



# City of Abbotsford

## Climate Resilience Strategy Project Update

### Part 1: Hazard, Vulnerability & Risk Assessment: Process and Results

#### The Why?

The City of Abbotsford is conducting a hazard risk and vulnerability assessment (HRVA) on nine (9) climate hazards and seven (7) non-climate hazards to support emergency management planning and our Climate Resilience Strategy. This work will also provide a strong foundation to meet the upcoming requirements BC Emergency and Disaster Management Act (EDMA) requirements, while building long-term resilience in Abbotsford.

#### The How?

The HRVA was developed using established provincial guidance, adapted to reflect Abbotsford's local context.

Each hazard was evaluated based on two key factors:

- **Likelihood:** How likely the hazard is to occur in Abbotsford
- **Consequence:** The severity of potential impacts on people, infrastructure, the economy, and the natural environment

|      |   |            |   |             |
|------|---|------------|---|-------------|
| Risk | = | Likelihood | x | Consequence |
|------|---|------------|---|-------------|

These two factors were combined to calculate a risk score, which allows hazards to be compared and prioritized. Risks were then categorized from Low to Extreme.

#### Assessing Likelihood and Consequence

For climate-related hazards, likelihood was estimated using science-based climate projections and for non-climate hazards, likelihood was based on local experience, including past incidents and emergency response data.

Consequence was assessed to understand potential impacts across four main areas:

|                             |                                          |                                     |                                  |
|-----------------------------|------------------------------------------|-------------------------------------|----------------------------------|
| Social<br>people and health | Physical<br>buildings and infrastructure | Economic<br>business and reputation | Environmental<br>natural systems |
|-----------------------------|------------------------------------------|-------------------------------------|----------------------------------|

Community vulnerabilities (who or what may be most affected) were considered when evaluating consequence. City staff and technical experts were involved throughout the HRVA process to review findings and ensure the results reflect local knowledge and experience.

| Hazard                                                                                                    | Trend (2025-2050) | Projections (2050s)                                                                                                                           | Anticipated Risk (2050s) |
|-----------------------------------------------------------------------------------------------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| <br>FLOODING             | ↗                 | Cold season average runoff increasing by 31%                                                                                                  | Extreme                  |
| <br>WILDFIRE             | ↗                 | Fire season length increasing from 251 days to 319 days                                                                                       | Extreme                  |
| <br>MULTI-HAZARD         | ↗                 | Drought, extreme heat, wildfire and flooding creating cascading impacts on people, assets, and services.                                      | Extreme                  |
| <br>EXTREME HEAT         | ↗                 | Number of days > 29 °C increasing from 5 to 28                                                                                                | Extreme                  |
| <br>POOR AIR QUALITY     | ↗                 | Smoke waves increasing from 3-4 to 5-6                                                                                                        | High                     |
| <br>LANDSLIDE            | ↗                 | Landslide susceptibility increasing with more intense rainfall                                                                                | High                     |
| <br>EARTHQUAKE           | →                 | Est. 60% probability of a deep sub-crustal earthquake (most significant danger), 12% probability of crustal or subduction                     | High                     |
| <br>URBAN FIRE           | →                 | Fire & smoke breakout in an urban area (e.g. electrical, fuel spill)                                                                          | High                     |
| <br>HAZARDOUS GOODS     | →                 | Uncontrolled release of a hazardous substance during storage/transport.                                                                       | High                     |
| <br>DISEASE            | ↗                 | Widespread or sudden human disease outbreaks such as pandemic influenza, increased incidence of vector-borne disease, and contaminated water. | High                     |
| <br>DROUGHT            | ↗                 | Longest dry spell duration increasing from 23 to 24 days                                                                                      | Medium                   |
| <br>HIGH WINDS         | ↗                 | Hourly wind gusts exceeding 70km/h increasing from 6 to 8                                                                                     | Medium                   |
| <br>EXTREME COLD       | ↘                 | Annual precipitation as snow reducing from 557mm to 407mm (-27%)                                                                              | Low                      |
| <br>VOLCANO            | →                 | Potential for lahars and ash from an eruption of Mt. Rainer (far away) or Mt. Baker (<1:1,000 RP)                                             | Low                      |
| <br>SOCIAL DISTURBANCE | ↗                 | Unlawful assembly (e.g. riot) that is a breach of peace with danger of collective violence, property destruction, or unlawful acts            | Low                      |
| <br>TERRORISM          | →                 | Acts of violence or threat of harm to engender fear in the public of a section of a community                                                 | Low                      |

↗ Hazard risk increasing in the future

↘ Hazard risk decreasing in the future

→ Hazard risk remains constant in the future