

**CLIMATE ADAPTATION PLAN
IMPLEMENTATION STRATEGY**



INITIATIVE	ACTION PLAN	ASSIGNED TO/ TIMING	SHORT / MED / LONG TERM	EFFORT \$ < 10K \$\$ = 10K - 50K \$\$\$ > 50K
1. Increase climate change literacy amongst staff and public				
1.1 Utilize City intranet to provide educational links and information regarding climate change and climate change science	a. Post the adaptation plan and implementation strategy on the City website and intranet	COM	ST	N/A
	b. Create an intranet webpage with educational links and videos regarding climate change science	COM	MT	N/A
	c. Create and publish short video clips on the intranet and circulate via email to City Staff and the public through social media	COM	MT	\$
	d. Implement health and safety training regarding heat stress, high-heat days and extreme weather (for example)	HR	ST	N/A
1.2 Educate City Staff on Low Impact Design (LID) and other storm water management practices that promote groundwater recharge	a. Include LID best practices in the Municipal Standards	MW	MT	N/A
	b. Add LID best practice resources to the Municipal Works and Planning and Development (Site Plan) webpages	MW/P&D	ST	N/A
	c. Incorporate LID into Official Plan Policies as part of the upcoming Official Plan update	P&D	MT	N/A
	d. Accommodate and encourage LID training for development staff	MW/P&D	MT	N/A
1.3 Work with Municipal and Educational partners in promoting climate change awareness and consistent messaging	a. Ongoing financial and volunteer support of the Niagara Children's Water Festival.	MW/FIN	ONGOING	\$
	b. Consider hiring students to develop and deliver an annual environmental/climate change education program to elementary students.	COM	LT	\$\$
	c. Share an informational package and/or video with school boards for potential inclusion in local school curriculum.	COM	LT	\$
	d. Utilize existing outreach opportunities within various depts. (e.g. school crossing guards, fire prevention, summer camps) to deliver the climate change message to schools.	COM/Fire/Traffic/ R&C	LT	N/A
	e. Re-Engage Brock University / Niagara Adapts experts for updates to the Climate Adaptation Plan and Implementation Strategy	TBD	LT	N/A
	f. Investigate a School tree-planting or tree-giveaway program	R&C	MT	\$
1.4 Utilize existing City committees such as Park in the City and Mayor's Youth Advisory to continue to promote climate change awareness	a. Develop an information package including the Adaptation Plan and this Implementation Strategy, and solicit feedback from the PITC and MYAC	COM/R&C	ST	N/A
	b. Deliver programing at the annual Mother Earth Day event	R&C	ONGOING	\$
1.5 Develop Individual Departmental Workplans and Initiatives related to Climate Change Adaptation.	a. Develop annually, and keep up-to-date, a summary of climate-related impacts and initiatives relating to individual departments	ALL	ONGOING	N/A
	b. Summarize the Climate Adaptation Plan, Implementation Strategy, and individual Departmental Workplans in the Council orientation package	COM	ST	N/A
1.6 Designate staffing and resources to Climate Change Mitigation and Adaptation	a. Add a new Climate Change Coordinator position (FTE) to the organization	CAO	ST	\$\$\$
	b. Form an Ad-Hoc Municipal Working Group dedicated to climate change consisting of City Staff, Council Members, and Stakeholder Representatives	CLERK	MT	N/A
	c. Continually update the Climate Adaptation Plan and Implementation Strategy	TBD	ONGOING	\$

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2. Invest in infrastructure and assets that are prepared for the impacts of climate change				
2.1 Update engineering and design standards to create a more resilient infrastructure network	a. Increase the rainfall Intensity-Duration-Frequency (IDF) curve relationship by 5% per the recommendations of the 2017 Master Drainage Plan Climate Change analysis. Implement the change as part of the Municipal Standards comprehensive update	MW	MT	\$
	b. Incorporate Inflow and Infiltration (I/I) reduction strategies and best practices for new development in the Municipal Standards	MW	MT	\$
	c. Complete a comprehensive Wet Weather and Combined Sewer Overflow (CSO) reduction strategy	MW	LT	\$\$
	d. Incorporate climate change impacts into the City's asset management plan and long-range capital forecasts	MW/FIN	LT	\$
2.2 Increase LID and other storm water management philosophies to promote groundwater recharge	a. Include LID best practices in the Municipal Standards (see 1.2.a)	MW	MT	\$
	b. Investigate development credits for innovation and on-site capture and treatment of stormwater that exceeds minimum requirements	P&B	MT	\$
	c. Investigate implementation of LID and Stormwater Management (SWM) best practices at all new City Facility projects and major renovations	FAC	LT	\$\$
2.3 Strengthen tree protection through species diversification and enhancement of tree canopy.	a. Undertake and implement a Strategic Urban Forest Management Plan (SUFMP) that is driven by specific objectives and goals; for example: 1) identify and reduce heat-island effects in dense urban areas, 2) increase the percentage of tree canopy cover City-wide, 3) protect and enhance natural wildlife corridors	MW	LT	\$\$\$
	b. Take inventory and account for all environmental assets and features, not only trees, as part of the Asset Management Plan	MW/GIS	LT	\$\$\$
	c. Review the approved species tree planting list and consider modifications to incorporate trees with high carbon capture properties	MW	MT	\$
	d. Track tree removals and new plantings in real-time and publish data and metrics on the City's tree inventory annually	MW/IS	MT	\$\$
	e. Increase tree planting budget to match 2:1 replanting of City trees (per City Policy) and prepare an annual report of tree removals and plantings	MW/FIN	LT	\$\$\$
	f. Continue to support tree giveaways/sales and tree planting programs (800-1000 seedlings current annually)	R&C	ONGOING	\$\$
2.4 Ensure new development, redevelopment and intensification preserve and contribute to quality green spaces	a. Perform a comprehensive review of tree-related policies applicable to new development (official plan, tree-saving policy, woodlot policy, boulevard planting location, etc.)	P&B/MW/RC	MT	\$
	b. Increase development tree planting contribution to 2 trees per lot in a subdivision (cash-in-lieu: 1 for development and 1 to support initiatives detailed in the SUFMP)	P&B/MW	LT	N/A
	c. Similar to DC contributions, investigate additional incentives and credits related to tree planting and climate adaptation/ mitigation elements proposed by developers	P&B/FIN	LT	\$
	d. update memorial tree policy to clearly define policy application (City trees vs. private trees), greater awareness, and subscription in the program	P&B	MT	N/A

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3. Encourage green methods of transportation				
3.1 Continue to connect trails, pathways and bike paths to create alternative methods of travel within the City	a. Include Active Transportation section in the next Transportation Master Plan (TMP) update	MW	MT	N/A
	b. Prepare an implementation plan complete with budgetary estimate as part of TMP update. Work closely with the PITC	MW/FIN	MT	\$
3.2 Continue to work to enhance GO Transit levels of service to full day, year-round service	a. Implement the GO Station precinct plan including bus-drop off, pedestrian facilities, active transportation, parking facilities	MW	LT	\$\$\$
	b. Align City transit routes, stops and times to ensure GO ridership is supported	TRAN	MT	\$
	c. Continue to provide General Transit Feed Specification (GTFS) on City services to all other transit agencies to ensure seamless trip planning	ONGOING	N/A	N/A
	d. Implement contactless payment solutions	TRAN/IS	MT	\$\$
3.3 Encourage electric vehicle charging as part of new development	a. Add EV guidelines to the City's site planning design manual	P&B	MT	\$
	b. Review new regional OP policies, and consider changes to City policy to match	P&B	LT	\$
3.4 Continue promotion of inter-municipal transit system, making public transportation convenient and timely	a. Continue cooperation with Niagara Region and the new Transit Commission	ONGOING	ONGOING	N/A
	b. Promote Transit through City Communications	ONGOING	ST	N/A

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4. Create and implement energy conservation strategies for City facilities				
4.1 Perform energy audits of City facilities to provide base level understanding of current efficiency levels	a. Perform a desktop review of previous audits to identify current status, gaps, outstanding issues, and initiatives	FAC/RC/FIN	MT	\$
	b. Perform a comprehensive energy audit of all City facilities	FAC	MT	\$\$
	c. Develop an energy management plan including targets for reduced energy consumption	FAC	MT	\$\$
	d. Identify the City's overall carbon footprint and GHG emissions based on utility usage, review historical emissions, and set targets and plans for future reduction	FAC/FLEET	MT	\$\$
4.2 Investigate alternative energy strategies to reduce reliance on carbon fuels	a. Explore hydrogen fuel cell and electrification within transit	TRAN	ST	\$
	b. Perform a fleet electrification feasibility study and implement a pilot of City fleet electrification	MW	ST	\$\$
	c. Review and implement facility active transportation amenities to support staff and visitor choices at City facilities and City parking lots (e.g. charging stations, bike racks, bike storage, showers, locker-room, etc.)	FAC/R&C/PARKING	MT	\$\$
4.3 Leverage upper level government programs and grants to retrofit existing facilities to improve energy efficiency	a. Continually review grant opportunities	ALL ONGOING	ONGOING	N/A
	b. Engage with local utility and agencies (NPEI, Enbridge, OPG) Conservation Demand Management (CDM) staff and explore partnership opportunities related to the City's energy management and carbon footprint / GHG reduction plans	FIN/FAC	LT	N/A
4.4 Enhanced shading and cooling options in new facilities and parks, including green roofs and non-permeable surface options	a. Investigate LEED principles and programs prior to initiating any new facility or major renovation. Conclusions to be summarized in a memo to file	FAC	LT	N/A
	b. Include best practices for shade options as part of the parks development section of the Municipal Standards	MW	MT	\$

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5. Mitigate consequences of extreme weather, emergency events and safety risks to the community				
5.1 Reduce all sources of inflow and infiltration into the sanitary sewer system including public and private property sources	a. Implement development flow-monitoring requirements, and do not accept new development that exceeds inflow/infiltration allowances that exceed design volumes	MW	MT	\$
	b. Incorporate Inflow and Infiltration (I/I) reduction strategies and best practices for new development in the Municipal Standards (see 2.1.b)	MW	MT	\$
	c. Complete a comprehensive Wet Weather and Combined Sewer Overflow (CSO) reduction strategy (2.1.c)	MW	MT	\$\$
	d. Continue to explore private development infrastructure standards to ensure that I/I is controlled at the source	P&B	MT	N/A
	e. Increase education, inspection, and enforcement of the Downspout Disconnection Bylaw (83-254) particularly in areas of high I/I	P&B/MW	MT	N/A
5.2 Ensure all Risk Assessments within the Corporation are updated to include climate change considerations	a. Review the City's Hazard Identification Risk Assessment (HIRA) on an annual basis, and integrate City risk assessments into the broader Regional program	FIRE	ONGOING	N/A
5.3 Continue to provide and promote easy access to heating and cooling centres (i.e. emergency response centres) to all residents	a. Continue to promote and advertise locations of emergency response centres via transit and social worker handouts.	COM	ONGOING	N/A
	b. Strengthen social media and website outreach related to emergency response centres	COM	ONGOING	N/A
	b. Establish a budget for operations of emergency response centres, and plan for future increases given the changing climate	FIN	MT	\$
	c. Track utilization of emergency response centres and plan ahead for expansion of the program when required	R&C	ST	N/A
	d. With Regional guidance, establish clear parameters for when/where we open: pools, splash pads, warming & cooling centres, etc.	FIRE/R&C	ST	N/A
5.4 Continue to promote emergency preparedness week and 72 hour emergency kits	a. Continue the promotion of this program with OEFM and CEMC guidance	FIRE	ONGOING	N/A
	b. Increase media promotion of the annual Emergency Preparedness Week	FIRE/COM	ST	N/A
	c. Cross-promote emergency preparedness with other timely opportunities, events, and circumstances (e.g. as a reminder coinciding with daylight savings time)	FIRE/COM	ST	N/A