APPENDIX A: STAFF COMMENTS ON DRAFT ENVIRONMENT PLAN

PLANNING AND DEVELOPMENT SERVICES

Reference in Proposed Environmental Plan	Staff Comments
We can do more to protect ourselves from the extreme weather events that have flooded houses, buildings and roads, overwhelmed aging stormwater and wastewater systems, damaged crops, and brought heavy ice and wind storms that knocked out power for hundreds of thousands of people, including those who are most vulnerable. (p 6)	An educational component is very important in all of this. **Suggestion:** 1. Encourage educational campaigns on a municipal level, identify importance of it for general public and include this component into the financing structure; 2. Encourage flow monitoring assignments throughout the sanitary system to enhance system knowledge during wet weather events (quantification and qualification of extraneous flows entering the system); 3. Provide support (i.e., appropriate resources) to Conservation Authorities for the development of updated floodplain mapping.
Continue work to restore and protect our Great Lakes (p 12)	Microplastics in our water (including the Great Lakes) needs to be addressed further.
Build on previous successes and continue efforts to protect water quality and ecosystems of the Great Lakes. (p 12)	Niagara Region supports the proposal to continue the existing partnerships with the federal government pursuant to the 'Canada-Ontario Great Lakes Agreement' and the 'Canada-Ontario Lake Erie Action Plan'.
Build on the ministry's monitoring and drinking water source protection activities to ensure that environmental impacts from road salt use are minimized. Work with municipalities, conservation authorities, the private sector and other partners to promote best management practices, certification and road salt alternatives. (p 13)	There are two actions that refer to reducing/ addressing salt as a pollutant – one through the review of the Ontario Great Lakes Strategy (p 12) and one by building onto the Source Water Protection program (p 13). Niagara Region supports progress with respect to addressing salt as a pollutant to both aquatic life, and to our drinking water but it is not clear what actions will be taken. In addition, the Province should contemplate setting standards for salt that are more in line with the acute and chronic toxicity levels in aquatic life. If we protect biodiversity from salt impacts, our drinking water will also be protected.

Reference in Proposed Environmental Plan	Staff Comments
Thoroughly review the province's water taking policies, programs and science tools to ensure that vital water resources are adequately protected and sustainably used. (p 14)	Niagara Region supports the proposal to review the Province's water taking programs, policies, and science tools. In addition, Niagara Region encourages the Province to review the staffing and resources necessary to support, implement, monitor, and enforce these programs, policies, and tools and expand as required.
Ensure the knowledge gained through the drinking water source protection program helps inform our water management programs. (p 14)	Niagara Region encourages the Province to commit to funding the maintenance and updating of the existing Source Water Protection program.
Improve municipal wastewater and stormwater management and reporting (p 15)	While there are several recommendations to improve municipal stormwater management and reporting, there is no mention in the document to Low Impact Development techniques as a management practice. The Provincial Stormwater Management Guidelines (2003) have been subject to a review for a number of years, yet have not been updated. It would be beneficial to update the stormwater management guidance to consider the effects stormwater management may have on ecological and hydrologic functions, by managing stormwater at the source. The Draft Low Impact Development Stormwater Management Guidance Document (2017) has been available for some time and should be finalized.
Update policies related to municipal wastewater and stormwater to make them easier to understand. We will consider how wastewater and stormwater financing could be updated to improve investment and support new and innovative technologies and practices. (p 15)	Niagara Region developed a Combined Sewer Overflow Control & Wet Weather Management Policy recognizing the inter-dependent nature of wastewater collection and treatment system in Niagara. The policy directly supports F-5-5 MECP directives and facilitates the shared funding of strategic and prioritized solutions that mitigate the impacts of wet weather events on municipal sanitary systems, the environment, and individual household basements. Knowing that more than 50% of all extraneous follows enter the system from the private side, the policy addresses municipal projects for private side source control as well. **Suggestions:**

Reference in Proposed Environmental Plan	Staff Comments
	1. Through the Municipalities for Climate Innovation Program (MCIP), re-develop a process so, the municipalities can easier apply for sewer separation projects since such projects bear the biggest cost and eliminate/reduce most of the wet weather effects to the sanitary system and the environment through the overflows. At the same time, such projects greatly reduce risks of basement flooding; 2. Encourage projects of eliminating and reducing impacts of wet weather through identification of funding category for municipalities working on the private side to disconnect sources of extraneous flows; 3. Identify projects for controlling extraneous flows through a variety of engineering solutions such as full/partial containment, inline upsizing, etc; 4. Develop and clarify the funding structure for infrastructure projects based on the following order: 1. Elimination, 2. Reduction, 3. Control, of wet weather flows;
Encourage targeted investment and innovation in managing wastewater that overflows into our lakes and rivers. (p 15)	Further detail/consultation is needed on how investment in managing wastewater overflow into lakes and rivers will be encouraged.
The following graph shows the rising costs of insured property damage in Ontario between 1983 and 2017, providing an indication of the costs of climate change. The financial costs associated with extreme weather events in Ontario have increased over this period. Chief among factors affecting the increasing costs to Ontarians is the phenomenon of flooding, and more specifically,	This report indicates that: “Chief among factors affecting the increasing costs to Ontarians is the phenomenon of flooding […]” However many watercourses in Ontario have either inadequate floodplain mapping or no floodplain mapping at all. As such, Niagara Region strongly encourages the Province to make available sufficient funding to provide for the generation and updates of floodplain maps in order to better delineate areas that are prone to riverine flooding.

Reference in Proposed Environmental Plan	Staff Comments
residential basement flooding. (p 18)	
Undertake a provincial impact assessment to identify where and how climate change is likely to impact Ontario's communities, critical infrastructure, economies and natural environment. The assessment would provide risk-based evidence to government, municipalities, businesses, Indigenous communities and Ontarians and guide future decision making. (p 19)	The proposed provincial impact assessment may be too high-level to be a useful tool for municipalities. There should also be support for municipalities to undertake risk-based impact assessment at the local level.
Support communities by demonstrating how climate science can be applied in decision making to improve resilience. (p 19)	Support should also be provided to encourage municipalities to integrate climate change adaptation into plans, strategies, and risk management processes.
Review the Municipal Disaster Recovery Assistance program to encourage municipalities to	Enhancements to the Municipal Disaster Recovery Assistance program should be assessed in order to encourage infrastructure investments as adaptation to extreme weather.

Reference in Proposed Environmental Plan	Staff Comments
incorporate climate resilience improvements when repairing or replacing damaged infrastructure after a natural disaster. Since the Municipal Disaster Recovery Assistance program was launched in 2016, over $2.6 million has been provided to 11 municipalities. (p 20)	
10 Ways to Prevent Home Basements Flood (p 20)	There are still numerous houses with downspouts running through the ground to a sanitary lateral together with weeping tiles. **Suggestion:** Include pictures for: 1. Downspout disconnection, 2. Weeping tile disconnection and re-direction, 3. Sump pit/sump pump installation; There are evident issues associated with a backwater valve installed that could lead to a basement floor cracking if the soil surrounding the house is saturated enough to create and extra pressure from the outside to the foundation. Also, general perception is that with a backwater valve in place, the house is protected from flooding. What the general public does not understand is that a homeowner can flood his own house by using washing machine, taking showers, etc. during a wet weather event when the backwater valve is closed. **Suggestion:** Make a cautionary statement when presenting this way of protection from flooding.
Review land use planning policies and laws to update policy direction on climate resilience. This will help make the way our communities are planned and designed more	Niagara Region supports a review of the planning framework as it relates to climate resilience. Further policy direction and guidance from the Province on climate change adaptation is welcome. The Province should release further details with respect to the land use planning review. In addition, any

Reference in Proposed Environmental Plan	Staff Comments
responsive and adaptive to changing weather conditions, such as improving the way that stormwater is managed. (p 21)	updated policy direction should be developed in consultation with municipalities, and provide sufficient flexibility to address varying climate change impacts. Each municipality experiences the impacts of climate change differently, and must customize their adaptation efforts to the risks and vulnerabilities present in their communities.
The Ontario Carbon Trust is an emission reduction fund that will use public funds to leverage private investment in clean technologies that are commercially viable. For this action we estimate a fund of $350 million will be used to leverage private capital at a 4:1 ratio. Estimates will depend on the final design and mandate of the trust. The estimates also include the potential emission reductions associated with a $50 million Ontario Reverse Auction designed to attract lowest-cost greenhouse gas emission reduction projects. (p 24)	There is not enough information to properly consider the Ontario Carbon Trust proposed in the document. Given it is premised on investing public money into private sector, more information should be made available.
Use Energy and Resources Wisely (p 31)	There is no emphasis at all on renewable energy investment, thereby reducing dependency on non-renewable resources. Green energy seems to have disappeared.
Work with the Ontario Energy Board and natural gas utilities to increase the cost-effective conservation of natural gas to simultaneously reduce emissions and lower energy bills. (p 32)	Work with OEB and natural gas utilities for conservation efforts should also consider incentives for new development (community district energy, heat pumps etc.), not only homeowner energy retrofits.

Reference in Proposed Environmental Plan	Staff Comments
This government is expanding GO service and making it easier for commuters and members of the community to move around the GTHA. More riders in seats relieves congestion on the roads. We're providing more reliable, predictable journeys across the region – greatly improving the daily transit experience. These improvements bring us a step closer to our vision to deliver twoway, all-day GO service. (p 38)	Niagara Region thanks the Province for its accelerated January 2019 implementation of daily GO Rail service to St. Catharines and Niagara Falls. The Region will continue to work closely with the Province to establish GO Rail service delivery to Grimsby, as well as towards achieving its commitment to implement daily all-day GO Rail service to each of Niagara's stations by 2023.
Move Ontario's existing waste diversion programs to the producer responsibility model. This will provide relief for taxpayers and make producers of packaging and products more efficient by better connecting them with the markets that recycle what they produce. (p 43)	Producers should be responsible for their products for the full life cycle. This should be expanded to all retailers that provide products in single use packaging (restaurants, etc.)
Revise the brownfields regulation and the record of site condition guide to reduce barriers to redevelop and revitalize historically contaminated lands, putting vacant prime land back to good use. (p 45)	Cutting red tape in the brownfield regulations and reusing soil should not compromise human or environmental health.

Reference in Proposed Environmental Plan	Staff Comments
Work with municipalities, conservation authorities, other law enforcement agencies and stakeholders to increase enforcement on illegal dumping of excess soil. (p 45)	This review is supported. There may be opportunities to consider regulations relating to enforcement on private properties and fines. A tracking system for reusing excess soil may assist in municipal enforcement efforts for illegal dumping.
Collaborate with partners to conserve and restore natural ecosystems such as wetlands, and ensure that climate change impacts are considered when developing plans for their protection. (p 47)	Further scientific research and guidance is required to assist with increasing the resiliency of natural ecosystems in the context of climate change. Funding and support for such science will be required in order to fulfill the goal.
Protect vulnerable or sensitive natural areas such as wetlands and other important habitats through good policy, strong science, stewardship and partnerships. (p 48)	There are a number of stewardship conservation programs that are not adequately funded and if they were, could provide more on-the-ground results (i.e., Species-at-Risk Stewardship Fund, Land Stewardship & Habitat Restoration Program, etc.).
Improve coordination of land use planning and environmental approval processes by updating ministry guidelines to help municipalities avoid the impacts of conflicting land uses. (p 48)	It is understood that to support conservation and environmental planning, the Environmental Plan proposes to review and update legislation to ensure approval processes are well coordinated. There are a number of guidance documents that have been released by the Province but not finalized, which would assist in improving coordination (Watershed Planning Guidance in Ontario, Low Impact Development Stormwater Management Guidance Manual, etc.). Further detail/consultation is needed regarding this proposal.
Sustainable Forest Management (p 50)	Municipalities may benefit from a province/regional specific guide on best practices for managing forests, sustainable forest management plans.

Reference in Proposed Environmental Plan	Staff Comments
Protect our natural environment from invasive species by working with partners and other governments and using tools to prevent, detect and respond to invasions. (p 51)	Enhancing and maintaining biodiversity is one of the best ways to protect against invasive species and this is not mentioned.
An advisory panel on climate change will be established to provide advice to the Minister on implementation and further development of actions and activities in our plan specific to climate change. (p 53)	The advisory panel on climate change should include municipal representation to gain a local perspective on implementation.
Begin implementing priority initiatives. (p 53)	There are many references to the Province supporting partnerships with municipalities to address certain elements (i.e., stormwater, land use planning) however it is not clear what actions will be taken to further support. Consideration should be given to resource allocation, particularly programming and funding opportunities, to enhance the ability for municipalities to address some of the identified actions (ex. Explore opportunities to enhance coordination and guidance for municipalities to help them consider climate change in their decision-making; work with municipalities to develop climate and energy plans….).

PUBLIC WORKS

Reference in Proposed Environmental Plan	Staff Comments
Increase transparency through real-time monitoring of sewage overflows from municipal wastewater systems into Ontario's lakes and rivers. Work with municipalities to ensure that proper monitoring occurs, and that the public is aware of overflow incidents. (p 15)	Niagara Region currently monitors and reports its combined sewer overflows and publicly report the information on dates, times and volumes to the public via our website. The site gets very few "hits" and the information is rarely requested. As the overflows occur during wet weather, when the public is unlikely to be using the water body recreationally, we are unsure as to the benefit of real-time reporting. As the information is already reported in real-time to the MOE/MECP as a requirement of the Environmental Compliance Approval system, it would seem to be more efficient for the MOE/MECP to develop a real-time reporting system to avoid duplication of efforts amongst all the municipalities currently regulated. This would avoid unnecessary costs to develop reporting systems that are not budgeted for or requested by the rate payers.
Update policies related to municipal wastewater and stormwater to make them easier to understand. We will consider how wastewater and stormwater financing could be updated to improve investment and support new and innovative technologies and practices. (p 15)	Niagara Region supports the updating of the current F-5-5 policy. We would prefer these documents be turned into standards as opposed to the current "guideline" approach. The use of the word "guideline" and "procedures" has always been problematic for the regulated community and others as to the interpretation or legal basis of not designing to these old documents. Using the "standard" approach, it would remove ambiguity and be understood that a design either complies with the standard (or does not). One typically designs a facility to meet a standard (whether it's a CSA, ASTM, NSF or other standard). A guideline is more of a "best practice" approach that doesn't have any legal consequence. The Region supports an update of all the F-series "procedures" and would like to be part of any working group set up to do this.
We will work with partners on ways to make it easier for residents and businesses to waste less food or reuse it for beneficial purposes such as compost. (p 31)	Niagara Region supports the Ontario Food Recovery hierarchy consisting of the following steps in order of importance: (I) Reduce; (ii) Feed People; (iii) Recover Resources. When considering recovery rates it is important to consider the parameters used to in the calculation. Comments on other action items in this plan specifically reflect Niagara Region's position that

Reference in Proposed Environmental Plan	Staff Comments
	individual sectors in the province should have their own measurable targets and metrics.
Quick Fact: About 60% of Ontario's food and organic waste is sent to landfills which emits methane – a potent greenhouse gas – when it decomposes. Efficient diversion of household waste from landfills is an important tool in the fight against climate change. To read more about our plan to fight litter and waste, see page 40. (p 32)	Niagara Region's position to date, reflected in the Province's Food and Organic Waste Framework, is that actions focusing on prevention of food and organic waste are critical. We also support the Province's expanded vision to take a systems approach to food and organic waste generation, management and recovery, recognizing that all stages of supply and production have a role to play in moving towards a circular economy.
Expand green bin or similar collection systems in large cities and to relevant businesses. (p 41)	Niagara Region supports this action and currently offers unlimited organics collection for small to medium sized Industrial, Commercial and Institutional (ICI) properties. Carts are priced for cost recovery only, encouraging participation. Provincial plans should specifically reflect expansion and targets for ICI and high and low-rise multi-residential (multi-res) sectors as participation rates for these sectors are typically lower than for Low Density Residential (LDR). Multi-res high-rise buildings may face unique challenges with respect to collection of organics materials, depending on age and design. Collection of organics must be as convenient as garbage collection is to encourage participation and improve program participation rates in these sectors. The Province should also consider public spaces and community events as a sector to target (e.g. festivals generate food waste). Some municipalities, including Niagara Region, already offer organics collection at special events. As noted in previous EBR comments on the Province's Food and Organic Waste Framework, parameters to be used for measuring success, and the detailed calculation to establish a baseline and future

Reference in Proposed Environmental Plan	Staff Comments
	measurement for the percentage of waste reduction and resource recovery, need to be defined, separately, for each sector. The Province should work with all stakeholders to establish timelines, as municipalities must budget and plan for processing capacity and end markets must be identified. Additionally, beneficial activities such as on-site management of organics through grasscycling and backyard composters should not be reduced through implementation or expansion of organics collection programs.

Reference in Proposed Environmental Plan	Staff Comments
Develop a proposal to ban food waste from landfill and consult with key partners such as municipalities, businesses, and the waste industry. (p 41)	Niagara Region is supportive of a disposal ban, as noted in previous EBR comments on the Province's Food and Organic Waste Framework. Materials to be included in the ban must be clearly defined and the program should be further expanded to include branded (non-food) organics, including compostable packaging and other materials, some of which may already be acceptable in local programs (e.g. leaf and yard waste and pet waste). A disposal surcharge could potentially be used in conjunction with a ban to provide some allowance for incidental amounts of designated materials. Disincentives in the form of levies/penalties are needed to discourage private sector facilities from accepting banned materials. In order for bans to be effective, targets must be established and implementation time is needed between diversion program start, target dates and enforcement of a ban. For example, Niagara Region currently collects from LDR, ICI and multi-res locations in the same routes, and phased-in targets might be different for each sector. Participation and contamination rates currently vary by sector and this may make thresholds for compliance and enforcement more challenging. Implementation time between the various sectors should be done within reasonable time limits in order to ensure consistency in messaging to the public. Compensation to municipalities should be provided for any additional costs related to disposal bans, as food and organics are costly waste streams for municipalities to collect and process. The Province must provide the necessary oversight and enforcement resources to ensure compliance of disposal bans. Timelines are critical for planning by municipalities as many, including Niagara Region, have a tonnage threshold at which the processing costs increase, and many municipalities have little or no excess capacity.

Reference in Proposed Environmental Plan	Staff Comments
Educate the public and business about reducing and diverting food and organic waste. (p 41)	Niagara Region's position, as noted in previous EBR submissions for Ontario's Food and Organic Waste Framework, is that actions focusing on prevention of waste, including education, are critical in attaining goals minimizing the amount of food and organic waste to be disposed of. Niagara Region will continue to develop Promotional and Educational material (P&E) and programs aimed at preventing food waste, for example by participating in and leveraging work completed through the Ontario Food Collaborative (OFC) and other initiatives. Province-wide P&E messaging to prevent food waste is supported. To date, Province-wide P&E messaging on organics diversion collection programs has been difficult to deliver and may contribute to resident confusion due to the differences between municipal processing systems and the various materials that can be accepted in each system. Also P&E needs to be customized to reflect needs of different sectors, such as lower participation and higher contamination rates experienced by the multi-res sector. Niagara Region's residential food/organics diversion program rate is less than 50% based on a 2015/2016 waste composition study. Participation rates in organics programs for the ICI sector tend to be even lower (in Niagara between 6% and 14% of ICI properties in downtown business areas use organics, according to audits completed between 2014 and 2018). Although education programs do work, further actions are required. Niagara Region had suggested in previous comments for the Food and Organic Waste Strategy that food waste reduction in the ICI sector could be better achieved through provincial policy/legislative changes such as policies similar to those in France/Europe that allow for and reduce risk to retailers when donating food as well as incentives to reduce food waste at the producer/retail level.
Work with other provinces, territories and the federal government to develop a plastics strategy to reduce plastic waste and limit	Similar to our position regarding food and organic waste, Niagara Region believes that actions focusing on reduction and reuse are critical. Municipal waste management systems must currently handle plastics at the end of the lifespan, whether through recycling

Reference in Proposed Environmental Plan	Staff Comments
micro-plastics that can end up in our lakes and rivers. (p 42)	programs or as litter, and as such, municipalities are an important stakeholder. Niagara Region looks forward to a coordinated effort with all levels of government. Any plastics strategy should also include the development and retention of recycling markets in Ontario.
Seek federal commitment to implement national standards that address recyclability and labelling for plastic products and packaging to reduce the cost of recycling in Ontario. (p 42)	Niagara Region is supportive of actions to reduce the cost of recycling, such as through implementation of national standards.
Ontario will establish an official day focused on cleanup of litter in Ontario, coordinated with schools, municipalities and businesses, to raise awareness about the impacts of waste in our neighbourhoods, in our waterways and in our green spaces. (p 42)	Niagara Region is supportive of this action and is undertaking an educational anti-litter campaign in 2019. The objectives of this campaign are to: (i) decrease the amount of litter in communities, specifically neighbourhoods, parks and other outdoor public spaces and; (ii) increase understanding and use of proper disposal methods for commonly littered items. Strategies include an education piece (targeted public space advertising, ads in newspaper and social media), provision of support to coordinated activities, and for Niagara Region to act as a hub for community clean ups so residents can participate. It would be beneficial for the Province to advertise and promote not only the official clean-up day, but also other local cleanup events, and to fund all or a portion of these clean-up events.

Reference in Proposed Environmental Plan	Staff Comments
Work with municipal partners to take strong action against those who illegally dump waste or litter in our neighbourhoods, parks and coastal areas. (p 42)	Niagara Region is supportive of initiatives to reduce illegal dumping and is proactive in taking action against offenders. A reporting tool, accessible on-line or by phone, is available. A monetary reward (a shared cost between Niagara Region and the appropriate LAM) is provided to persons reporting illegal dumping when the report results in an act of compliance (i.e. the offender returns to the site and removes the dumped material) or in a conviction. In 2017 Niagara Region's Illegal Dumping Working Group (IDWG), reestablished in 2012 and comprised of Regional staff and LAM representatives, formalized a partnership with Crime Stoppers of Niagara (CSN) to aid in public awareness of initiatives and allow all parties to better utilize resources. Residents can use CSN's anonymous tipster system as an alternative option for reporting incidents of illegal dumping, and are still eligible for rewards related to compliance and conviction as outlined above. CSN also aids in the promotion of illegal dumping campaigns on their social media platforms. In 2018 the IDWG continued to focus on installation of illegal dumping signage at hot spots, continued to promote Niagara Region's illegal dumping campaign and reporting tool via multiple avenues including newspaper ads, banners, transit ads, brochures and social media, and provided public litter bin stickers tailored to each LAM, along with other actions. Niagara Region also works with local residents associations to help with concerns of illegal dumping and contamination. In 2018 Niagara Region completed a litter bin "blitz" in LAMs to reduce illegal dumping in litter receptacles, an ongoing issue in Niagara Region. In 2018 a total of 755 illegal dumping reports were received at Niagara Region, an increase of 11% compared to 2017, and two offence notices were issued, along with 142 warning letters. Challenges for by-law officers include the need for evidence of the offender (e.g. material with the name and address of the offender) and the availability of a witness who is willing to testify in court. While bylaw officers have jurisdiction on public property, illegal dumping often occurs on private property.

Reference in Proposed Environmental Plan	Staff Comments
Develop future conservation leaders through supporting programs that will actively clean up litter in Ontario's green spaces, including provincial parks, conservation areas and municipalities. (p 43)	Niagara Region supports this action. One example is our Public Spaces Recycling (PSR) Program. To encourage installation of PSR containers in indoor and outdoor public spaces with higher public traffic, funding for the cost of containers is provided on a 50/50 cost-sharing basis between Niagara Region and LAMs. Niagara Region offers Special Events Recycling and Organics (SER&O) programs throughout the year to all public events within Niagara Region. A unique aspect of the program is the partnership with Eco-Defenders, a local non-profit community group that provides trained waste sorting volunteers to public events. Material diverted by Eco-Defenders is free of contamination and minimizes garbage produced by events, improving the diversion rates for Niagara Region's SER&O programming. As demonstrated by these examples, Niagara Region sees high value in the continued support of local programs promoting clean-up of litter and diversion of waste. All community events should be mandated to have diversion programs (twinned with garbage) and the Province should providing funding for volunteers to help sort waste properly at events. Public events should be

Reference in Proposed Environmental Plan	Staff Comments
	waste-free and generate only acceptable recyclable and compostable material.
Connect students with recognized organizations that encourage environmental stewardship so they could earn volunteer hours by cleaning up parks, planting trees, and participating in other conservation initiatives. (p 43)	Niagara Region has traditionally supported waste diversion programs in educational facilities and we continue to expand our programming.
Work with municipalities and producers to provide more consistency across the province regarding what can and cannot be accepted in the Blue Box program. (p 43)	Niagara Region supports a consistent Provincial approach to standardization of materials accepted in the Blue Box program that should be done as part of the change to full producer responsibility. To achieve this, materials should not be removed from the program and if they are, alternative approaches for disposal must be considered, with producers paying for management of the material in the waste management system. Consumer convenience should be maintained or improved, and access to existing services should not be negatively impacted by any changes to Blue Box program.
Explore additional opportunities to reduce and recycle waste in our businesses and institutions. (p 43)	Niagara Region is supportive of initiatives that target waste reduction and diversion in the ICI sector. As noted earlier, Niagara Region currently offers unlimited curbside recycling and organic pick-up service to small and medium sized businesses. We have created an environmental program specific to businesses: Rethink Your Waste at Your Workplace. This recognition program includes an educational component and rewards businesses that make efforts to maximize their waste diversion efforts. Similar voluntary programs have been in existence for a number of years, however, to make tangible progress towards reducing and recycling waste in the ICI sector, it would be beneficial to establish mandatory Provincial targets with firm timelines for the sector.

Reference in Proposed Environmental Plan	Staff Comments
	Municipalities need to be compensated for ICI materials that are municipally collected as part of the integrated collection system.
Move Ontario's existing waste diversion programs to the producer responsibility model. This will provide relief for taxpayers and make producers of packaging and products more efficient by better connecting them with the markets that recycle what they produce. (p 43)	Niagara Region is fully supportive of making producers responsible for properly managing the waste they produce, and believes the internalization of the cost of end-of-life product packaging with all-in pricing to remove costs from municipalities/taxpayers is the best option for Ontario. This provides the opportunity for design for the environment and less disposal. Niagara Region agrees with the Association of Municipalities of Ontario (AMO), who note that, " it is to the benefit of all stakeholders and citizens to have the Blue Box transition process start with the Minister of Environment, Conservation and Parks issuing a wind-up letter early in 2019, allowing for adequate time for robust planning and consultation on the development of a Paper Product and Packaging Regulation under Resource Recovery and Circular Economy Act, 2016 (RRCEA)". Furthermore, the list of designated materials should be reviewed and items such as construction and demolition waste included under producer responsibility.
Investigate options to recover resources from waste, such as chemical recycling or thermal treatment, which have an important role – along with reduction, reuse and recycling – in ensuring that the valuable resources in waste do not end up in landfills. (p 43)	Incentives to promote waste reduction (avoid waste generation) followed by reuse, recycling/composting are needed. These are higher value activities and although recovery is secondary, there should be recognition of energy production from biological treatment as diversion (e.g. anaerobic digestion to produce biogas or biological drying of organics into biofuel). Niagara Region is supportive of this and currently completes a formal yearly (at minimum) review of alternative waste management technologies. Niagara Region continues to engage other neighbouring municipalities in discussions related to available capacity at their current/future alternative waste management technology facilities and/or future needs that could be addressed by partnering with Niagara Region on alternative technologies.

Reference in Proposed Environmental Plan	Staff Comments
Encourage increased recycling and new projects or technologies that recover the value of waste (such as hard to recycle materials). (p 43)	There is a desire for access to increased options for recycling unacceptable Blue Box items by residents. While Niagara Region supports the goal of increased recycling and development of new technologies, the approach to encourage improved environmental outcomes should also include mechanisms to discourage the use of difficult to recycle materials. With access to additional funding and Provincial support, innovative programs to increase municipal diversion rates could be more widely implemented.
Ensure new compostable packaging materials in Ontario are accepted by existing and emerging green bin programs across the province, by working with municipalities and private composting facilities to build a consensus around requirements for emerging compostable materials. (p 43)	Niagara Region is supportive of this action as municipalities currently face challenges with respect to compostable packaging, namely that the material does not all break down in the various organic processing systems, at the same rate. Consensus around requirements would ensure the effectiveness of producer P&E material and also reduce resident confusion. Requirements would also help ensure that producers do not move to compostable packaging simply to avoid producer responsibility for designated paper and packaging, thereby shifting the problem. At the same time, the requirement to accommodate standard compostable material may mean that some municipalities must invest in new technology. Cost and capacity is a concern as increased tonnages will result in increased processing contract costs. Municipalities must be supported in these efforts.
Consider making producers responsible for the end of life management of their products and packaging. (p 43)	This aligns with previous positions put forward by Niagara Region. Niagara Region requests the Province take a firm stance, for example, designating all packaging, whether it is recycling or compostable. Producers should pay for management of designated materials regardless of the stream in which they end up. Niagara Region also supports designation and full producer responsibility of new materials such as additional electronics (appliances, electrical tools), florescent bulbs and tubes, mattresses, carpets, clothing and textiles, furniture and the bulky items. Transition plans particularly for the Blue Box program must address municipal contracts and assets and how

Reference in Proposed Environmental Plan	Staff Comments
	to avoid stranded assets. Transition to a producer responsibility regime could lead to Niagara Region's Recycling Centre becoming a stranded asset depending on the strategies put forth to achieve producer responsibility.
Cut regulatory red tape and modernize environmental approvals to support sustainable end markets for waste and new waste processing infrastructure. (p 44)	Access to stable and sustainable end markets for processed materials are critical to the successful implementation of the Province's plan. This includes the development and implementation of local / domestic end markets. As previously noted, increased organics tonnages due to an organics ban and increased P&E, requires that municipalities have the capacity to process and manage the material. The process could be eased with modernized environmental approval processes. With respect to Blue Box materials, market prices have fluctuated in recent years and access to the world-wide market requires production of a consistent and un-contaminated product. Funding and improved access to new waste processing infrastructure might allow for better sorting and processing of material, resulting in an improved and more desirable product for end-markets along with increased diversion. Niagara Region is supportive of streamlining approvals for waste processing infrastructure.
Provide municipalities and the communities they represent with a say in landfill siting approvals….The province will look for opportunities to enhance municipal say while continuing to ensure that proposals for new and expanded landfills are subject to rigorous assessment processes and strict requirements for design, operation, closure,	Niagara Region is supportive of streamlining landfill site approvals.

Reference in Proposed Environmental Plan	Staff Comments
post-closure care and financial assurance. (p 44)	
Set clear rules to allow industry to reduce constructions costs, limit soil being sent to landfill and lower greenhouse gas emissions from trucking by supporting beneficial reuses of safe soils. (p 45)	Niagara Region agrees that excess soil from construction projects should be beneficially re-used wherever possible. Landfill sites should not be the first option for soils disposal, as landfill capacity is required for solid waste disposal. Niagara Region agrees that beneficial soil re-use sites should be identified locally to reduce trucking distances, whereby reducing cost and reducing greenhouse gas emissions. Previous modification to the MECP Excess Soil Disposal Framework included practical options for municipalities to apply with respect to soil reuse. For example, municipalities can reuse salt contaminated soils at other locations that have similar salt impact using local background soil quality as a benchmark, rather than immediately resorting to landfilling if the soil exceeds the MECP Ontario background concentrations. The valuable input and ideas provided in previous EBR consultations should be incorporated in future plans.
Work with municipalities, conservation authorities, other law enforcement agencies and stakeholders to increase enforcement on illegal dumping of excess soil. (p 45)	As previously noted, Niagara Region by-law officers do not have jurisdiction over illegal dumping on private lands, and illegal soil dumping on public land in Niagara Region is not a common practice. (Some of the Local Area Municipalities in Niagara have site-alteration by-laws to regulate illegal dumping of fill.) Clarification regarding who is responsible for monitoring of excess soil movement should be provided. Contamination is based on soil chemistry and as such, visual inspection is not sufficient. Currently our by-law officers focus on the illegal dumping of waste material and monitoring/enforcement of illegal soil dumping is difficult due to the nature of the material as it is typically lacking supporting documentation required for conviction. A provincial framework for development of Excess Soil Management Plans (ESMP) developed in consultation with stakeholders, would help ensure consistency across Ontario municipalities.

Reference in Proposed Environmental Plan	Staff Comments
Consider approaches for the management and spreading of hauled sewage to better protect human health and the environment (including land and waterways) from the impacts of nutrients and pathogens. (p 45)	In Niagara, all sewage is hauled to municipally owned wastewater treatment plant for disposal and treatment. No spreading of raw sewage occurs on agricultural land here. Niagara Region has implemented a successful sewage biosolids management program that works well and is welcomed and supported by the local agricultural industry. The nutrient rich biosolids, from anaerobically digested sewage are land applied to give the soils the required nutrients needed to make local crops thrive. This program has worked effectively for several decades and Niagara would want to have input if any changes are being contemplated that may impact our contractual obligations or the agricultural community in general.
Continue to consult with the public and engage with Indigenous communities. (p 52)	Niagara Region is supportive of continued public engagement. Programs are most effective when all stakeholders are engaged in defining and developing opportunities, leading to better uptake and support. Waste Management Services (WMS) actively engages with all levels of stakeholders, including citizens, with respect to waste management policies and programs. As part of the Niagara Region's Humberstone Landfill Site Expansion EA process, dedicated meetings with Indigenous communities including Six Nations and Niagara Region Metis Council occurred. An EA Advisory Group comprised of local residents and businesses was also established. These efforts helped develop trust with the neighbouring community and Aboriginal Groups resulting in successful EA.
Begin implementing priority initiatives. (p 53)	Stakeholders need information about short and long-term timelines and access to detailed implementation plans in order to best support the Province with implementation of priority initiatives.
Measure and report on progress. (p 53)	Creation of data collection mechanisms to measure progress in waste reduction and resource recovery is vital. The province should have separate targets and metrics for reporting progress in reducing waste in the disparate sectors (LDR, ICI and multi-res sectors) and these targets should be enforced. Targets and metrics

Reference in Proposed Environmental Plan	Staff Comments
	should be developed in partnership with all stakeholders, including municipalities.

PUBLIC HEALTH AND EMERGENCY SERVICES

Reference in Proposed Environmental Plan	Staff Comments
At the same time, climate change threatens these resources and our homes, communities and businesses, infrastructure, and our locally grown food and crops. (p 6)	Could be strengthened by elaborating on the increasing evidence behind the impacts of climate change on food systems and how it is causing food system emergencies and disturbances. (Seed & Rocha, 2018). For example, the price of vegetables – a prime under-consumed food category based on prevalent nutrition recommendations – is predicted to increase due to changing weather patterns caused by climate change. It is also important to recognize that "blanket" policies based on locally-sourced foods are not best practice, given the diversity of challenges to food access.
It (climate change) also threatens food security and road access for remote First Nations, as well as the health of ecosystems across our great province. (p 6)	Food security should be clarified to include the ability to secure safe, healthy, personally/culturally acceptable foods, and how this has a significant impact of human and planetary health.
In 2001, the government of the day announced the closure of the Lakeview Generating Station, setting the stage for the phase out of coal-fired electricity generation which remains the largest single greenhouse gas reduction in Canadian history. (p 7)	Although the phase-out of coal-powered plants was and is a key contributor in climate change action, it is important to note that the electricity sector tends to be among the smallest contributor of GHG emissions – which is consistent across all sectors and all provinces. Identifying the full emissions produced from other sectors, such as transportation, will better inform a more accurate representation of Ontario's current carbon foot print and the role the province plays in GHG emissions for the country.

Reference in Proposed Environmental Plan	Staff Comments
Measured against the same base year of Canada's target under the Paris Agreement (2005), the province's total greenhouse gas emissions have dropped by 22% – even while the rest of Canada saw emissions increase by 3% during that same time. (p 7) Doing Canada's heavy lifting on greenhouse gas emission reductions came at a cost that was too high for Ontario families and businesses. (p 7)	It is important to recognize and acknowledge in the Plan that Ontario is the second largest contributor to GHG emissions in all of Canada (23%), preceded only by the highly driven oil and gas province of Alberta (37%) (Environment and Climate Change Canada, 2016). Ontario and Alberta together represent 60% of Canada's overall emissions produced. Without considering emissions for Ontario and Alberta, the rest of the country actually saw a decrease in emissions by 5.4%. Given the physical attributes of the province and its current emission practices, Ontario is a huge driver of the national average. As such, the province has a key role in reducing GHG emissions, which is not sufficiently addressed in the current draft of the plan. Hence, it is very appropriate (and needed) for Ontario to continue to contribute to emission reduction in Canada, Furthermore, it is notable that Ontario only had the 3rd largest percentage decrease across the country – further proving that emission reduction is a collective effort, and not just solely at the expense of Ontario as the statement suggests.
Quick Fact: As of 2013, Canada is responsible for 1.6% of global emissions, with Ontario responsible for less than 0.4% of global emissions. (p 16)	Although this is an accurate statement, without a sufficient background in climate knowledge, it is very easy to misinterpret this statement and downplay the significance of both 1.6% and 0.4% (respectively). The 1.6% of emissions represents the fact that Canada is the **9th** largest GHG emitter (out of 195 countries) which is a significant number, and even more so when considering population density (making Canada the 3rd highest polluter per capita in the world). Without considering this background information, the fact presented in the Plan insufficiently represents Ontario's role in climate change and should consider rephrasing.
Undertake a provincial impact assessment to identify where and how climate change is likely to impact Ontario's communities, critical infrastructure, economies and natural environment.	It is important to include the **health** implication in this assessment to bring awareness to communities on the current and projected implications of climate change on health. Further improvement would include: • Applying the health equity lens for impacts on vulnerable populations (See page 39 for further information).

Reference in Proposed Environmental Plan	Staff Comments
The assessment would provide risk-based evidence to government, municipalities, businesses, Indigenous communities and Ontarians and guide future decision making. (p 19)	• Considering how different sectors may be affected by climate change, as well as how such sectors may contribute to climate change. • Engaging communities to avoid potential rejection of sustainability principles/measures on the basis of ethnicity, culture, religion, etc. It is recommended to consider the *local* lens when completing such assessments as impacts heavily vary between communities and – since the province of Ontario is so large and diverse – it is important to not conclude with a "one-size-fits-all solution" but consider how to use local risk-reduction information to benefit individual communities.
Ontario will reduce its emissions by 30% below 2005 levels by 2030. This target aligns Ontario with Canada's 2030 target under the Paris Agreement. This is Ontario's proposed target for the reduction of greenhouse gas emissions, which fulfills our commitment under the Cap and Trade Cancellation Act, 2018. (p 21)	The Environment Plan proposes a new target goal: *a 30% reduction in the targets of GHG emissions based on 2005 baseline levels, by 2030.* This new target represents **a 26.9% increase in GHG emissions** from the goals outlined in the Climate Change Action Plan by the previous government leadership. To put this increase into perspective, the proposed change will produce 30 additional megatonnes (Mt) of pollution, which is equivalent to the reductions achieved by the phase out of coal-fired electricity generation - quoted by the plan as the "largest single greenhouse gas reduction in Canadian history" (p. 7). With each additional tonne of GHG emitted, the issue of climate change becomes much more unmanageable and costly (ECO, 2018). Thus, efforts must be focused on decreasing GHG emissions in Ontario, not increasing as the current plan proposes. *Initial* Climate Change GHG Target Goal: Reduce emissions by **37%** below 1990 levels (179.2 Mt) by **2030** = **112.9 Mt** *Proposed* Environment Plan GHG Target Goal: Reduce emissions by **30%** below 2005 levels (204.7 Mt) by **2030** = **143.3 Mt** **This represents a difference of 30.4 Mt more GHG emission (26.9% increase in pollution).**

Reference in Proposed Environmental Plan	Staff Comments
	Ontario has already experienced an increase of 1.5^{o}C since 1948, with an additional projected increase of 2.5^{o}C by the year 2050 - which can lead to irreversible and catastrophic results for our province, if strong mitigation efforts are not taken (ECO, 2018). Substantial reduction of GHG emissions are essential preventative measures to ensure that global temperature averages **do not** exceed 2^{o}C above pre-industrial levels (Haines, 2009). In the most recent Special Report released by the International Panel on Climate Change (IPCC), evidence calls for *greater* mitigation efforts in order to achieve this goal and avoid potentially catastrophic impacts (2018). For instance, the Insurance Bureau of Canada (IBC) estimates that up to 10% of Canadian properties may soon be too high to be insured, which will make it much more difficult for families to protect themselves, and thus be more vulnerable to the impacts of climate change (2015). In addition to the low GHG targets, the projected GHG emissions presented in the Environment Plan appear to be unclear. More transparency is needed around what measures were used to predict GHG emission levels under the “business as usual” scenario which appears to project no change (i.e. staying consistently within the range of 161-162 Mt), rather than displaying an increasing trend as projected by the evidence in the leading modelling practices. Furthermore, the Environment Plan does not include any mention of targets or actions beyond the year 2030. Not only are these long-term goal considerations (i.e. 2050, 2080) essential to a strong climate plan, overlooking such projections makes it much more difficult to achieve the regarded standard of a low carbon economy. Furthermore, it is not reasonable to justify these target changes as a way to align with the Canadian federal targets, which have largely been recognized as “highly insufficient” by leading climate progress tracking (Action Climate Tracker, 2017). Scientific evidence suggests that commitments to **deeper** emission cuts are needed in order to achieve long-term goals of keeping the increase of global temperatures well below 2^{o}C (Haines, 2017). Given that Ontario is the second-largest driver of

Reference in Proposed Environmental Plan	Staff Comments
	emissions in Canada, this presents an obvious responsibility, and a tremendous opportunity, for Ontario to set leading target goals that not only help support Canada's commitment in the Paris Agreements, but also facilitate international leadership in a transformative, low carbon economy for the province. In addition to the proposed actions, the Environment Plan should consider implementing and/or expending on the following efforts that have been shown to be most effective in lowering GHG for Ontario (ECO, 2018): ▪ *Focus on Improvements by Industry*, particularly the transportation sector that is responsible for majority of emissions (see page 36). ▪ *Strengthen and Improve Codes and Standards* (e.g. building codes, particularly within low-income communities). ▪ *Green Energy Act* (e.g. provincial and legislative guidance) ▪ *Better Rules on Land Use* (e.g. mandatory impact considerations on climate) ▪ *International Leadership* (e.g. committing to strong climate goals) ▪ *Climate Law* (e.g. Cap and Trade) – Ontario has and can further benefit from a "Polluter-Pay Carbon Pricing System" which is the most effective way of reducing GHG emissions (ECO, 2018). With the removal of the Ontario Cap and Trade Program, Ontario is again in need of a strong climate *law* that will positively contribute to the regulation and reduction of GHG emissions. Given Ontario's large GHG emission rates, and following the recent actions to repeal efforts that were aimed at reducing GHG emissions (i.e. Cap and Trade), the province should do better. Shifting to "net-zero" emissions and green energy renewable paradigms are great (and much needed) examples of how our province can be a driving force for more sustainable and healthier living.
We will create and establish emission performance standards to	This is very vague and needs to be further clarified. For instance, how will the standards be constructed? How are "large emitters" defined? How will other polluters

Reference in Proposed Environmental Plan	Staff Comments
achieve greenhouse gas emissions reductions from large emitters. Each large industrial emitter will be required to demonstrate compliance on a regular basis. The program may include compliance flexibility mechanisms such as offset credits and/or payment of an amount to achieve compliance. (p 26)	who may not classify as "large emitters" be accountable?
We also know that just over 60% of Ontario's food and organic waste is sent to landfills. […] When food and organic waste is sent to landfill, opportunities are lost to preserve valuable resources that could be used to heat our homes, support healthy soils and reduce greenhouse gas emissions. (p 31)	Should be improved by: • Including other implications of food loss/waste, such as the resources required to produce, harvest, process, package, transport, store, advertise, retail, etc.; and consumers' money, time, and nutrition needs. • Acknowledging the complexities inherent to food waste, as evident by fact that while vegetables and fruit are the highest category of avoidable food waste, these are also one of the most under-consumed relative to dietary recommendations.
We will work with partners on ways to make it easier for residents and businesses to waste less food or reuse it for beneficial purposes such as compost. (p 31)	Should be improved by: • Differentiating between *food losses* (by food industry, typically defined as up to the activity of distribution) from *food waste* (most of which is generated by households/consumers). • Changing the perspective of food as just another commodity. Raise awareness of the important lack of realization that the biggest differentiator between profitable and non-profitable business is food losses (Dr. Martin Gooch, U. of Guelph, Polices, Practices and Partnerships: Reducing Food Waste Symposium, May 30, 2017) • Pointedly putting much more emphasis proportionately on prevention (waste less food) over diversion/recovery (re-use)
Quick Fact: About 60% of Ontario's food and organic	While having merit as stated, this would be a better and more precise statement if it were revised to emphasize

Reference in Proposed Environmental Plan	Staff Comments
waste is sent to landfills which emits methane – a potent greenhouse gas – when it decomposes. Efficient diversion of household waste from landfills is an important tool in the fight against climate change. To read more about our plan to fight litter and waste, see page 40. (p 32)	prevention (waste less food) proportionately over diversion/recovery (re-use).
Increase the renewable content requirement (e.g. ethanol) in gasoline to 15% as early as 2025 through the Greener Gasoline regulation, and reduce emissions without increasing the price at the pump, based on current ethanol and gasoline prices. (p 33)	Clarification and considerations are needed as to whether this may have negative impacts on food production for humans, such as if production of other agricultural products are switched to growing corn for fuel purposes, thus impacting overall food systems.
Make climate change a cross-government priority (p 35)	The actions in this section could be enhanced by recognizing the importance of multi- and cross-sectoral, intra-governmental collaboration (encouraging broad stakeholder cooperation amongst governments, agriculture, environment, energy, water, health, education, civil society, and finance/economic sectors). Limitations on food industry lobbying is encouraged to avoid undue, biased influence on sustainability. Additionally, emphasised alignment is needed amongst health (nutritional, mental), social (affordability, acceptability, capabilities), economic (profitability) and ecosystem/environmental sustainability agendas (e.g. alignment with the national food policy/revised dietary guidance).
Encourage local leadership by forming stronger partnerships and sharing best practices with	The sharing of best practices could be strengthened by more research and evaluation.

Reference in Proposed Environmental Plan	Staff Comments
community groups and business associations. (p 37)	
Increase opportunities for Ontarians to participate in efforts to reduce waste (p 39) Educate the public and business about reducing and diverting food and organic waste. (p 41)	This action - as well as broader agendas - would be much strengthened by being incorporated into a larger consumer-oriented strategy of Leverage Food Literacy Framework to Integrate Sustainability (see page 32)
Develop best practices for safe food donation. (p 41)	Indisputably, precautions are important for safe food, including for donating. However, reducing food waste and discouraging the overproduction of food should be top priority. It is also important to recognize that food donations do not address the root of the problem, which is income inadequacy.

PUBLIC HEALTH AND EMERGENCY SERVICES –

OMISSIONS AND ADDITIONAL OPPORTUNITIES

Omissions/Opportunities	Staff Comments
Need to consider the costs of negative externalities of the food system.	There has been an increasing realization of the externalized costs that are generated by the food industry (Seed & Rocha, 2018). Instead of being accounted for in food prices, these costs typically have to be absorbed by ecosystems and by public systems such as health care. Examples of these costs include: • Burden of chronic diseases from over-consumption of calories and unhealthy diets; • High use and depletion of natural resources across the food chain • Accumulation of harmful substances (contaminants, packaging, microorganisms, etc.) in the ecosystem (land, water, air)
Need to alter individual and population dietary choices and patterns, while still meeting food and nutrition needs.	Consumption patterns that are unhealthy and impactful to the environment, are determined by the following factors: • Inadequate incomes - Poverty means inadequate household-level incomes to afford eating patterns consistent with a sustainable diet. Well-intended but erroneous food-based responses do not address the root cause of food insecurity. • Societal reprioritization and devaluation of food-related activities, • Attitude that we can afford to waste food because it is cheap (Dr. Martin Gooch, U. of Guelph, Polices, Practices and Partnerships: Reducing Food Waste Symposium, May 30, 2017). Points to the widespread need to re-develop food literacy. • Un/under-regulated marketing of foods, particularly of ultra-processed foods to children Consumption patterns should be based on a “win-win” principle that healthy dietary patterns can be balanced for improvements in environmental sustainability, with socially-beneficial, economically-viable food system designs. • Sustainable diets are protective and respectful of biodiversity and ecosystems, culturally acceptable, accessible, economically fair and

Omissions/Opportunities	Staff Comments
	affordable; nutritionally adequate, safe and healthy; while optimizing natural and human resources (FAO, 2010). • Include as corollaries that there isn't a need to avoid any food category entirely (such as meats), and that the traditional advice about eating a wide variety of foods remains valid
Consider the *Consumer Strategy: Leverage Food Literacy Framework to Integrate Sustainability*	Promote, support, and resource opportunities to learn, practice, and teach **Food Literacy**: • Fostering a culture of valuing and prioritizing food, and having a healthy relationship with it (food as a precious resource) • Understanding where food comes from and what it takes for food to be available to all people • Knowing how to plan, prefer, grow/produce, access, prepare, serve, save, re-purpose/prevent waste, and store safe and healthy foods • Appreciating the relationships of food to your health, food systems, and socio-cultural, economic, and physical environments
Promote "Circular Economies".	An economic model that minimizes the use of raw materials, maximizes the useful life of materials through resource recovery, and minimizes waste generated at the end of product life - rather than a traditional linear economy. Such model could be effective is supporting the prevention and reduction of food waste. This further supports a shift from perceiving food as just another commodity, especially among industries.
Need for Research and Evaluation	Encourage and support research and evaluation to: • <u>Investigate and develop a holistic approach</u> that integrates health, social, and economic agendas with environmental sustainability • <u>Conduct community food assessments</u> to identify opportunities, needs, gaps, and threats to the integration of food literacy and food systems, with environmental sustainability • <u>Understand food loss/waste</u> causes and amounts all across the food value chain. For example, audits can provide data for developing, implementing, and evaluating the effectiveness of loss/waste reduction intervention to determine best practice. Further exploration of consumer food attitudes and practices

Omissions/Opportunities	Staff Comments
	are needed, especially to inform reduction of household-level food waste
NRPH requests additional and more explicit action to be taken to address the growing emissions produced through the transportation sector in the Environmental Plan.	In recognizing that the transportation sector is Ontario's fastest growing and largest source of emission, more focus is needed for strategies to address this growing concern. As it currently stands, the Environmental Plan has very limited mention of actions to address the energy use and emissions produced from the transportation sector. Aside from the limited actions mentioned on *heavy-duty* vehicles (pp.10, 33), *electric vehicles* (EV) (p. 23), compressed *natural gas* (p. 23) and *public transportation* (p. 38), there is no direct mention of addressing the issue of on-road passenger emissions – which accounts for most of the emissions (ECO, 2018). Moreover, the few actions that are outlined, the plan does not provide any detail as to how these actions will be achieved. For instance, the plan commits to an uptake of EV, but it is unclear on how the province plans to tackle this. Clarity on this issue is particularly needed to be addressed, especially given the recent removal of EV vehicle and charging incentives by the cancellation of the Cap and Trade Program. Not only is the transportation sector our largest source of emissions (38%) and is steadily growing (34% increase since 1990), its impacts heavily outweigh our existing efforts to reduce emissions (ECO, 2018). For example, the plan reports on the province's success in reducing the emissions in the electricity sector by the phasing out of coal-powered electricity generation in stating that "*Ontario's low-emission combination of hydroelectric, nuclear, natural gas and non-hydro renewable generating capacity has enabled the province to avoid up to 30 megatonnes of annual greenhouse gas emissions, equivalent to taking up to 7 million vehicles off the road*" (p. 7). Given that there are roughly around 730 million cars annually on the road (just considering the major highways in the Greater Toronto and Hamilton Areas (GTHA)), the reduction mentioned in the plan accounts for less than 1% of the Ontario's emissions challenge presented from the transportation section (AADT, 2016). As such, this highlights a **huge opportunity** for further reduction of

Omissions/Opportunities	Staff Comments
	GHG by focusing on the transportation sector. Although we agree that Ontario's role in reducing electricity emissions has definitely been a great step in the right direction, we hope that this example will emphasize that more action is urgently needed to address the emissions produced in the transportation sector: ***Electricity Sector**:* Ontario's low-emission combination of hydroelectric, nuclear, natural gas, and non-hydro renewable generating capacity = saving of **30 megatonnes** of GHG/year = 7 million vehicles. ***Transportation Sector*:** Approximately 730 million vehicles/year (in GTHA) = **3, 128.6 megatonnes/year** Electricity sector equates to **approximately 0.9%** of the emissions produced by the transportation sector. NRPH is glad that Ontario has expressed commitment for the protection of air quality and the recognition of the public health threat that air pollution has on population wellbeing. The World Health Organization (WHO) estimates that air pollution is responsible for approximately 7 million deaths per year worldwide (1 in 8 deaths) (WHO, 2016). A major contributor to poor air quality is the transportation sector. Not only does transportation affect the quality of the surface ozone, but it is also the direct cause of particulate matter $(PM)_{2.5}$ – exposure to which pose serious concerns for the health of our vital organs such as lungs and heart (WHO, 2016). Additionally, our dependence on driving has been linked to obesity, stress, insufficient sleep and physical activity – all of which significantly increase risk of chronic disease (Ding et al., 2014). So if Ontario is really serious about protecting air quality and benefiting human health and the environment, it is imperative to have more direct action in the Environment Plan on addressing the increasing trend of personal vehicle dependency for transportation. One specific strategy that is overlooked in the Plan that could effectively address the transportation sector issue is the promotion and support of **active transportation**. This strategy would not only address Ontario's transportation emission challenges but also tackle some of the more serious public health priories. We know that

Omissions/Opportunities	Staff Comments
	the majority of reported emissions from the transportation sector are attributable to on-road passenger vehicles used for commuting, and continue to grow (ECO, 2018). As such, addressing the commuting issue through the promotion of active transportation has been a leading practice with notable results across the globe. Creating more opportunity for Ontarians to choose walking, biking and/or public transportation over driving presents a significant cost saving strategy across all sectors of health, infrastructure, transit and more. The Plan may choose to draw inspiration from the following successful examples from other cities and regions that have committed to and adopted active travel as the leading mode of travel - Our Commitment to Green and Healthy Communities: Fossil-Fuel-Free Streets Declaration.
The province of Ontario must commit to enhancing the public's understanding of the significant health impacts of climate change, along with other implications in their community, in order to successfully build Ontario's resilience to climate change.	NRPH is pleased with Ontario's commitment to help Ontarians understand the impacts of climate change (p. 19), however, we urge that explicit action is taken to increase the public's awareness of the climate change impacts on population health and wellbeing. Research suggests that although a majority of the public may be aware to some degree of the emerging serious issue of climate change, there is actually only a few who understand the significant implications that climate change has on their *health* (Maibach, 2011). This knowledge gap has been shown to be a great barrier to an individual's connection with the climate change issue, as it reinforces perceptions of climate chance as a distant, impersonal issue. In fact, climate change effects on personal health are very current, well documented, and projected to increase substantially. Climate change is highly regarded as the "Defining **Public Health Issue** for the 21st Century" (Dr. Margaret Chan, the former Director-General of the WHO). IPCC has additionally reported how climate change, in a very current and near term, will further exacerbate existing health problems (2018). As such, this will ultimately further contribute to loss of work, decrease in labor productivity and reduced economic prosperity. Therefore, public health can and

Omissions/Opportunities	Staff Comments
	should play a key role in supporting the efforts in addressing the issue of climate change, and consequently outcomes affecting health. NRPH is happy that the province is open to collaborating with public health units (as referenced on page 10) but further urges for this support to go beyond air pollution, and recognize the multiple health implications of climate change. Here is a *brief* outline of the existing and projected climate-related risks, and their impact on health: • Ontario is expected to experience an increase in temperatures by 2.5^{o}C by 2050, if significant efforts are not met. **Hotter temperatures** can lead to serious health implications such as heat exhaustion and heat stroke, worsening of cardiovascular, respiratory and chronic kidney disease, increased ozone air pollution, and changes in vector-borne disease distribution (such as Lyme Disease and West Nile), prolonged risk of droughts and quality of water supply, as well as all the negative mental health implications that are associated with any and all of those risks (WHO, 2018) • Changing climate also increases risk of more frequent extreme weather events to impact Ontario, similar to the already seen wind and snow storms, and even the potential of severe tornadoes (such as those that have devastated Ottawa just this past year). **More frequent extreme weather and changes in precipitation** significantly increase the risk of flooding (as well as the risk of injury and deaths associated with it), damage to infrastructure including homes and hospitals, as well as devastating impacts on the harvest and food production for the local agricultural communities (WHO, 2018). At this time, the Environment Plan does not include any mention of how the current and projected changes in our climate are impacting the health of our communities, and how these impacts are expected to worsen. This can be rectified in the plan by recognizing the direct connection between health and climate change, and explicitly addressing it in the plan.

Omissions/Opportunities	Staff Comments
	It is also important for the province to consider and acknowledge the direct benefits to health that will arise from mitigation efforts taken on climate change. Policies and actions that reduce greenhouse gas emissions can also bring about important corollary benefits, or "**co-benefits**", to population health (Haines, 2017). In other words, the investments we make to transition to a low-carbon economy today, as supported by a strong action plan, will not only have a positive impact on reducing GHG emission levels which will ultimately result in more positive health outcomes, but such investments can also have direct and timely benefits to health as a whole. For example, our commitment to the promotion of active transportation does not only reduce GHG emissions but increases opportunity for physical activity, social connectedness and improvements in air quality to support respiratory and cardiovascular health. Thus, we don't need to wait on GHG emissions reductions to take place before we are able to experience health benefits, while we work on long-term solutions towards larger climate issues. A good starting point to addressing climate change is by better understanding the current and future impacts on communities. That is why NRPH is pleased with Ontario's intentions to "undertake a provincial impact assessment to identify where and how climate change is likely to impact Ontario's communities, critical infrastructure, economies and natural environment" (p. 19). While a provincial assessment is an important tool, it is essential that the information collected and disseminated be made at a **local** municipal and regional levels. Although the impacts from the changing climate are experienced across the province, what those impacts translate to will vary largely due to the geographical regions. As such, the provincial government should draw support and collaborate with local municipalities who have already begun to do great work in assessing climate change impact. Additionally, based on the rationale above, it is important for the plan should commit to specifically completing a **Climate Change and Health Vulnerability Assessment** to better understand the impacts of climate variability on health and identify strategies to reduce those risks. The

Omissions/Opportunities	Staff Comments
	province should lean on the guidance from the Environmental Health Climate Change Framework for Action when considering actions. Given that the health of our populations is at the core of our productive and sustainable society, further understanding of climate change impacts on health is key. The most recent Lancet report has concluded that the climate change impacts on health are unequivocal and potentially irreversible. As such, urgent action is needed in order to do something about this and it should start with explicit recognition of the health implication of climate change for the public.
NRPH urges for further effort to be shifted towards more explicit actions that supports Ontario's most vulnerable populations.	Actions to consider and support Ontario's most vulnerable populations is another significant gap in the Environment Plan as it currently stands. The Environment Plan needs to explicitly recognize that not everyone will be impacted equally by the changing climate and develop appropriate action that focus on building resilience of the most vulnerable communities. Those populations who experience poverty and homelessness, who are living with low income and lack access to homes that can shelter against flooding or extreme heat, and populations who are elderly, young and living with pre-existing health conditions are at a much greater risk of negative health outcomes that are expected as a result of climate change. These communities are much more vulnerable to the impacts expected from climate change, however very little has been referenced in the plan to explain how such concerns may be addressed. Not only does climate change pose a significant threat to the vulnerable population, but is expected to also exacerbate the inequities that are already experienced within these communities, such as less access to heathy foods, green spaces and job security (BARHII, 2015). For example, a large portion of individuals who experience homelessness tend to reside in inner-city neighbourhoods that are more prone to extreme heat exposure through the Urban Heat Island effect with limited means for support – as such, these individuals experience a much greater risk of harm and potential loss of life.

Omissions/Opportunities	Staff Comments
	The degree of population's vulnerability is largely affected by policies associated with socioeconomic factors such as city design, infrastructure services and health care systems. The Environment Plan has an important role to play in ensuring that there are actions put in place to reduce risk to health and equity impacts resulting from climate change. The Environment Plan may consider specific actions such as investments in the building and housing quality, increased trees and green spaces and better street designs within lower-income neighbourhoods. "The true measure of any society can be found in how it treats its most vulnerable members" – Mahatma Gandhi Evidence informed practices and initiatives, such as the Urban Climate Change Research Network, urge that in order to have an effective climate change action, the focus must be to the most vulnerable populations (2015). In order for Ontario to have a strong and effective climate action plan, the Environment Plan has to better align resilience building within communities that experience highest vulnerability to the current and future challenges faced in our changing climate.

References:

Bay Area Regional Health Inequities Initiative (BARHII). (2015). *Quick guide 03: climate change and health equity*. Retrieved from http://barhii.org/issues/climate-change/.

Climate Action Tracker. (2017). *Canada rating*. Retrieved from https://climateactiontracker.org/media/documents/2018/4/CAT_2017-11-07_CountryAssessment_Canada.pdf.

Ding D., Gebel, K., Phongsavan P., Bauman, A.E. & Meron, D. (2014). Driving: a road to unhealthy lifestyles and poor health outcomes. *PLoS: ONE*, 9(6): e94602, doi: 10.1371/journal.pone.00094602.

Environment and Climate Change Canada. (2018). *National Inventory Report 1990-2016 - greenhouse gas sources and sinks in Canada: executive summary*. Retrieved from: https://www.canada.ca/content/dam/eccc/documents/pdf/climate-change/emissions-inventories-reporting/nir-executive-summary/National%20Inventory%20Report%20Executive%20Summary%202018.pdf

Environment Commissioner of Ontario. (2018). *Climate action in Ontario: what's next? 2018 Greenhouse Gas Progress Report*. Retrieved from: https://docs.assets.eco.on.ca/reports/climate-change/2018/Climate-Action-in-Ontario.pdf.

Haines A., et al. (2009). Public health benefits of strategies to reduce greenhouse-gas emissions: overview and implications for policy makers. *Lancet series: Health and Climate Change* 6, 374, 2104-14. Retrieved from https://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(09)61759-1.pdf.

Haines, A. (2017). Health co-benefits of climate action. *The Lancet: Planetary Health – Comment*, 1 (1), PE4-E5. Retrieved from https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196(17)30003-7/fulltext.

Insurance Bureau of Canada. (2015). *The economic impacts of the weather effect of climate change on communities – final report*. Retrieved from: http://assets.ibc.ca/Documents/Studies/IBC-The-Economic-Impacts.pdf

International Panel on Climate Change (IPCC). (2018). *Special report: global warming of 1.5°C.* Retrieved from https://www.ipcc.ch/sr15/chapter/summary-for-policy-makers/

Maibach, E., Nisbet, M., & Weathers, M. (2011). Conveying the human implications of

climate change: a climate change communication primer for public health professionals*. Centre for Climate Change Communication: George Mason University*. Retrieved on January 5, 2019 from

Ministry of Transportation. (2016). *Ontario provincial highways traffic volumes on demand*. Retrieved from: http://www.raqsa.mto.gov.on.ca/techpubs/TrafficVolumes.nsf/tvweb/.

The World Bank. (2014). *CO2 emissions (metric tons per capita).* Retrieved from: https://data.worldbank.org/indicator/EN.ATM.CO2E.PC.

Seed, B. & Rocha, C. (2018). Can we eat our way to a healthy and ecologically sustainable food system? Canadian Food Studies, 5(3), 182-207. Retrieved from: http://canadianfoodstudies.uwaterloo.ca/index.php/cfs/article/view/258/298

Urban Climate Change Research Network. (2015). *Climate change and cities: 2nd assessment report*. Retrieved from http://uccrn.org/arc3-2/.

Watt, N. et al. (2018). The 2018 report of the Lancet Countdown on health and climate change: shaping the health of nations for centuries to come. *Lancet*, 392, 2479-2514. Retrieved from: https://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(18)32594-7.pdf.

World Health Organization (WHO). (2016). *Ambient air pollution: a global assessment of exposure and burden of disease*. Retrieved from http://apps.who.int/iris/bitstream/handle/10665/250141/9789241511353-eng.pdf?sequence=1

World Health Organization (WHO). (2018). *COP24 Special Report – health and climate change*.