To: Mayor Ander and Council

From: Bonny Brokenshire, Interim Manager of Environment, Parks Planning and Bylaw Services

Date: April 16, 2020 Meeting Date: April 27, 2020

Subject: Climate Action Strategy

RECOMMENDATION
That Council approve the Bowen Island Climate Action Strategy as presented at the April 27, 2020 meeting.

PURPOSE
As a follow-up to Bowen Island Municipality’s (BIM) declaration of a climate emergency on October 28, 2019 and in keeping with the Municipality’s Island Plan Strategic Commitments, staff is providing the Climate Action Strategy (Attachment 1) for Council’s approval.

BACKGROUND
Recent research by the Intergovernmental Panel on Climate Change recommends emission reductions of 45% from 2010 levels by 2030, and 100% by 2050 in order to limit global warming to 1.5°C above pre-industrial levels.

Metro Vancouver has set emission reduction targets of 45% from 2010 levels by 2030, and 100% by 2050 in order to limit global warming to 1.5°C above pre-industrial levels and is developing strategies to achieve these targets.

Bowen Island will face increasingly negative impacts from a changing climate if emissions are not reduced.

Climate Change Actions
As a signatory to the BC Climate Action Charter, Bowen Island has committed to filing an annual Climate Action Revenue Incentive Report (CARIP).

December 12, 2016 BIM Council received the Bowen Island Community Energy Emissions Plan (CEEP) and on February 27, 2017 Council approved the CEEP Implementation Report. Councilors Maureen Nicholson and Sue Ellen Fast were instrumental in the development of these documents.

Links to CARIP and CEEP reports can be found on BIM’s Climate Action Program website page.
March 15, 2019 - Inspired by 16-year-old Greta Thunberg, Bowen Island youth took part in a Climate Action March.

March 25, 2019 - The Islands Trust declared a Climate Emergency for the Islands Trust Area.

March 25, 2019 - At the regular BIM Council Meeting, Councilor Sue Ellen Fast suggested that Bowen Island consider a Climate Emergency Declaration. At this same meeting Council passed Resolution No. 19-161 that referred the concept of ‘Climate Action Emergency’ and recommended that the Environment and Climate Action Advisory Committee (ECAAC) consider relevant actions and that the schools that participated in the Climate March be notified.

September 27, 2019 – Bowen residents and businesses took part in the Global Climate Strike.

October 15, 2019 - Councilor David Hocking, principle writer of the document, presented the draft Climate Action Strategy (Attachment 2) with the impetus coming from Resolution No. 19-161 and also stemming from global concern, local actions such as the Climate Action March, ECAAC’s discussions and input, and “in progress” municipal climate action initiatives.

October 28, 2019 - Council passed Resolution No. 19-591 that acknowledged “that climate change represents an emergency for Bowen Island” and committed to “developing a strategy to reduce emissions in alignment with the targets to limit global warming to 1.5°C above pre-industrial levels”.

Resolution No. 19-591 also referred the Draft Bowen Island 2050 Climate Change Strategy to municipal staff and the Municipality’s Transportation Advisory Committee, Community Economic Development Committee, Advisory Planning Commission, Finance Advisory Committee, and the Parks, Trails and Greenways Advisory Committee.

The Strategy was forwarded to five municipal committees as per Council resolution. In addition, the Emergency Planning Executive Committee members provided their feedback at their meeting on December 10, 2019.

THE CLIMATE ACTION STRATEGY

Notable Recent Changes

Changes to the Draft Climate Change Strategy presented to Council at the Committee of the Whole meeting on October 15, 2019 have emerged as staff reviewed the document and received comments from members of six municipal committees.

In keeping with BIM’s Climate Action Program, the Strategy is now more fittingly entitled the Climate Action Strategy.

Appropriate headings have been added and new sections have been formed i.e. a Budget & Implementation section and a Measuring, Monitoring & Adjustment section. The drought and wildfire protection sections have been split into two separate strategies and a strategy addressing protection and enhancement of regenerative agriculture has been added.
Staff and Committee feedback has been incorporated. Attachment 3 is a version that highlights some of the feedback and areas of significant change.

**Structure of the Updated Strategy**

Ten strategies with a series of potential actions for each are included. The strategies and actions are aimed toward reducing Bowen Island’s greenhouse gas emissions so that zero becomes feasible by 2050, aligning with scientists’ recommendations. The strategies will also increase our Community’s ability to respond to and recover from climate-related impacts and events.

The actions have been organized into three groupings:
- **Quick Wins** — These can be implemented within 1 – 3 years
- **Longer Term** — Because of cost, resource availability and/or complexity, implementation will take longer than 3 years
- **Support and Advocacy** — BIM to take a collaborative approach but ultimately implementation is outside of BIM’s jurisdictional authority

**HOW WILL THE STRATEGY BE IMPLEMENTED?**

Many actions included in this strategy will be incorporated into future Official Community Plan updates, Land Use Bylaw amendments, Community Energy and Emissions Plan updates, and other current and future relevant plans. Where applicable, implementation plans will include applicable costs, resources required, achievable steps and progress will be tracked.

**FINANCIAL IMPLICATIONS**

Some actions may be costly, others could reduce expenses for the Municipality and for residents. Ultimately, actions with financial implications will require Council’s direction and approval, public engagement, and research in order to proceed and progress towards successful completion.

For actions that have financial implications, a cost benefit analysis may be carried-out to fully understand the expenditure in terms of climate action.

**COMMUNICATION STRATEGY**

Following Council’s approval of the Climate Action Strategy, the document will be desk-topped. The final strategy will be congruent with BIM branding of other plans and documents.

The Strategy will be shared through BIM’s communication dissemination network.

Actions in the Strategy that require communication material to be produced and distributed will involve Environment Department staff with assistance from BIM’s Communication Coordinator.

Outreach and engagement strategies, in keeping with BIM’s *Communicating with the Public Policy*, will be developed with emphasis on:
- Presenting to BIM committees and volunteer organizations.
- Obtaining community feedback by hosting workshops.
- Including elements of the Climate Action Strategy in Bowen tourism and branding.
• Using experts for presentations when needed.
• Revising actions to accommodate public ideas and priorities.
• Seeking consensus on actions and identifying champions to promote and assist in implementation.
• Collaborating with community groups to host climate action events and to co-produce education materials.
• Collaborating with Islands Trust, Metro Vancouver, and other organizations with similar goals to engage with the public and encourage participation.

CLIMATE IMPLICATIONS
The Strategy incorporates important mitigation and adaptation measures. Implementation of actions already underway and those included in the Strategy, demonstrate BIM’s commitment and alignment with others in our collective pursuit of a healthy planet.

SUMMARY
Without continued efforts to reduce emissions, Bowen Island will face increasingly negative impacts from a changing climate.

Bowen Island Municipality acknowledged this fact by declaring a climate emergency on October 28, 2019. As a follow-up to the declaration a Climate Action Strategy has been developed.

The Strategy provides mitigation and adaptive guidance and actions. Some actions are continuations of work already started. Some actions will be carried-out over the next 1 to 3 years, where other, more complex actions will require a longer implementation timeframe.

Some actions may be costly, others could reduce expenses for the Municipality and for residents. Ultimately, actions with financial implications will require Council’s direction and approval, public engagement, and research in order to proceed and progress towards successful completion.

ALTERNATIVE
1. That Council approve the Climate Action Strategy as amended at the April 27, 2020 Council meeting.

ATTACHMENTS:
1. Climate Action Strategy
2. Draft Climate Change Strategy as presented at the October 15, 2019 Committee of the Whole and drafted by Councilor David Hocking.
3. Draft Climate Action Strategy with comments related to major areas of change included.

REFERENCES/RESOURCES:
Several relevant documents provided insight for the Climate Change Strategy. These documents include but are not limited to:

4. The Bowen Island Food Sovereignty Agrarian Analysis (2019) contains recommendations for increasing the resiliency of Bowen Island’s food system through increasing local food production and sustainability of our food systems.
5. Islands Trust’s declaration of Climate Emergency (2019) and accompanying set of resources, including planning tools, fact sheets on alternate energy sources, land use planning, and carbon and biodiversity mapping assessments.
8. BC’s Preparing for Climate Change, and Implementation Guide for Local Governments in BC (2012) report has examples of local regulations in BC that address climate adaptation.
9. City of Vancouver’s set of six “Big Moves” (2019) are in response to Vancouver’s declaration of a climate emergency and are accompanied by 53 accelerated actions.

Submitted by: Bonny Brokenshire, Interim Manager of Environment, Parks Planning and Bylaw Services

REVIEWED BY:

CAO ☒
Bylaw Services ☒
Communications ☒
Finance ☒
Fire & Emergency ☒
Environment & Parks ☒
Planning ☒
Public Library ☐
Public Works ☐
Recreation & Community Services ☐
Bowen Island
Climate Action Strategy

Context
The latest science tells us every community and every level of government—large and small—must do its part to limit global temperature increases to well below 2 degrees Celsius while pursuing efforts to limit the increase to 1.5 degrees. Bowen Island is already seeing increased infrastructure replacement costs associated with extreme weather, as well as higher risks of drought, storm damage and wildfire. International scientific bodies studying climate change state that limiting the temperature increase to 1.5 degrees could avoid the most catastrophic consequences for societies across the globe.

It is time to increase our efforts to both reduce greenhouse gas emissions and take steps to adapt to the inevitable changes in our climate. However, achieving meaningful results will be challenging; Bowen Island is a small municipality with limited financial resources, and without the jurisdiction to act on many of the key drivers of emissions.

The tools within Bowen Island Municipality’s (BIM) sphere of influence include land use planning; new regulations, bylaws or policies within areas of municipal authority; investments in green and engineered infrastructure; advocacy to other organizations for complementary efforts or investments; and connecting with Bowen’s residents to encourage and enable positive initiatives.

Collaboration is Key to Success
Other levels of government have developed or are developing powerful, implementable strategies to address climate change. An efficient strategy for BIM would be to align its efforts with theirs, where appropriate, so that initiatives could be complementary. For example, Metro Vancouver has recently adopted the 1.5 degree target that scientists recommend, which requires emissions to be reduced to zero by 2050. The Regional Government is in the process of developing “Roadmaps” to meet that ambitious target and adapt to the changing climate. Aligning BIM’s work with regional initiatives as they develop could provide synergies and amplify Bowen’s efforts.

The evolving nature of other major players’ efforts to address climate change suggests that BIM’s strategy remain flexible and adaptable. New information, technologies and initiatives will provide opportunities and challenges for BIM.

Strategic Framework
Ten strategies with a series of potential actions for each are highlighted. The strategies and actions are aimed toward reducing Bowen Island’s greenhouse gas emissions so that zero becomes feasible by 2050, aligning with scientists’ recommendations. The strategies will also increase our Community’s ability to respond to and recover from climate-related impacts and events.

Budget and Implementation
Some actions may be costly, others could reduce expenses for the Municipality and for residents. Ultimately, actions with financial implications will require Council’s direction and approval, public engagement, and research in order to proceed and progress towards successful completion.
For actions that have financial implications, a cost benefit analysis may be carried-out to fully understand the expenditure in terms of climate action.

Many actions included in this strategy will be incorporated into future Official Community Plan updates, Land Use Bylaw amendments, Community Energy and Emissions Plan updates, and other current and future relevant plans. Detailed implementation plans will include achievable steps and progress will be tracked.

**Measuring, monitoring, and adjusting strategies**
Effective strategies cannot be developed without a clear understanding of the sources of Bowen’s emissions and carbon sequestration principles.

While emissions will have changed somewhat since a 2003 Bowen Island analysis, to date there have been no significant developments that would have altered the general structure of Bowen’s emissions as identified in the 2003 analysis. However, as actions to cut emissions are implemented it will be important to calculate reductions and adjust strategies appropriately.

Periodic measurement of Bowen’s carbon footprint from sources such as emissions, loss of tree canopy, and impacts to fresh water and marine environments are important. The environmental implications section in BIM Council reports, as implemented in late 2019, will provide a source of reference material when reporting out on measurements.

As data, measurement metrics, pertinent reference materials, understanding of cumulative effects and analysis techniques improve, annual reporting on successes and failures, along with strategic adjustments will be a critical element of an evolving and adaptive Climate Action Strategy.

**Timing of initiatives**
The actions have been organized into three groupings:
- **Quick Wins** — These could be implemented within 1 – 3 years
- **Longer Term** — Because of cost or complexity implementation will take longer than 3 years
- **Support and Advocacy** — BIM to take a collaborative approach but ultimately implementation is outside of BIM’s jurisdictional authority

**Strategies to reduce the emissions causing climate instability**
Currently, transportation contributes more than 80% of Bowen’s greenhouse gas emissions, while heating buildings is another significant source. Four strategies to reduce and eventually eliminate fossil fuel use in both areas could cut emissions dramatically, and potentially to zero by 2050.

1. **Promote a shift from single occupancy vehicles to alternatives**
   - **Quick Wins**
     - For new developments, set a policy to cluster homes near transit routes and facilitate the growth of shared transportation solutions, and require amenity packages that contribute to alternative transportation options.
     - Add an e-bike with visible branding to the BIM vehicle fleet; set policy to encourage its use.
     - Support road sharing initiatives that promote a culture of active transportation.
   - **Longer Term**
• Accelerate investments in active transportation infrastructure above the level identified in the Bowen Island’s Transportation Plan, so that by 2030, a majority of Bowen Island residents have access to a system of multi-use transportation paths aligning with the recommendations of BC’s 2019 Active Transportation Strategy.
• Add electric vehicles to the municipal fleet where appropriate.

Support and Advocacy
• Work with TransLink, BC Ferries, and community organizations to ensure residents traveling beyond Horseshoe Bay have reliable, convenient alternatives to the private vehicle through expanded foot-passenger marine and express bus services.
• Work with community organizations and TransLink to develop a comprehensive and possibly fare-free public transit system that serves all Island neighbourhoods and aligns with new options for foot-passenger marine service.

2. Encourage and facilitate the transition to low and zero emission transportation options
Quick Wins
• Amend BIM’s Land Use Bylaw to require all parking spaces in new multi-family homes to be wired for an outlet capable of providing electric vehicle charging and create incentives for retrofitting existing multi-family homes.
• Amend BIM’s Land Use Bylaw to require electric vehicle charging capacity in at least one parking space for new single-family homes and create incentives for retrofitting existing homes.
Longer Term
• Look for opportunities to develop fast charging stations on Bowen to support the introduction of heavy-duty e-vehicles, such as buses.

Support and Advocacy
• Publicly call for BC Ferries to continue transitioning to a fleet that will produce zero operational greenhouse gas emissions, and work with the Province and Islands Trust, BIM Committees, local action groups and others to support this goal.
• Call for BC Ferries to emphasize pedestrian and active transportation amenities rather than increasing reliance on personal vehicles, such as by placing higher rate increases on vehicles than pedestrians.

3. Reduce the need for transportation, both on and off the Island
Quick Wins
• Work with Metro Vancouver, the provincial government, community groups, and the private sector to develop an on-island composting system to process local organic waste, and where possible compostable plastic, into a resource for local use.
• Facilitate the development of an on-island community centre and health care centre.
• Encourage the development of shared, fully serviced office space in Snug Cove.
• Explore how improvements in internet capacity could reduce transportation needs while enhancing local economic development.
• When considering new residential developments, give priority to those located in or near Snug Cove.
• Encourage the development of local agriculture.
Longer Term
• Consider, through appropriate zoning, the on-island location of businesses, including light industrial, serving Bowen.
• Encourage small businesses at the neighbourhood level such as creation of small pop-up businesses in the outlying areas of the Island.

4. Increase the energy performance of buildings

Short Term
• Work with the construction industry and the community to prepare for higher levels of the Step Code, to achieve net zero ready new buildings by 2030.

Longer Term
• Work with other levels of government, community organizations and the private sector to develop a program, including incentives, rebates and education, for home and business owners to cost-effectively upgrade building energy efficiency, and replace propane and oil heating with efficient electric heating and cooling systems such as heat pumps.
• Require all new public buildings to be built to meet the requirements of the top step of the BC Energy Step Code to the extent that it is feasible.

Strategies to increase Bowen’s resilience to the effects of an unstable climate
Hotter, longer, drier summers, more frequent and intense storms, as well as rising sea levels, will threaten Bowen’s natural and built assets. Five strategies could protect the built infrastructure and sustain the quality of life for residents from storms, storm surges and other climate-related threats; and help sustain the natural systems that provide drinking water, manage storm water, store carbon and provide habitat for wildlife.

5. Protect built infrastructure

Quick Wins
• Include, in the Asset Management Plan, assessments of the vulnerability and risks to infrastructure from climate impacts.
• Develop and disseminate educational materials about green infrastructure (natural assets, enhanced assets and engineered assets).
• Develop a stormwater management master plan.
• Seek funding from senior governments for flood planning and mitigation activities.
• Develop development permitting and other regulatory tools in fire zones, shoreline areas and other vulnerable places.

Longer Term
• Develop plans, including anticipated timing and estimated costs, to reduce vulnerability and risks where possible and adapt to unavoidable changes.
• Update vulnerability maps and identify high-risk areas, such as those vulnerable to sea-level rise, restrict development appropriately and promote natural shoreline principles.
• Assess floodway capacity consideration for increased winter precipitation. Determine culvert capacities and establish new Flood Construction Levels (FCL) where appropriate.
• Ensure the five-year financial plan includes appropriate financing for the creation and/or implementation of adaptation-related plans.

6. Increase protection from droughts

Quick Wins
• Reduce the stress on engineered and natural water systems by assessing the feasibility of requiring rainwater catchment systems on new buildings and encouraging their use on existing buildings.
• Investigate opportunities, identify barriers around greywater usage.
• Investigate water conservation strategies during the water main flushing process including assessing volumes of water flushed and identifying opportunities for storage and usage.

**Longer Term**
• Seek funding from senior governments for a comprehensive drought resiliency and wildfire protection program.

7. **Increase protection from wildfire**

**Quick Wins**
• Continue to implement the Community Wildfire Protection Plan.
• Consider safe access and egress to neighbourhoods in land-use planning.
• Encourage and support site appropriate FireSmart planning.

**Longer Term**
• Establish a Development Permit Area for the entire island, requiring all new buildings to have FireSmart protections such as fire-resistant roofing, siding, decks, and other fire suppression systems.

8. **Protect and enhance natural systems and carbon sequestration**

**Quick Wins**
• Continue to adhere to Official Community Plan Policies, environmental protection bylaw provisions and create a conservation-oriented development/design policy to help protect forests, wetlands, shorelines and environmentally sensitive areas.
• Work with the Province of British Columbia, Metro Vancouver and the Islands Trust to remove the logging designation from the Island's Crown Lands.
• Increase protection of forest lands by working with Metro Vancouver to expand Crippen Park into the Crown Lands.
• Engage in re-greening projects where applicable.
• Develop a water conservation master plan, including but not limited to, water source protection, storage, collection, site permeability, and infrastructure opportunities on Crown and Municipal land, and guidelines for water-wise landscaping and irrigation protocols.
• With the intent of balancing FireSmart principles with potential loss of protective and carbon sequestering forested land, develop a clearcutting bylaw to regulate clearcutting activities on private land.

**Longer Term**
• Conduct a comprehensive Ecological Assets Inventory identifying and quantifying the value of the natural systems in terms of biodiversity values, carbon sequestration properties, and other characteristics.
• Where gaps in ecological protection exist, develop relevant regulatory and enforcement tools.
• Retain ecological connections through an expanded greenways network as outlined in BIM’s Parks Plan and other relevant plans.
• Protect identified ecological assets through management plans, education and regulation.

9. **Protect and enhance regenerative agricultural practices**

**Quick Wins**
• Collaborate with local farm artisans, agriculture alliances and food resiliency groups.
• Through education, workshops and advisory groups address soil fertility and its ability to store carbon by encouraging regenerative agricultural practices.

**Longer Term**
• Enhance agricultural zoning provisions in Official Community Plan and Land Use Bylaw updates.
• Develop incentives for on-island food resiliency and food production.
Engaging Bowen residents
The strategies and actions to reduce emissions and adapt to the unstable climate cannot be achieved without the active support of Bowen residents.

10. Gain active support for the Climate Action Strategy
Quick Wins
Delegate responsibility to Environment Staff with assistance from the Communications Coordinator to develop an outreach and engagement strategy, following the Communicating with the Public Policy, with emphasis on:
- Presenting to BIM committees and volunteer organizations.
- Obtaining community feedback by hosting a workshop.
- Including elements of the Climate Action Strategy in Bowen tourism and branding.
- Using experts for presentations when needed.
- Revising actions to accommodate public ideas and priorities.
- Seeking consensus on actions and identifying champions to promote and assist in implementation.
- Collaborating with community groups to host climate action events and to co-produce education materials.
- Collaborating with Islands Trust, Metro Vancouver, and other organizations with similar goals to engage with the public and encourage participation.
Bowen Island 2050
Climate Change Strategy

Context
The latest science tells us every community and every level of government—large and small—must do its part to limit global temperature increases to well below 2 degrees Celsius while pursuing efforts to limit the increase to 1.5 degrees. Bowen Island is already seeing increased infrastructure replacement costs associated with extreme weather, as well as higher risks of drought, storm damage and wildfire. International scientific bodies studying climate change state that limiting the temperature increase to 1.5 degrees could avoid the most catastrophic consequences for societies across the globe.

It is time to increase our efforts to both reduce greenhouse gas emissions as well as take steps to adapt to the inevitable changes in our climate. However, achieving meaningful results in both areas will be challenging; Bowen Island is a small municipality with a limited budget, and without the jurisdiction to act on many of the key drivers of emissions.

The tools within BIM’s sphere of influence include land use planning; new regulations, bylaws or policies within areas of municipal authority; investments in infrastructure; advocacy to other organizations for complementary efforts or investments; and connecting with Bowen’s residents to encourage and enable positive initiatives.

Other levels of government have developed or are developing powerful strategies to address climate change. An efficient strategy for BIM would be to align its efforts with theirs, where appropriate, so that initiatives could be complementary. For example, Metro Vancouver has recently adopted the 1.5 degree target that scientists recommend, which requires emissions to be reduced to zero by 2050. The Regional Government is in the process of developing “Roadmaps” to meet that ambitious target and adapt to the changing climate. Aligning BIM’s work with regional initiatives as they develop could provide synergies and amplify Bowen’s efforts.

The evolving nature of other major players’ efforts to address climate change suggests that BIM’s strategy remain flexible and adaptable. New information, technologies and initiatives will provide opportunities and challenges for BIM to address.

We propose eight strategies with a series of potential actions for each. The strategies and actions are aimed toward reducing Bowen Island’s greenhouse gas emissions so that zero becomes feasible by 2050, aligning with scientists’ recommendations. The strategies will also increase our community’s ability to respond to and recover from climate-related impacts and events.

Some actions may be costly, others could reduce expenses for the municipality and for residents. Many will require public engagement and information in order to be successful.

The actions have been organized into three groupings:
- **Quick Wins**, which could be implemented within the first year of the Strategy;
- **Longer Term**, which could take more time because of cost or complexity; and
- **Support and Advocacy**, which are important but beyond BIM’s control.
Strategies to reduce the emissions causing climate instability
Transportation contributes more than 80% of Bowen’s greenhouse gas emissions, while heating buildings is another significant source. Four strategies to reduce and eventually eliminate fossil fuel use in both areas could cut emissions dramatically, and potentially to zero by 2050.

1. To promote a shift from single occupancy vehicles to alternatives, BIM could:
   Quick Wins
   • Set a Conservation Development Policy for new developments to cluster homes near transit routes and facilitate the growth of shared transportation solutions.
   • Add an e-bike with visible branding to the BIM vehicle fleet; set policy to encourage its use.
   Longer Term
   • Accelerate investments in active transportation infrastructure above the level identified in the Island’s Transportation Plan, so that by 2030, a majority of Bowen Island residents have access to a system of multi-use transportation paths aligning with the recommendations of BC’s 2019 Active Transportation Strategy.
   • For new developments, require public amenity packages that contribute to alternative transportation options.
   Support and Advocacy
   • Work with TransLink, BC Ferries and community organizations to ensure residents traveling beyond Horseshoe Bay have reliable, convenient alternatives to the private vehicle through expanded foot-passenger marine and express bus services.
   • Work with community organizations and TransLink to develop a comprehensive and possibly fare-free public transit system that serves all Island neighbourhoods, and aligns with new options for foot-passenger marine service.

2. To encourage and facilitate the transition to low and zero emission transportation options, BIM could:
   Quick Wins
   • Require all parking spaces in new multi-family homes to be wired for an outlet capable of providing Level 2 charging.
   • Ensure there is capacity for Level 2 charging in at least one parking space for new single family homes.
   Longer Term
   • Look for opportunities to develop fast charging stations on Bowen to support the introduction of heavy-duty e-vehicles, such as buses.
   Support and Advocacy
   • Consider working with BC Ferries to provide assured loading for zero emission vehicles.
   • Publicly call for BC Ferries to continue transitioning to a fleet that will produce zero operational greenhouse gas emissions, and work with others to support this goal.

3. To reduce the need for transportation, both on and off the island, BIM could:
   Quick Wins
   • Work with Metro Vancouver, the provincial government, and the private sector to develop an on-island composting system to process all organic waste produced on the island into a resource for local use.
   • Facilitate the development of an on-island health care centre.
   • Revise planning designations to encourage the development of shared, fully serviced office space in Snug Cove.
   Longer Term
• When considering new residential developments, give priority to those located in or near Snug Cove.
• Facilitate, through appropriate zoning, the on-island location of businesses serving Bowen.

4. To increase the energy performance of buildings BIM could:
Longer Term
• Work with the construction industry to prepare for higher levels of the Step Code, to achieve net zero ready new buildings by 2030.
• Work with Metro Vancouver, the Province of British Columbia, community organizations and the private sector to develop a program for home and business owners to cost-effectively upgrade building energy efficiency, and replace propane and oil heating with efficient electric heating and cooling systems such as heat pumps.
• Require all new public buildings to be built to meet the requirements of the top step of the BC Energy Step Code.

Strategies to increase Bowen’s resilience to the effects of an unstable climate
Hotter, longer, drier summers, more frequent and intense storms, as well as rising sea levels, will threaten Bowen’s natural and built assets. Three strategies could protect the built infrastructure and sustain the quality of life for residents from storms, storm surges and other climate-related threats; and help sustain the natural systems that provide drinking water, manage storm water, store carbon and provide habitat for wildlife.

5. To protect built infrastructure BIM could:
Quick Wins
• Include, in the Asset Management Plan, assessments of the vulnerability and risks to built infrastructure from climate impacts.
Longer Term
• Develop plans, including anticipated timing and estimated costs, to reduce vulnerability and risks where possible and adapt to unavoidable changes.
• Identify high-risk areas, such as those vulnerable to sea-level rise, and restrict development appropriately.
• Assess floodway capacity consideration for increased winter precipitation. Determine culvert capacities and establish new Flood Construction Levels (FCL) where appropriate.
• Ensure the five-year financial plan includes appropriate financing for the adaptation plans.

6. To increase protection from droughts and wildfire BIM could:
Quick Wins
• Assess the feasibility of requiring rainwater catchment systems on new buildings to reduce stress on engineered and natural water systems, and ensure abundant on-site water for fire suppression.
Longer Term
• Seek funding from senior governments for a comprehensive drought resiliency and wildfire protection program.
• Set regulations as permitted under the Building Act to require fire-resistant roofing, siding, decks and other elements on all new buildings.

7. To protect natural systems BIM could:
Quick Wins
• Set a Conservation Development Policy to protect forests, wetlands, and other environmentally sensitive areas.
• Work with the Province of British Columbia, Metro Vancouver and the Islands Trust to remove the logging designation from the island’s Crown Lands.
• Increase protection of forest lands from overuse and fire by working with Metro Vancouver to expand Crippen Park into the Crown Lands.
• Retain soil fertility and its ability to store carbon by encouraging and enabling regenerative agricultural practices.

**Longer Term**
• Conduct a comprehensive Ecological Assets Inventory identifying and quantifying the value of the natural systems providing services to the island.
• Retain ecological connections through an expanded Greenways Network.
• Use, in land use decisions, data on carbon storage and environmentally sensitive areas identified by Metro Vancouver, the Islands Trust and community groups.
• Establish and promote guidelines for landscaping and irrigation to reduce overall demand on natural water systems required to maintain island ecosystems.

**Engaging Bowen residents**
The strategies and actions to reduce emissions and adapt to the unstable climate cannot be achieved without the active support of Bowen residents.

8. **To gain active support for the Climate Change Strategy BIM could:**

**Quick Wins**
• Delegate responsibility to the Communications Team to develop an outreach and engagement strategy, following the *Communicating with the Public Policy*, but with emphasis on:
  • Presentations in dialogue format to smaller groups, such as BIM committees and volunteer organizations.
  • Presenting the rationale for the goal and the eight strategies, and then gaining input on the actions that underlie the strategies.
  • Consider including elements of the Strategy in Bowen tourism and branding.
  • Using experts for presentations when needed.
  • Revising actions to accommodate public ideas and priorities.
  • Seeking consensus on actions and champions to promote and assist in implementation.
Bowen Island 2050
Climate Action Strategy

Context
The latest science tells us every community and every level of government—large and small—must do its part to limit global temperature increases to well below 2 degrees Celsius while pursuing efforts to limit the increase to 1.5 degrees. Bowen Island is already seeing increased infrastructure replacement costs associated with extreme weather, as well as higher risks of drought, storm damage and wildfire. International scientific bodies studying climate change state that limiting the temperature increase to 1.5 degrees could avoid the most catastrophic consequences for societies across the globe.

It is time to increase our efforts to both reduce greenhouse gas emissions and take steps to adapt to the inevitable changes in our climate. However, achieving meaningful results will be challenging; Bowen Island is a small municipality with limited financial resources, and without the jurisdiction to act on many of the key drivers of emissions.

The tools within Bowen Island Municipality’s (BIM) sphere of influence include land use planning; new regulations, bylaws or policies within areas of municipal authority; investments in green and engineered infrastructure; advocacy to other organizations for complementary efforts or investments; and connecting with Bowen’s residents to encourage and enable positive initiatives.

Collaboration is Key to Success
Other levels of government have developed or are developing powerful, implementable strategies to address climate change. An efficient strategy for BIM would be to align its efforts with theirs, where appropriate, so that initiatives could be complementary. For example, Metro Vancouver has recently adopted the 1.5 degree target that scientists recommend, which requires emissions to be reduced to zero by 2050. The Regional Government is in the process of developing “Roadmaps” to meet that ambitious target and adapt to the changing climate. Aligning BIM’s work with regional initiatives as they develop could provide synergies and amplify Bowen’s efforts.

The evolving nature of other major players’ efforts to address climate change suggests that BIM’s strategy remain flexible and adaptable. New information, technologies and initiatives will provide opportunities and challenges for BIM.

Strategic Framework
Ten strategies with a series of potential actions for each are highlighted. The strategies and actions are aimed toward reducing Bowen Island’s greenhouse gas emissions so that zero becomes feasible by 2050, aligning with scientists’ recommendations. The strategies will also increase our Community’s ability to respond to and recover from climate-related impacts and events.

Budget and Implementation
Some actions may be costly, others could reduce expenses for the Municipality and for residents. Ultimately, actions with financial implications will require Council’s direction and approval, public engagement, and research in order to proceed and progress towards successful completion.
For actions that have financial implications, a cost benefit analysis may be carried-out to fully understand the expenditure in terms of climate action.

Many actions included in this strategy will be incorporated into future Official Community Plan updates, Land Use Bylaw amendments, Community Energy and Emissions Plan updates, and other current and future relevant plans. Detailed implementation plans will include achievable steps and progress will be tracked.

**Measuring, monitoring and adjusting strategies**

Effective strategies cannot be developed without a clear understanding of the sources of Bowen’s emissions and carbon sequestration principles.

While emissions will have changed somewhat since a 2003 Bowen Island analysis, to date there have been no significant developments that would have altered the general structure of Bowen’s emissions as identified in the 2003 analysis. However, as actions to cut emissions are implemented it will be important to calculate reductions and adjust strategies appropriately.

Periodic measurement of Bowen’s carbon footprint from sources such as emissions, loss of tree canopy, and impacts to fresh water and marine environments are important. The environmental implications section in BIM Council reports, as implemented in late 2019, will provide a source of reference material when reporting out on measurements.

As data, measurement metrics, pertinent reference materials, understanding of cumulative effects and analysis techniques improve, annual reporting on successes and failures, along with strategic adjustments will be a critical element of an evolving and adaptive Climate Action Strategy.

**Timing of initiatives**

The actions have been organized into three groupings:

- **Quick Wins** — These could be implemented within 1 – 3 years
- **Longer Term** — Because of cost or complexity implementation will take longer than 3 years
- **Support and Advocacy** — BIM to take a collaborative approach but ultimately implementation is outside of BIM’s jurisdictional authority

**Strategies to reduce the emissions causing climate instability**

Currently, transportation contributes more than 80% of Bowen’s greenhouse gas emissions, while heating buildings is another significant source. Four strategies to reduce and eventually eliminate fossil fuel use in both areas could cut emissions dramatically, and potentially to zero by 2050.

1. **Promote a shift from single occupancy vehicles to alternatives**

   **Quick Wins**
   - For new developments, set a policy to cluster homes near transit routes and facilitate the growth of shared transportation solutions, and require amenity packages that contribute to alternative transportation options.
   - Add an e-bike with visible branding to the BIM vehicle fleet; set policy to encourage its use.
   - Support road sharing initiatives that promote a culture of active transportation.

   **Longer Term**
• Accelerate investments in active transportation infrastructure above the level identified in the Bowen Island’s Transportation Plan, so that by 2030, a majority of Bowen Island residents have access to a system of multi-use transportation paths aligning with the recommendations of BC’s 2019 Active Transportation Strategy.
• Add electric vehicles to the municipal fleet where appropriate.

Support and Advocacy
• Work with TransLink, BC Ferries and community organizations to ensure residents traveling beyond Horseshoe Bay have reliable, convenient alternatives to the private vehicle through expanded foot-passenger marine and express bus services.
• Work with community organizations and TransLink to develop a comprehensive and possibly fare-free public transit system that serves all Island neighbourhoods and aligns with new options for foot-passenger marine service.

2. Encourage and facilitate the transition to low and zero emission transportation options
Quick Wins
• Amend BIM’s Development Permit provisions to require all parking spaces in new multi-family homes to be wired for an outlet capable of providing electric vehicle charging and create incentives for retrofitting existing multi-family homes.
• Amend BIM’s Development Permit provisions to require electric vehicle charging capacity in at least one parking space for new single-family homes and create incentives for retrofitting existing homes.

Longer Term
• Look for opportunities to develop fast charging stations on Bowen to support the introduction of heavy-duty e-vehicles, such as buses.

Support and Advocacy
• Publicly call for BC Ferries to continue transitioning to a fleet that will produce zero operational greenhouse gas emissions, and work with the Province and Islands Trust, BIM Committees, local action groups and others to support this goal.
• Call for BC Ferries to emphasize pedestrian and active transportation amenities rather than increasing reliance on personal vehicles, such as by placing higher rate increases on vehicles than pedestrians.

3. Reduce the need for transportation, both on and off the Island
Quick Wins
• Work with Metro Vancouver, the provincial government, community groups, and the private sector to develop an on-island composting system to process local organic waste, and where possible compostable plastic, into a resource for local use.
• Facilitate the development of an on-island community centre and health care centre.
• Encourage the development of shared, fully serviced office space in Snug Cove.
• Explore how improvements in internet capacity could reduce transportation needs while enhancing local economic development.
• When considering new residential developments, give priority to those located in or near Snug Cove.
• Encourage the development of local agriculture.

Longer Term
• Consider, through appropriate zoning, the on-island location of businesses, including light industrial, serving Bowen.
• Encourage small businesses at the neighbourhood level such as creation of small pop-up businesses in the outlying areas of the Island.

4. Increase the energy performance of buildings

Short Term
• Work with the construction industry and the community to prepare for higher levels of the Step Code, to achieve net zero ready new buildings by 2030.

Longer Term
• Work with other levels of government, community organizations and the private sector to develop a program, including incentives, rebates and education, for home and business owners to cost-effectively upgrade building energy efficiency, and replace propane and oil heating with efficient electric heating and cooling systems such as heat pumps.
• Require all new public buildings to be built to meet the requirements of the top step of the BC Energy Step Code to the extent that it is feasible.

Strategies to increase Bowen’s resilience to the effects of an unstable climate

Hotter, longer, drier summers, more frequent and intense storms, as well as rising sea levels, will threaten Bowen’s natural and built assets. Five strategies could protect the built infrastructure and sustain the quality of life for residents from storms, storm surges and other climate-related threats; and help sustain the natural systems that provide drinking water, manage stormwater, store carbon and provide habitat for wildlife.

5. Protect built infrastructure

Quick Wins
• Include, in the Asset Management Plan, assessments of the vulnerability and risks to infrastructure from climate impacts.
• Develop and disseminate educational materials about green infrastructure (natural assets, enhanced assets and engineered assets).
• Develop a stormwater management master plan.
• Seek funding from senior governments for flood planning and mitigation activities.
• Develop development permitting and other regulatory tools in flood zones, shoreline areas and other vulnerable places.

Longer Term
• Develop plans, including anticipated timing and estimated costs, to reduce vulnerability and risks where possible and adapt to unavoidable changes.
• Update vulnerability maps and identify high-risk areas, such as those vulnerable to sea-level rise, restrict development appropriately and promote natural shoreline principles.
• Assess floodway capacity consideration for increased winter precipitation. Determine culvert capacities and establish new Flood Construction Levels (FCL) where appropriate.
• Ensure the five-year financial plan includes appropriate financing for the creation and/or implementation of adaptation-related plans.

6. Increase protection from droughts

Quick Wins
• Reduce the stress on engineered and natural water systems by assessing the feasibility of requiring rainwater catchment systems on new buildings and encouraging their use on existing buildings.
• Investigate opportunities, identify barriers around greywater usage.
• Investigate water conservation strategies during the water main flushing process including assessing volumes of water flushed and identifying opportunities for storage and usage.

Longer Term
• Seek funding from senior governments for a comprehensive drought resiliency and wildfire protection program.

7. Increase protection from wildfire

Quick Wins
• Continue to implement the Community Wildfire Protection Plan.
• Consider safe access and egress to neighbourhoods in land-use planning.
• Encourage and support site appropriate FireSmart planning.

Longer Term
• Establish a Development Permit Area for the entire island, requiring all new buildings to have FireSmart protections such as fire-resistant roofing, siding, decks, and other fire suppression systems.

8. Protect and enhance natural systems and carbon sequestration

Quick Wins
• Continue to adhere to Official Community Plan Policies, environmental protection bylaw provisions and create a conservation-oriented development/design policy to help protect forests, wetlands, shorelines and environmentally sensitive areas.
• Work with the Province of British Columbia, Metro Vancouver and the Islands Trust to remove the logging designation from the Island's Crown Lands.
• Increase protection of forest lands by working with Metro Vancouver to expand Crippen Park into the Crown Lands.
• Engage in re-greening projects where applicable.
• Develop a water conservation master plan, including but not limited to, water source protection, storage, collection, site permeability, and infrastructure opportunities on Crown and Municipal land, and guidelines for water-wise landscaping and irrigation protocols.
• With the intent of balancing FireSmart principles with potential loss of protective and carbon sequestering forested land, develop a clearcutting bylaw to regulate clearcutting activities on private land.

Longer Term
• Conduct a comprehensive Ecological Assets Inventory identifying and quantifying the value of the natural systems in terms of biodiversity values, carbon sequestration properties, and other characteristics.
• Where gaps in ecological protection exist, develop relevant regulatory and enforcement tools.
• Retain ecological connections through an expanded greenways network as outlined in BIM’s Parks Plan and other relevant plans.
• Protect identified ecological assets through management plans, education and regulation.

9. Protect and enhance regenerative agricultural practices

Quick Wins
• Collaborate with local farm artisans, agriculture alliances and food resiliency groups.
• Through education, workshops and advisory groups address soil fertility and its ability to store carbon by encouraging regenerative agricultural practices.

Longer Term
• Enhance agricultural zoning provisions in Official Community Plan and Land Use Bylaw updates.
• Develop incentives for on-island food resiliency and food production.
Engaging Bowen residents
The strategies and actions to reduce emissions and adapt to the unstable climate cannot be achieved without the active support of Bowen residents.

10. Gain active support for the Climate Change Strategy
Quick Wins
Delegate responsibility to Communications and Environment Staff to develop an outreach and engagement strategy, following the Communicating with the Public Policy, with emphasis on:
• Presenting to BIM committees and volunteer organizations.
• Obtaining community feedback by hosting a workshop.
• Including elements of the Climate Action Strategy in Bowen tourism and branding.
• Using experts for presentations when needed.
• Revising actions to accommodate public ideas and priorities.
• Seeking consensus on actions and identifying champions to promote and assist in implementation.
• Collaborating with community groups to host climate action events and to co-produce education materials.
• Collaborating with Islands Trust, Metro Vancouver, and other organizations with similar goals to engage with the public and encourage participation.