THE METROPOLITAN TRANSPORTATION AUTHORITY
ACTING BY THE
MTA CONSTRUCTION AND DEVELOPMENT

RFI-22-01

Request for Information for Track Intrusion Detection Systems

2 Broadway, 8th Floor
New York, NY 10004-2207

Construction & Development

January 12, 2022

Subject: RFI-22-01 - Request for Information for Track Intrusion Detection Systems

Dear Interested Parties:

The MTA Construction and Development Company ("MTA C&D") is seeking information from manufacturers and vendors in the Railway and Technology industries on the technology available for deploying track intrusion detection systems on active railway systems.

Interested parties are to submit their Information Packages by February 11, 2022 at 5PM to Contracts@mtacd.org. The Information Packages should contain the following:

- Letter of Introduction
- Company overview
- Responses to the questions contained on Pages 3 and 4.

I am MTA C&D's designated Point of Contact for this RFI and I can be reached at david.cannon@mtacd.org. All communications with regard to this request should be directed to me.

Thank you for your participation in this important effort.

Sincerely,

David K. Cannon
Vice President & Chief Procurement Officer

Request for Information
RFI-22-01
Track Intrusion Detection Systems

Table of Contents

The Metropolitan Transportation Authority's ("MTA) rail operating agencies are New York City Transit, Staten Island Railway, Long Island Rail Road and Metro North Railroad. With the world's busiest transit systems carrying millions of people per day, railway track intrusions, whether accidental or deliberate, present a serious challenge. The purpose of this Request for Information ("RFI") is to solicit information from the Railway and Technology Industry with regards to track intrusion systems to:

- Detect people and objects entering (purposefully or accidentally) subway and commuter rail trackways from platforms and along the right of way;
- Notify Operation's Control Centers of detected intrusions; and
- Initiate actions to reduce the likelihood of a train striking the person or object

Through this RFI, MTA C&D seeks to survey the industry to obtain information that will enable MTA C&D to develop a viable strategy that will deliver a cost effective track intrusion detection system.

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 EFFORTS TO DATE

From 2014 through 2019, New York City Transit piloted several track intrusion detection systems ("TIDS") to test the effectiveness of specific technologies for implementation within the subway system environment. The TIDS tested included:

- CCTV cameras combined with lasers and video analytics ;
- Laser scanners with CCTV for recording intrusions;
- Thermal Camera Detection Technology;
- Radio frequency/microwave scanners with CCTV for recording intrusions ;
- Laser scanners with laser image analysis software and CCTV for recording intrusions;
- Laser Induced Differential Absorption Radar (LiDAR) sensor technology coupled with machine learning, CCTV and video analytics; and
- Laser scanners with visual (camera) and infrared (thermal) image verification

These TIDS were only deployed within the subway environment and only detected intrusion onto the track from the platform.

3 PREFERRED CRITERIA

A viable TIDS solution should include the following capabilities:

- Detection and identification of non-infrastructure objects/obstacles (intrusions) on the right of way and/or entering the track from the platform and provide visual alerts to train operators. The ability to detect and identify intrusions up to six hundred feet ahead (typical platform length) ahead.
- Ability to operate 24 hours per day, 7 days per week.
- Ability to detect intrusions regardless of lighting or weather conditions or the frequency of train movements. Including the ability to withstand temperatures above 120 degrees Fahrenheit, as well as high steel dust concentrations, water conditions, and high vibrations.
- Immediate Notification and Assessment – The system must notify the train operator and rail control centers immediately, and concurrently provide the ability to assess the detection recorded.
- Physical Dimensions and Human detection Criteria - At a minimum, the system must be able to differentiate between animate and inanimate objects and generate an alarm response for objects larger than twelve (12) inches in diameter. Optimally, the system will detect and notify of objects that present a safety risk to subway and commuter rail regardless of size. Any technology, through artificial intelligence, machine learning, thermal sensing, or other means, that can specifically detect and differentiate a human versus a non-human intrusion, would be most advantageous.
- CCTV availability at the Rail Control Centers (RCC) for situation evaluation and forensics through recorded video.
- Local visual indications (on approach to and within the station) for Station Personnel, Train Operators and First Responders.
- Secure local and remote System Reset ability.
- Integrate different sensors to minimize uncertainties in obstacle detection
- Visually communicate the system's data on car-borne and RCC Human-Machine Interfaces (HMI).
- Capable of installation in both subway and railway station environments, including underground, aboveground, and open-cut type stations.
- Ability to be integrated into physical barriers such as security fencing along ROW or anti-trespassing panels.

4 INFORMATION SOLICITED FOR TIDS

MTA has previously evaluated technologies that may be candidates to be used entirely or as part of a TIDS. Our goal to is determine if any advances have been made to make those technologies more reliable and reduce the incidence of false alarms and to determine if any new technologies/systems/solutions have been developed and/or deployed within the past few years.

Please provide answers to the following questions:

1. Describe your system/solution.

2. Does the solution presented detect intrusions onto the trackway from the platform?

3. Does the solution presented detect intrusions onto the trackway from the right of way?

4. What are the components of the system and where are they installed?
5. Is your solution installed on other transit systems or railroads and if so, where?
6. Has your solution been independently tested and if so, please provide any test reports?
7. Please provide a schematic/block diagram of your solution.
8. Does your solution include CCTV for recording detections?
9. How does your solution notify approaching trains of a track intrusion?
10. Does your system include an audible and visual alarm in the station when an intrusion occurs?
11. How does your solution differentiate between inanimate and animate objects?
12. Does your solution operate outdoors as well as indoors?
13. Does your solution operate through carborne detection equipment?