

# Infrastructure and the Built Environment

## Preparing Washington for a Changing Climate



**Washington's climate is changing in ways that could have profound effects on infrastructure vital for Washington's communities, economy and quality of life.**



### Transportation systems

- Sea level rise and storm surge will increase the risk of major coastal impacts, including temporary and permanent flooding of roads and transportation facilities in low lying areas.
- More intense downpours will increase the risk of flooding, erosion, landslides, and damage. Travel disruptions and delays could increase and cause serious impacts to our economy and public safety.
- An increase in extreme heat could negatively affect rail tracks and other materials in the summer but warmer winters could offer benefits from reduced road closures and snow and ice removal costs.
- Larger and more severe wildfires could cause temporary road closures and increased risk of erosion due to loss of vegetation, which stabilizes soil.



### Energy systems, supply and use

- Changes in the amount and timing of streamflow are projected to result in substantial changes in seasonal hydropower generation. By the 2020s, summer hydropower generation is projected to decline by 9 to 11 percent, and winter hydropower generation is projected to increase 0.5 to 4 percent.
- Warmer temperatures and more severe heat waves in the summer are projected to increase demand for electricity. The demand for heating is expected to decline in the winter from warming but increase overall due to a growing population.
- Rising sea levels, flooding, and more frequent and severe weather could expose some energy systems to more frequent outages and increase the costs of restoring service.



### Communities and development

- Heavy rainfall, flooding, rising sea levels, and more severe wildfires could put commercial and residential buildings at risk in vulnerable areas.
- Rising sea level, flooding, and intrusion of seawater could affect wastewater facilities along the coast and in low-lying areas and strain the capacity of stormwater systems. Water could backflow through stormwater pipes, causing flooding and increasing the risk of sewage overflows.





## Strategies to Prepare for a Changing Climate

Most critical infrastructure is built to last for several decades or longer. Understanding how future climate might affect these investments in the coming decades is critical. Washington State's Climate Change Response Strategy lays out a roadmap for state and local policymakers and planners to prepare for the unprecedented threats climate change poses to our infrastructure. Climate preparation strategies include:

- Identify infrastructure vulnerable to climate risks and implement adaptation strategies to maintain transportation systems and services and ensure public safety.
- Guide new development away from areas at risk from sea level rise, flooding, landslides, or wildfires.
- Consider climate risks in the planning, funding, design, and construction of infrastructure and promote design and construction practices in vulnerable areas that consider those risks.
- Strengthen contingency plans to prepare for and respond to more frequent and severe weather.
- Step up energy efficiency and conservation efforts and promote new methods to boost reliability and energy supply security.

Taking action now to reduce risks can help ensure our infrastructure investments and operations are strategic and prudent under future climate conditions.

## WSDOT's Climate Impacts Vulnerability Assessment

The Washington State Department of Transportation participated in a national pilot project to identify which state owned roads, bridges and other facilities throughout the state are most vulnerable. In general, areas showing high vulnerability are:

- In the mountains and above or below steep slopes.
- In low-lying areas subject to flooding or coastal areas vulnerable to rising sea levels.
- Along rivers fed by glaciers where the glacial melt deposits rocks in the riverbed and causes the river to change course.

### More information

See Ecology's Climate Change website:

[www.ecy.wa.gov/climatechange/ipa\\_responsestrategy.htm](http://www.ecy.wa.gov/climatechange/ipa_responsestrategy.htm)

Department of Transportation's Adapting to a changing climate website:

[www.wsdot.wa.gov/SustainableTransportation/adapting.htm](http://www.wsdot.wa.gov/SustainableTransportation/adapting.htm)

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