



ADAPTATION OPTIONS

High Wind

This document offers different ways to adapt to high wind speeds for individuals, communities, and municipalities including planning ahead, using nature-based approaches, built infrastructure, and policies and programs. It is not intended to be comprehensive. Instead, this is a short summary of well-researched adaptation approaches that may be relevant for Atlantic Canada.

Context

- Hurricanes, post-tropical storms, and other intense storm systems can bring particularly high wind speeds to Atlantic Canada.
- Climate change is likely to increase the intensity of tropical storms and hurricanes, potentially exposing the region to more damaging winds.
- Strong wind gusts can pose significant risks to property, power and telecommunications lines, forests and farmland, and can make travel unsafe.

Planning Ahead

- **Emergency planning.** Unplugging electrical items from outlets, securing loose objects outdoors, or identifying safe locations for vehicles to park to avoid falling branches and flying debris can help reduce property damage during a high wind event. Emergency alert systems for cell phones or through emails can help people stay informed of storms with potentially damaging winds.
- **Siting and orientation of buildings.** Reducing the potential for wind hazards starts in the planning stages of construction. In particularly windy locations, buildings can be located or oriented to align with the prevailing wind direction to reduce the potential for wind damage. For example, buildings can be oriented so that the roof angles down towards the prevailing wind.
- **Location of infrastructure.** High wind events are most likely to interrupt power or telecommunications, as fallen trees and other debris can damage infrastructure. Utility providers can consider relocating sensitive power and communication lines underground to reduce the risk of service interruption.

Nature-Based Approaches

- **Windbreaks.** Trees and shrubs can form natural windbreaks that are very good at slowing and diverting strong winds. Thicker tree canopies offer the greatest reduction in wind speeds, though trees should be located far enough away from buildings and utility lines to avoid potential damage from falling branches. Trees with strong root systems tend to withstand wind better than trees with shallow roots. Regularly removing rotting or damaged branches can improve tree health and reduce the likelihood of limbs falling during a storm.
- **Coastal dunes and marshes.** In coastal locations, high winds can cause strong waves. Natural features such as sand dunes and salt marshes can buffer shorelines from the impacts of wind and waves. Restoring, protecting, and expanding salt marshes, coastal wetlands and dunes can help reduce wind and wave risks to adjacent areas.

Built Infrastructure

- **Reinforce buildings.** Anchor bolts can be used to firmly secure structures to the foundation. Garage and entry doors can be reinforced. Exterior features like patio roofs could be designed to safely break away from the house in the event of high winds to protect essential parts of the building. Outdoor fuel tanks can be securely anchored to reduce the risk of them overturning.
- **Roof design.** Roofs can be reinforced with additional bracing or secured to the walls with hurricane straps. Some roof shapes and materials are also better able to withstand high winds, such as four-sided roofs (“hip roofs”) over two-sided roofs (“gable roofs”) and metal roofing over traditional shingles.
- **Storm shutters.** Installing storm shutters can protect windows from flying debris.
- **Round structures.** Round or spherical buildings offer no flat surfaces for winds to push up against, reducing the likelihood of structural damage. These designs are currently uncommon in Atlantic Canada but could be worth considering in highly exposed locations.