Work in Progress

PORT OF BELLINGHAM
MASTER LIST OF POTENTIAL CLIMATE ACTIONS

This spreadsheet contains a master list of potential actions that the Port of Bellingham (the Port) may consider incorporating into budgets and work plans to support the goals and strategies outlined in the Port's Climate Action Strategy and to achieve the Port's climate action targets.

Port's Overall Mitigation Target:
The Port of Bellingham aims to achieve a reduction of Port-controlled greenhouse gas (GHG) emissions of at least 90% from 2019 levels by 2030 and 100% from 2019 levels by 2050.

Port's Overall Climate Resilience-Building Target:
The Port of Bellingham aims to effectively anticipate, prepare for, and respond to the impacts of climate change, collaborating with regional partners to protect and enhance the economy, community, and the environment through Port-wide resilience programming efforts.

Spreadsheet Organization:
The spreadsheet is organized into different tabs, each representing a goal from the Port's Climate Action Strategy. The "(M)" at the end of a title indicates a mitigation goal, while the "(R)" denotes a resilience-building goal. A guide to the tab titles and associated goals includes:

1. Building & Energy (M): Goal 1. Significantly reduce GHG emissions from Port-controlled energy supply and buildings.
2. Fleet (M): Goal 2. Reduce GHG emissions from Port-controlled fleet vehicles, vessels, and equipment.
3. Commutes (M): Goal 3. Reduce emissions associated with Port employee commutes.
4. GHG Tracking (M): Goal 4. Monitor the Port's progress towards meeting GHG reduction targets.
5. Tenant Building & Energy (M): Goal 5. Reduce GHG emissions from all Port tenant-controlled buildings and energy supply.
6. Tenant Vehicles (M): Goal 6. Encourage reduction of emissions associated with tenant vehicles, vessels, and equipment.
7. Governance (R): Goal 7. Institutionalize and prioritize climate change resilience across all Port divisions, processes, investments, and operations.
8. Infrastructure (R): Goal 8. Increase the resilience of Port infrastructure to changing climatic conditions.
9. Economy (R): Goal 9. Support a local economy that is built upon sustainable practices and is resilient to climate change impacts.
10. Health & Safety (R): Goal 10. Protect and enhance the health of Port employees, tenants, and other facility users in the face of changing climatic conditions.
11. Natural Systems (R): Goal 11. Support resilient and healthy natural systems within and around Port properties.

Each individual action may include information such as the approximate potential timeline for implementation, the lead Port division responsible for the action, and additional notes. Please note that the Port has not committed to implementing the actions listed in the following tabs. Instead, this spreadsheet serves as a resource from which the Port can draw as it prioritizes climate actions each year. The Port will select and adapt actions from this list based on its specific priorities and available resources. The Port will continue to add more actions to this list and specify them over time. This document is a living resource.

This list of actions was compiled by Peak Sustainability Group in coordination with Port staff, Triangle Associates, Cogent Environmental Consulting, and EA Engineering, Science, and Technology.

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Goal 1: Significantly reduce GHG emissions from Port-controlled energy supply and buildings.						
		Timeframe				
Strategy	Action	2025	2030	2035	Lead Division(s)	Notes
Strategy 1.1: Enhance the energy efficiency of Port buildings and operations.	Action 1.1.1: Conduct an assessment to identify the remaining energy-efficient lighting upgrade opportunities within all Port-controlled operations.	✓			Maintenance	
	Action 1.1.2: Continue to upgrade to energy efficient lighting across Port-controlled operations. Complete transition to energy-efficient lighting in all buildings by 2025.	✓	✓		Maintenance	
	Action 1.1.3: Perform targeted energy audits for specific Port-controlled facilities, selected based on their energy consumption levels and building sizes.	✓	✓		EPS and Maintenance	
	Action 1.1.4: Assess and complete weatherizations updates such as building envelope upgrades, window and door upgrades, and roof improvements.					
	Action 1.1.5: Implement an energy management system to monitor and optimize energy consumption at the port. Use smart meters and sensors to track energy usage, identify areas for improvement, and make informed decisions on energy-saving measures.	✓	✓			
	Action 1.1.6: Evaluate plug loads and adopt purchasing policy and operational setting/procedures to reduce plug load from appliances, equipment, and electronics.	✓	✓			
	Action 1.1.7: Integrate smart grid and microgrid technologies into Port operations, enabling dynamic management and adaptable adjustments to accommodate fluctuating electricity supply and demand conditions.		✓	✓	Engineering and Maintenance	
	Action 1.1.8: Adopt a minimum energy efficiency certification standard in the construction of all future Port-controlled buildings over 5,000 square feet. Options include: Building Industry Association of Whatcom County 4-star or 5-star standards; LEED Silver, Gold, or Platinum standards.		✓	✓	Engineering and Real Estate	
	Action 1.1.9: Require new Port-controlled buildings to be net-zero emissions ready by 2027.		✓	✓	Engineering and Real Estate	
	Action 1.1.10: Continue developing advanced energy systems (e.g., district heating and cooling, onsite energy generation, and wastewater reuse) for the Waterfront District Sub-Area Plan.			✓	EPS	
	Action 1.1.11: Work with utilities and the PUD on feasibility studies of electricity upgrades for 2024 and beyond.		✓		EPS	
Strategy 1.2: Maximize renewable energy production and use.	Action 1.2.1: Continue Port's 2021 commitment to buy renewable energy through the PSE Green Direct Program from 2021-2037.	✓	✓	✓		Purchasing Green Direct ensures a consistent and sustainable energy source while supporting the growth of the renewable energy sector.
	Action 1.2.2: Promote and/or purchase electricity through the PSE Green Direct or Green Power programs for tenant-controlled properties.	✓	✓	✓		
	Action 1.2.3: Maintain solar installation at the Cruise Terminal.	✓	✓	✓	Property Manager	Solar was installed in June 2021.
	Action 1.2.4: With Puget Sound Energy (PSE), explore opportunities to add solar for Port tenants who are metered through the Port's PSE account.	✓	✓		Real Estate, Engineering	The Port has maximized its solar capacity for the Warehouse 4 meter under PSE's current policy, which allows for 100 kW of solar per meter. The Warehouse 4 (Cruise Terminal) meter includes all buildings from the Community Boating Center to Marine Park. Tenants on this meter are currently unable to install additional solar panels.
	Action 1.2.5: Evaluate select Port facilities for feasibility of additional solar installations.	✓	✓		EPS and Engineering	
	Action 1.2.6: Conduct a feasibility study to consider scenarios such as electricity storage solutions for renewable energy generation on Port property.		✓		EPS	
	Action 1.2.7: Thoroughly assess and evaluate the cybersecurity and physical security aspects pertaining to the implementation of backup and emergency power upgrades, such as fuel cells or batteries.		✓		Emergency Management	

	Action 1.2.8: Deploy additional solar or other renewable energy installations.		✓	✓	EPS and Real Estate	
	Action 1.2.9: Work with local jurisdictions to evaluate the feasibility of a large-scale renewable energy and storage pilot project at a Port-controlled property.		✓	✓	EPS and Real Estate	
	Action 1.2.10: Implement a large-scale renewable energy and storage pilot project at a Port-controlled property.			✓		
	Action 1.2.11: Develop a localized power distribution network known as a microgrid, integrating renewable energy sources like solar and wind power. This system would allow the Port to generate and distribute its energy independently, reducing dependence on the main grid and maximizing renewable energy utilization.			✓		Microgrids can be a cost-effective complement to utility-scale power and can improve resilience.
	Action 1.2.12: Continue to evaluate new and emerging technologies for energy supply and storage as well as equipment end-of-life handling.		✓	✓		
Strategy 1.3: Transition from natural gas-powered equipment to efficient, electric equipment in Port buildings.	Action 1.3.1: Adopt a policy to immediately discontinue installation of natural-gas systems in new construction and retrofits.		✓		Maintenance	This policy should expand on existing state and local codes requiring new commercial construction to install efficient, electric space and water heating equipment.
	Action 1.3.2: Complete an inventory of Port-controlled natural gas HVAC and domestic hot water (DHW) equipment.	✓			Maintenance	
	Action 1.3.3: Replace natural gas HVAC and DHW equipment with the highest-efficiency electric alternatives at end of life or when performance- and cost-effective. Begin with any projects on the 5-year CIP budget.	✓	✓	✓	Maintenance	As applicable, pursue PSE rebates to offset up-front costs.
	Action 1.3.4: Identify and implement sources of renewable natural gas to replace fossil natural gas for Port buildings where applicable.		✓	✓		
Strategy 1.4: Increase energy conservation communication and education for Port employees.	Action 1.4.1: Conduct a focus group made up of Port employees to help develop best practices for energy efficient behavior in the workplace. Collate and distribute focus-group-determined best practices to all Port employees.	✓			EPS	
	Action 1.4.2: Provide reports and communications on building and campus energy performance and corresponding GHG emissions to all Port employees, leadership, tenants, and the Bellingham community.	✓	✓	✓		

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Goal 2: Reduce GHG emissions from Port-controlled fleet vehicles, vessels, and equipment.						
		Timeframe				
Strategy	Action	2025	2030	2035	Lead Division(s)	Notes
Strategy 2.1: Expand electric vehicle (EV) charging opportunities across Port workstations.	Action 2.1.1: Install two Level 2 charging stations for fleet vehicles at primary Port workstations. Identify other priority areas to install chargers.	✓			Maintenance	
	Action 2.1.2: Expand charging infrastructure available to or reserved for fleet vehicles at primary Port workstations. Install six charging stations in 2023.	✓			EPS	This action can be integrated with employee commute charging infrastructure.
	Action 2.1.3: Develop an EV infrastructure plan to expand charging stations to all Port-owned properties.		✓		EPS	Work with other local jurisdictions, such as the City of Bellingham, to coordinate efforts to install EV chargers.
	Action 2.1.4: Complete installation of EV charging stations at key locations across all Port properties, as outlined in the EV infrastructure plan.		✓	✓	Engineering	
	Action 2.1.5: Update charging station map over time as new stations are installed. Advertise the resource to employees and tenants to ensure awareness of charging station locations.		✓	✓	EPS	
Strategy 2.2: Transition from fossil fuel powered vehicles to cleaner modes of travel for on-road vehicles, as technology permits.	Action 2.2.1: Adopt a policy to replace 100% of light-duty ICE vehicles with plug-in hybrids or EVs at time of replacement or as funding becomes available.	✓				
	Action 2.2.2: Pilot use of EV medium-duty vehicles, including light-duty trucks.	✓				The Port is planning to purchase two electric F-150 Lightnings in 2023.
	Action 2.2.3: As feasible, replace medium-duty ICE vehicles with EVs at point of replacement or as funding becomes available.		✓			
	Action 2.2.4: Pilot heavy-duty electric or alternatively-fueled vehicles, as technology becomes available.		✓			
	Action 2.2.5: Increase use of biodiesel, renewable diesel, and green hydrogen to fuel vehicles where electrification is not possible.		✓	✓		
	Action 2.2.6: Support Whatcom County's green hydrogen efforts.		✓	✓		Whatcom County's Climate Action Plan includes a strategy to promote the research, development, and collaboration needed to build a hydrogen electrolysis facility to create green hydrogen in Whatcom County. Green hydrogen is hydrogen generated by renewable energy or from low-carbon power and is most often used to power vehicles and equipment. It is viewed by many as a means to decarbonize heavy industry, long haul freight, shipping, and aviation. The Port could support green hydrogen efforts with financial support, advocacy, or a commitment to purchase green hydrogen.
	Action 2.2.7: Adopt and use alternate fueled, electric, or hybrid Port owned vessels, as technology permits.		✓			
Strategy 2.3: Transition from fossil fuels to cleaner heavy and cargo-handling equipment (CHE), as technology permits.	Action 2.3.1: Use fossil free fuels such as sustainable bio-based fuels as a direct replacement for fossil-based fuels in existing equipment.	✓	✓			
	Action 2.3.2: Pilot electric equipment such as forklifts and other cargo handling equipment.	✓			Marine Terminals, EPS, Engineering	
	Action 2.3.3: Replace Port-owned fossil-fuel powered equipment, such as forklifts and other cargo handling equipment, with electric or alternatively-fueled equivalents at point of replacement or by 2030, as technology permits.	✓	✓	✓	Marine Terminals	
	Action 2.3.4: Coordinate with the City of Bellingham and Whatcom County to pilot the use of emerging electric or alternatively-fueled equipment.		✓	✓		
Strategy 2.4: Optimize the Port's fleet size and equipment pool	Action 2.4.1: Develop policies and procedures for vehicle and equipment replacement. Prioritize replacing vehicles that are past-due.	✓				
	Action 2.4.2: Adopt a fleet vehicle usage tracking system to identify vehicles that are under-utilized.	✓				
	Action 2.4.3: Expand pooling and coordination of fleet vehicles and equipment and reduce individual vehicle assignments.	✓				

~~size and equipment pool.~~	Action 2.4.4: Right-size the fleet and equipment pool. Identify vehicles and equipment that do not need to be replaced at the end of their lifetime.		✓			
	Action 2.4.5: Expand the Port bike fleet to reduce fleet vehicle use for short trips for Port business.	✓				
Strategy 2.5: Provide EV- and efficient-driving education and training opportunities for Port employees.	Action 2.5.1: Adopt and communicate a no-idling policy for Port-owned vehicles unless needed.	✓			Maintenance	This action supports Green Marine Performance Indicator 2.1, which requires the Port to implement policies and communications that discourage idling of Port road vehicles, off-road vehicles, and unlicensed vehicles powered by internal combustion engines.
	Action 2.5.2: Incorporate EV driver training as part of Port employee onboarding and regular training. Training should cover how to charge and drive electric fleet vehicles.	✓				
	Action 2.5.3: Incorporate an efficient driver training as part of Port employee onboarding and regular training. The training should promote no-idling and acceleration practices to reduce fuel consumption.	✓				
	Action 2.5.4: Consider fleet vehicle telematics or Advanced Vehicle Locator (AVL) systems. AVL systems monitor and correct inefficient driving practices.		✓			The City of Bellingham has several vehicles with AVL systems. The Port could consult with the City to learn about their experiences.

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Goal 3: Reduce emissions associated with Port employee commutes.						
		Timeframe				
Strategy	Action	2025	2030	2035	Lead Division(s)	Notes
Strategy 3.1: Promote telework and other flexible work arrangements.	Action 3.1.1: Encourage employee participation in telework arrangements.	✓				
	Action 3.1.2: Identify opportunities for additional flexible work arrangements, such as compressed work weeks.	✓				
	Action 3.1.3: Revise telework policy to increase allowable days per week of remote work and/or allow additional positions to be eligible.	✓				Completed. A policy was implemented in 2022 which allows eligible employees to telework part-time.
	Action 3.1.4: Monitor participation in telework arrangements and other flexible work arrangements. Adjust and expand arrangements to increase participation.	✓	✓	✓		
Strategy 3.2: Promote trip reduction opportunities for employee commutes.	Action 3.2.1: Offer free or subsidized bus passes for Port employees.	✓				
	Action 3.2.2: Continue promoting Whatcom Smart Trips or another trip reduction program that incentivizes employees to take public transportation, rideshare, or use non-motorized transportation to get to work.		✓			including links to the program and benefits of signing up. Staff run reports on Port participants for various transportation contests (who has done how many trips and how far). The Smart Trips
	Action 3.2.3: Conduct outreach and education to raise awareness about trip reduction opportunities.	✓				
Strategy 3.3: Advocate for safer and more accessible multimodal transportation options for Port worksites.	Action 3.3.1: Advocate for safer and more accessible public transportation access to Port properties along Roeder Ave and other work sites by Whatcom Transportation Authority.	✓	✓			An existing bus route goes along Holly St>Eldridge Ave but not on Roeder Ave where the Port offices are located.
	Action 3.3.2: Advocate for infrastructure for safer bicycle and pedestrian routes to Port owned properties with local jurisdictions.	✓				In 2022-23, Bellingham Public Works is updating the city-wide Pedestrian and Bicycle Master Plan.
Strategy 3.4: Support employee transition to EVs.	Action 3.4.1: Develop an employee charging program that enables reliable access to charging and incentivizes driving an EV to work (e.g., Offer employees a set number of hours of free charging for one year to support purchasing an EV over an ICE vehicle).	✓				
	Action 3.4.2: Implement a Port-employee EV promotions program that raises awareness of the employee charging program and increases visibility of existing Port and employee EV usage.		✓			

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Goal 4: Monitor the Port's progress towards meeting GHG reduction targets.						
		Timeframe				
Strategy	Action	2025	2030	2035	Lead Division(s)	Notes
Strategy 4.1: Track GHG emissions over time.	Action 4.1.1: Expand emissions scope (e.g., waste; tenant emissions) in future inventories.	✓			EPS	
	Action 4.1.2: Conduct an annual GHG inventory.	✓	✓	✓	EPS	
	Action 4.1.3: Improve tracking systems related to sources of GHG emissions.	✓	✓		EPS, Real Estate	
	Action 4.1.4: Train department heads and managers to effectively use GHG tracking systems.	✓	✓		EPS	
	Action 4.1.4: Maintain Green Marine membership and conduct annual Green Marine self-certification annually, with third party verification of self-certification every two years.	✓	✓	✓		
Strategy 4.2: Where emission reductions are infeasible or cost-prohibitive, pursue carbon offsetting to stay aligned with the Port's 2030 and 2050 GHG emission reduction targets.	Action 4.2.1: Purchase certified carbon offsets to meet mitigation targets, as relevant.	✓	✓	✓		When an organization buys a carbon offset, it is buying a commitment from a company or organization that it will remove a certain amount of greenhouse gasses from the atmosphere.
	Action 4.2.2: Partner with local organizations to plant trees or complete other carbon sequestering projects throughout Whatcom County.	✓	✓	✓		
	Action 4.2.3: Partner with local organizations to pilot and expand a blue carbon project that maintains and expands eelgrass and kelp along the region's shoreline.		✓	✓		Blue carbon is the ability of marine plants to sequester carbon from seawater and transfer it into sediment. The Port of Seattle, along with the Washington State Departments of Ecology and of Natural Resources, are implementing the Smith Cove Blue Carbon Project. The pilot project will evaluate how well transplanted kelp and eelgrass off Smith Cove Park's shores can sequester carbon to reduce the ocean acidification linked to carbon concentrations. Marine scientists and port officials are using the study to evaluate techniques to restore and improve critical aquatic habitat in urban bay areas.

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Goal 5: Reduce GHG emissions from all Port tenant-controlled buildings and energy supply.						
		Timeframe				
Strategy	Action	2025	2030	2035	Lead Division(s)	Notes
Strategy 5.1: Support increased energy efficiency of tenant-controlled buildings and operations.	Action 5.1.1: Compile resources for tenants to encourage voluntary energy audits of tenant-controlled facilities.		✓	✓	Real Estate	Energy audits, such as City of Seattle Building Tune-ups, typically identify quick low-cost improvements that can reduce energy by 10-15%.
	Action 5.1.2: Adapt Port-developed tracking tool for energy-efficient lighting upgrades and replacements to assess progress across tenant-controlled operations.		✓			
	Action 5.1.3: Complete transition to energy-efficient lighting in all tenant-controlled buildings by 2030.		✓	✓		
	Action 5.1.4: Draft and seek feedback on high-performance lease terms to incorporate energy efficiency and conservation into terms of standard lease. Adopt for new leases.		✓			
	Action 5.1.5: Implement high-performance leases as existing leases are renewed.		✓	✓		
	Action 5.1.6: Encourage energy conservation measures in tenant-controlled facilities.		✓	✓		
	Action 5.1.7: Implement smart grid and microgrid technology for tenant operations that allow for active management and adjustments to changing conditions based on electricity supply and demand.		✓	✓		
Strategy 5.2: Promote tenant renewable energy production and purchase.	Action 5.2.1: Encourage tenants to participate in PSE's Green Power or Green Direct programs.		✓			
	Action 5.2.2: Work with PSE to explore opportunities to add solar for Port tenants who are metered through the Port's PSE account.		✓	✓		The Port has maximized its solar capacity for the Warehouse 4 meter under PSE's current policy, which allows for 100 kW of solar per meter. The Warehouse 4 (Cruise Terminal) meter includes all buildings from the Community Boating Center to Marine Park. Tenants on this meter are currently unable to install additional solar panels.
	Action 5.2.3: Evaluate the feasibility of a large-scale renewable energy and storage pilot project at a tenant-controlled property.		✓			
	Action 5.2.4: Implement a large-scale renewable energy and storage pilot project at a tenant-controlled property.		✓	✓		
	Action 5.2.5: Attract new tenants that specialize in renewable energy through targeted recruitment and by offering incentives for signing a lease with the Port.		✓	✓		
	Action 5.2.6: Install distributed energy resources, such as rooftop solar and battery storage, at select tenant-controlled facilities as a resilient and cost-effective complement to utility-scale power.		✓	✓		
Strategy 5.3: Promote the transition from natural gas-powered heating and cooling equipment to efficient, electric equipment in tenant-controlled buildings.	Action 5.3.1: Complete an inventory of tenant-controlled electric and natural gas HVAC, DHW, and cooking equipment.		✓			
	Action 5.3.2: Promote tenant opportunities to upgrade aging electric and/or natural gas-powered HVAC and DHW cooking equipment with highest-efficiency, electric alternatives at end of life or when performance- and cost-effective. Advertise opportunities for tenants to receive rebates to offset up-front costs.		✓	✓		
	Action 5.3.3: Support replacement of aging HVAC and DHW and cooking systems with highest-efficiency electric alternatives in tenant facilities (e.g., Launch HVAC and DHW system replacement/upgrade program that supports tenants in implementing strategies that eliminate natural gas systems at tenant-controlled properties).		✓	✓		
Strategy 5.4: Provide energy conservation communication and education for Port tenants.	Action 5.4.1: Provide reports and communications on Port energy performance and corresponding GHG emissions to all Port employees, leadership, tenants, and the Bellingham community.		✓	✓		
	Action 5.4.2: Adopt a policy requiring tenants to report building and campus energy performance and corresponding GHG emissions. This could be a requirement of a high-performance lease.		✓			

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Goal 6: Encourage reduction of emissions associated with tenant vehicles, vessels, and equipment.						
		Timeframe				
Strategy	Action	2025	2030	2035	Lead Division(s)	Notes
Strategy 6.1: Encourage tenant transition to EVs.	Action 6.1.1: Distribute a survey to all tenants to gain an understanding of where to locate new EV chargers.	✓				
	Action 6.1.2: Distribute a map depicting locations of EV chargers.		✓			
	Action 6.1.3: Expand charging infrastructure available to tenants.		✓	✓		
	Action 6.1.4: Implement a Port-wide EV promotions program that raises awareness of charging infrastructure and increases visibility of existing Port EV usage (e.g., host an EV ride and drive event).		✓			
Strategy 6.2: Promote trip reduction opportunities associated with tenant commutes.	Action 6.2.1: Design and implement a trip reduction program that incentivizes tenants' employees to take public transportation, rideshare, or use non-motorized transportation to get to work.		✓			
	Action 6.2.2: Conduct outreach and education to raise awareness about trip reduction opportunities.		✓			
	Action 6.2.3: Explore opportunities to promote car and bike sharing programs. Coordinate with the City of Bellingham.		✓			
	Action 6.2.4: Promote tenant participation in Whatcom Smart Trips, a County-wide vehicle trip reduction program.		✓			
Strategy 6.3: Reduce emissions associated with ocean-going and harbor vessels, as technology permits.	Action 6.3.1: Analyze shore power feasibility .		✓			GHG emissions from ships at berth are not included in current GHG inventory. If included, the at-berth emissions from ocean-going vessels and harbor craft would likely dwarf the rest of the Port's emissions. Note that installing shore power is expensive.
	Action 6.3.2: Install shore power at the Shipping Terminal, Cruise Terminal, and potentially the marinas if the Port does not already have sufficient power supply for large harborcraft berthing there.		✓	✓		
	Action 6.3.3: Explore opportunities to promote the use of alternate fueled, electric, or hybrid ocean-going vessels, as technology becomes available. This might include providing fueling infrastructure or fuel delivery.		✓	✓		
	6.3.4: Evaluate recognition or incentive programs to encourage best vehicle maintenance and operational best practices for ocean-going and harbor vessels, including routine engine monitoring.		✓			
	Action 6.3.5: Evaluate recognition or incentive programs to promote the use of alternate fueled, electric, or hybrid harbor vessels. Incentives could include financial incentives provided by Port or partnership such as Port-sponsored grant management.		✓			
Strategy 6.4: Support adoption of tenant-owned zero-emission equipment, as technology permits.	Action 6.4.1: Demonstrate the use of Port-owned electric equipment, such as forklifts and other cargo handling equipment and communicate the results to tenants.		✓			
	Action 6.4.2: Encourage the use of fossil free fuels such as sustainable bio-based fuels as a direct replacement for fossil-based fuels in tenant-owned equipment.		✓			
	Action 6.4.3: Support a feasibility study of using hydraulic or electric cranes at marine terminals and industrial waterfront businesses to reduce diesel emissions.		✓			
	Action 6.4.4: Use high performance leasing to promote zero emission CHE/vessels.	✓	✓	✓		
	Action 6.4.5: Offer Port sponsorship to allow tenants to qualify for grant funding for cargo-handling equipment replacement and harborcraft.		✓			

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Goal 7: Institutionalize and prioritize climate change resilience across all Port divisions, processes, investments, and operations.						
		Timeframe				
Strategy	Action	2025	2030	2035	Lead Division(s)	Notes
Strategy 7.1: Understand and prepare for hazardous events, trends, or disturbances related to climate change.	Action 7.1.1: Continue studying exposure, sensitivity and adaptive capacity of Port assets, beginning with those areas that are likely more vulnerable to climate change effects, as identified in the Port of Bellingham Coastal Vulnerability Assessment (e.g., Lower Squalicum Creek and surrounding areas).	✓	✓	✓	Planning, Engineering, and Various, as needed	
	Action 7.1.2: Using climate security techniques, develop tide/storm forecasting to identify potential inundation events for types of storm events. Identify which assets are likely to be affected. Prepare for and mitigate short term effects.		✓	✓	Planning, Emergency Management, and Security	
Strategy 7.2: Model and monitor existing and future climatic conditions.	Action 7.2.1: Update modeling (e.g. CoSMoS), vulnerability assessments and related documents as new climate data becomes available.		✓	✓	Environmental Planning Services (EPS)	
	Action 7.2.2: Establish relative sea level rise (RSLR) scenarios that pair probability and timing using CoSMoS and University of WA Climate Impacts Group modelling for vulnerability analysis. Use scenarios to establish planning horizons for a variety capital project types.	✓	✓		Planning and Engineering	
	Action 7.2.3: Monitor RSLR, flood events, and storm surge dynamics to better understand the conditions that result in flooding.	✓	✓	✓	EPS and Various, as needed	Monitoring results can offer insight into how climate change will drive changes in future flood occurrences and inform better placement and protection of critical infrastructure.
	Action 7.2.4: Develop program to model and monitor groundwater conditions where appropriate (e.g., clean up sites) to determine localized effects of RSLR.		✓	✓	EPS	
	Action 7.2.5: Explore opportunities and funding sources to develop a RSLR monitoring program in partnership with local jurisdictions.		✓		EPS	This program could establish a common monitoring methodology to track sea-level and shoreline changes at key locations to determine needed adaptation actions.
Strategy 7.3: Address climate change effects in Port policies, plans, and guidelines.	Action 7.3.1: Integrate climate-related risks and adaptation efforts into operating and capital budgets and the 5-year capital improvement plan.	✓	✓		EPS and Various, as needed	Use RSLR scenarios to establish planning horizons for a variety capital project types.
	Action 7.3.2: Incorporate Exposure, Sensitivity, and Adaptive Capacity Analysis data fields into Port Asset Management program development		✓		Real Estate, Engineering and Planning	
	Action 7.3.3: Identify and adopt climate resiliency criteria and integrate with appropriate design review.		✓		Planning and Engineering	
	Action 7.3.4: Identify or create and utilize financial tools/modeling that capture the full lifecycle costs of Port actions.		✓		EPS, Real Estate and Finance	These tools should account for the costs of climate inaction and maladaptation.
	Action 7.3.5: Research methods and develop standardized cost-benefit analysis for protection, accommodation, or retreat analysis of specific assets.		✓		Real Estate and Finance	
Strategy 7.4: Establish mechanisms to ensure accountability of Port divisions in implementing the Climate Action Strategy.	Action 7.4.1: Create opportunities for cross-divisional discussion about progress on implementing the Climate Action Strategy (e.g., a Climate Action Committee).	✓	✓	✓	EPS	
	Action 7.4.2: Identify and communicate which divisions have primary responsibility for each climate resilience action.	✓	✓	✓	EPS and Various as needed	
	Action 7.4.3: Develop and implement mechanisms and reporting tools to assess the progress of actions.	✓	✓	✓	EPS and Various as needed	
Strategy 7.5: Coordinate with local and regional jurisdictions, agencies, and institutions to collaborate on resiliency actions.	Action 7.5.1: Collaborate regionally to tackle cross-jurisdictional adaptation opportunities.	✓	✓	✓	EPS	
	Action 7.5.2: Continue to support staff participation in collaborative groups such as the Whatcom County Joint Climate Action Team (JCAT) to support resilience-building efforts in Whatcom County.	✓	✓	✓	EPS	
	Action 7.5.3: Provide opportunities (e.g., through surveys, focus groups, or public meetings) for Port employees, tenants, and other community members to engage in climate resilience discussions and offer input on resilience initiatives and programs.	✓	✓	✓	EPS	
	Action 7.5.4: Partner with local organizations and agencies to develop comprehensive climate outreach and education programs.	✓	✓	✓	EPS	

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Goal 8: Increase the resilience of Port infrastructure to changing climatic conditions.						
		Timeframe				
Strategy	Action	2025	2030	2035	Lead Division(s)	Notes
Strategy 8.1: Prevent future development in areas vulnerable to climate change effects.	Action 8.1.1: Evaluate suitability for construction or rebuilding in areas vulnerable to climate change effects. Long lived infrastructure that is difficult to adapt will be an early focus.		✓	✓	EPS Real Estate and Engineering	
	Action 8.1.2: Adapt land uses on Port properties that are highly vulnerable to the effects of climate change, particularly RSLR.		✓	✓	EPS Real Estate and Engineering	
Strategy 8.2: Protect existing shoreline and infrastructure at lower elevations from RSLR, coastal erosion and sedimentation, and riverine flooding.	Action 8.2.1: Document and monitor condition of existing shore armoring and beaches through regular condition assessments.	✓	✓	✓	Engineering	
	Action 8.2.2: Evaluate options to permanently protect highly vulnerable areas of the shoreline from RSLR, increased wave action, extreme weather, and flooding. Assess opportunities to install "soft-armored" or "living" shorelines, where appropriate, and shoreline armoring where necessary (e.g. bulkheads, riprap, or seawalls).		✓	✓	EPS and Engineering	Shoreline armoring can have negative effects on plant and animal species. For example, armoring often requires removing natural vegetation that waterbirds rely on for foraging, nesting, and roosting. Armoring can also reduce the diversity and abundance of prey, such as forage fish and benthic invertebrates. Nature-based infrastructure, such as living shorelines and breakwaters, offer an opportunity to stabilize the shoreline and prevent coastal flooding while also improving habitat. Case study: In 2021, the Port of San Diego and ECOncrete, an eco-engineering company, launched a pilot project to develop shoreline and erosion infrastructure that will improve habitat while stabilizing the shoreline and preventing coastal flooding.
	Action 8.2.3: Where feasible install nature-based infrastructure such as floodable parks, bioswales, and rain gardens to mitigate flooding.		✓	✓	EPS, Real Estate and Engineering	Case study: The Port of Portland uses rain gardens and vegetated swales to manage stormwater and protect buildings from flood damages.
Strategy 8.3: Adapt existing and new infrastructure and operations to better withstand RSLR, storm surge, and flooding.	Action 8.3.1: Prioritize addressing Port infrastructure that is projected to be impacted by RSLR and increased storms. Forecast costs of armoring, berms, elevating and/or retreating, as appropriate.		✓	✓	EPS and Engineering	
	Action 8.3.2: Evaluate options to protect Port infrastructure from tide and wave action (e.g. berms or tide gates).		✓	✓	Engineering and Emergency Management	
	Action 8.3.3: Elevate specific structures and at-risk components to curb the effects of RSLR and coastal storm events.	✓	✓	✓	EPS, Real Estate and Engineering, Emergency Management	For example, if utilities or electronics in a building are at an elevation that puts them at risk of flooding, then elevating those items would be the most logical course of action. The downside to elevating these items above flood-prone elevations is that it is expensive. However, the expense would typically be lower than replacing flood damaged equipment.
	Action 8.3.4: Identify and implement low-cost flood mitigation measures and preparedness standard operating procedures (SOPs) for small-scale or nuisance flooding. Measures may include dry floodproofing, sandbagging, temporary relocation of vulnerable assets, etc.	✓	✓	✓	EPS, Real Estate and Engineering, Emergency Management	Dry floodproofing is an option that can work to prevent flooding in buildings or areas minimally affected by nuisance floods.
	Action 8.3.5: Adopt procedures to close low-lying parking lots prior to king tide and storm events. This will prevent cars from parking in areas that are likely to be flooded.	✓			EPS, Real Estate and Engineering, Emergency Management	
	Action 8.3.6: Develop temporary and permanent closure for catch basins that are connected to the sanitary sewer at fuel islands.	✓			Engineering and Maintenance	
	Action 8.3.7: Review outdoor storage near waterfront as part of the Environmental Compliance Assessment Program (ECAP) to minimize hazardous materials.	✓	✓	✓	EPS	
	Action 8.3.8: Evaluate and re-grade FMIP site for flooding and near term RSLR.	✓	✓	✓	Engineering and Real Estate	
Strategy 8.4: Relocate vulnerable facilities and operations to protected areas.	Action 8.4.1: Relocate highly vulnerable facilities to higher elevations to reduce risks from coastal flooding and exposure.	✓	✓	✓	Engineering and Real Estate	Given the nature of the Port's functions, it might only be feasible to move assets that do not need to be on or near the water. Subsequent assessment is needed to determine the best approach due to the complexities associated with a managed retreat.
	Action 8.5.1: Identify critical operational functions and facilities and ensure autonomous power supply for emergency operations. Prioritize power supply that does not burn fossil fuels where feasible.		✓	✓	EPS, Engineering' EM and Security and Real Estate	
	Action 8.5.2: Apply site and building design during Architectural Review Committee review that maximize climate resilience.	✓	✓	✓	EPS, Engineering and Real Estate, ARC	

Strategy 8.5: Prepare Port infrastructure for anticipated changes in weather patterns (e.g., more severe storms).	Action 8.5.3: Assess vulnerability of existing and future Port assets to severe weather events and fire.	✓	✓	✓	Various -EPS, Engineering and Real Estate, Emergency Management	
	Action 8.5.4: Protect power lines and infrastructure risks from severe weather and fire.		✓	✓	Various -EPS, Engineering and Real Estate, Emergency Management	
	Action 8.5.5: Reduce flooding effects to roadways.		✓		Various -EPS, Engineering and Real Estate, Emergency Management	
	Action 8.5.6: Partner with the local jurisdictions to reduce extreme winter weather effects such as applying icing prevention compounds to streets ahead of winter snowstorms and freezing rain events.	✓	✓	✓	Emergency Management and Maintenance	
Strategy 8.6: Prepare Port infrastructure for coastal erosion and sedimentation hazards.	Action 8.6.1: Analyze relevant sediment transport rates under both current and projected climate change conditions to determine how sediment affect Port operations (e.g. dredging in the marinas and waterways).		✓	✓	EPS	
	Action 8.6.2: Manage development in erosion hazard areas.		✓	✓	EPS, Real Estate, and Engineering	
	Action 8.6.3: Stabilize erosion hazard areas, as needed.	✓	✓	✓	EPS, Real Estate, and Engineering	
Strategy 8.7: Evaluate and mitigate wildfire and poor air quality risk for Port assets.	Action 8.7.1: Evaluate wildfire risk to select Port-controlled buildings based on the City of Bellingham's Wildland-Urban Interface mapping and risk assessment.		✓	✓	Emergency Management and Real Estate	
	Action 8.7.2: Develop a wildfire preparedness plan based on fire risk for select Port-controlled buildings.		✓	✓	Emergency Management and Real Estate	
	Action 8.7.3: Conduct regular maintenance to create and maintain defensible space around high fire risk buildings.	✓	✓	✓	Emergency Management, Maintenance and Real Estate	
	Action 8.7.4: Use Firewise best management practices for landscape installation.	✓	✓	✓	Emergency Management, Maintenance and Real Estate	
	Action 8.7.5: Implement a plan for scenarios where airport landings are compromised due to poor air quality and visibility.		✓	✓	BLI	

Work in Progress

Goal 9: Support a local economy that is built upon sustainable practices and is resilient to climate change effects.						
		Timeframe				
Strategy	Action	2025	2030	2035	Lead Division(s)	Notes
Strategy 9.1: Build climate change resilience across the Port's existing economic network.	Action 9.1.1: Evaluate and communicate how ocean acidification is projected to impact existing fish, shellfish, and aquaculture operations of Port tenants.		✓	✓	EPS, Economic Development and Real Estate	
	Action 9.1.2: Convene Port tenants in conversations on the effects of climate change on the Port and challenges to businesses. Explore resilient business and industry practices with tenants.	✓	✓	✓	Economic Developemnt and Real Estate	
	Action 9.1.3: Provide technical assistance to local businesses for creating business continuity plans to better prepare employers and employees to act when a climate disruption occurs.		✓	✓	Economic Development and Emergency Management	Address both programming needs (e.g., business operations) and infrastructure needs (e.g., roads that are disrupted). (Look at CEDS action plan p23 and Whatcom CO Health 5 year plan)
Strategy 9.2: Support and expand climate change resilient businesses and economic opportunities around and within the Port.	Action 9.2.1: Identify and include climate change resilience language in the next Comprehensive Economic Development Strategy update (CEDS).			✓	Economic Development	
	Action 9.2.2: Establish an incubator pilot program to support the expansion of a sustainable and climate resilient ocean-based economy including aquaculture and blue carbon opportunities.		✓	✓	Real Estate and Economic Development	Case study: The Port of San Diego's Blue Economy Incubator assists in the creation, development and scaling of new water-dependent business ventures on San Diego Bay focusing on sustainable aquaculture and Port-related blue technologies. It serves as an innovation launch pad by providing early-stage companies with key assets and support services focused on pilot project facilitation including subject matter expertise, permit-ready infrastructure, entitlement assistance, marine spatial planning tools, market access, and funding.
	Action 9.2.3: Provide incentives to attract "climate-smart" businesses to the Port and region.	✓	✓	✓	Economic Development	

Work in Progress

Goal 10: Protect and enhance the health of Port employees, tenants, and other facility users in the face of changing climatic conditions.						
		Timeframe				
Strategy	Action	2025	2030	2035	Lead Division(s)	Notes
Strategy 10.1: Support human health and safety during periods of extreme weather.	Action 10.1.1: Coordinate with local jurisdictions to develop cooling, warming, and clean air centers for the public to recreate and socialize in during periods of extreme temperatures and poor air quality.		✓	✓	Emergency Management	
	Action 10.1.2: Collaborate with Whatcom County to identify priority areas for resilience hubs.		✓	✓	Emergency Management	Whatcom County's Climate Action Plan prioritizes exploring opportunities to create resilience hubs. Resilience hubs are community-serving facilities that can support residents and coordinate resource distribution and services before, during or after a natural or man-made disaster.
Strategy 10.2: Prepare people and spaces for smoke.	Action 10.2.1: Complete an inventory of air purifiers and filter fans in Port-controlled facilities.	✓	✓		Real Estate and Maintenance	
	Action 10.2.2: Continue efforts to install and maintain air purifiers and filter fans in Port-controlled facilities, as needed.	✓	✓		Real Estate and Maintenance	
	Action 10.2.3: Encourage Port tenants to install air purifiers and filter fans in their facilities.	✓	✓		Real Estate and Maintenance	
	Action 10.2.4: Develop a policy to address outdoor worker safety during periods of compromised air quality.	✓	✓	✓	Emergency Management and Human Resources	
	Action 10.2.5: Provide appropriate PPE at key Port facilities during periods of poor air quality.	✓	✓	✓	Emergency Management	
Strategy 10.3: Enhance emergency preparedness and response systems.	Action 10.3.1: Review emergency and evacuation routes for suitability with extreme weather, wildfire, and flooding. Update as necessary.	✓	✓		EPS and Emergency Management	
	Action 10.3.2: Increase Port employees' and tenants' awareness of emergency communication, services, and evacuation routes.	✓			EPS and Emergency Management	
	Action 10.3.3: Work with local jurisdictions and agencies to ensure continuity of emergency services.		✓		EPS and Emergency Management	
	Action 10.3.4: Work with surrounding jurisdictions to enhance and/or develop advanced warning and communication systems (climate security techniques) for climate disruptions and disasters.			✓	Emergency Management	
	Action 10.3.5: Coordinate with other local jurisdictions to identify vulnerable populations and prioritize disaster assistance.		✓		Emergency Management	
	Action 10.3.6: Work with surrounding jurisdictions (e.g., Whatcom County) to implement community-wide emergency planning exercise and education to build community resilience during emergency events.		✓		Emergency Management	

Work in Progress

Goal 11: Support resilient and healthy natural systems within and around Port properties.						
		Timeframe				
Strategy	Action	2025	2030	2035	Lead Division(s)	Notes
Strategy 11.1: Protect functions and values of aquatic habitats and environments.	Action 11.1.1: Include RSLR, coastal erosion/sedimentation, and changing weather patterns as considerations in the design of all future restoration projects.	✓	✓	✓	EPS and Engineering	
	Action 11.1.2: Ensure that any flood mitigation construction considers effects to fish and enhances habitat wherever possible.	✓	✓	✓	EPS and Engineering	
	Action 11.1.3: Enhance kelp, eelgrass, and/or shellfish off the Port's shoreline to dissolve carbon and improve keystone habitats for fish and wildlife species.		✓	✓	EPS and Engineering	Case Study: The Port of Seattle's Smith Cove Blue Carbon Pilot Project is experimenting with ways to trap carbon through vegetation while also improving habitat and water quality.
Strategy 11.2: Support the enhancement of coastal wetlands in the region.	Action 11.2.1: Partner with local jurisdictions, agencies, and organizations to maintain and restore nearby coastal wetlands by allowing wetlands to migrate inland, establishing rolling easements, or removing hard protection or other barriers to tidal and riverine flow.		✓	✓	EPS	
	Action 11.2.2: Partner with local jurisdictions, agencies, and organizations to develop a coastal restoration plan to increase protective habitat of wetlands and other coastal ecosystems.		✓	✓	EPS	
Strategy 11.3: Promote resilient vegetation that can withstand changing climatic conditions.	Action 11.3.1: Develop a plan to plant trees throughout Port properties to mitigate climate change, provide shade, and improve habitat.	✓	✓	✓	Real Estate and Maintenance	
	Action 11.3.2: Create a guide of climate change-resilient (e.g., drought and/or heat tolerant) plant species for Port landscaping.	✓			EPS	
	Action 11.3.3: Use climate change-resilient (e.g., drought and/or heat tolerant) plant species for Port landscaping.	✓	✓	✓	Real Estate and Maintenance	
	Action 11.3.4: Incentivize tenants to use climate change-resilient plants when landscaping.		✓	✓	Real Estate and Maintenance	