

Review and renewal of the Green Market Acceleration Program (GMAP)

Date: April 11, 2023

To: Economic and Community Development Committee

From: General Manager, Economic Development and Culture; Director, Strategic Partnerships

Wards: All

SUMMARY

The Green Market Acceleration Program (GMAP) supports economic growth in Toronto's thriving green sector by enabling access to municipal infrastructure for companies to conduct applied research, proof of concept trials, and demonstrations on pre-market technologies. In addition to longer-term global environmental benefits, GMAP provides support for attracting and retaining businesses in the City. This report summarizes the activities of the GMAP between 2018-2022 and seeks authority for its renewal and improvement. Proposed changes are based on the findings of an external consultation and aim to ensure that the program continues to support jobs and innovation, offering local companies a competitive advantage in a strategically important sector.

RECOMMENDATIONS

The General Manager, Economic Development and Culture and the Director, Strategic Partnerships recommend that:

1. City Council authorize the General Manager, Economic Development and Culture to continue the Green Market Acceleration Program (GMAP) until March 31, 2027 with changes outlined in Attachments 1-3 and report back to Economic Development and Community Development Committee in the first quarter of 2027.
2. City Council authorize all City agencies, corporations, and divisions to participate in the Green Market Acceleration Program in order to assist businesses with applied research, proof of concept projects, and technology demonstrations, thereby supporting the development of innovative "made in Toronto" solutions to real-world issues.

3. City Council authorize all City agencies, corporations, and divisions to negotiate, enter into, and execute agreements for GMAP approved projects, in the form satisfactory to the City Solicitor.
4. City Council authorize all City agencies, corporations, and divisions to provide assets and/or infrastructure for GMAP approved projects, including, but not limited to, City agency, corporation, and division staff time.
5. City Council authorize all City agencies, corporations, and divisions to co-sign local and intergovernmental funding agreements for GMAP approved projects with GMAP applicants, if and as required.
6. City Council authorize all City agencies, corporations, and divisions to recover any costs incurred as a result of a GMAP approved project from a GMAP proponent.
7. City Council direct all City agencies, corporations, and divisions to designate by December 31, 2023, a GMAP liaison to act as an internal proponent and interdivisional liaison, performing the role detailed in Attachment 3 of this report.

FINANCIAL IMPACT

This report seeks City Council approval for the renewal of the Green Market Acceleration Program (GMAP) and the implementation of recommended program changes to better address City priorities. Program administration and reform will require 0.2 FTE of staff time annually for the 2022-2026 City Council term. This staff time is included in the 2023 Approved Operating Budget of the Economic Development and Culture division.

The role of the GMAP liaison and individual GMAP projects will require staff time in the host agency, corporation, or division. Individual GMAP projects may also incur project-specific costs. The proponent is responsible for direct and incremental project costs and will reimburse the City for any costs incurred. The host City agency, corporation, or division may provide in-kind support, which is agreed upon at the start of the project. These costs may be requested in future year budget processes for participating programs for consideration with other City priorities.

The Chief Financial Officer and Treasurer has reviewed this report which may have future financial implications and agrees with the information as presented in the Financial Impact Section.

DECISION HISTORY

At its meeting on April 06, 2022, City Council extended GMAP and the required reporting deadline until March 31, 2023.

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2022.MM42.13>

At its meeting on December 15, 2021, City Council directed the heads of all City agencies and corporations and direct division heads to work with EDC staff, assign a GMAP liaison, and report back on the number of projects undertaken.
<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2021.MM38.23>

At its meeting on May 22, 2018, City Council reauthorized GMAP for a period of four years (2018-2022) and directed the General Manager, Economic Development and Culture and the Director, Toronto Office of Partnerships (now Strategic Partnerships) to report back to the Economic Development Committee (now the Economic and Community Development Committee) at the end of the period.
<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2018.ED29.4>

At its meeting on September 30, 2015, City Council approved the creation of GMAP as a two-year pilot program and directed the General Manager, Economic Development and Culture and the Director, Toronto Office of Partnerships (now Strategic Partnerships) to report back to the Economic Development Committee (now the Economic and Community Development Committee) on its outcomes and make recommendations (if warranted) for a permanent program.
<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2015.ED6.13>

COMMENTS

Program goals

The Green Market Acceleration Program (GMAP) is designed to help companies gain access to municipal infrastructure to accelerate the development and commercialization of made-in-Toronto green technologies. The anticipated long-term outcomes of this program are:

- Accelerate job growth in Toronto's green sector
- Develop, attract, and retain green sector talent and business
- Boost market development (including international trade) for local green companies
- Generate local and global partnerships
- Create competitive advantages for Toronto's green companies
- Attract investment into Toronto

GMAP focuses on green industries and while it is an economic development program it does provide longer term environmental benefits. Solutions tested on City assets may, once they become available in the marketplace, significantly reduce environmental impacts wherever they are sold globally. Toronto is the seventh largest government in Canada and its large selection of available infrastructure assets establishes the City as a catalyst in Canada for private-sector innovation in a fast-growing key industrial sector by giving companies access to test beds that would be impossible to simulate in-house. This access reduces the barriers and risks associated with developing new technologies, supporting the commercialization pipelines associated with long-term economic growth. When surveyed, companies in the green industries consistently state that access to real-world testing is critical for product development, enabling them to

maintain a competitive advantage and retain jobs in Toronto. Companies tend to establish their operations close to where their proving grounds are and hence GMAP is an effective means to retain companies as well as attract new ones.

Program applicants go through a two-step process to initiate a new project. EDC staff review the application for eligibility and identify a potential host, and then liaise internally with that host to determine whether the project can go ahead. Applications must be for a technology or solution that is not on the market, *i.e.*, not purchasable. There is no connection between GMAP and procurement - the program aims to assist companies with the development of new technologies, not their proof of market or adoption.

There is no program funding attached to GMAP. All direct and incremental costs, including any direct costs incurred by the City, are borne by the proponent. Host City agencies, corporations, and divisions may incur in-kind costs for the staff time required to administer a project, which may at their discretion be recovered from the proponent. These costs are managed through the host's existing planning and resource management processes. The proponent may also seek external funding to support project or in-kind costs.

As a technology development program focused on economic development in the green industries, GMAP complements other City programs in similar areas, principally:

- [Digital Infrastructure Strategic Framework](#) - DSIF (Technology Services)
 - The DISF guides the design, development, procurement, implementation, and evaluation of all digital infrastructure controlled by City staff. It also provides standards and expectations for businesses and information for residents.
 - GMAP projects that are classified as digital infrastructure initiatives will be required to align with DISF principles.
- [Transportation Innovation Zones - TIZs](#) (Transportation Services)
 - TIZs focus on real-world demonstrations of technologies that may be able to help address various transportation-related challenges. City staff determine themes and solicit applications, and the results are used to inform decision-making.
 - TIZ projects are City-initiated, focus on City challenges, and consider technologies that are pre-market or which have not yet been proven to be effective in the context in which they would be deployed in Toronto; conversely, GMAP projects are applicant-initiated, focus on technology development, and only consider pre-market technologies.
- [Unsolicited Proposal Process - UPP](#) (Strategic Partnerships)
 - The UPP lets organizations or individuals with innovative products, services, or ideas have the City review a proposal if a regular procurement call is unlikely.
 - UPP projects are business proposals in which the proponent proposes the City enter into a contract with the intent of securing a financial return in exchange for an innovative idea, product, or service; conversely, GMAP projects involve the development of pre-market technologies and have no connection to current or future purchasing.
- [Toronto Civic Accelerator Program](#) - TCAP (Technology Services, Strategic Partnerships)

- TCAP was approved by City Council in 2020, though implementation was delayed by the COVID-19 pandemic. The program will focus on the use of technology and digital infrastructure to help address municipal challenges and business modernization.
- TCAP projects will be City-initiated challenge calls and are expected to include pathways to wider adoption as a potential outcome; conversely, GMAP projects focus on technology development and do not offer pathways to adoption.
- Innovative Climate Procurement Program - ICPP (Environment & Climate)
 - A framework for the ICPP will be submitted for City Council consideration later in 2023. It is envisaged that the program will focus on the rapid adoption of technologies that will help reduce municipal emissions to net zero by 2040. Note that ICPP is the program's working name and is subject to change.
 - ICPP projects are expected to focus on specific emissions-reducing technologies and their widespread adoption; conversely, GMAP projects focus on technology development and have no adoption component.

Changes due to the COVID-19 pandemic

During the COVID-19 pandemic (between March 2020 and June 2022), GMAP was suspended, and EDC staff were reassigned to the pandemic response/recovery. Applications received prior to March 2020 and ongoing projects were also suspended, and new applications were only accepted with the understanding that they would not be reviewed until staff returned to regular duties. GMAP was restarted and the backlog of applications cleared in Q1-Q2 of 2022, with resumed or new projects moved to 2023.

Since GMAP projects have long lead times - the time from application to project start is typically 12 months - several applications from 2019 were suspended in the late stages of approval or project development. When pandemic restrictions were lifted, the lost time and changes to staffing, resources, and applicant/City priorities meant that these projects had to restart rather than resume. Similarly, new applications received during the pandemic were not reviewed until 2022, pushing project start dates into 2023. This resulted in a disproportionate pandemic impact, effectively cancelling almost all project work between 2019 and 2022.

Program implementation 2018-2022

Compared to the program's previous iteration (~2.5 years between 2015-2018), overall GMAP activity declined between 2018 - 2022. This change is due principally to COVID-19 pandemic challenges and restrictions.

Figure 1: GMAP participation 2018-2022 (entire years)

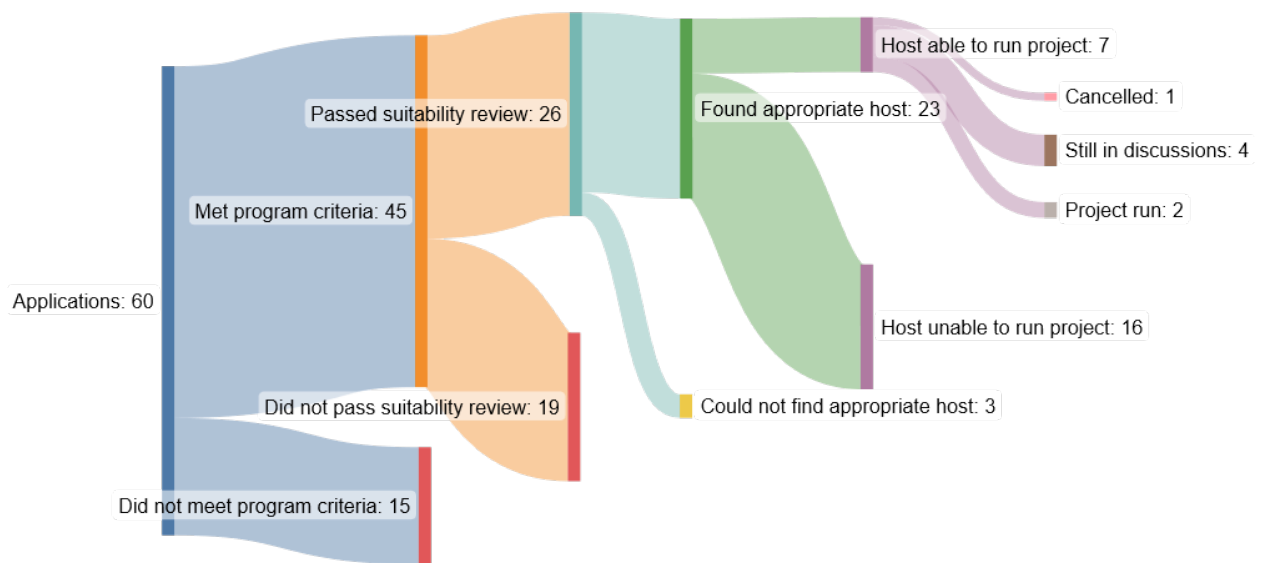


Table 1: GMAP participation 2018-2022 (entire years, reproduction of diagram)

Program stage	Number of applications (proportion of all applications)
Applications	60 (100%)
Met program criteria	45 (75%)
Did not meet program criteria	15
Passed review	26 (43%)
Did not pass review	19
Found host	23 (38%)
Did not find host	3
Host able to run project	7 (12%)
Host unable to run project	16
Project run	2 (3%)
Still in discussion	4 (7%)

Program stage	Number of applications (proportion of all applications)
Project cancelled	1 (2%)

Only 2-6 of 60 applications received between 2018-2022 proceeded to project implementation (3%-10%). Of note, 57% of all applications were rejected as either not meeting eligibility criteria or not passing initial review. This result indicates that program materials and guidance may need expanding or clarifying. A further 27% did not move to a project due to a lack of resources in the host City agency, corporation, or division (see Table 2). The findings from the program review (see next section) aim to address these issues and improve program outcomes.

Table 2: Potential GMAP projects by host, 2018-2022 (entire years)

Agency, Corporation, or Division	Potential projects	Approved projects (proportion)
Corporate Real Estate Management	1	0 (0%)
Economic Development and Culture	2	0 (0%)
Environment & Climate	5	1 (20%)
Fleet Services	1	0 (0%)
Solid Waste Management Services	6	2 (33%)
Toronto Paramedic Services	1	1 (100%)
Toronto Parking Authority	1	1 (100%)
Toronto Public Library	1	0 (0%)
Toronto Police Service	1	0 (0%)
Transportation Services	4	2 (50%)
Total	23	7

The three projects run or cancelled during this program period were:

- [Noventa](#) (2018-2021)
 - Install heat exchangers in building-level wastewater systems to extract (winter) or reject (summer) heat and increase the efficiency of heating/cooling systems and reduce energy use.

- Worked with Toronto Water and Environment & Energy (now Environment & Climate) to determine suitable buildings and the scope for energy use reduction. These discussions determined that the project scale was beyond what GMAP could support, and the project moved into the regular procurement process.
- The [first demonstration project in Canada](#) was installed at Toronto Western Hospital in 2021.
- [Key2Access](#) (2019-2021)
 - Install smart infrastructure at intersections to allow pedestrians with visual impairments to utilize crossing walks safely.
 - Worked with Transportation Services to determine deployment scope and installation requirements. Obtained external funding to support all costs from the Ontario Centres of Innovation (OCI).
 - Project work was halted in 2020 due to the COVID-19 pandemic and eventually cancelled when the OCI funding agreement expired.
- [Ecopia AI](#) (2021-present)
 - Create a "digital twin" of Toronto using AI-powered automatic edge detection and feature extraction from aerial imagery to support connected and autonomous vehicle (C/AV) navigation.
 - Worked with Transportation Services and the Geospatial Competency Centre to determine municipal priorities around C/AV enablement and the utility of high-definition maps for other services.
 - The project is ongoing and is due to finish in Q2 of 2023.

Program review

Feedback from host divisions and program applicants/proponents between 2015 and 2020 informally identified various barriers, challenges, and inefficiencies in GMAP. Since the program had been running for several years and was impacted so significantly by the pandemic, EDC opted to undertake a full program review to inform this staff report and meet the requirement to report back to City Council, as per the report entitled Green Market Acceleration Program (ED29.4) adopted by City Council at its meeting on May 22, 2018. A formal review would provide evidence of program efficacy (or lack thereof), identify recommendations for improvement, and ensure ongoing alignment with EDC priorities.

The program review that informs this report's recommendations was undertaken by Foresight Canada following a competitive tendering process.

Program review: Findings

The final program review report, "Review of the City of Toronto Green Market Acceleration Program", is found in Attachment 1.

The program review consisted of extensive consultations with City of Toronto staff, GMAP project participants/proponents, GMAP applicants who did not proceed to projects, and green industry organizations. It yielded insight into program design, processes, strengths, weaknesses, ability to contribute to City priorities, and overlap/integration with other City programs. This insight was used to compile nine main recommendations for program improvement, summarized below:

- Create tracking and documentation processes to follow GMAP projects over their entire lifecycle and ensure that learnings are captured.
- Clarify geographic eligibility and the relationship (if any) to the procurement process.
- Work with host agencies, corporations, and divisions to identify barriers to participation in GMAP, provide more guidance, and align GMAP to host priorities.
- Align GMAP to similar City initiatives to avoid duplication.
- Explore third-party funding for projects.
- Update program materials on the City website.
- Explore open data requirements for project participants.
- Create a marketing strategy and explore other business development opportunities for participants.
- Consider additional resources for GMAP to expand the program.

Program review: Implementation

The program review recommendations will be implemented by EDC across the 2022-2026 City Council term. A summary of the required work and estimated timeframes can be found in Attachment 2. The staff resources required to undertake the recommendations for 2023 are included in the 2023 Approved Operating Budget for EDC; staff resources required for future years will be requested through the budget process.

Full implementation of the review recommendations will require EDC to work directly with City agencies, corporations, and divisions to understand their priorities and resource management processes. This work will be coordinated by the GMAP liaison, whose duties are outlined in Attachment 3.

From the start of the program in 2015 through to late 2019 EDC and Strategic Partnerships (then the Toronto Office of Partnerships) partnered equally on operating the program, each contributing the same amount of staff resources (0.1 FTE). Strategic Partnerships is now focusing on its core mandate of citywide strategic initiatives and, while still engaged in supporting GMAP, will not be involved in its operations going forward.

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SIGNATURE

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ATTACHMENTS

Attachment 1: Program review report, "Review of the City of Toronto Green Market Acceleration Program" (September 2022)

Attachment 2: GMAP: Implementation of program review report recommendations (January 2023)

Attachment 3: GMAP: Role of GMAP liaison in City agencies, corporations, and divisions (January 2023)