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RFP No. Doc2317194901

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SECTION 1 – THE DELIVERABLES

The Vendor shall provide full professional design/detailed engineering and construction administration services during the course of the contract (including warranty period), and is responsible for retaining any specialty sub-consultants as necessary (e.g. structural, mechanical, electrical, energy modelling landscape, architects, site service engineer (civil), traffic, planning, storm water management, geothermal, etc.), to carry out the full extent of the services described in this RFP for the proposed Net Zero Carbon 330 Progress Avenue Multi-Function EMS Station).

The City of Toronto will provide to the Vendor, available drawings and/or information with respect to the site where available. The Vendor is responsible for obtaining background information or establishing existing site conditions and dimensions to complete the scope of services as outlined in this RFP document.

The Tender documents will include the design of two (2) options for consideration by the Client, Paramedic Services, while managing EMS Program requirements:

- Option 1 (Preferred Program Area, Base Bid): Facility is approximately 7,040 m² in size, with a 4,140 m² garage bay with (40) ambulance bays, (20) supervisor and education vehicle bays, 150 m² D2 hub, 1,640 m² shared staff space, 1,330 m² education space, and surface parking for (210) vehicles. This option has an allowance for a 4,710 m² future addition and (58) future parking spaces; and
- Option 2: Facility is approximately 4,937 m² in size, with a reduced education space footprint and the re-location of the (20) supervisor and education vehicle bays into the parking lot, leaving room for (210) surface parking spaces but no future parking spaces.

1.1 PHASES OF WORK

The work as described above shall be divided into six phases:

1. Investigation, Concept and Schematic Design Phase
2. Design Development Phase
3. Contract Document Phase
4. Bidding & Tender Review Phase
5. Contract Administration/Construction Phase (including Commissioning & Warranty Period Review)
6. Closeout Phase

1.1.1 Investigation, Concept and Schematic Design Phase

The Vendor will develop schematic plans for the Multi-Function Station. The Vendor will:

1. Review and familiarize themselves with any project related documents and Program requirements (available to the Vendor from the Project Manager);

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2. Make arrangements to gain site access through the existing Toronto Police Services (TPS) entrance gate. This will require individuals who require access to the site, to acquire clearance through the Facilities Management Department of TPS ((416) 808-2222).
3. Undertake a thorough audit and review of the existing conditions as they pertain to the scope of required construction work;
4. Identify and plan around interference of existing infrastructure, including coordinating utility locates;
5. Following review of existing information, determine the extent of additional surveys, utility locates, and soil testing/environmental reporting, etc., and at the approval of the City Project Manager, coordinate additional services as required (out of consultant's cash allowance);
6. Topographical survey with measurements of site area to be provided by Owner. The architect will provide drawings indicating the area to be surveyed and a scope of work and obtain proposals from a minimum of 3 prequalified Ontario Land Surveyors on behalf of the Owner;
7. Coordinate site design with City Project Manager and Real Estate Services, who will be making arrangements for an easement agreement to cross into the property to the west;
8. Obtain and verify information concerning all utility services necessary for the design, both public and private, above and below grade, including inverts and depths, size of the existing water service through Toronto Water and private Owners of utilities;
9. Determine exiting requirements, and fire protection/separation/safety requirements, all as required within OBC, Fire Code, OHSAA and all relevant codes, requirements and Best Practice conformance review;
10. Produce Concept Design Options, Schematic Design Sketches and Sample Boards for the interior renovations and finishes, and present these to the Client Group for consideration/approval;
11. Consultants are to utilize principles of Integrated Design Process and organize a minimum of five (5) half day workshops that include the full design team and all relevant City stakeholders, with the objective of evaluating the various design options under development while considering the City's Urban Design Initiative in the overall design intent;
12. Based on the approved option and feedback resulting from the Client Group presentation of the Concept Design Options, develop the selected scheme, to the schematic design level, creating a cost effective option, acceptable to the City;
13. Provide a Class "C" (at 90% Schematic Design) cost estimates of the selected design options under consideration for Net Zero Energy/Emission design, prepared by the Vendor's cost consultant, and confirm that costing is within the approved construction budget;
14. Following the Selection of the building option for the design, Net Zero Energy/Emission Feasibility design options are required as specified under the

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"Toronto Green Standard Considerations" in Section 1.2.1. A business case will be developed for the incremental cost of achieving NZEB efficiency levels.

15. The business case will be used to apply for grants from the Province of Ontario, the Federation of Canadian Municipalities, Federal Government and other funding sources. It will also look at providing funding from the City's recoverable debt for incremental cost attributed to energy efficiency and renewables. The Vendor will assist the City's pursuance of available incentives/grants available for building NZE and/or energy efficient building (providing technical information and/or fill in that information in grant application forms)
16. Review engineering considerations with your design team;
17. Review and comment on the budget;
18. Ensure design, drawings and specifications meet the requirements of the Accessibility for Ontarians with Disabilities Act (AODA);
19. Attend and record all meetings as required, including but not limited to design meetings with the City project team (See Part 5 - Instructions to Pricing, Phase 1: Investigation, Concept and Schematic Design, Item No. 6 for number of meetings);
20. Attend initial project start-up meetings with City staff to review project background, project schedule, and determine needs and priorities. This meeting will be held during business hours. Paramedic Services will provide general dimensions of EMS vehicles, bay configurations, etc. (See Part 5 - Instructions to Pricing, Phase 1: Investigation, Concept and Schematic Design, Item No. 6 for number of meetings);
21. Attend community meetings, as required, for any items which will involve community input. This meeting may take place outside of regular business hours (See Part 5 - Instructions to Pricing, Phase 1: Investigation, Concept and Schematic Design, Item No. 6 for number of meetings);
22. Attend, lead and record all meetings as per this RFP (See Part 5 - Instructions to Pricing, Phase 1: Investigation, Concept and Schematic Design, Item No. 6 for number of meetings); and
23. Include all printing, disbursements and travel costs associated with the project.

1.1.2 Design Development Phase

The Vendor will prepare detailed design drawings based on the approved option and feedback resulting from the Schematic Design Phase. Design materials shall include:

1. Plans, elevations, sections, renderings showing perspective(s) of the design;
2. Outline specification;
3. Summary of assemblies, hardware/fixture and keying requirements, materials and finishes. Vendor should test that there is adequate availability of proposed materials and confirm with the City's Project Manager;
4. Summary of building structure and systems;

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5. Structural , Mechanical and Electrical design briefs which also include shoring design (if required), and TGS/NZEB requirements;
6. Incorporation of NZEB measurement and verification requirements, including, but not limited to: sub-metering specifications for electric and thermal energy meters, digital metering system design, software integration with Building Automation System (BAS), and standard data storage (duration, frequency, etc.) with the ability to remotely access
7. Security, telecommunications and intercom system designs based on City of Toronto Corporate Security and Paramedic Services requirements;
8. Signage and wayfinding plans/sign schedule, with exterior signage and building code signage meeting current code requirements and City of Toronto Corporate Identity Program Standards;
9. Provision of design, site landscaping and interior design services as well as normally included services provided by a multi-disciplinary professional design team; and
10. Design of modifications to City ROW and adjacent properties requiring new access/egress points due to exiting requirements. This includes requirements for re-work to access roads (if applicable), and traffic drawings for right-of-way construction in accordance with City of Toronto linear drawing standards.

The Vendor will also:

1. Provide cost effective options for construction;
2. Attend and record all meetings as required, including but not limited to design meetings with the City project team. (See Part 5 - Instructions to Pricing, Phase 2: Design Development, Item No. 5 for number of meetings)

1.1.3 Contract Document Phase

The Vendor will undertake completion of working drawings and specifications in accordance with applicable codes and by laws, and provide drawings (AutoCAD and PDF) and specifications in digital format (MS Word and PDF), as well as three (3) bound copies for staff review. The Vendor will also act as the Owner's agent when obtaining and applying for all necessary approvals (including Building Permits) that may be required.

The Vendor will:

1. Review all drawings and specification ensuring compliance with all codes and by-laws;
2. Ensure drawings and specifications meet the requirements of the City Staff Work Group;
3. Ensure drawings and specifications meet the requirements of the City of Toronto's Accessibility Design Guidelines;
4. Ensure drawings and specifications meet the requirements of the Accessibility for Ontarians with Disabilities Act (AODA);
5. Coordinate all drawings ensuring that the documents are coordinated between sub-consultants;

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6. Apply for and secure all required approvals including but not limited to the building permit (permit fees will be paid by the City), where required;
7. Provide a Class "A" (at 90% Tender Documents) cost estimate prepared by the Vendor's cost consultant of the project and adjust contract documents if required to suit the budget.

Site Plan and Permitting Requirements

The consultant is expected to manage all Site Plan Application and permitting requirements, including, but not limited to:

- thorough review of previous studies, reports, and analysis completed during conceptual design feasibility phase (see Reference Documentation),
- architectural, structural, mechanical, site services (civil) electrical, landscaping, fire, security & life safety design, etc.,
- variance on building height limitations due to proximity to Highway 401,
- code compliance and zoning compliance,
- locates and coordination with local utilities for design of building services,
- traffic and parking study including swept-path diagrams and analysis of solar carport,
- topographical survey,
- stormwater management,
- archeological study on undisturbed areas,
- geotechnical report to confirm feasibility of foundation type, and
- groundwater study;

1.1.4 Bidding and Tender Review Phase

The City will be issuing tenders for General Contractors through the City's Purchasing and Materials Management Division (PMMD) for this project. A purchase order will be generated by the PMMD to the successful bidder.

The Vendor will:

1. arrange printing of tender drawings;
2. attend any mandatory bidders' meeting (See Part 5 - Instructions to Pricing, Phase 4: bidding and Tender Review, Item No. 1 for number of meetings);
3. respond to bidder's request for clarification through issuance of addenda to PMMD for issuance to bidders. Responses shall be provided in three (3) business days or less. Any responses requiring additional time shall be approved by the City's Project Manager;
4. evaluate submitted tenders and make a recommendation to the appropriate City staff on a successful bidder, following the appropriate City processes and procedures in coordination with the PMMD.

The printing cost for contract documents needed for tendering and construction sets will be paid by the City. Do not include this cost in your fee proposal.

If tenders received exceed the construction budget established by the City, the Vendor shall, without extra charges, revise the scope and quality of the work to bring the cost

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within the approved budget and make changes, as approved by the City, to the drawings and specifications accordingly for the purposes of re-tendering.

1.1.5 Contract Administration/Construction Phase (including Commissioning & Warranty Period Review)

The Vendor will be required to act as the Owner's agent throughout the construction phase as set out in the standard form Client/Architect Agreement (Royal Architectural Institute of Canada Document 6) or in standard Agreement for Professional Engineering Services Between Client and Engineer as per PEO. If site remediation is required on a localized basis, the Vendor is responsible for coordination and contractor administration of the work. If a full scale site remediation is required, this will be handled as a separate contract managed through the Owner.

The responsibilities of the Vendor and professional design team will include, but not be limited to, the following areas:

1. Prepare an "Issued for Construction" set of drawings and specifications, updated to include all addenda revisions;
2. Attend pre-construction site meeting with the successful Contractor and City representatives (See Part 5 - Instructions to Pricing, Phase 5: Contract Administration/Construction Phase, Item No. 4 for number of meetings);
3. Attend regular bi-weekly site meetings during construction (See Part 5 - Instructions to Pricing, Phase 5: Contract Administration/Construction Phase, Item No. 4 for number of meetings);
4. Review the progress and compliance of the work. The vendor shall participate in a minimum of (2) visits per week, and shall note areas of non-compliance within field review reports;
5. Prepare, at a minimum, monthly written field review reports, as required;
6. Prepare necessary clarifications and site instructions in written and graphic form. Responses shall be provided in five (5) business days or less. Any responses requiring additional time shall be approved by the City's Project Manager;
7. Review and approve all shop drawings, samples and submissions for conformance with the general design. Responses shall be provided in five (10) business days or less. Any responses requiring additional time shall be approved by the City's Project Manager;
8. Prepare change orders as necessary;
9. Define scope for and coordinate independent inspection and testing, mock-ups or specialist testing deemed appropriate by the City including third party commissioning and measurement & verification services as part of TGS. (Testing & Inspection fees are to be paid out of the Vendor's Testing & Inspection Cash Allowance);
10. Review and approve payment draws, claims and issue progress certificates within three (3) to five (5) days, provided they are a proper invoice and completed in accordance with City of Toronto standards for invoice submissions;

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11. Provide Contract Closeout services in accordance with the activities described for the role of the Consultant in OAA/OGCA/PEO Take-Over Procedures;
12. Prepare and follow up on deficiency reports and coordinate the completion of the work. The City's Project Manager should be proactively notified of any known or anticipated delays which may affect the completion date of the project;
13. Determine the date of substantial performance of the work;
14. Verify the contractor's application for all payment requests;
15. Receive from the contractor, review, comment on and forward the written warranties and related documents to City of Toronto;
16. Prior to end of the two (2) year general warranty, the Vendor shall review the work for defects or deficiencies and notify the contractor in writing of any;
17. During the two (2) year general warranty period, the Vendor may be called upon to advise on any possible warrantee issues that may arise during that time, and ensure that these items are satisfactorily resolved with the general contractor.
18. Provide one (1) complete hardcopy set of "record" drawings, one (1) set in AutoCAD, one (1) set in PDF, and one (1) hardcopy set of 11" x 17" base building plans;

On completion, submit electronic files and scanned images of all documentation, including but not limited to: specifications, drawings, shop drawings, minutes of meetings, site instruction, change orders, invoices, certificates, progress images, warranties, close out documentation, manuals etc. The files are to be submitted on a labelled CD accessible by standard readers, organized in folders. File formats to be; text in MS Word, scanned documents in PDF, digital images in JPG and scanned drawings in TIF format.

Considerations for Testing & Inspection Procurement and Coordination

City of Toronto's policy is that the prime consultant – not the general contractor – carries the testing and inspection cash allowance in the prime consultant's contract with the City, rather than in the general contractor's construction contract with the City.

The Prime consultant will be responsible for procuring (i.e. defining the scope of work, soliciting a minimum of three prices for each testing and inspection RFQ to independent testing, and inspection firms) for coordinating the services of those firms during the construction phase, and for making payment to them on behalf of the City.

A Testing and Inspection Cash Allowance is included in the Price Detail form. The cash allowance is to be used exclusively for payment for the cost of testing and inspections to the testing and inspection firms.

The Proponent's overhead and profit in connection with the Testing and Inspection Cash Allowance (i.e. their costs associated with managing the testing and inspection co-ordination) shall be included in the Proponent's Construction and Contract Administration phase of their fee, and shall not be withdrawn from the Testing and Inspection Cash Allowance. The cash allowance excludes all taxes.

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Submit pro-forma invoices or quotations, net HST, of each item charged against the Testing and Inspection Cash Allowance, and upon approval, proceed with issuing of purchase orders.

Disbursements from the Testing and Inspection Cash Allowance shall be authorized by the City of Toronto in writing.

1.1.6 Closeout Phase

For Architectural, Structural, Mechanical and Electrical work, the Prime Consultant will, in addition to the above, arrange for the following Closeout activities:

1. verify that the equipment installation has been completed;
2. verify that instrumentation has been installed;
3. verify that equipment start-up has been completed;
4. verify that control diagrams and sequences of operations have been corrected to as-built condition;
5. verify that safety and operating control set points have been set to design values and that the automatic sequences have been checked out;
6. verify that the installations have been cleaned up and that all temporary covers, stickers and tags have been removed;
7. verify that painted finishes have been touched up where damaged;
8. verify that equipment and piping identification work have been completed with tags, schedules, identification systems and equipment identification legends;
9. verify that complete operating and maintenance instructions have been prepared for use during the testing and balancing work;
10. arrange requisite demonstrations/training in the operation and maintenance of the installed systems by the vendor/contractor;
11. Review close-out package and arrange all close-out and contract administration material to be provided to the City in digital format;
12. Provide one (1) complete hardcopy set of “as-built” drawings, one (1) set in AutoCAD, one (1) set in PDF, and one (1) hardcopy set of 11” x 17” base building plans Carry out a warranty review 11 months after Substantial Performance and provide a list of outstanding deficiencies. Follow up with the Contractor(s) to ensure correction of all items;
13. Develop energy performance and reporting requirements within the service deliverables, including guidelines for how performance is measured. This guideline should provide the expected building performance matrix so building operators can reference this information to assess, verify and (if needed) troubleshoot the building;
14. Support measurement and verification efforts for the full duration of (18) months – providing design advice and installation solutions in the event that data does not reflect design objectives. This allows six (6) months for the facility to reach a

steady state, and another (12) months for measurement and verification of the performance requirements.

1.2 DESIGN CONSIDERATIONS

1.2.1 Toronto Green Standard (TGS) Considerations

The Vendor shall design the building and site to comply with the requirements of the City of Toronto's Toronto Green Standard (City Agency, Corporation & Division-Owned Facilities), Version 3 or current.

In addition, City Council has mandated that all City Agency, Corporation and Division-owned facilities be certified to achieve the equivalent of a Tier 2 level of performance by a 3rd party evaluator registered with the City of Toronto. This evaluation will be performed by an independent [Registered Project Evaluator](#) through a two stage evaluation process. The first stage will be a document review and the second stage will be an on-site verification evaluation. The Vendor shall be required to compile this documentation in the format required (in named folders) to facilitate this 3rd party evaluation. The Vendor will be required to coordinate the evaluation package to be sent to the TGS 3rd party evaluator (including, but not limited to, the collection of all signatures for all applicable Declaration Forms and the compilation of documentation in the format requested by the TGS 3rd party evaluator). The Vendor will act upon the comments and discrepancies noted by the 3rd party evaluator for all stages of review. The 3rd party TGS evaluator will be retained by the City of Toronto."

1.2.2 Net Zero Energy/Emission Feasibility Considerations

City Council has directed that City Agencies, Corporations and Divisions "further aim to achieve a net-zero energy/emission target for all new buildings and additions greater than 100m² (GFA), where technically practical and financially feasible". To meet this mandate the Vendor shall, **during Phase 1**, perform a Net Zero Energy/Emission Feasibility study, as described in this RFP. Through this feasibility study it will be the responsibility of the Vendor to recommend the feasibility of designing to Net Zero Energy/Emissions standards.

1. The following three design options are required and all options are to be modeled and costed (Class C level as appropriate for Schematic Design Stage):
 - Baseline – Toronto Green Standard Version V3 Standard for high performance city building projects, including meeting renewable energy requirements
 - Net Zero Emissions – Toronto Green Standard Version 3 Tier 4 or equivalent resulting in Net Zero Energy and Emissions
 - Optimized Design: Optimized design that provides a 20-year payback of incremental costs over Baseline option
2. Analysis, Preferred Scenario, and Recommendations
 - a. A business case will be developed by the City for the incremental cost of achieving NZEB efficiency levels.

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1. Prepare and review energy model using modelling tool eQuest 3.65 (preferred); providing supporting calculations and a modelling report at the Site Plan and Building Permit stages for each of the three (3) design options listed above, as well as the final 'as-built' condition in accordance with TGS requirements.
- b. Calculate energy consumption, demand, and emissions for the proposed development according to the three scenarios.
- c. Estimate the contribution(s) of the identified on-site and off-site low-carbon solutions towards achieving zero emissions.
- d. Provide 8760 hour building energy models for all for all three scenarios.
- e. Assessment of Renewable Energy options and production capacity for all three scenarios, in accordance with TGS's Renewable Energy feasibility Study Terms of Reference (requires energy modeling). These can be found at: <https://www.toronto.ca/wp-content/uploads/2018/04/8ee4-city-plannng-renewable-energy-feasibility-study.pdf>
- f. Perform TEDI, TEUI and GHGI calculations for all three scenarios.
- g. Describe Passive Heating and Cooling Design Strategies utilized in meeting the scenarios.
- h. Assess the cost of construction for all scenarios. Including:
 - i. HVAC premiums
 - ii. Renewable energy premiums
 - iii. Envelope enhancement premiums.
 - iv. Construction activity premiums i.e. Air tightness testing.
 - v. Commissioning of systems (including envelope commissioning, renewable systems, lighting systems, mechanical systems, domestic hot water systems).
- i. Based on the completed analysis, state the preferred scenario and conclude with recommendations and next steps to facilitate implementation. Establish the overall value proposition(s).

A feasibility study will be developed for the incremental cost of achieving NZEB status (over and above the costs associated with achieving TGS Version 3 requirements for City owned buildings). The feasibility study will identify the simple payback, Net Present Value (NPV) calculations, and the overall recommendation of feasibility as defined below.

The financial and technical feasibility will be determined based on the following:

- Financial feasibility shall be based on the City of Toronto's Sustainable Energy Plan Financing Program and will be determined as follows: "The incremental project cost (net of any incentives and grants) including capital, maintenance, monitoring and reporting should be equal to or less than the total present value of the net cost savings over the useful life of the project, not more than 20 years, discounted at the cost of borrowing." For more information read the Attachment 2 of the Sustainable Energy Plan Financing Program Enhancement report at <https://www.toronto.ca/legdocs/mmis/2018/pe/bgrd/backgroundfile-117766.pdf>
- Technical feasibility will be defined as projects that are limited due to space constraints or physical limitations.

3. The NZEB feasibility study will also be used to apply for grants from the Province of Ontario, the Federation of Canadian Municipalities, and other funding bodies, and to provide funding from the City's recoverable debt for the incremental cost of the energy efficiency and renewable portion. The Vendor will assist the City's pursuance of available incentives/grants available for

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building NZE and/or energy efficient building (providing technical information and/or fill in required or relevant information in grant application forms)"

4. To meet TGS Building Resiliency- Back up Generation GHG 5.2 requirements, the Vendor is required to provide feasibility investigations and a report recommending the viability of emergency backup power including a solar photovoltaic + storage (battery) system and/or natural gas power.

The Back-up power load panel shall include:

- a. One large central room
- b. Office
- c. Lighting
- d. Elevator(s) for one trip to ground floor
- e. Security system (may be omitted if the security system is on a separate UPS system)"

Natural gas power has been recommended during the initial feasibility design stages of this Project by the client. In Section 1.4.2 of Appendix D in the Feasibility Study Consolidated Report provided as Reference Documentation, M&E Consulting Engineers provide analysis and recommendations on a natural gas generator as well as a diesel alternative. The vendor shall provide design specifications the installation of a natural gas emergency/peak shaving generator (or client approved alternative). It is recommended that a solar photovoltaic combination panel with thermal storage be investigated and compared with the natural gas option to decide whether to proceed with one or the other (or both). The City will also consider generator options with heat recovery included.

The natural gas generator design shall be sized to operate the entire facility in the event of a power failure, while meeting all requirements to enroll the generator in the OPA Demand Response DR3 Program. The Proponent will also include a design for the electrical and mechanical review of a switchgear with the capability to allow the generator to be used in a peak shaving application based on paralleling with the utility and operating at a base load level of (80%) of the machine rating.

The Vendor is to conduct a detailed analysis of an emergency backup power option using a solar photovoltaic system on the roof, with a solar carport and energy storage (battery) system instead of, or in tandem with a natural gas generator.

Optional (client decision): For buildings that are exempt from TGS GHG 5.2 Back-Up Generation, item 4 above is optional but recommended. Refer to TGS GHG 5.2 for additional information.

This work may require the consultant to retain a qualified sub-consultant to design the site to meet the Toronto Green Standard (City Agency, Corporation & Division-Owned Facilities, Version 3 or most current version) and the Net Zero feasibility requirements described herein. It may also require a qualified consultant to conduct the geothermal and renewables (ie. Solar) investigations. This would consultant would need to conduct a thorough review of TGS requirements, and also consider items specific to the two (2) options being considered such as:

- energy storage design instead of or in compliment with natural gas generator,
- urban heat island reduction at grade and on roof,
- re-visiting overall target for dedicated priority parking spaces for low-emitting vehicles, carpooling or publicly accessible spaces dedicated to car-sharing

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- coordination with commissioning agent, retained by the City, who will also provide due diligence into measurement and verification requirements, and
- coordination with TGS evaluator, retained by the City.

Proposed Schedule and Timelines

Date	Milestone
May 2020	Kick-off meeting
May 2020	Commence site evaluations
Q4 2020	Submission of Schematic Design for review and approval
Q4 2020	Commence Planning Approvals (SPA, etc.)
Q2 2021	Submission of Detailed Design for review and approval*
Q3 2021	Submission of 50% Tender Documents
Q4 2021	Submission of Final Tender Documents for PMMD to issue
Q4 2021	Application for Building Permit
Q1 2022	General Contractor Procurement
Q1 2022	Building Permit Issued
Q1-Q2 2022	Construction Starts (Site Services)
Q3 2022	Construction Starts (Building)
Q3 2024	Substantial Performance Issued (Followed by Total Performance)
Q4 2024-Q1 2025	Measurement and Verification of NZEB targets

*Note: Detailed design shall be reviewed by TGS Evaluator and Third Party Commissioning Agent retained by Owner.

SECTION 2 – INFORMATION FOR SUPPLIERS

2. Background

As part of an effort to accommodate the proposed increases in the City's Emergency Medical Services (EMS) staff resources, the City of Toronto is proposing to design and construct a Multi-Function Station (MFS) located at the north end of a 25 acre parcel of land in Scarborough, Ontario. The new station will be used to achieve greater efficiencies in the preparation of equipment and vehicles, and to allow more targeted deployment of Paramedic crews across the city to respond to emergency calls.

The subject property's municipal address is 330 Progress Avenue and is roughly 8 acres in size, bound by adjacent lands to the east and west, the 401 corridor to the north, and the Toronto Police Services evidence building to the south (the latter of which forms part of the same property). During the conceptual design phase of the project, two (2) test fits were approved for development in the next stage of detailed engineering and design:

- Option 1 (Preferred Program Area): Facility is approximately 7,040 m² in size, with a 4,140 m² garage bay with (40) ambulance bays, (20) supervisor and education vehicle bays, 150 m² D2 hub (office space, lounge, kitchenette), 1,640 m² shared staff space, 1,330 m² education space, and surface parking for (210) vehicles. This option has an allowance for a 4,710 m² future building addition and (58) future parking spaces; and
- Option 2: Facility is approximately 4,937 m² in size, with a reduced education space footprint and the re-location of the (20) supervisor and education vehicle bays into the parking lot, leaving room for (210) surface parking spaces but no future parking spaces.

Early on in the development of these two (2) options, Program objectives were defined in consultation with the delivery division's client, Paramedic Services. The proposed facility is intended to achieve the following major program objectives:

- function as an around the clock hub for (40) ambulance vehicles, (10) supervisor vehicles, (10) educational vehicles, and include provisions for administrative space, teaching facilities, staff locker rooms, cafeterias, inventory storage and vehicle processing (sizing/clearance to be provided by Client);
- accommodate staffing of up to (250) Paramedics personnel including transient personnel visiting the site for training and instruction;
- include for approximately (210) on-site parking spaces for staff, transient personnel, and visitors, with the ability to further develop an additional (58) future parking spaces in Option 1;
- provide flexible classroom and laboratory space for paramedic training;
- include fire/emergency routing during planning stage for fire department access; and
- accommodate outdoor service access for loading and oxygen deliveries.

The facility is expected to accommodate the following staff scheduling:

- (50) paramedics entering the site to start a shift and (50) leaving at the end of a night shift;
- (25) ambulances returning from a shift and (25) leaving to start a shift;
- (130) people arriving at the Project for training;

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- (20) logistics and command staff entering the Project to start a shift; and
- (1) commander, (2) administrative superintendents, (1) clerical assistant, (6-8) supervisor superintendents for 7:00 am Operations support.

The design of the new facility must achieve compliance with the following legislation and standards:

- 2017 edition of the Ontario Building Code (OBC) and all amendments.
- Accessibility for Ontarians with Disabilities Act (AODA).
- Design of Public Spaces 2012, and Proposed Accessible Built Environment Standard 2010 or latest edition.
- City of Toronto Accessibility Design Guidelines, 2015 (TAG).
- Toronto Green Standard for City Agency, Corporation and Division-Owned Facilities Version 3.0 or latest version.
- City of Toronto's Urban Design Initiative
- City of Toronto Corporate Identity Program Standards.
- City of Toronto By-laws and Applicable Law.
- Relevant design codes and standards (ie. Fire Code, CSA, AISC, ESA, ASHRAE, TSSA, etc.). any other applicable legislation and RFP requirements.

On October 2, 2019 Toronto City Council unanimously declared a climate emergency and committed Toronto to a net zero greenhouse gas emissions target by 2050 or sooner (2019.MM10.3).

Prior to that, in July 2017, City Council adopted Transform Toronto Strategy ("TransformTO"), which included number of specific targets for City's facilities including requirement that by 2026 all new City buildings must meet net zero carbon standards.

TransformTO is, available at:

<https://www.toronto.ca/services-payments/water-environment/environmentally-friendly-city-initiatives/transformto/>

Given that this building is likely going to be in existence past the Council established carbon neutrality targets the design must comply with Design for Net Zero Energy Building (NZEB) as per the requirements of Appendix A.

Proponents must be licensed to practice in the Province of Ontario. The Proponent's team must provide architectural, structural, mechanical (including geothermal), electrical engineering design, and contract administration services as per the requirements of the RFP. The Proponent will be required to demonstrate their experience in completing projects similar in nature and value. The Proponent may provide all areas of expertise from within one multi-disciplinary architectural/engineering/specialist firm to provide the appropriate level of technical expertise and professional services for this project, or alternatively may assemble a team providing expertise and services through subcontract agreements with engineering or other specialist firms.

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2.1 Project Budget

- .1 The City's range in budget for this project is between \$16.4 million and \$27.5 million. Please note that this amount is only an approximation and does not reflect the total amount that will be paid to any Vendor. This amount is for information only and should not form the basis of any submission.

2.2 Social Procurement

.1 General

- .1 The goal of the City of Toronto Social Procurement Program is to drive inclusive economic growth in Toronto by improving access to the City's supply chain for diverse suppliers and leverage employment, apprenticeship and training opportunities for people experiencing economic disadvantage, including those from equity-seeking communities. The City of Toronto expects its Suppliers to embrace and support the City of Toronto Social Procurement Program and its respective goals. Social procurement creates social value for the City in addition to the delivery of efficient goods, services, and works. The City of Toronto Social Procurement Program consists of two components: Supplier Diversity and Workforce Development.
- .2 For more information on the City of Toronto Social Procurement Program, visit: <http://www.toronto.ca/purchasing/socialprocurement>.

.2 Supplier Diversity

- .1 The goal of supplier diversity is to increase the diversity of the City's supply chain by providing diverse suppliers with equitable access to competitive procurement processes.
- .2 In accordance with Section 1.3.2 of the City of Toronto Social Procurement Policy, points will be assigned to suppliers that submit information as part of their Bid that will improve supplier diversity in the City's supply chain. See subsection 2 in Form B of Part 4 for more information.

2.3 Definitions

In addition to the definitions set out in Part 1 - Section 3.14 the following definitions shall apply throughout Part 3 (REQUIREMENTS FOR DELIVERABLES), Part 4 (SUBMISSION FORMS) AND Part 5 (PRICING FORM) of this RFP, unless inconsistent with the subject matter or context.

- .1 **"Diverse Supplier"** means any business or enterprise that is certified by a Supplier Certification Organization to be:
 - More than 51% (majority) owned, managed and controlled by persons belonging to an equity-seeking community, or
 - A social purpose enterprise whose primary purpose is to create social, environmental or cultural value and impact, and where more than 50% of the persons who are fulltime equivalent employees or are participating in, or

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have completed, transitional employment training, experience economic disadvantage.

- .2 **"Equity-seeking Community"** means a group that experiences discrimination or barriers to equal opportunity, including persons of low-income, vulnerable youth[(age 18-29), women, Aboriginal People, persons with disabilities, recent newcomers, LGBTQ2S+ people, racialized people, and other groups the City identifies as historically underrepresented.
- .3 **"Supplier Certification Organization"** is a non-profit organization recognized by the City of Toronto that certifies businesses and enterprises as Diverse Suppliers by assessing them using established, consistent criteria. Recognized Supplier Certification Organizations include:
- Canadian Aboriginal and Minority Supplier Council
 - Canadian Gay and Lesbian Chamber of Commerce
 - Social Purchasing Project
 - Women Business Enterprise Canada
 - Canadian Council for Aboriginal Business
- .4 **"Workforce Development"** means a relatively wide range of activities, policies and programs to create, sustain and retain a viable workforce that can support current and future business and industry. It is an approach that integrates career exploration, industry-driven education and training, employment, and career advancement strategies, facilitated by the collaboration between employers, training and education institutions, government, and communities.

2.4 Toronto Green Standard Sustainable Building Policy

The Toronto Green Standard implements the environmental policies of the City of Toronto Official Plan and the requirements of multiple City divisions, and is an effective tool to achieve the City's greenhouse gas emission reduction targets for new buildings.

The Vendor design must comply with all applicable requirements from governing bodies having jurisdiction and RFP requirements, including, but not limited to the Toronto Green Standard and the Net Zero Carbon Feasibility assessment, described herein.

Capital projects for City facilities must comply with the Toronto Green Standard for City Agency, Corporation and Division-Owned Facilities (Version 3.0 or current) and all new City buildings over 100m², must aim to achieve Net Zero Energy/Emissions, where technically practical and financially feasible. As directed by City Council, a third party evaluator will be retained by the City and will be required to certify that all new capital facilities have met the Tier 2 Core performance requirements.

New buildings will meet the Toronto Green Standard by meeting the design requirements noted herein and by certifying the design and construction has met the Tier 2 performance requirements by passing a third party evaluator assessment.

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The Toronto Green Standard for City Agency, Corporation and Division-Owned Facilities can be found at:

<https://www.toronto.ca/city-government/planning-development/official-plan-guidelines/toronto-green-standard/toronto-green-standard-version-3/city-agency-corporation-division-owned-facilities-version-3/>

These requirements are in accordance with Council direction dated March 28, 2017
<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2017.PG18.3>

APPENDICES

APPENDIX A – NET ZERO ENERGY REQUIREMENTS

PURPOSE

The intention of the Owner, City of Toronto, is for future 330 Progress Avenue MFS to be Net Zero Energy Building (NZEB).

DEFINITION

Net Zero Energy Building (NZEB) is defined as a building that produces as much renewable energy as it consumes when measured at the site on an annual basis, while maintaining an acceptable level of service and functionality (ASHRAE Vision 2020. 2008).

https://www.ashrae.org/file%20library/doclib/public/20080226_ashraevision2020.pdf

SCOPE OF WORK

In order to achieve the goal of NZEB, the expectation is that Designer will utilize:

- State of the art building design using passive building principles to minimize energy requirements, and
- Renewable energy systems that meet these much-reduced energy needs.

Additionally, the Designer needs to demonstrate that the building design will meet the requirements of a new Zero Carbon Building Standard published by the Canada Green Building Council in May 2017 (http://www.cagbc.org/CAGBC/Zero_Carbon/Zero_Carbon_Building_Initiative/CAGBC/Zero_Carbon/The_CaGBC_Zero_Carbon_Building_Program.aspx?hkey=db3da92e-e4e0-4088-a463-95045bf55b89).

N.B: Please note that certification to ZCB standard is required.

These sustainable design principles will guide the development to achieve Toronto Green Standard Version 3 Standard for high performance city building projects and assist with attaining a net zero carbon development.

While the definition of is ever changing, the National Institute of Building Sciences defines six fundamental principles of sustainable building design:

1. Optimize Site Potential - site design must integrate with sustainable design to achieve a successful project. It begins with the proper site selection, as the location, orientation, and landscaping of a building all affect local ecosystems, transportation methods, and energy use.
2. Optimize Energy Use - Improving the energy performance of buildings through energy modeling is vital to increasing the building's energy independence. Operating net zero carbon buildings is one way to significantly reduce dependence on fossil fuel derived energy.

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3. Protect and Conserve Water - A sustainable building will need to use water efficiently, and reuse or recycle water for on-site use, when feasible.

4. Optimize Building Space and Material Use - As the world population continues to grow; the use of natural resources and the demands for them, continues to increase. A sustainable building is designed and operated to use and reuse materials in the most productive and sustainable way across its entire life cycle.

5. Enhance Indoor Environmental Quality - The indoor environmental quality (IEQ) of a building has a significant impact on occupant health, comfort, and productivity. Among other attributes, a sustainable building maximizes daylighting, has appropriate ventilation and moisture control, optimizes acoustic performance, and avoids the use of materials with high-VOC emissions.

6. Optimize Operational and Maintenance Practices – The design team will need to specify materials and systems that simplify and reduce maintenance requirements; require less water, energy, and toxic chemicals and cleaners to maintain; and are cost-effective and reduce life-cycle

To minimize energy requirements, the Designer should explore recommendations for efficient design listed in Net Zero Energy Buildings: Passive House + Renewables by North American Passive House Network (http://naphnetwork.org/NAPHN_NZEB_2015_V2/mobile/index.html), Vancouver's Passive Design Toolkit (<http://vancouver.ca/files/cov/passive-home-design.pdf>, and <http://vancouver.ca/files/cov/passive-design-large-buildings.pdf>), and Whole Building Design Guide (<http://www.wbdg.org/design-objectives/sustainable/optimize-energy-use>) among others.

Some of specific recommendations include:

Reduce Heating, Cooling, and Lighting Loads through Climate-Responsive Design and Conservation Practices

- Use passive solar design; orient, size, and specify high-performance, energy efficient windows (e.g. U-0.14); and locate landscape elements with solar geometry and building load requirements in mind.
- Use high-performance building envelopes; select walls (e.g. R-30 or higher), roofs (e.g. R-40 or higher), and other assemblies based on long-term insulation, air barrier performance, and durability requirements.
- Consider an integrated landscape design that provides deciduous trees for summer shading (but do not shade solar PV system!), appropriate planting for windbreaks, and attractive outdoor spaces.
- Use urban heat island reduction at grade with high albedo materials, permeable surfaces and shade.
- Use urban heat island reduction on the roof with green roof and/or cool construction – based on Green Roof by-law and TGS, Tier 2 (v03), applied to the MFS, where 50% of roofing area should be designed as green roof with remaining as cool roofing materials.

Specify Efficient HVAC and Lighting Systems

- Use energy efficient HVAC equipment and systems – the expectation is that design will utilize ground source or air source dual stage heat pump system.
- Evaluate hydronic radiant in floor heating system combined with geothermal system.
- Evaluate energy recovery systems that pre-heat or pre-cool incoming ventilation air.
- Use lighting systems that consume less than 1 watt/square foot for ambient lighting.

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- Use Energy Star® approved energy efficient appliances.

Optimize Building Performance and System Control Strategies

- Employ energy modeling programs early in the design process.
- Use sensors to control loads based on occupancy, schedule and/or the availability of natural resources such as daylight or natural ventilation.
- Evaluate the use of modular components such as boilers or chillers to optimize part-load efficiency and maintenance requirements.
- Employ centralized remote meter reading and management to provide accurate analysis of energy use and monitor power quality.
- Use a comprehensive, building commissioning plan throughout the life of the project.

Employ Renewable Energy Sources

- On-site Renewable energy sources that may be appropriate for this location include solar water heating, photovoltaic (PV) (on roof, carport and canopy over playground), and geothermal heat pumps.
- Renewable energy Feasibility study is a requirement under Toronto Green Standard for City owned buildings. See below for requirements for geothermal feasibility study.
- Designer will, at minimum design the building to be able to accept the solar PV system, using solar ready requirements provided below.

Designer is expected to assist the City in pursuing the funding opportunities in order to offset the expected increased cost of achieving net zero energy building including Federation of Canadian Municipalities' (FCM) Municipalities for Climate Innovation Program, and others that may yet become available.

Ground Source and Air Source Heat Pump Feasibility Study

1. Building and site assessment

- The consultant shall review drawings, design parameters, BAS capabilities, proposed HVAC systems and proposed borefield location to verify that geothermal and/or air source heat pump system is appropriate for the site.
- Consultant shall work with a local driller and review the Ontario Geological Survey (OGS) data to estimate the ground thermal conductivity. A test borehole is not required at the feasibility stage but is typically used during detailed design once the decision has been made to move forward with the system.
- Consultant shall make a reasonable effort to identify any issues with drilling at the proposed location.
- Consultant shall describe the proposed system, including the system size, location and sizing of vertical/horizontal geexchange field, building connection point, heat pump configuration, and sequence of controls.

2. Building energy model

- Based on available design, drawings and information provided by City of Toronto, consultant shall create an 8760 hour room-by-room energy model (the same building energy model can be used for both the geothermal system and for general building design);

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- Consultant shall use the building energy model using a software tool approved by the City and GHX model to directly inform design and consider all relevant opportunities that may promote system balancing (note that balancing must appropriately take into account internal loads). This may include incorporating DHW load, ventilation loads, fluid cooler, snow melting, other building exterior or interior changes, hybrid system, etc. The report shall clearly indicate which options were considered and the corresponding results.
 - Relevant output results from building energy model shall be included in the report.
 - Consultant shall indicate a preferred system configuration and demonstrate that it is balanced.
3. GHX model/design/sizing
- GHX sizing shall not be based on rules of thumb
 - GHX sizing shall be done with GLD, Earth Energy Designer (EED) or Looplink.
 - Consultant shall include a plot illustrating 20-year ground temperature changes.
 - Consultant shall explicitly state annual heat flows to and from the ground
 - Consultants shall provide a layout for the proposed borefield.
 - Relevant screen shots illustrating results from GHX model shall be included in the report.
4. Energy/Financial/GHG Analysis
- Consultant shall evaluate the energy, cost and GHG savings against a reasonable conventional system including an air-source heat pump system.
 - Financial analysis shall include net present value (NPV) over 25 and 50 year evaluation periods using a discount rate provided by the City, return on investment (ROI), and simple payback calculations over the conventional system. Please note that consultant is expected to identify and run an analysis on the incremental costs of using geothermal over a conventional system replacement as identified in the 10-year capital budget plan.
 - Identify applicable utility and/or government incentives.
 - Use utility rates provided by the City in the financial analysis but also evaluate other possible scenarios that may occur as a sensitivity analysis; for example, financial performance using the highest historical gas rate in the past 10 years.
 - As separate line items, consultant shall consider savings from (if applicable):
 - i. cooling season energy costs;
 - ii. heating season energy costs;
 - iii. saved person-hours for operation and maintenance of mechanicals;
 - iv. saved person-hours and materials for other building operations (snow-melting);
 - v. saved water usage and chemical treatment (cooling towers);
 - vi. saved infrastructure cost; and
 - vii. capital reserve savings due to longer component lifetimes (based on ASHRAE life expectancy).
 - Consultant shall refer to AHRI-rated specifications of proposed equipment to estimate equipment efficiencies. Efficiency values shall be adjusted to represent expected operating conditions (for example, entering or leaving water temperatures that deviate significantly from rated performance points) and the adjustment should be justified within the report.
 - Components costs should be traceable and included as separate line items; acceptable sources include either RSMMeans mechanical data and actual equipment quotes for this project or from recent previous projects.

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- Consultant shall estimate GHG savings based on current emission factors to be provided by the City. If not provided, consultant shall use emission factors for Ontario as reported in the National Inventory Report.
5. Environmental Impact
- Identify any potential ground loop impacts on the local water source and the environment (if any).
6. Report
- Provide a detailed report which clearly indicates/describes methodologies, parameter assumptions (and sources) and findings, to such a degree that City staff can verify all requirements have been met.
 - Energy Model files, data input calculations/take off spread sheet used to support the analysis should be provided with the report.

Solar PV Ready Design Guidelines

The roof should be designed to be structurally capable of accommodating additional dead and live loads of a solar PV system, which typically adds 3-6 lbs. /sq. ft. It should be free of obstructions such as self-shading on the south facing portion e.g. from rooftop units, to maximize sun exposure. The designer should include roof loads, and potential location of solar PV system into roof plan tender drawings.

Required to incorporate "solar ready" principles:

At minimum this means:

- (1) Designate the area of the roof for future solar PV and make roof structurally sound to support it.
- (2) Place HVAC or other rooftop equipment on the north side of the roof, to prevent future shading.
- (3) Provide a conduit from the roof to the rough in for the location of the external disconnect (exact location to be determined in discussions with Toronto Hydro) and then to closest electrical panel that the solar system is able to connect to. Size of conduit to be determined based on maximum potential PV system size.
- (4) Provide one inch conduit for communications from the roof to building electrical connection point or to the network hub (exact location to be determined based on monitoring requirements during design stage).