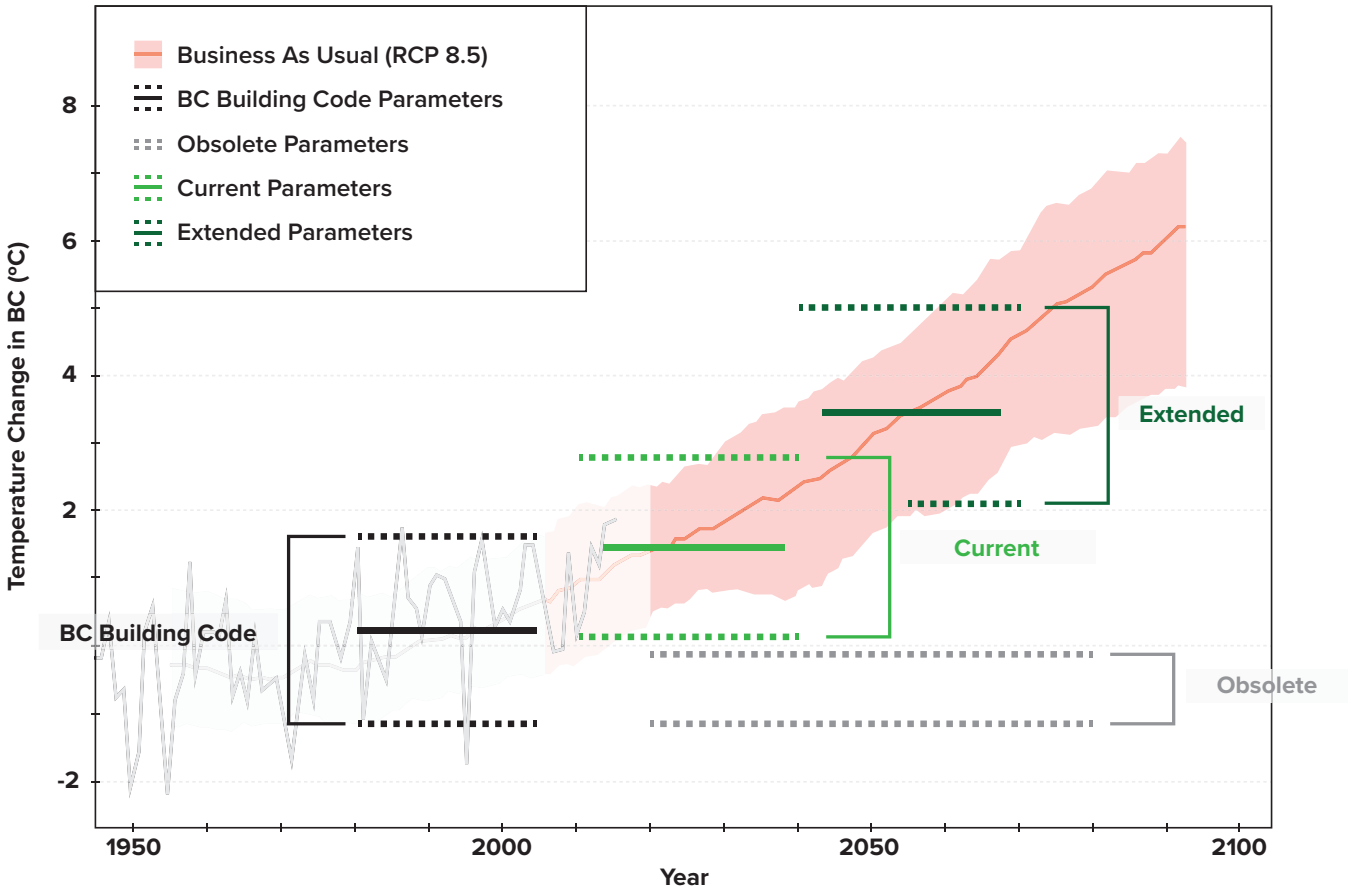
Designing Climate Resilient Health Facilities

Design parameters must shift to account for the fact that future climate will result in a wider range of temperatures that is beyond our current design scope. Designing to current and future climate parameters is markedly more cost effective[5] than reacting to climate shocks and stresses.

The graphic[6] below is intended to illustrate key concepts for designing in our new climate reality:

1. A portion of the existing BC Building Code, based on historical data (1981-2005 for temperature and precipitation), is no longer suitable. "Obsolete Parameters" indicates a portion of the "BC Building Code Parameters" range that is not optimally suited for current climate conditions.
2. Optimal parameters for today's climate are different from those published in the BC Building Code. "Current Parameters" indicate a more appropriate temperature range (up to 3ºC above the 1971–2000 historical baseline) to guide the optimization of equipment and building systems and maintain indoor thermal comfort today.
3. Design parameters that ensure lasting resilience must consider the evolution of conditions over time. "Extended Parameters" indicate a range of temperature change (up to about 5ºC above the 1971–2000 historical baseline) to guide the design and operation of infrastructure expected to perform over a lifespan extending to 2050 or beyond.

CLIMATE DESIGN PARAMETERS FOR THE NEW CLIMATE REALITY (2020–2080)



5 Urban Land Institute, Returns on Resilience: the business case, 2015:11.

6 S. Sobie, T. Murdock, R. LePage, and D. Lapp. are subject matter experts from the Pacific Climate Impacts Consortium, RDH Engineering and Engineers Canada and credited for this graphic's original design.

Fraser Health Service Area & Future Climate

Climate projections offer clear insights into current and future operating conditions, indicating that hospital sites[7] within Fraser Health's service area can continue to expect:

Warmer summer temperatures, with hotter and more extreme heat days in summer: Average annual hottest day temperatures at hospital sites are expected to increase by 4°C by 2050 and by over 6°C by 2080. The number of days above 30°C will increase on average from 5 days in the past to 41 days by 2080.

Warmer nights and a longer growing season: The sites can expect, on average, 5 nights above 20°C by 2050 and 21 nights by 2080, compared to none in the past. Growing season length is expected to increase by an average of 41 days by 2050 and 54 days by 2080, compared to a baseline of 301 days in the past. Warmer nights and a longer growing season affect the production and dissemination of pollen, which matters to those who suffer from seasonal allergies. We may expect demand for health services to increase.

Change in heating loads due to warmer winter and summer temperatures: Across the region, cooling degree-days are expected to increase about four-fold by 2050 and six-fold by 2080 from a baseline of around 100 degree-days in the past. Increases in cooling demand will be felt in all facilities over time and mark a significant departure in operations for some facilities that have not had to cool in the past.

Less rain and longer droughts in the summer months: Summer precipitation is expected to decline by an average of 17% at the sites by 2050. As drought conditions increase over time, the health sector may experience water shortages for sterilization, sanitation, and human consumption.

More precipitation and intense storms: Autumn precipitation is projected to increase at hospital sites by an average of 9% by 2050 and 16% by 2080. The wettest day of the year will receive 9% more precipitation by 2050 and 18% more by 2080. We can expect both more frequent and more intense storms in the future, with more rain falling during extreme downpours. This will affect stormwater management at facilities.

These projections indicate that the ability of our health care facilities to support health services may be compromised during future normal conditions and during periods of extreme weather. In addition, increased health risks associated with these events may create higher and unexpected demands on the health care system, and strain unprepared infrastructure.

Projections are generally similar across the region, though the specific experiences of individual sites must be considered:

Sites with smaller baseline values show a greater relative change than those with larger baseline values. For example, in the past, Delta Hospital experienced, on average, 1 day above 30°C. By 2050, 11 days are projected. This is a 940% increase over the past value. In comparison, Fraser Canyon Hospital experienced, on average, 13 days above 30°C in the past. By 2050, 38 days (or a 195% increase) are expected.

Baseline values at different sites matter, as they speak to what people are used to and what conditions may trigger, for example, patient surges at facilities. Also, where baselines are higher, a small increase can be significant as an important threshold could be surpassed. For example, while the increase in days above 30°C is always less than the increase in days above 25°C, the smaller increase in days above 30°C may be more significant as communities and facilities prepare for future health service demands.

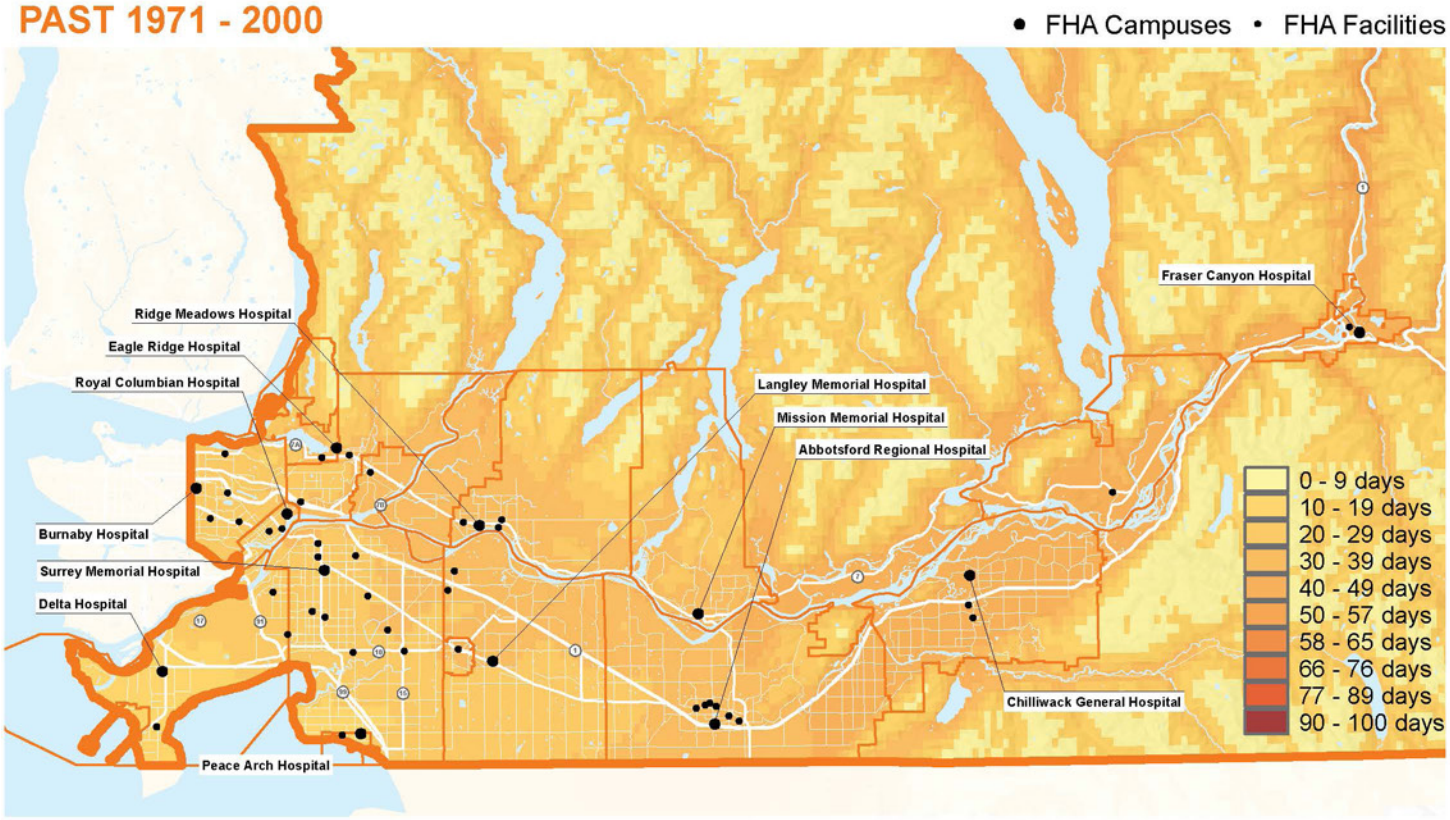
Low-lying areas that currently experience less precipitation will experience the largest relative changes, due to their lower baseline conditions. Meanwhile, over time the wettest regions will continue to get even wetter than before. For example, in the past Delta Hospital's wettest day of the year was 44 mm of precipitation. By 2050, 4 mm more precipitation is expected on average. Eagle Ridge Hospital experienced 73 mm of precipitation on its wettest day of the year historically. By 2050, 6 mm more precipitation is expected at Eagle Ridge Hospital on average. While total precipitation remains greater for Eagle Ridge Hospital and the increase in total amount is larger, Delta Hospital will experience a greater relative change.

Sites at the eastern end of the Fraser Valley are expected to experience greater warming than those closer to the moderating influence of the ocean. For example, in the past, Fraser Canyon Hospital experienced 148 cooling degree-days. By 2050, this is expected to increase by 298 degree-days on average. Closer to the ocean, Peace Arch Hospital had 51 cooling degree-days in the past. By 2050, this is expected to increase by 216 days on average.

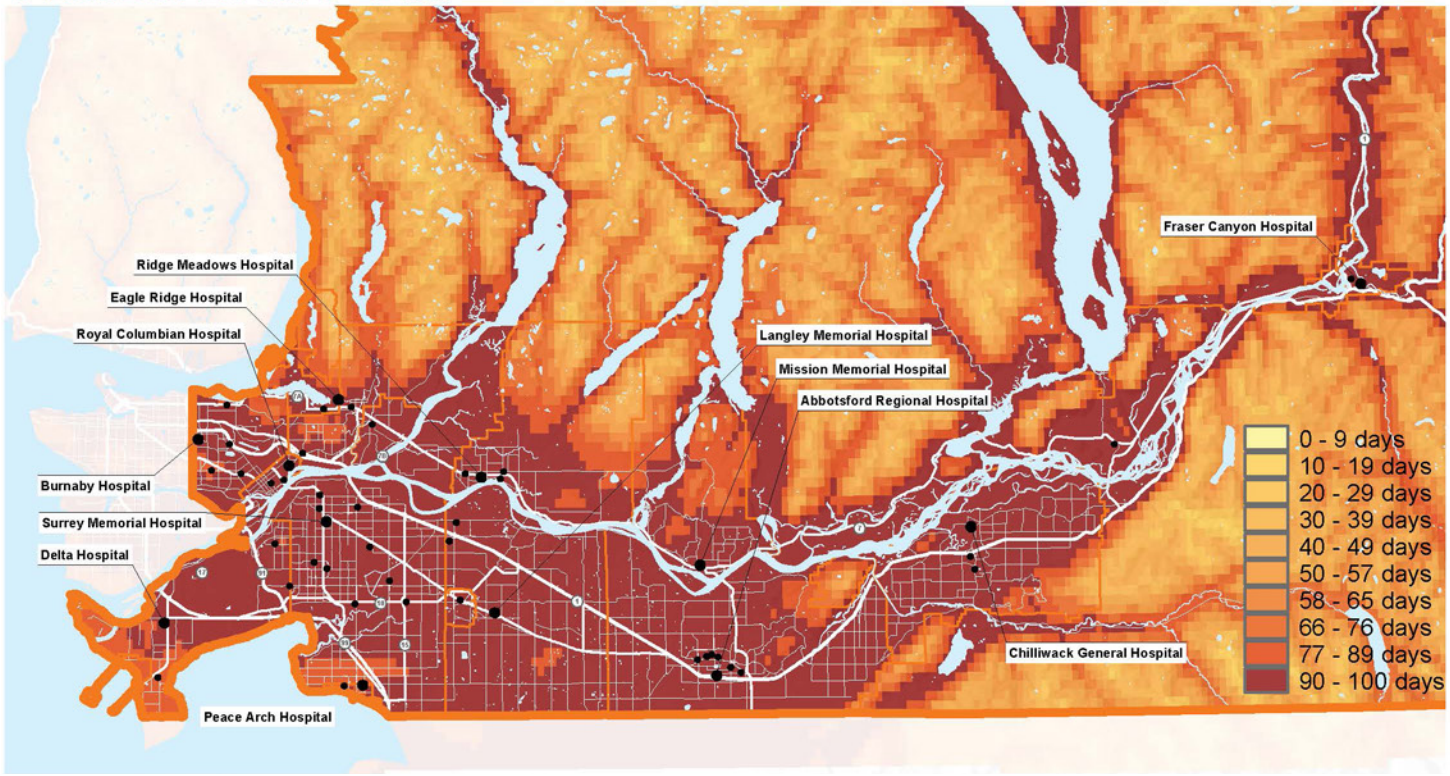
7 The values are an average of the 12 sites in the Fraser Health region, not a regional average.

Days Above 25°C

PAST 1971 - 2000



PROJECTED 2071 - 2100

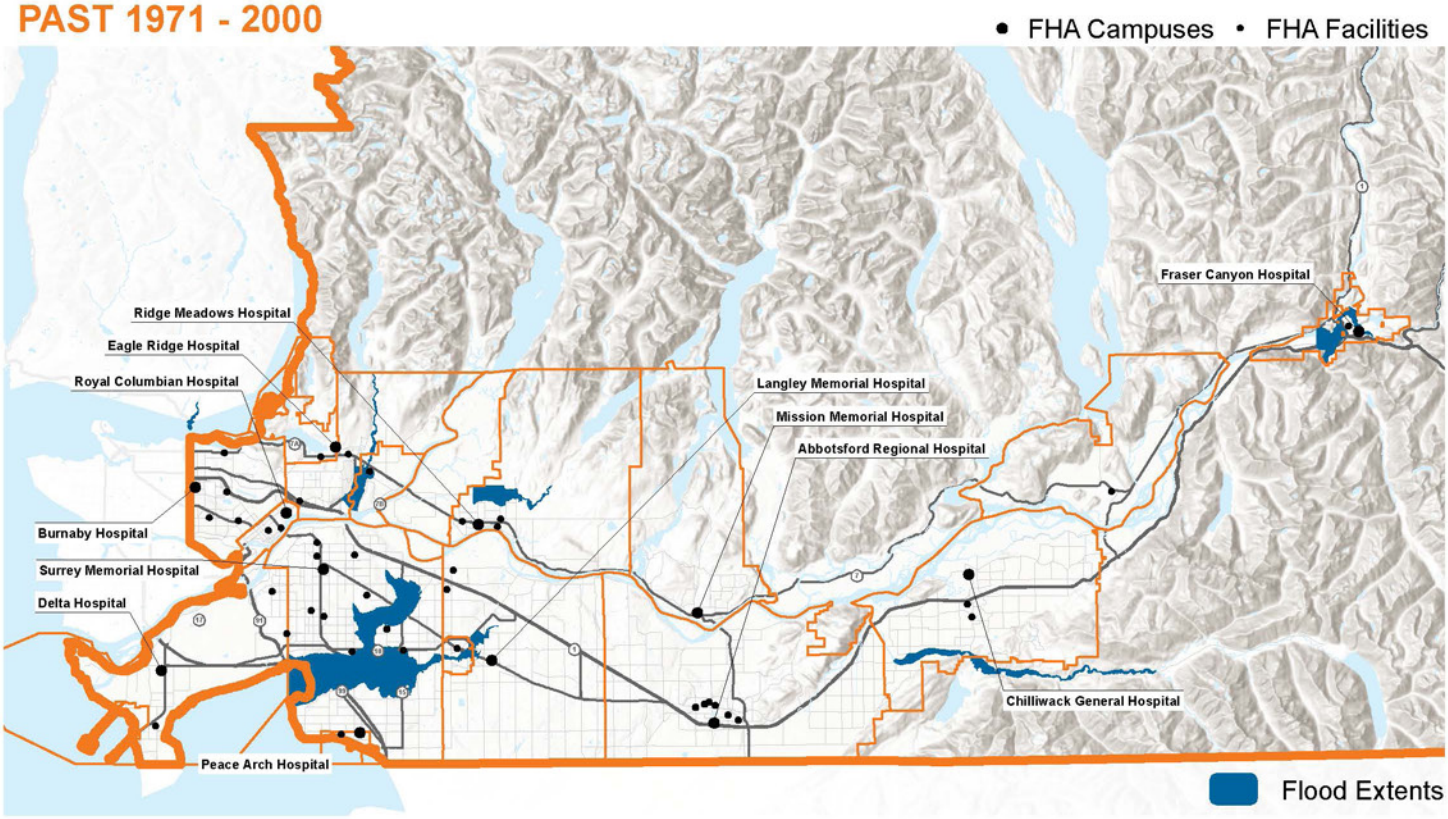


NOTES:

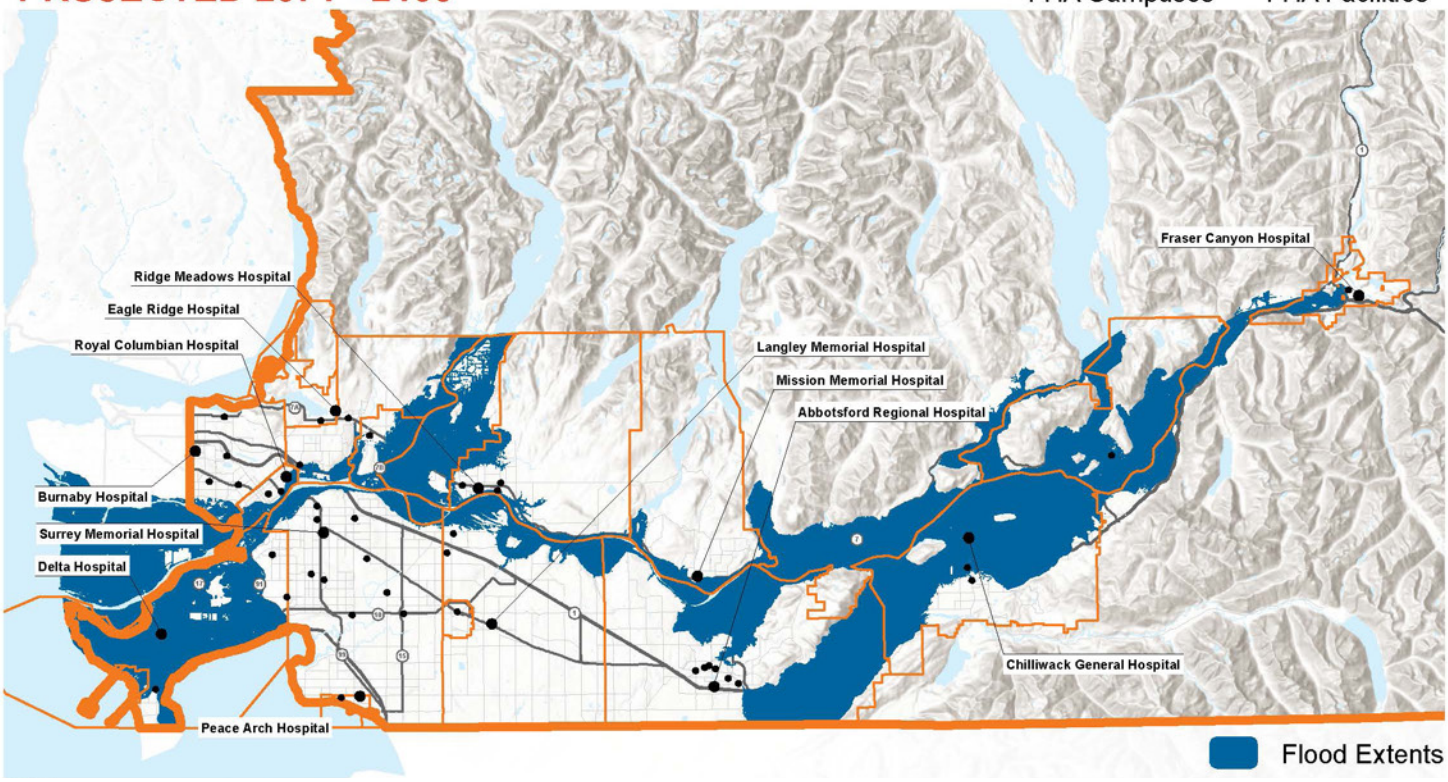
(1) Data from Pacific Climate Impacts Consortium (PCIC).
(2) Maps by ecoplan.ca
(3) Days Above 25°C climate change indicators are computed using a set of 12 Globa l Climate Models (GCMs), based on the internationally recognized “business as usual” GHG emissions scenario (Representative Concentration Pathway 8.5, or RCP 8.5), and statistically downscaled to the ~10km grid of the ANUSPLIN historical data set (see https://pacificclimate.org/data/statistically-downscaled-climate-scenarios for more information on the GCMs, ANUSPLIN, and the BCCAQ statistical downscaling method). Bias correction using the high-resolution (~800 m) climatology was performed to produce the data for each indicator (see https://pa cificclimate.org/data/high-resolution-prism-climatology for more information on PRISM). See the Methodology section of the Climate Projections for Metro Vancouver study. (Metro Vancouver, 2015)

Flood Hazard Extent

PAST 1971 - 2000



PROJECTED 2071 - 2100



NOTES:

(4) Past flood data shows areas designated as “highly susceptible to flooding“ by the Floodplain Mapping Program between 1987-1998.
(5) This map depicts riverine flood extents estimated by Northwest Hydraulics for the Fraser Basin Council’s 2016 report “Lower Mainland Flood Management Strategy Project 2: Regional Assessment Of Flood Vulnerability”. Topographic data obtained from a variety of sources was used to create a Digital Elevation Model (DEM) for the study area.The DEM horizontal resolution was between five and ten metres. The maps depict flood levels based on ground conditions represented in this DEM. The flood levels are based on a generalized water surface. The accuracy of the floodplain boundary is limited by the resolution of the DEM and the flood level assumptions adopted for this study.
(6) The maps are for the overview level assessment of flood vulnerabilities described by NHC et al (2015). They do NOT represent floodplain mapping and should not be used as such. This shows scenario ‘D’ from the report, the 1 in 500 AEP Fraser River flood, incorporating a moderate climate change flow increase for year 2100 and a 1m sea level rise.

Fraser Health Sites & Future Climate

The following regional and site-specific future values for climate indicators are based on an ensemble of 12 global climate models that describe current and future operating conditions for existing and new infrastructure.

Eight temperature and six precipitation indicators were selected for inclusion in this briefing based on their ability to provide insight into how physical and social systems have been and may continue to be further affected by climate shocks and stresses over time. For each indicator, past (historical measured) values and projected future change values (by the 2020s, 2050s and 2080s)[8] are provided.

Plain language definitions and average values for climate projections across the 12 hospital sites in the Fraser Health region are offered below, while site-specific projections are offered in the next section.

NOTE ON INTERPRETATION:

Projections are based on a RPC 8.5 (business as usual) climate scenario, and are average values from 12 climate models. Projected values presented in the table below are total future projected values, not incremental change from the past baseline, except values listed as percentages, which are percent change from the baseline value.

REGIONAL PROJECTIONS[9] - TEMPERATURE

CLIMATE INDICATOR (CLIMDEX ACRONYM[10]) & PLAIN LANGUAGE DESCRIPTION	PAST VALUES & CLIMATE PROJECTIONS			
	PAST	2020	2050	2080
Days Above 25°C (SU25) Days Above 25°C measures how many days reach temperatures over 25°C in any one year.	**30 days**	**48 days**	**70 days**	**97 days**
	• Considerably more days above 25°C are expected at all sites.			
Days Above 30°C (SU30) Days Above 30°C indicates how many days reach temperatures over 30°C in any one year.	**5 days**	**12 days**	**23 days**	**41 days**
	• Similar changes are expected across all sites, with an increasing number of days above 30°C as we move east. • Fraser Canyon Hospital will experience the highest number of days, 38 days by 2050, and 57 days by 2080.			
Hot Design 97.5 (BCBC 97.5) Hot Design temperature refers to the ~9th hottest daytime high temperature of the year, usually experienced during the summer months.	**28.1°C**	**30.0°C**	**32.0°C**	**34.4°C**
	• Future hot design temperature average warming is similar across the sites (although individual site baselines vary): 3.9°C by 2050 and 6.3°C by 2080. • In the past, Delta Hospital's hot design temperature was 26.1°C while Fraser Canyon Hospital's was 30.4°C.			
Hottest Day (TXX) Hottest Day is the annual hottest day of the year and warms by similar amounts as Hot Design 97.5.	**31.6°C**	**33.5°C**	**35.5°C**	**38.0°C**
	• Temperature increases are similar across the sites: 4°C by 2050, and over 6°C by 2080. • The hottest areas will continue to be the hottest in the future.			

8 These 30 year averages are computed for 2011-2040, 2041-2070 and 2071-2100.

9 The values presented here are an average of the 12 sites in the Fraser Health region, and are not a regional average. While it is important to consider the 10th to 90th percentile ranges of each site, as in Site Specific Projections below, the 10th to 90th percentile ranges of the 12-site averages are not included here, for simplicity.

10 www.climdex.org

CLIMATE INDICATOR (CLIMDEX ACRONYM[10]) & PLAIN LANGUAGE DESCRIPTION	PAST VALUES & CLIMATE PROJECTIONS			
	PAST	2020	2050	2080
Cooling Degree Days (CDD) Cooling Degree Days refers to the number of degrees that a day's average temperature is above 18°C, and is used to estimate the use of air conditioning to cool buildings for example. Cooling Degree Days measure the difference between the daily outdoor temperature and the base temperature of a facility, where the base temperature represents the balance point where no cooling is required. The further the daily temperature is from the base temperature, the higher the number of Cooling Degree Days are calculated.	**91 degree-days**	**185 degree-days**	**348 degree-days**	**598 degree-days**
	• The greatest changes in Cooling Degree Days will be at Chilliwack General Hospital and Fraser Canyon Hospital. • Both of these sites experience increases of almost 300 degree-days by 2050, on average.			
Heating Degree Days (HDD) Heating Degree Days refers to the number of degrees that a day's average temperature is below 18°C, and is used to estimate the amount of energy used to heat buildings for example. Heating Degree Days measure the difference between the daily outdoor temperature and the base temperature of a facility, where the base temperature represents the balance point where no heating is required. The further the daily temperature is from the base temperature, the higher the number of Heating Degree Days are calculated.	**2906 degree-days**	**-15%**	**-28%**	**-44%**
	• The relative decline in Heating Degree Days is comparable across the 12 sites.			
Tropical Nights (TN) Tropical Nights refers to the number of days in a year when the nighttime low temperature is greater than 20°C. This indicator is important, as a series of hot nights reduces the ability of buildings to cool passively at night, increasing cooling load and energy use during warm spells. Tropical Nights can also reduce the ability of patients to heal, and can cause heat stress.	**0 days**	**0.3 days**	**5 days**	**21 days**
	• The future number of tropical nights is expected to vary across the sites. • By 2050, Fraser Canyon Hospital is projected to experience 8 tropical nights annually and 28 nights by 2080. The next greatest increase is expected at Burnaby Hospital, with 6 days by 2050 and 25 days by 2080.			
Growing Season Length (GSL) Growing Season Length is an annual indicator that counts the number of days between the first span of at least six days with a daily average temperature greater than 5°C and the first span after July 1 of six days with temperature less than 5°C. It measures the length of the growing season for native crops, and points to a warmer baseline where new illnesses are able to thrive.	**301 days**	**324 days**	**342 days**	**355 days**
	• By 2050, we can expect the growing season to be almost a month and a half longer at most hospital sites. • By 2080, the growing season length will be almost two months longer at hospital sites.			

REGIONAL PROJECTIONS - PRECIPITATION

CLIMATE INDICATOR & PLAIN LANGUAGE DESCRIPTION		PAST VALUES & CLIMATE PROJECTIONS			
		PAST	2020	2050	2080
Total Precipitation **(BCBC Annual Average Total Precipitation)** Total Precipitation is all precipitation summed over a month, season, or year, including rain and snow. This is a high-level indicator of how precipitation patterns can expect to change.		**1554 mm**	**+2%**	**+3%**	**+8%**
		• Total precipitation is expected to increase similarly across all sites, with the wettest sites becoming wetter.			
Total Seasonal Precipitation Total Seasonal Precipitation is all precipitation summed over a season including rain and snow. This is a high-level indicator of how precipitation patterns can expect to change.	**Summer:**	**171 mm**	**-10%**	**-17%**	**-24%**
	Autumn:	**488 mm**	**+2%**	**+9%**	**+16%**
		• While total annual increases will be modest, precipitation will be redistributed across the seasons, with wetter autumns and drier summers. • Winter and spring precipitation is also increasing, but with less of a change compared to autumn precipitation. • This pattern is reflected at hospital sites across the region.			
Wettest day of the year precipitation Wettest day of the year precipitation is the largest amount of rain that falls on any single day in the year, on average.		**61 mm**	**+5%**	**+9%**	**+18%**
		• Wettest day of the year precipitation is projected to increase on average although there is some variability among the sites. • The wettest day of the year will deliver 12% more precipitation to Fraser Canyon Hospital and 24% more by 2080.			
Wettest 5-day period of the year precipitation Wettest 5-day period of the year precipitation describes the largest amount of rain that falls over a period of 5 consecutive days in the year. This offers insight into storm intensity, and will be important for stormwater management at facilities.		**140 mm**	**+2%**	**+7%**	**+17%**
		• Increased precipitation will be concentrated into the wettest days. • Changes are similar at all sites.			
95th-percentile wettest days precipitation (R95p) and		**329 mm**	**+10%**	**+23%**	**+47%**
99th-percentile wettest days precipitation (R99p)		**100 mm**	**+12%**	**+38%**	**+80%**
The 95th percentile wettest days precipitation indicator (R95p) points to the total amount of rain that falls on the wettest days of the year, specifically on days when precipitation exceeds a threshold set by the annual 95th percentile of wet days during the baseline period (1971–2000). The same definition is true for 99th percentile wettest days (R99p), though refers to days when precipitation exceeds a threshold set by the annual 99th percentile of wet days during the baseline period. This indicator measures how much total annual precipitation falls during these heavy events, which is a combination of both how often these events occur and the size of these events.		• The wettest days are projected to become wetter. • These large projected increases mean more frequent and intense storms in the future.			
1-20 wettest day The 1-in-20 wettest day is the day so wet that it has only a 1-in-20 chance of occurring in any given year. That is, there is a 5% chance in any year that a 1-day rainfall event of this magnitude will occur. This indicator is useful when planning for future building and stormwater infrastructure, and also important to emergency managers.		**95 mm**	**+11%**	**+13%**	**+24%**
		• Changes at the hospital sites indicate that the wetter areas will become wetter over time. • By 2050, Fraser Canyon Hospital is expected to experience a 20% increase in this indicator and 35% by 2080. • In comparison, Surrey Hospital & Surrey Memorial Hospital are expected to experience an 11% increase in 1-in20 wettest day precipitation by 2050 and 23% by 2080.			

SITE SPECIFIC PROJECTIONS

INSTRUCTIONS FOR CALCULATING FUTURE CHANGE:

In the tables below, climate indicators are provided in column 1. Past values are in column 2. Average values for climate projections derived from 12 global climate models are presented for 2020, 2050 and 2080 in columns 3, 4 and 5, along with the range (upper bound and lower bound) of the models below in brackets. Projections are based on a RCP8.5 (business as usual) climate scenario.

- ***Past*** refers to the average value over a 30-year period between 1970-2000. These values are based on historical and measured data.
- ***2020*** refers to the projected average value over the 30-year period between 2011-2040.
- ***2050*** refers to the projected average value over the 30-year period between 2041-2070.
- ***2080*** refers to the projected average value over the 30-year period 2071- 2100.
- ***Change*** refers to the actual average value of the change across the 12 climate models.
- ***Percent Change*** refers to the average percent change from the baseline past value.
- ***(Range)*** refers to the highest and lowest values given by the 12 models.

To calculate the future values for a climate indicator, add a site's past value to the future change value of interest (i.e. lower bound, average, or higher bound). The average value may be used for simplicity.

Using the table below as an example:

*The **past** Hot Design 97.5 climate indicator value is **28.6°C***

*The average future change value for year **2050** is **3.9°C***

CLIMATE INDICATOR	PAST	2020 CHANGE (range)	2050 CHANGE (range)	2080 CHANGE (range)
Days Above 25°C	**33**	**18** (12 to 24)	**40** (22 to 56)	**67** (39 to 96)
Days Above 30°C	**6**	**7** (4 to 9)	**19** (11 to 27)	**38** (22 to 61)
Hot Design 97.5 (°C)	**28.6°C**	**1.9°C** (1.3 to 2.4)	**3.9°C** (2.7 to 5.4)	**6.3°C** (4.2 to 8.8)
Hottest Day (°C)	**32.3°C**	**1.9°C** (1.0 to 2.6)	**4.0°C** (2.7 to 5.0)	**6.5°C** (4.5 to 8.4)

*Therefore, the **future 2050 change** value for the Hot Design 97.5 is **28.6°C + 3.9°C = 32.5°C**. The lower and higher-bound values are 28.6°C + 2.7°C = 31.3°C and 28.6°C + 5.4°C = 34.0°C, respectively.*

Abbotsford Regional Hospital

ABBOTSFORD TABLE 1: *Hot Temperature*

CLIMATE INDICATOR	PAST	2020 CHANGE (range)	2050 CHANGE (range)	2080 CHANGE (range)
Days Above 25°C	33	18 (12 to 24)	40 (22 to 56)	67 (39 to 96)
Days Above 30°C	6	7 (4 to 9)	19 (11 to 27)	38 (22 to 61)
Hot Design 97.5 (°C)	28.6°C	1.9°C (1.3 to 2.4)	3.9°C (2.7 to 5.4)	6.3°C (4.2 to 8.8)
Hottest Day (°C)	32.3°C	1.9°C (1.0 to 2.6)	4.0°C (2.7 to 5.0)	6.5°C (4.5 to 8.4)

ABBOTSFORD TABLE 2: *Building Code Indicators*

CLIMATE INDICATOR	PAST (degree-days)	2020 CHANGE (range)	2050 CHANGE (range)	2080 CHANGE (range)
Cooling Degree Days	85	89 (51 to 127)	249 (119 to 413)	496 (248 to 778)
CLIMATE INDICATOR	**PAST (degree-days)**	**2020 % CHANGE (range)**	**2050 % CHANGE (range)**	**2080 % CHANGE (range)**
Heating Degree Days	2942	-15% (-20 to -10)	-28% (-36 to -19)	-44% (-40 to -32)

ABBOTSFORD TABLE 3: *Tropical Nights and Growing Season Length*

CLIMATE INDICATOR	PAST (days)	2020 CHANGE (range)	2050 CHANGE (range)	2080 CHANGE (range)
Tropical Nights	0	0.1 (0 to 0.3)	3 (0 to 9)	17 (2 to 42)
Growing Season Length	301	21 (15 to 27)	40 (28 to 48)	53 (47 to 61)

ABBOTSFORD TABLE 4: *Total Seasonal Precipitation*

CLIMATE INDICATOR	PAST (mm)	2020 % CHANGE (range)	2050 % CHANGE (range)	2080 % CHANGE (range)
Spring	367	3% (-3 to 9)	6% (-4 to 12)	9% (-1 to 19)
Summer	179	-10 % (-28 to 3)	-18% (-38 to 1)	-25% (-54 to -5)
Autumn	494	2% (-6 to 12)	8% (-2 to 22)	15% (6 to 31)
Winter	553	4% (-4 to 11)	3% (-4 to 10)	10% (1 to 23)

ABBOTSFORD TABLE 5: *Extreme Precipitation*

CLIMATE INDICATOR	PAST (mm)	2020 % CHANGE (range)	2050 % CHANGE (range)	2080 % CHANGE (range)
Wettest day of the year precipitation	62	7% (1 to 13)	10% (3 to 19)	19% (6 to 30)
Wettest 5-day period of the year precipitation	143	3% (-5 to 9)	7% (-1 to 19)	17% (7 to 25)
95th-percentile wettest days precipitation	344	9% (2 to 17)	21% (-0 to 41)	44% (25 to 63)
99th-percentile wettest days precipitation	104	14% (-5 to 28)	36% (9 to 73)	73% (48 to 110)
1-in-20 wettest day	95	9% (-2 to 24)	12% (-1 to 33)	25% (7 to 41)

Burnaby Hospital

BURNABY TABLE 1: *Hot Temperature*

CLIMATE INDICATOR	PAST	2020 CHANGE (range)	2050 CHANGE (range)	2080 CHANGE (range)
Days Above 25°C	22	18 (11 to 25)	42 (23 to 60)	70 (42 to 100)
Days Above 30°C	2	4 (3 to 6)	13 (5 to 21)	31 (14 to 57)
Hot Design 97.5 (°C)	26.9°C	1.9°C (1.3 to 2.3)	3.8°C (2.6 to 5.2)	6.2°C (4 to 8.6)
Hottest Day (°C)	30.1°C	1.8°C (1 to 2.6)	3.8°C (2.7 to 4.9)	6.3°C (4.3 to 8.5)

BURNABY TABLE 2: *Building Code Indicators*

CLIMATE INDICATOR	PAST (degree-days)	2020 CHANGE (range)	2050 CHANGE (range)	2080 CHANGE (range)
Cooling Degree Days	83	94 (53 to 130)	257 (119 to 420)	506 (262 to 784)
CLIMATE INDICATOR	**PAST (degree-days)**	**2020 % CHANGE (range)**	**2050 % CHANGE (range)**	**2080 % CHANGE (range)**
Heating Degree Days	2822	-15% (-20 to -11)	-28% (-38 to -19)	-44% (-56 to -32)

BURNABY TABLE 3: *Tropical Nights and Growing Season Length*

CLIMATE INDICATOR	PAST (days)	2020 CHANGE (range)	2050 CHANGE (range)	2080 CHANGE (range)
Tropical Nights	0.1	0.4 (0 to 1)	6 (0 to 17)	25 (4 to 57)
Growing Season Length	307	22 (15 to 27)	40 (28 to 47)	51 (49 to 57)

BURNABY TABLE 4: *Total Seasonal Precipitation*

CLIMATE INDICATOR	PAST (mm)	2020 % CHANGE (range)	2050 % CHANGE (range)	2080 % CHANGE (range)
Spring	336	2% (-3 to 10)	5% (-3 to 12)	9% (1 to 17)
Summer	161	-8% (-29 to 5)	-16% (-35 to 3)	-23% (-50 to -3)
Autumn	474	2% (-5 to 11)	9% (-2 to 24)	17% (8 to 35)
Winter	544	4% (-2 to 11)	3% (-3 to 11)	9 (2 to 14)

BURNABY TABLE 5: *Extreme Precipitation*

CLIMATE INDICATOR	PAST (mm)	2020 % CHANGE (range)	2050 % CHANGE (range)	2080 % CHANGE (range)
Wettest day of the year precipitation	58	4% (-2 to 14)	8% (-0 to 22)	17% (-0 to 22)
Wettest 5-day period of the year precipitation	135	2% (-5 to 14)	7% (-3 to 19)	17% (9 to 27)
95th-percentile wettest days precipitation	311	11% (-0 to 21)	24% (9 to 48)	49% (29 to 65)
99th-percentile wettest days precipitation	91	12% (-5 to 31)	43% (6 to 109)	90% (39 to 141)
1-in-20 wettest day	90	10% (-2 to 30)	11% (-3 to 31)	22% (4 to 38)

Chilliwack General Hospital

CHILLIWACK TABLE 1: *Hot Temperature*

CLIMATE INDICATOR	PAST	2020 CHANGE (range)	2050 CHANGE (range)	2080 CHANGE (range)
Days Above 25°C	43	19 (11 to 25)	40 (21 to 58)	65 (40 to 94)
Days Above 30°C	9	9 (6 to 13)	24 (15 to 35)	44 (25 to 67)
Hot Design 97.5 (°C)	29.7°C	1.9°C (1.3 to 2.5)	4.0°C (2.7 to 5.6)	6.5°C (4.3 to 8.9)
Hottest Day (°C)	33.2°C	2.0°C (0.9 to 2.7)	4.0°C (2.6 to 5.1)	6.6°C (4.7 to 8.5)

CHILLIWACK TABLE 2: *Building Code Indicators*

CLIMATE INDICATOR	PAST (degree-days)	2020 CHANGE (range)	2050 CHANGE (range)	2080 CHANGE (range)
Cooling Degree Days	123	110 (58 to 159)	290 (138 to 478)	559 (292 to 865)
CLIMATE INDICATOR	**PAST (degree-days)**	**2020 % CHANGE (range)**	**2050 % CHANGE (range)**	**2080 % CHANGE (range)**
Heating Degree Days	2839	-15% (-20 to -11)	-28% (-37 to -19)	-44% (-54 to -33)

CHILLIWACK TABLE 3: *Tropical Nights and Growing Season Length*

CLIMATE INDICATOR	PAST (days)	2020 CHANGE (range)	2050 CHANGE (range)	2080 CHANGE (range)
Tropical Nights	0	0.3 (0 to 1)	5 (0 to 15)	22 (3 to 54)
Growing Season Length	303	21 (14 to 26)	41 (30 to 47)	52 (46 to 57)

CHILLIWACK TABLE 4: *Total Seasonal Precipitation*

CLIMATE INDICATOR	PAST (mm)	2020 % CHANGE (range)	2050 % CHANGE (range)	2080 % CHANGE (range)
Spring	353	4% (-2 to 10)	6% (-4 to 14)	10% (2 to 19)
Summer	196	-11% (-30 to 5)	-18% (-38 to 1)	-26% (-59 to -5)
Autumn	515	2% (-6 to 12)	8% (-1 to 22)	15% (7 to 30)
Winter	534	4% (-3 to 12)	4% (-4 to 10)	11% (2 to 24)

CHILLIWACK TABLE 5: *Extreme Precipitation*

CLIMATE INDICATOR	PAST (mm)	2020 % CHANGE (range)	2050 % CHANGE (range)	2080 % CHANGE (range)
Wettest day of the year precipitation	63	7% (0 to 16)	10% (3 to 22)	19% (7 to 30)
Wettest 5-day period of the year precipitation	142	3% (-6 to 12)	8% (0 to 20)	18% (9 to 26)
95th-percentile wettest days precipitation	348	9% (1 to 19)	21% (1 to 39)	44% (23 to 64)
99th-percentile wettest days precipitation	107	10% (-7 to 24)	30% (1 to 71)	69% (37 to 112)
1-in-20 wettest day	94	11% (0 to 24)	12% (-3 to 35)	27% (13 to 42)

Delta Hospital

DELTA TABLE 1: *Hot Temperature*

CLIMATE INDICATOR	PAST	2020 CHANGE (range)	2050 CHANGE (range)	2080 CHANGE (range)
Days Above 25°C	17	**17** (10 to 25)	**43** (25 to 63)	**73** (44 to 104)
Days Above 30°C	1	**3** (1 to 4)	**10** (4 to 17)	**28** (10 to 54)
Hot Design 97.5 (°C)	26.1°C	**1.8°C** (1.2 to 2.3)	**3.8°C** (2.6 to 5.2)	**6.2°C** (4.1 to 8.5)
Hottest Day (°C)	29.2°C	**1.9°C** (1.1 to 2.6)	**3.9°C** (2.7 to 4.9)	**6.3°C** (4.3 to 8.4)

DELTA TABLE 2: *Building Code Indicators*

CLIMATE INDICATOR	PAST (degree-days)	2020 CHANGE (range)	2050 CHANGE (range)	2080 CHANGE (range)
Cooling Degree Days	66	**86** (50 to 119)	**244** (115 to 399)	**488** (249 to 759)
CLIMATE INDICATOR	**PAST (degree-days)**	**2020 % CHANGE (range)**	**2050 % CHANGE (range)**	**2080 % CHANGE (range)**
Heating Degree Days	2822	**-15%** (-20 to -10)	**-29%** (-39 to -19)	**-44%** (-57 to -32)

DELTA TABLE 3: *Tropical Nights and Growing Season Length*

CLIMATE INDICATOR	PAST (days)	2020 CHANGE (range)	2050 CHANGE (range)	2080 CHANGE (range)
Tropical Nights	0	**0.3** (0 to 1)	**5** (0 to 14)	**23** (3 to 53)
Growing Season Length	308	**21** (15 to 27)	**38** (27 to 44)	**49** (44 to 54)

DELTA TABLE 4: *Total Seasonal Precipitation*

CLIMATE INDICATOR	PAST (mm)	2020 % CHANGE (range)	2050 % CHANGE (range)	2080 % CHANGE (range)
Spring	246	**3%** (-3 to 10)	**5%** (-4 to 12)	**8%** (-0 to 17)
Summer	122	**-9%** (-28 to 3)	**-16%** (-37 to 2)	**-22%** (-50 to -3)
Autumn	349	**2%** (-5 to 11)	**9%** (-3 to 24)	**16%** (7 to 35)
Winter	404	**4%** (-2 to 11)	**3%** (-3 to 11)	**11%** (0 to 24)

DELTA TABLE 5: *Extreme Precipitation*

CLIMATE INDICATOR	PAST (mm)	2020 % CHANGE (range)	2050 % CHANGE (range)	2080 % CHANGE (range)
Wettest day of the year precipitation	44	**5%** (0 to 14)	**10%** (-2 to 23)	**20%** (6 to 29)
Wettest 5-day period of the year precipitation	102	**3%** (-4 to 12)	**7%** (-3 to 20)	**17%** (8 to 26)
95th-percentile wettest days precipitation	224	**11%** (3 to 23)	**22%** (5 to 48)	**49%** (29 to 71)
99th-percentile wettest days precipitation	65	**13%** (0 to 31)	**45%** (13 to 110)	**96%** (58 to 156)
1-in-20 wettest day	69	**11 %** (-4 to 31)	**14%** (-6 to 34)	**26%** (6 to 44)

Eagle Ridge Hospital

EAGLE RIDGE TABLE 1: *Hot Temperature*

CLIMATE INDICATOR	PAST	2020 CHANGE (range)	2050 CHANGE (range)	2080 CHANGE (range)
Days Above 25°C	30	17 (11 to 23)	3 (20 to 54)	64 (37 to 92)
Days Above 30°C	5	6 (4 to 9)	17 (9 to 25)	35 (19 to 57)
Hot Design 97.5 (°C)	28.2°C	1.9°C (1.2 to 2.3)	3.8°C (2.6 to 5.2)	6.2°C (4.1 to 8.6)
Hottest Day (°C)	31.6°C	1.9°C (0.9 to 2.7)	3.9°C (2.6 to 4.9)	6.4°C (4.3 to 8.4)

EAGLE RIDGE TABLE 2: *Building Code Indicators*

CLIMATE INDICATOR	PAST (degree-days)	2020 CHANGE (range)	2050 CHANGE (range)	2080 CHANGE (range)
Cooling Degree Days	95	92 (53 to 128)	251 (117 to 411)	496 (253 to 768)
CLIMATE INDICATOR	**PAST (degree-days)**	**2020 % CHANGE (range)**	**2050 % CHANGE (range)**	**2080 % CHANGE (range)**
Heating Degree Days	2935	-15% (-20 to -10)	-28% (-37 to -19)	-43 % (-54 to -31)

EAGLE RIDGE TABLE 3: *Tropical Nights and Growing Season Length*

CLIMATE INDICATOR	PAST (days)	2020 CHANGE (range)	2050 CHANGE (range)	2080 CHANGE (range)
Tropical Nights	0.1	0.4 (0 to 1)	5 (0 to 14)	21 (5 to 51)
Growing Season Length	297	25 (18 to 30)	46 (32 to 54)	59 (54 to 69)

EAGLE RIDGE TABLE 4: *Total Seasonal Precipitation*

CLIMATE INDICATOR	PAST (mm)	2020 % CHANGE (range)	2050 % CHANGE (range)	2080 % CHANGE (range)
Spring	425	3% (-3 to 10)	5% (-4 to 12)	9% (1 to 18)
Summer	202	-9% (-28 to 5)	-16% (-35 to 3)	-23% (-51 to -3)
Autumn	599	2% (-5 to 11)	9% (-2 to 23)	17% (8 to 35)
Winter	686	4% (-3 to 11)	3% (-4 to 11)	11% (0 to 23)

EAGLE RIDGE TABLE 5: *Extreme Precipitation*

CLIMATE INDICATOR	PAST (mm)	2020 % CHANGE (range)	2050 % CHANGE (range)	2080 % CHANGE (range)
Wettest day of the year precipitation	73	4% (-3 to 12)	8% (0 to 21)	17% (5 to 26)
Wettest 5-day period of the year precipitation	170	2% (-4 to 14)	6% (-2 to 17)	17% (11 to 25)
95th-percentile wettest days precipitation	402	11% (1to 20)	23% (4 to 48)	47% (28 to 62)
99th-percentile wettest days precipitation	121	14% (-3 to 34)	39.4% (7 to 94)	81% (37 to 130)
1-in-20 wettest day	109	11% (0 to 27)	13% (0 to 30)	24% (8 to 37)

Fraser Canyon Hospital

FRASER CANYON TABLE 1: *Hot Temperature*

CLIMATE INDICATOR	PAST	2020 CHANGE (range)	2050 CHANGE (range)	2080 CHANGE (range)
Days Above 25°C	46	17 (10 to 22)	36 (18 to 51)	59 (36 to 86)
Days Above 30°C	13	11 (6 to 14)	25 (16 to 36)	44 (26 to 63)
Hot Design 97.5 (°C)	30.4°C	2.0°C (1.3 to 2.7)	4.1°C (2.7 to 5.7)	6.6°C (4.4 to 9.1)
Hottest Day (°C)	34.0°C	2.0°C (0.9 to 2.8)	4.1°C (2.6 to 5.1)	6.7°C (4.8 to 8.5)

FRASER CANYON TABLE 2: *Building Code Indicators*

CLIMATE INDICATOR	PAST (degree-days)	2020 CHANGE (range)	2050 CHANGE (range)	2080 CHANGE (range)
Cooling Degree Days	148	115 (61 to 165)	298 (139 to 490)	571 (302 to 874)
CLIMATE INDICATOR	**PAST (degree-days)**	**2020 % CHANGE (range)**	**2050 % CHANGE (range)**	**2080 % CHANGE (range)**
Heating Degree Days	3021	-15% (-19 to -11)	-27% (-35 to -19)	-42% (-51 to -32)

FRASER CANYON TABLE 3: *Tropical Nights and Growing Season Length*

CLIMATE INDICATOR	PAST (days)	2020 CHANGE (range)	2050 CHANGE (range)	2080 CHANGE (range)
Tropical Nights	0	1 (0 to 1)	8 (1 to 20)	28 (5 to 62)
Growing Season Length	291	22 (16 to 28)	41 (33 to 46)	56 (50 to 63)

FRASER CANYON TABLE 4: *Total Seasonal Precipitation*

CLIMATE INDICATOR	PAST (mm)	2020 % CHANGE (range)	2050 % CHANGE (range)	2080 % CHANGE (range)
Spring	332	4% (-1 to 11)	7% (-2 to 14)	12% (6 to 18)
Summer	175	-11% (-30 to 6)	-18% (-37 to 1)	-27% (-59 to -5)
Autumn	537	2% (-5 to 13)	9% (-1 to 24)	17% (8 to 31)
Winter	592	4% (-3 to 13)	4% (-5 to 11)	11% (2 to 24)

FRASER CANYON TABLE 5: *Extreme Precipitation*

CLIMATE INDICATOR	PAST (mm)	2020 % CHANGE (range)	2050 % CHANGE (range)	2080 % CHANGE (range)
Wettest day of the year precipitation	71	8% (3 to 19)	12% (3 to 26)	24% (15 to 41)
Wettest 5-day period of the year precipitation	156	3% (-4 to 12)	8.2% (-1 to 20)	21% (15 to 30)
95th-percentile wettest days precipitation	372	11% (-1 to 27)	25% (1 to 44)	48% (31 to 71)
99th-percentile wettest days precipitation	124	11% (2 to 23)	32% (-1 to 77)	73% (54 to 99)
1-in-20 wettest day	123	16% (2 to 27)	20% (-4 to 51)	35% (17 to 73)

Langley Memorial Hospital

LANGLEY MEMORIAL TABLE 1: *Hot Temperature*

CLIMATE INDICATOR	PAST	2020 CHANGE (range)	2050 CHANGE (range)	2080 CHANGE (range)
Days Above 25°C	30	18 (12 to 23)	40 (22 to 56)	67 (40 to 97)
Days Above 30°C	5	6 (4 to 8)	17 (9 to 26)	36 (20 to 59)
Hot Design 97.5 (°C)	28.2°C	1.9°C (1.2 to 2.4)	3.8°C (2.7 to 5.2)	6.2°C (4.1 to 8.7)
Hottest Day (°C)	31.8°C	1.9°C (1 to 2.6)	3.9°C (2.7 to 4.9)	6.4°C (4.4 to 8.3)

LANGLEY MEMORIAL TABLE 2: *Building Code Indicators*

CLIMATE INDICATOR	PAST (degree-days)	2020 CHANGE (range)	2050 CHANGE (range)	2080 CHANGE (range)
Cooling Degree Days	77	84 (48 to 119)	238 (112 to 395)	480 (239 to 753)
CLIMATE INDICATOR	**PAST (degree-days)**	**2020 % CHANGE (range)**	**2050 % CHANGE (range)**	**2080 % CHANGE (range)**
Heating Degree Days	2938	-15% (-20 to -10)	-29% (-38 to -19)	-44% (-55 to -32)

LANGLEY MEMORIAL TABLE 3: *Tropical Nights and Growing Season Length*

CLIMATE INDICATOR	PAST (days)	2020 CHANGE (range)	2050 CHANGE (range)	2080 CHANGE (range)
Tropical Nights	0	0.1 (0 to 0.2)	3 (0 to 7)	15 (2 to 39)
Growing Season Length	301	23 (16 to 29)	42 (29 to 49)	54 (50 to 62)

LANGLEY MEMORIAL TABLE 4: *Total Seasonal Precipitation*

CLIMATE INDICATOR	PAST (mm)	2020 % CHANGE (range)	2050 % CHANGE (range)	2080 % CHANGE (range)
Spring	331	23% (-3 to 9)	5% (-4 to 11)	9% (1 to 19)
Summer	167	-10% (-29 to 4)	-17% (-37 to 2)	-24% (-52 to -4)
Autumn	459	2% (-5 to 11)	9% (-2 to 23)	16% (6 to 33)
Winter	528	4% (-3 to 11)	3% (-4 to 10)	10% (1 to 23)

LANGLEY MEMORIAL TABLE 5: *Extreme Precipitation*

CLIMATE INDICATOR	PAST (mm)	2020 % CHANGE (range)	2050 % CHANGE (range)	2080 % CHANGE (range)
Wettest day of the year precipitation	57	5% (-2 to 12)	9% (1 to 20)	18% (4 to 27)
Wettest 5-day period of the year precipitation	133	2% (-6 to 11)	6% (-2 to 18)	17% (7 to 24)
95th-percentile wettest days precipitation	311	10% (-1 to 18)	22% (-0 to 41)	45% (24 to 63)
99th-percentile wettest days precipitation	94	12% (-12 to 32)	35% (-1 to 84)	77% (37 to 125)
1-in-20 wettest day	92	9% (-7 to 25)	11% (-3 to 32)	20% (-2 to 37)

Mission Memorial Hospital

MISSION MEMORIAL TABLE 1: *Hot Temperature*

CLIMATE INDICATOR	PAST	2020 CHANGE (range)	2050 CHANGE (range)	2080 CHANGE (range)
Days Above 25°C	36	18 (12 to 24)	40 (21 to 56)	65 (39 to 94)
Days Above 30°C	7	8 (5 to 11)	20 (12 to 29)	40 (23 to 62)
Hot Design 97.5 (°C)	29.1°C	1.9°C (1.3 to 2.4)	3.8°C (2.7 to 5.4)	6.3°C (4.2 to 8.8)
Hottest Day (°C)	32.7°C	1.9°C (0.9 to 2.7)	4.0°C (2.7 to 5.0)	6.5°C (4.6 to 8.4)

MISSION MEMORIAL TABLE 2: *Building Code Indicators*

CLIMATE INDICATOR	PAST (degree-days)	2020 CHANGE (range)	2050 CHANGE (range)	2080 CHANGE (range)
Cooling Degree Days	99	96 (54 to 137)	262 (125 to 432)	516 (263 to 802)
CLIMATE INDICATOR	**PAST (degree-days)**	**2020 % CHANGE (range)**	**2050 % CHANGE (range)**	**2080 % CHANGE (range)**
Heating Degree Days	2906	-15% (-20 to -10)	-28% (-37 to -19)	-44% (-54 to -32)

MISSION MEMORIAL TABLE 3: *Tropical Nights and Growing Season Length*

CLIMATE INDICATOR	PAST (days)	2020 CHANGE (range)	2050 CHANGE (range)	2080 CHANGE (range)
Tropical Nights	0	0.2 (0 to 0.4)	4 (0 to 11)	19 (2 to 46)
Growing Season Length	302	22 (15 to 28)	41 (27 to 49)	53 (48 to 60)

MISSION MEMORIAL TABLE 4: *Total Seasonal Precipitation*

CLIMATE INDICATOR	PAST (mm)	2020 % CHANGE (range)	2050 % CHANGE (range)	2080 % CHANGE (range)
Spring	402	3% (-3 to 9)	6% (-4 to 12)	9% (2 to 19)
Summer	193	-10% (-27 to 4)	-18% (-37 to 1)	-25% (-54 to -4)
Autumn	537	2% (-6 to 12)	9% (-2 to 22)	16% (7 to 32)
Winter	606	4% (-4 to 11)	3% (-4 to 10)	10% (1 to 23)

MISSION MEMORIAL TABLE 5: *Extreme Precipitation*

CLIMATE INDICATOR	PAST (mm)	2020 % CHANGE (range)	2050 % CHANGE (range)	2080 % CHANGE (range)
Wettest day of the year precipitation	66	5% (0 to 12)	10% (2 to 21)	18% (6 to 29)
Wettest 5-day period of the year precipitation	153	2% (-6 to 10)	7% (-1 to 19)	17% (8 to 26)
95th-percentile wettest days precipitation	371	9% (3 to 19)	22% (-1 to 39)	45% (26 to 63)
99th-percentile wettest days precipitation	112	11% (-5 to 26)	38% (9 to 83)	74% (36 to 117)
1-in-20 wettest day	101	9% (-4 to 24)	13% (-4 to 39)	22% (4 to 45)

Peace Arch Hospital

PEACE ARCH TABLE 1: *Hot Temperature*

CLIMATE INDICATOR	PAST	2020 CHANGE (range)	2050 CHANGE (range)	2080 CHANGE (range)
Days Above 25°C	17	**16** (10 to 22)	**40** (23 to 60)	**70** (41 to 101)
Days Above 30°C	2	**3** (2 to 4)	**11** (5 to 17)	**27** (11 to 50)
Hot Design 97.5 (°C)	26.3°C	**1.8°C** (1.2 to 2.3)	**3.8°C** (2.7 to 5.2)	**6.2°C** (4.1 to 8.6)
Hottest Day (°C)	29.8°C	**1.9°C** (0.9 to 2.6)	**3.9°C** (2.7 to 4.8)	**6.3°C** (4.3 to 8.4)

PEACE ARCH TABLE 2: *Building Code Indicators*

CLIMATE INDICATOR	PAST (degree-days)	2020 CHANGE (range)	2050 CHANGE (range)	2080 CHANGE (range)
Cooling Degree Days	51	**72** (42 to 99)	**216** (99 to 362)	**449** (216 to 711)
CLIMATE INDICATOR	**PAST (degree-days)**	**2020 % CHANGE (range)**	**2050 % CHANGE (range)**	**2080 % CHANGE (range)**
Heating Degree Days	2975	**-15%** (-20 to -10)	**-28%** (-36 to -19)	**-44%** (-56 to -31)

PEACE ARCH TABLE 3: *Tropical Nights and Growing Season Length*

CLIMATE INDICATOR	PAST (days)	2020 CHANGE (range)	2050 CHANGE (range)	2080 CHANGE (range)
Tropical Nights	0	**0** (0 to 0)	**3** (0 to 8)	**16** (2 to 41)
Growing Season Length	301	**23** (17 to 29)	**41** (29 to 49)	**54** (47 to 61)

PEACE ARCH TABLE 4: *Total Seasonal Precipitation*

CLIMATE INDICATOR	PAST (mm)	2020 % CHANGE (range)	2050 % CHANGE (range)	2080 % CHANGE (range)
Spring	286	**3%** (-3 to 10)	**5%** (-4 to 12)	**9%** (0 to 19)
Summer	144	**-9%** (-28 to 3)	**-17%** (-37 to 3)	**-23%** (-50 to -3)
Autumn	403	**2%** (-5 to 11)	**9%** (-3 to 24)	**16%** (7 to 34)
Winter	464	**4%** (-3 to 11)	**3 %** (-4 to 10)	**10%** (0 to 24)

PEACE ARCH TABLE 5: *Extreme Precipitation*

CLIMATE INDICATOR	PAST (mm)	2020 % CHANGE (range)	2050 % CHANGE (range)	2080 % CHANGE (range)
Wettest day of the year precipitation	53	**5%** (-1 to 12)	**10%** (-2 to 21)	**19%** (5 to 27)
Wettest 5-day period of the year precipitation	120	**3%** (-5 to 11)	**7%** (-3 to 21)	**17%** (7 to 25)
95th-percentile wettest days precipitation	270	**10%** (-1 to 21)	**22%** (3 to 42)	**47%** (26 to 66)
99th-percentile wettest days precipitation	81	**10%** (-8 to 28)	**35%** (9 to 88)	**74%** (31 to 133)
1-in-20 wettest day	86	**11%** (-6 to 29)	**13%** (-7 to 35)	**24%** (7 to 42)

Ridge Meadows Hospital

RIDGE MEADOWS TABLE 1: *Hot Temperature*

CLIMATE INDICATOR	PAST	2020 CHANGE (range)	2050 CHANGE (range)	2080 CHANGE (range)
Days Above 25°C	36	18 (11 to 24)	39 (21 to 57)	65 (38 to 95)
Days Above 30°C	7	8 (5 to 10)	20 (12 to 29)	39 (22 to 62)
Hot Design 97.5 (°C)	28.9°C	1.9°C (1.3 to 2.4)	3.8°C (2.7 to 5.2)	6.3°C (4.1 to 8.7)
Hottest Day (°C)	32.5°C	1.9°C (0.9 to 2.7)	3.9°C (2.6 to 4.9)	6.4°C (4.4 to 8.4)

RIDGE MEADOWS TABLE 2: *Building Code Indicators*

CLIMATE INDICATOR	PAST (degree-days)	2020 CHANGE (range)	2050 CHANGE (range)	2080 CHANGE (range)
Cooling Degree Days	96	94 (54 to 132)	257 (121 to 422)	505 (260 to 784)
CLIMATE INDICATOR	**PAST (degree-days)**	**2020 % CHANGE (range)**	**2050 % CHANGE (range)**	**2080 % CHANGE (range)**
Heating Degree Days	2938	-15% (-20 to -10)	-28% (-37 to -19)	-43% (-54 to -31)

RIDGE MEADOWS TABLE 3: *Tropical Nights and Growing Season Length*

CLIMATE INDICATOR	PAST (days)	2020 CHANGE (range)	2050 CHANGE (range)	2080 CHANGE (range)
Tropical Nights	0	0.1 (0 to 0.3)	3 (0 to 10)	17 (2 to 44)
Growing Season Length	296	24 (17 to 33)	44 (27 to 52)	58 (51 to 67)

RIDGE MEADOWS TABLE 4: *Total Seasonal Precipitation*

CLIMATE INDICATOR	PAST (mm)	2020 % CHANGE (range)	2050 % CHANGE (range)	2080 % CHANGE (range)
Spring	368	3% (-3 to 10)	5% (-4 to 12)	9% (1 to 19)
Summer	180	-10% (-28 to 5)	-17% (-36 to 2)	-24% (-52 to -4)
Autumn	510	2% (-5 to 11)	9% (-2 to 23)	16% (8 to 34)
Winter	582	4% (-3 to 11)	3% (-4 to 11)	11% (0 to 24)

RIDGE MEADOWS TABLE 5: *Extreme Precipitation*

CLIMATE INDICATOR	PAST (mm)	2020 % CHANGE (range)	2050 % CHANGE (range)	2080 % CHANGE (range)
Wettest day of the year precipitation	62	4% (-1 to 12)	9% (1 to 20)	17% (5 to 26)
Wettest 5-day period of the year precipitation	146	2% (-5 to 12)	6% (-2 to 17)	17% (9 to 26)
95th-percentile wettest days precipitation	342	9% (-1 to 19)	23% (1 to 46)	46% (25 to 64)
99th-percentile wettest days precipitation	103	11% (-4 to 28)	40% (2 to 103)	80% (36 to 134)
1-in-20 wettest day	98	9% (-1 to 25)	12% (-3 to 32)	22% (5 to 36)

Royal Columbian Hospital

ROYAL COLUMBIAN TABLE 1: *Hot Temperature*

CLIMATE INDICATOR	PAST	2020 CHANGE (range)	2050 CHANGE (range)	2080 CHANGE (range)
Days Above 25°C	30	19 (13 to 26)	41 (22 to 59)	69 (41 to 98)
Days Above 30°C	4	6 (4 to 9)	17 (9 to 26)	36 (19 to 62)
Hot Design 97.5 (°C)	27.7°C	1.9°C (1.3 to 2.4)	3.8°C (2.6 to 5.2)	6.2°C (4 to 8.6)
Hottest Day (°C)	31.3°C	1.8°C (0.9 to 2.6)	3.9°C (2.6 to 4.9)	6.3°C (4.3 to 8.5)

ROYAL COLUMBIAN TABLE 2: *Building Code Indicators*

CLIMATE INDICATOR	PAST (degree-days)	2020 CHANGE (range)	2050 CHANGE (range)	2080 CHANGE (range)
Cooling Degree Days	97	99 (56 to 138)	266 (126 to 434)	520 (272 to 803)
CLIMATE INDICATOR	**PAST (degree-days)**	**2020 % CHANGE (range)**	**2050 % CHANGE (range)**	**2080 % CHANGE (range)**
Heating Degree Days	2824	-16% (-20 to -10)	-28% (-38 to -19)	-43.6% (-55 to -32)

ROYAL COLUMBIAN TABLE 3: *Tropical Nights and Growing Season Length*

CLIMATE INDICATOR	PAST (days)	2020 CHANGE (range)	2050 CHANGE (range)	2080 CHANGE (range)
Tropical Nights	0.1	0.3 (0 to 1)	5 (0 to 15)	23 (3 to 54)
Growing Season Length	303	24 (17 to 30)	42 (28 to 51)	54 (50 to 60)

ROYAL COLUMBIAN TABLE 4: *Total Seasonal Precipitation*

CLIMATE INDICATOR	PAST (mm)	2020 % CHANGE (range)	2050 % CHANGE (range)	2080 % CHANGE (range)
Spring	360	5% (-3 to 10)	5% (-4 to 12)	9% (1 to 18)
Summer	169	-9% (-29 to 4)	-16% (-35 to 3)	-23% (-51 to -3)
Autumn	500	2% (-5 to 11)	9% (-2 to 23)	17% (8 to 35)
Winter	580	4% (-3 to 11)	3% (-4 to 11)	11% (0 to 24)

ROYAL COLUMBIAN TABLE 5: *Extreme Precipitation*

CLIMATE INDICATOR	PAST (mm)	2020 % CHANGE (range)	2050 % CHANGE (range)	2080 % CHANGE (range)
Wettest day of the year precipitation	61	4% (-3 to 13)	7% (0 to 21)	17% (5 to 26)
Wettest 5-day period of the year precipitation	144	2% (-5 to 13)	7% (-2 to 18)	17% (9 to 26)
95th-percentile wettest days precipitation	333	11% (2 to 20)	23% (4 to 49)	48% (29 to 67)
99th-percentile wettest days precipitation	98	13 (-2 to 30)	41% (9 to 103)	85% (41 to 137)
1-in-20 wettest day	95	11% (-3 to 26)	12% (-3 to 31)	22% (6 to 37)

Surrey Hospital and Surrey Memorial Hospital

SURREY HOSPITAL & SURREY MEMORIAL HOSPITAL TABLE 1: *Hot Temperature*

CLIMATE INDICATOR	PAST	2020 CHANGE (range)	2050 CHANGE (range)	2080 CHANGE (range)
Days Above 25°C	25	18 (12 to 24)	40 (22 to 58)	68 (40 to 98)
Days Above 30°C	3	5 (3 to 7)	15 (7 to 23)	33 (17 to 57)
Hot Design 97.5 (°C)	27.4°C	1.9°C (1.3 to 2.3)	3.8°C (2.6 to 5.2)	6.2°C (4.1 to 8.5)
Hottest Day (°C)	30.8°C	1.9°C (0.9 to 2.6)	3.9°C (2.6 to 4.9)	6.3°C (4.3 to 8.4)

SURREY HOSPITAL & SURREY MEMORIAL HOSPITAL TABLE 2: *Building Code Indicators*

CLIMATE INDICATOR	PAST (degree-days)	2020 CHANGE (range)	2050 CHANGE (range)	2080 CHANGE (range)
Cooling Degree Days	77	88 (50 to 122)	246 (115 to 405)	490 (249 to 763)
CLIMATE INDICATOR	**PAST (degree-days)**	**2020 % CHANGE (range)**	**2050 % CHANGE (range)**	**2080 % CHANGE (range)**
Heating Degree Days	2907	-15% (-20 to -10)	-28% (-38 to -19)	-43% (-55 to -32)

SURREY HOSPITAL & SURREY MEMORIAL HOSPITAL TABLE 3: *Tropical Nights and Growing Season Length*

CLIMATE INDICATOR	PAST (days)	2020 CHANGE (range)	2050 CHANGE (range)	2080 CHANGE (range)
Tropical Nights	0	0.2 (0 to 0.4)	4 (0 to 12)	20 (3 to 50)
Growing Season Length	301	23 (17 to 28)	41 (28 to 49)	55 (50 to 61)

SURREY HOSPITAL & SURREY MEMORIAL HOSPITAL TABLE 4: *Total Seasonal Precipitation*

CLIMATE INDICATOR	PAST (mm)	2020 % CHANGE (range)	2050 % CHANGE (range)	2080 % CHANGE (range)
Spring	338	3% (-3 to 10)	5% (-4 to 12)	9% (1 to 18)
Summer	166	-9% (-29 to 4)	-16% (-36 to 3)	-24% (-51 to -3)
Autumn	476	2% (-5 to 11)	9% (-2 to 23)	17% (8 to 35)
Winter	542	4% (-3 to 11)	3% (-4 to 11)	11% (0 to 24)

SURREY HOSPITAL & SURREY MEMORIAL HOSPITAL TABLE 5: *Extreme Precipitation*

CLIMATE INDICATOR	PAST (mm)	2020 % CHANGE (range)	2050 % CHANGE (range)	2080 % CHANGE (range)
Wettest day of the year precipitation	59	5% (-2 to 13)	9% (0 to 21)	18% (5 to 27)
Wettest 5-day period of the year precipitation	137	2% (-6 to 13)	7% (-3 to 18)	17% (10 to 26)
95th-percentile wettest days precipitation	316	11% (-2 to 21)	23% (4 to 48)	48% (25 to 65)
99th-percentile wettest days precipitation	94	12% (-8 to 34)	39% (10 to 96)	82% (38 to 136)
1-in-20 wettest day	92	10% (-1 to 27)	11% (-4 to 32)	23% (6 to 37)