

**THE METROPOLITAN TRANSPORTATION AUTHORITY
ACTING BY THE
MTA CONSTRUCTION AND DEVELOPMENT COMPANY**



**RFI-GEO-1-1
Request for Information for
Geothermal Cooling Technologies
for NYCT Subway Stations**

September 18, 2025



Construction & Development

September 18, 2025

Subject: RFI-GEO-1-1 - Request for Information for Geothermal Cooling Technologies
for New York City Transit (NYCT) Subway Stations

Dear Interested Parties:

MTA Construction and Development Company ("MTA C&D") is investigating cooling technologies for the New York City Transit ("NYCT") subway system. Through this Request for Information ("RFI"), MTA C&D seeks to obtain information on geothermal cooling technologies for the passenger occupied zone of subway platforms in deep stations.

I am MTA C&D's designated Point of Contact for this RFI, and I can be reached at eduardo.leanez@mtacd.org. All communications related to this RFI, including the Respondent's RFI response, should be directed to me.

Responses should be submitted by Friday, October 24, 2025, at 2:00 PM.

Thank you for your participation.

Sincerely,

A handwritten signature in blue ink that reads "Eduardo Leanez".

Eduardo Leanez

Assistant Director, Construction Contracts

REQUEST FOR INFORMATION RFI-GEO-1-1

Geothermal Cooling Technologies for NYCT Subway Stations

1 INTRODUCTION

MTA Construction & Development (“MTA C&D”) is investigating cooling technologies for the New York City Transit (“NYCT”) subway system. Through this Request for Information (“RFI”), MTA C&D seeks to obtain information related to geothermal cooling capacity technologies for the passenger occupied zone of subway platforms in deep stations.

This is only an RFI; it is issued exclusively to elicit information. It does not represent a Request for Proposal (“RFP”) or any promise that an RFP will be issued in the future. This RFI does not commit MTA C&D to contract for any material or services and MTA C&D will not pay for any information or any costs incurred in responding to this RFI. MTA C&D shall have the right to use any information submitted in response to this RFI without obligation or compensation.

2 HISTORY OF UNDERGROUND SUBWAY STATION COOLING EFFORTS TO DATE

Construction feasibility and operational cost constraints have limited large-scale station cooling and air tempering in NYCT subways, but there are air tempering systems installed at the following stations: 34 St-Hudson Yards (Line 7); Grand Central-42 St (Lines 4, 5 & 6); South Ferry (Line 1); 96 St, 86 St and 72 St (Line Q); Lexington Av/63 St (Lines Q & F); and Cortlandt St (Line 1). The following stations also have platform fans installed: Times Sq-42 St (Shuttle line); Grand Central-42 St (Line 7); 14 St-Union Sq (Lines 4, 5, 6 & L); Wall St (Lines 2 & 3); Christopher St-Stonewall (Line 1); and Bowling Green (Lines 4 & 5).

In September 2023, MTA C&D released [RFI-0000447823](#) - *Subway Stations Cooling Technologies*, to obtain information related to innovative and cost-effective subway station cooling technologies. Responses to that request informed subway station heat mitigation efforts to date, as well as this RFI.

3 PART 1 – GENERAL GEOTHERMAL

MTA C&D is seeking general information about overall geothermal capacity and models across the subway system and associated assets.

3.1 GENERAL BACKGROUND INFORMATION FOR SUBWAY STATION GEOTHERMAL

The MTA subway system comprises 472 stations on 28 routes, spread along 665 miles of track. Across the entire system, 418 miles of track and 281 stations are located underground and are thereby impacted by extreme heat.

Underground subway stations and tunnels built in the early 20th Century were designed to circulate air via passive “piston” ventilation that relies on moving subway cars to push hot air out and bring cooler air in. At the time, heat was generated largely from the friction of braking trains. Today, underground subways have multiple additional heat sources related to subway operations,

including heat generated from communications and electronics equipment, the air conditioning units that keep communications equipment cool, and train car air conditioning units. While air-conditioned cars reduce temperatures inside subway cars, that heat is rejected outside of the car into adjacent stations and tunnels.

MTA subway tunnels are equipped with 209 giant fan plants that provide air ventilation across underground tunnels and, in cases of fire, serve as smoke ejectors. On a typical day, these fan plants are not energized, and the underground subway system relies solely on passive ventilation provided by moving trains that push and pull air in and out of tunnels and stations through air vents via the piston effect. Even when energized, the air flow induced by fan plants in addition to train piston ventilation is still insufficient to provide the necessary air tempering to combat extreme heat without mechanical cooling systems such as chillers. Ventilation can only bring the indoor temperature as close as possible to outside air temperatures but does not reduce indoor temperatures below the temperature of the air introduced from outside.

Additionally, the MTA manages 23 individual deep wells across four well fields located where the water table is above the subway's tracks. Deep wells pump groundwater 24/7 to keep it out of the underground system. Well fields include wellpoints as deep as 130 feet and discharge lines with consistent flow rates ranging from 1,700–3,800 gallons per minute with temperatures ranging from 60–66°F.

There are also 254 pump rooms throughout the subway system. Pump rooms and deep wells pump out a cumulative 10 million gallons of primarily groundwater each day from subway tunnels. Pump room flow rates and discharge temperatures vary.

3.2 GENERAL INFORMATION SOLICITED FOR SUBWAY STATIONS GEOTHERMAL

Please provide answers to the following questions, considering the general information provided above.

1. What is the potential magnitude of thermal resource capacity across the MTA network?
2. Of the asset types described above (i.e., fan plants, deep wells, pump rooms), which types may provide the greatest geothermal potential for reuse within MTA operations or by a third party?
3. What is the potential of existing MTA assets to be utilized in geothermal cooling systems?
4. What innovative thermal models (i.e., waste heat recovery and provision) might be possible to integrate with MTA assets?
5. What dollar value may be assigned per unit of recovered waste heat?
6. What innovative thermal off-takers external to the MTA may be potential partners for a geothermal project?

4 PART 2 – SITE-SPECIFIC GEOTHERMAL

MTA C&D is seeking site-specific information on potential geothermal cooling technologies pertaining to two subway stations in upper Manhattan: 168 St and 181 St on the “1” Line.

4.1 SITE-SPECIFIC BACKGROUND INFORMATION

A viable subway station geothermal cooling technology for these locations should:

- Provide cost-effective localized cooling of the air within the passenger occupied zone of the subway station platform during high ambient temperature days to an average target temperature between 82°F to 85°F during peak cooling load.
 - The occupied zone of the platform is the volume of space 2 feet from the platform edges, 20 feet from the ends, and 6 feet above the platform surface.
- Be designed based on an outside average ambient temperature of 89°F, and a maximum platform area ambient temperature of 100°F.
- Be designed based on a station depth of approximately 120 feet.
- Be designed based on ground composition (e.g., soil type, moisture content, density, depth to bedrock) in these locations.
- Require minimal space within the existing station envelope and be capable of installation in subway station environments.
- Be capable of being installed cost-effectively within a complex system and capital program in which both capital funds and the resources available for capital work are at a premium and state-of-good-repair work must be prioritized.
- Be capable of operating 24 hours per day, 7 days per week.
- Withstand steel dust concentrations, water conditions (e.g., groundwater and stormwater exposure), vandalism, and constant shaking/high vibrations.
- Be designed to be replicated across different station configurations and depths.
- Achieve passive or low energy consumption, where feasible.

4.2 SITE-SPECIFIC INFORMATION SOLICITED FOR SUBWAY STATIONS GEOTHERMAL

Please provide answers to the following questions, considering the site-specific information provided above related to two subway stations in upper Manhattan: 168 St and 181 St (Line 1).

1. What type of geothermal system(s) would be feasible and suitable for these locations (e.g., standing column, closed loop, open loop)?
2. What criteria would be necessary to determine technical feasibility of geothermal at these locations?

3. Is it feasible to drill geothermal boreholes at these locations? If so,
 - a. Where, what size, and how many?
 - b. What is the estimated cooling capacity of the boreholes?
 - c. Where could the mechanical equipment be located?
4. How much cooling would be provided to these locations from a geothermal system?
5. What are the rough order-of-magnitude costs associated with installing geothermal systems at these locations? For:
 - a. Feasibility study
 - b. Permitting
 - c. Construction
 - d. Operation and maintenance
6. What periodic maintenance would be required for a geothermal system in these locations?
7. Would geothermal be a cost-effective cooling solution at these locations? If not, what other cooling solution may offer a more cost-effective solution?
8. To confirm feasibility of geothermal at these locations, what next steps would be required by the MTA?
9. How replicable would a geothermal system be in other locations? What selection criteria may be helpful in determining other potential sites?

5 CONFIDENTIAL INFORMATION TO BE SHARED BY MTA C&D AS PART OF THIS RFI

1. To aid development of a response, interested Respondents may obtain an electronic copy of the following documents from MTA C&D by contacting MTA C&D's Point of Contact:
 - a. Washington Heights – 168th St - Station Plan
 - b. 181st Street Station – Station Plan
2. The documents listed in paragraphs 6.1.a–b above constitute “Confidential Information,” as defined in the attached Non-Disclosure and Confidentiality Agreement (“NDA”). Any Respondent seeking access to these documents must execute the NDA and return an electronic copy to MTA C&D's Point of Contact. Upon receipt of the executed NDA, the Point of Contact will provide the Respondent with an electronic copy of the Station Plan documents.

NON-DISCLOSURE AND CONFIDENTIALITY AGREEMENT

_____, a _____, with a

(company name) (company type e.g. LLC)
principal office at _____
(official legal address on file with the Secretary of State)

(“Recipient”) agrees as follows:

WHEREAS, MTA Construction and Development Company (“MTA C&D”) is a subsidiary agency of the Metropolitan Transportation Authority (the “MTA”), and is the MTA agency responsible for the management of capital projects that benefit the MTA and its subsidiary and affiliate agencies (collectively the “MTA Agencies”); and

WHEREAS, Recipient is a _____; and

WHEREAS, MTA C&D is seeking information for innovative solutions for geothermal cooling technologies for New York City Transit (“NYCT”) subway stations (RFI-GEO-1-1) (the “Purpose”); and

WHEREAS, in connection with the Purpose, Recipient has requested that MTA C&D provide Recipient with certain information that may be security-sensitive, confidential and/or proprietary, and, if disclosed to outside recipients without a non-disclosure and confidentiality agreement in place, would harm MTA C&D, the MTA Agencies and unnamed third parties;

WHEREAS, Recipient acknowledges that MTA C&D has an existing and significant interest and obligations in establishing, maintaining and protecting the security and safety of this information for, among other reasons, purposes of public safety;

WHEREAS, MTA C&D is willing to share this information with Recipient to achieve the Purpose on the express and agreed-upon condition that Recipient safeguards the information and adheres to the terms and conditions set forth in this agreement (the “Agreement”);

NOW, THEREFORE, the Recipient agrees as follows:

1. **Confidential Information.** For purposes of this Agreement, “Confidential Information” means any and all information shared with Recipient by MTA C&D in connection with the Purpose. Confidential Information need not be marked or identified as “confidential” or “proprietary” and includes, but is not limited to data, prototypes, designs, plans, specifications, calculations, manuals, drawings, tables, charts, photographs, policies, procedures, agreements, financial information and other business or operation information, technical information, any MTA Agency project, contract, or MTA Agency asset information, whether communicated verbally, in writing or in any other form.
2. **Use of the Confidential Information.** Recipient shall treat all Confidential Information and all materials developed by Recipient using Confidential Information as strictly confidential and understands that it may use the Confidential Information solely in connection with the Purpose described above. Recipient shall not, without the prior written consent of MTA C&D, disclose or reveal any Confidential Information to any person other

than Recipient's employees who are actively and directly participating on behalf of Recipient in the Purpose ("Representatives"), and even then, only to the extent that such persons have a need to know such Confidential Information to accomplish the Purpose. Recipient shall advise MTA C&D, in writing, the names of all persons it shares the Confidential Information with and shall provide those persons with a copy of this Agreement and confirm that they are legally bound by the same obligations to MTA C&D as are required by the Recipient under this Agreement.

3. **Reproduction of Confidential Information.** Subject to the language in paragraph 2 above, Recipient shall not transcribe, duplicate, reproduce sell or otherwise transfer or make available, directly or indirectly, the Confidential Information or subsequent analysis for any reason.
4. **Securing the Confidential Information.** Recipient agrees to protect the Confidential Information using at least the same degree of care that Recipient uses to protect and preserve the confidential and proprietary nature of its own confidential information, but no less than the industry-wide accepted standard of care. Recipient agrees to immediately notify MTA C&D in writing of any loss, unauthorized disclosure, or misplacement of any Confidential Information, in whatever form, and to fully cooperate with MTA C&D and provide any assistance reasonably necessary to mitigate the situation.
5. **No Requirement to Provide Access to Recipient.** Nothing in this Agreement shall require MTA C&D to provide access to or possession of any Confidential Information to Recipient, whether or not the requirements of this Agreement are otherwise satisfied. However, if such Confidential Information is provided and accepted, Recipient shall abide by the terms, conditions, and requirements of this Agreement.
6. **Compelled Disclosure of Confidential Information.** If at any time Recipient receives a subpoena, discovery request, court order, Freedom of Information Law ("FOIL") or Freedom of Information Act ("FOIA") request, or any other request or demand authorized by law seeking disclosure of the Confidential Information, Recipient shall immediately notify MTA C&D and work cooperatively with MTA C&D to take all reasonable steps necessary to prevent disclosure, including the step of seeking protective treatment of the Confidential Information. Recipient shall not disclose any Confidential Information in response to such request until a court of law or other legal body renders a determination on the issue, and then only after Recipient has first consulted with counsel for MTA C&D, provided MTA C&D's counsel with copy of the court or legal body's determination and confirmed in writing with MTA C&D's counsel that MTA C&D does not intend to pursue subsequent legal measures to protect the information.
7. **No Warranty.** MTA C&D makes no representation or warranty, express, implied or otherwise, regarding the accuracy or completeness of the Confidential Information or its suitability for Recipient's authorized use or for any purpose whatsoever (including the Purpose). MTA C&D and the MTA Agencies shall have no liability to Recipient, Recipient's Representatives or any other individuals or entities resulting from the use of the Confidential Information or any reliance on the accuracy or completeness thereof.

8. **Indemnification.** Recipient understands and agrees that compliance with this Agreement is of the utmost importance to MTA C&D and that non-compliance will result in irreparable harm to MTA C&D and the MTA Agencies. Recipient shall be liable for, and indemnify, defend and hold harmless, MTA C&D, the MTA Agencies, and each of the foregoing's employees, agents, officers, directors and Board members (collectively, the "Indemnified Parties") from and against any and all liabilities, losses, damages, costs and expenses (including but not limited to attorneys' fees and costs) incurred by the Indemnified Parties resulting from, or arising out of or in connection with, any breach of this Agreement, unauthorized disclosure, or use of the Confidential Information directly or indirectly related to the actions of Recipient, its employees and agents or any third-parties that received Confidential Information directly or indirectly from Recipient.
9. **Remedies.** Recipient acknowledges that the Confidential Information is of a unique and valuable character, and that the damages to MTA C&D and the MTA Agencies that would result from the unauthorized dissemination of the Confidential Information would be impossible to calculate and would cause irreparable harm to MTA C&D and the MTA Agencies. Recipient agrees that MTA C&D and the MTA Agencies are entitled to injunctive relief to prevent the dissemination of any Confidential Information in violation of the terms of this Agreement without being required to show any actual damage or to post any bond or other security, and that this injunctive relief shall be in addition to any other remedies available to MTA C&D and the MTA Agencies hereunder, whether at law or in equity.
10. **Ownership of Confidential Information.** All Confidential Information remains the property of MTA C&D, irrespective of whether it is disclosed under this Agreement. By disclosing information to Recipient, Recipient understands and agrees that MTA C&D does not grant any express or implied license or right to Recipient to use the Confidential Information for any reason except the right to use it for the Purpose. By disclosing information to Recipient, Recipient understands and agrees that MTA C&D grants no right, title, interest, license or other rights (express or implied) to Recipient with respect to the Confidential Information (other than the right to use such information as provided herein) and MTA C&D retains all rights therein.
11. **Return of Confidential Information.** Upon the earlier of: (i) the termination of this Agreement; (ii) the completion of the Purpose; or (iii) the request of MTA C&D, Recipient shall immediately return to MTA C&D, at Recipient's sole expense, all tangible Confidential Information, including electronic files, documentation, notes, plans, drawings, derivative works and copies thereof, and shall delete all electronic files and records containing the Confidential Information and derivative works thereof, or, if so requested by MTA C&D, provide MTA C&D with written certification that all such Confidential Information has been destroyed.
12. **Effective Date.** This Agreement shall be effective as of the date of Recipient's signature below, and shall continue to be in effect until terminated in writing by MTA C&D. Recipient understands and agrees that due to the sensitive nature of the Confidential

Information and potential impact on public safety, the Agreement may continue to be in effect for perpetuity.

13. **Severability.** If any provision of this Agreement is found invalid or unenforceable, the rest of the Agreement, including all of its remaining terms, will remain in full force and effect as if such invalid or unenforceable terms had never been included.
14. **Waiver.** Any waiver by MTA C&D of a breach of any provision of this Agreement by Recipient shall not be deemed to be a waiver of any other or subsequent breach and shall not be construed to be a modification of the terms of this Agreement. In addition, as to all Confidential Information provided by MTA C&D, nothing in this Agreement shall constitute or be construed as a waiver of any public interest privilege or other protections established under applicable state or federal law.
15. **Entire Agreement.** This document contains the entire agreement with respect to the subject matter hereof, superseding any prior or contemporaneous agreements with respect to the subject matter hereof. In the event of any conflicting terms between prior agreements relating to this subject matter, the more stringent terms that benefit MTA C&D shall control.
16. **Modifications.** No modification, supplement, amendment or waiver of this Agreement shall be binding unless agreed to in writing by MTA C&D.
17. **Third-Party Rights.** Nothing in this Agreement shall create any rights for any third party or any obligation on the part of MTA C&D or the MTA Agencies to any third party.
18. **No Agency, Joint Venture, or Partnership.** This Agreement does not create any agency, joint venture, or partnership relationship between MTA C&D or the MTA Agencies and the Recipient.
19. **Choice of Law and Jurisdiction.** This Agreement shall be governed by, construed under, and enforced pursuant to the laws of the State of New York, without regard to conflict of law principles. Any dispute or claim arising out of or relating to this agreement shall be brought exclusively in the federal or state courts located within the County of New York, State of New York. Recipient consents to the exclusive jurisdiction of such courts (and the appropriate appellate courts) in any such action or proceeding and waives any objection to venue laid therein or convenience of any forum therein.
20. **Authority.** The individual executing this Agreement on behalf of Recipient represents and warrants that they are fully authorized to execute and deliver this Agreement on behalf of the Recipient in accordance with its terms.
21. **Notices.** All notices, demands and communications required under this Agreement shall be in writing and served by personal delivery, US Mail (registered or certified mail, postage pre-paid, return receipt requested), commercial delivery service or by e-mail at the following addresses:

- a. If sent to MTA C&D, the correspondence shall be directed to:

Eduardo Leanez
Assistant Director, Construction Contracts
2 Broadway, 8th Floor
New York, New York 10004
e-mail: eduardo.leanez@mtacd.org

with a copy to:

Marc Metson, VP/Associate General Counsel
MTA Construction and Development Company
2 Broadway, 8th Floor
New York, New York 10004
e-mail: marc.metson@mtacd.org

- b. If to Recipient, the correspondence shall be directed to: *(recipient fill the information below)*

Contact Name: _____

Title: _____

Address: _____

Email: _____

22. **No Assignment.** Recipient may not assign or transfer this Agreement (in whole or in part) without the prior written consent of MTA C&D. This Agreement, and the rights and obligations of MTA C&D and the Recipient hereunder, will be binding upon and inure to the benefit of the parties' respective successors, assigns, heirs, executors, administrators, agents and representatives.

23. **Headings.** The various captions and section headings contained in this Agreement are used only as a matter of convenience and in no way define, limit, or extend the scope or intent of any of the provisions of this Agreement.

IN WITNESS WHEREOF, the Recipient agrees to be bound by the terms of this Agreement.

(*company name*)

By: _____
(*signature*)

Name: _____

Title: _____

Date: _____