

Downtown Brockton Transportation Technology Project

Dataset and Contact Information

Please provide as much of the the following information as possible:

1. Name of the project;
2. Grant number;
3. Name of the person submitting this DMP;
4. ORCID of the person submitting this DMP (need an ORCID? Register here: <https://orcid.org/>);
5. Email and phone number of the person submitting this DMP;
6. Name of the organization for which the person submitting this DMP is working;
7. Email and phone number for the organization;
8. Link to organization or project website, if applicable; and,
9. Date the DMP was written.

Project: Downtown Brockton Transportation Technology Project

Grant: SMARTFY22N1P1G26, FY 2022 SMART Stage 1

Grant recipient: City of Brockton Department of Public Works

DMP author: Lisa Sherman, CDM Smith

Author email: shermanld@cdmsmith.com

Project/data contact: Patrick Hill, City of Brockton Department of Public Works

Project/data contact ORCID: <https://orcid.org/0009-0006-2915-2480>

Project/data contact email and telephone: phill@brockton.gov; 508-580-7135

Project/data contact organization website: <https://brockton.ma.us/city-departments/public-works/>

Original DMP date: December 1, 2023

Revision date: September 29, 2026

Persistent identifiers:

- DMP: <https://doi.org/10.48321/D1KQ1V>
- Dataset: <https://doi.org/10.21949/q4x5-8w68>
- Final implementation report: <https://doi.org/10.21949/8hd6-mw88>

This plan updates the December 1, 2023 Data Management Plan to describe the completed data collection and arrangements for public access and preservation. The data package covers May 27, 2025, through June 30, 2026, using the dates and times recorded in the source data.

Data Description

Please provide as much information as possible:

1. Provide a description of the data that you will be gathering in the course of your project or data from a third party that you will re-use, if any;
 1. If there will be no data collected or re-used from another source, state that this is case;
2. Address the expected nature, scope, and scale of the data that will be collected, as best as you can at this stage;
3. As best as you can, describe the characteristics of the data, their relationship to other data, and provide sufficient detail so that reviewers will understand any disclosure risks that may apply;
 1. If data might be sensitive, please describe how you will protect privacy and security, if you know that now;
 2. You may need to update your DMP later to add more detail;
4. Discuss the expected value of the data over the long-term.

The project deployed traffic signal management, video detection, emergency vehicle preemption, transit signal priority, air quality monitoring, pavement-temperature sensors, and smart waste receptacles along Warren Avenue.

The data package contains 3,382 CSV files comprising:

- Traffic signal data: 3,360 controller event files containing 8,486,810 records for Warren Avenue at Belmont Street, Legion Parkway / Highland Street, and West Elm Street.
- Environmental data: Nine files containing air-quality and weather observations, platform averages across sensors, intersection-specific temperature observations, and paired hourly nitrogen dioxide and traffic-volume observations.
- Waste-receptacle data: Twelve files containing fill-level and temperature observations from six devices.
- Travel-time data: One file containing 1,415 GPS observations from 13 runs representing baseline operation, optical emergency vehicle preemption, transit signal priority, and GPS-based emergency vehicle preemption.

The package preserves source observations and sensor averages. Platform environmental averages represent all sensors, and temperature values are reported in degrees Fahrenheit. Data coverage varies by location, device, and measurement type.

These records provide long term value by supporting future research on traffic operations, environmental conditions, and municipal infrastructure. The README and data dictionary describe coverage, fields, units, and known limitations. Traffic controller network addresses have been redacted as described in the Access Policies section.

Data Format and Metadata Standards Employed

Please provide as much information as you can:

1. Describe the anticipated file formats of your data and related files;
2. To the maximum extent practicable, your DMP should address how you will use platform-independent and non-proprietary formats to ensure maximum utility of the data in the future;
 1. If you are unable to use platform-independent and non-proprietary formats, you should specify the standards and formats that will be used and the rationale for using those standards and formats.
3. Identify the metadata standards you will use to describe the data.
 1. At least one metadata file should be a DCAT-US v1.1 (<https://resources.data.gov/resources/dcat-us/>) .JSON file, the federal standard for data search and discovery.

Tabular data are provided as UTF-8 CSV files with one header row. Controller event records were converted from a proprietary data format to CSV, and spreadsheet and platform exports were saved as CSV. Traffic files are organized by intersection; environmental and waste-receptacle files are organized by subject or device. These open formats support access and reuse with commonly available software.

Source values and timestamp conventions are retained. The data dictionary documents available field definitions, units, and known limitations.

The final package will contain the CSV datasets, a Markdown README, a CSV data dictionary, the approved final DMP in PDF format, and JSON metadata conforming to DCAT-US version 1.1. The metadata describes the dataset's title, purpose, publisher, contact, temporal coverage, access level, license, distribution, and persistent identifier.

The dataset identifier is <https://doi.org/10.21949/q4x5-8w68>. Related-resource references identify this DMP at <https://doi.org/10.48321/D1KQ1V> and the final implementation report at <https://doi.org/10.21949/8hd6-mw88>.

Access Policies

In general, data from DOT-funded projects must be made publicly accessible. Exceptions to this policy are: data that contain personally identifiable information (PII) that cannot be anonymized; confidential business information; or classified information. Protecting research participants and guarding against the disclosure of identities and/or confidential business information is an essential

norm in scientific research. Your DMP should address these issues and outline the efforts you will take to provide informed consent statements to participants, the steps you will take to protect privacy and confidentiality prior to archiving your data, and any additional concerns. In general, in matters of human subject research, your DMP should describe how your informed consent forms will permit sharing with the research community and whether additional steps, such as an Institutional Review Board (IRB), may be used to protect privacy and confidentiality. Additionally, when working with, or conducting research that includes Indigenous populations or Tribal communities, researcher will adhere to the CARE Principles for Indigenous Data Governance <https://www.gida-global.org/care> and make an explicit statement to that effect in this portion of the DMP. Please provide as much information as possible:

1. Describe any sensitive data that may be collected or used;
2. Describe how you will protect PII or other sensitive data, including IRB review, application of CARE Principles guidelines, or other ethical norms and practices;
 1. If you will not be able to deidentify the data in a manner that protects privacy and confidentiality while maintaining the utility of the dataset, you should describe the necessary restrictions on access and use;
3. Describe any access restrictions that may apply to your data;
4. If necessary, describe any division of responsibilities for stewarding and protecting the data among Principal Investigators or other project staff.

The dataset will be publicly available through the National Transportation Library's Repository and Open Science Access Portal (ROSA P) repository at <https://doi.org/10.21949/q4x5-8w68>. NTL has reserved this DOI for activation upon publication. Users will be able to download the published data without access to City systems or vendor platforms. Reuse is governed by the license described in the Re-use, Redistribution, and Derivatives Products Policies section.

Traffic filenames identify intersections. Controller IP addresses have been removed from filenames and metadata rows, and network-address event parameters have been redacted while preserving event timestamps, codes, and other observation values.

To satisfy privacy concerns, no PII or sensitive data is being stored. Video is only being used in real time for detection, counts, and signal actuation. Only the counts and classification (e.g., truck, passenger car, pedestrian, cyclist) data is stored.

The City of Brockton Department of Public Works is responsible for data stewardship and release approval. Access to operational systems and source records is controlled by the City. Questions about the published dataset should be directed to Patrick Hill at phill@brockton.gov or 508-580-7135.

Re-use, Redistribution, and Derivatives Products Policies

Recipients are reminded:

1. Data, as a collection of facts, cannot be copyrighted under US copyright law;
2. Projects carried out under a US DOT SMART Grants is federally funded; therefore, as stated in grant language:
 1. Recipients must comply with the US DOT Public Access Plan, meaning, among other requirements, project data must be shared with the public, either by the researchers or by US DOT;
 2. That by accepting US DOT funding through this grant, recipients have granted to US DOT a comprehensive non-exclusive, paid-up, royalty-free copyright license for all project outputs (publications, datasets, software, code, etc.). This includes all rights under copyright, including, but not limited to the rights to copy, distribute, prepare derivative works, and the right to display and/or perform a work in public; and,

3. In accordance with Chapter 18 of Title 35 of the United States Code, also known as the Bayh-Dole Act, where grant recipients elect to retain title to any invention developed under this grant, US DOT retains a statutory nonexclusive, nontransferrable, irrevocable, paid-up license to practice or have practiced for or on behalf of the United States any such invention throughout the world.

Please provide as much information as possible:

1. Describe who will hold the intellectual property rights for the data created or used during the project;
2. Describe whether you will transfer those rights to a data archive, if appropriate;
3. Identify whether any licenses apply to the data;
 1. If you will be enforcing terms of use or a requirement for data citation through a license, indicate as much in your DMP;
4. Describe any other legal requirements that might need to be addressed.

The City of Brockton retains applicable intellectual property rights in City-owned project material and will authorize NTL to preserve and distribute the dataset. Third-party material remains subject to its applicable rights and permissions, which the City will confirm before release.

City-owned copyrightable material in the dataset will be released under Creative Commons Attribution 4.0 International: <https://creativecommons.org/licenses/by/4.0/>. Users must provide attribution, link to the license, and identify changes.

The recommended dataset citation is: City of Brockton. Downtown Brockton Transportation Technology Project — Data Package. <https://doi.org/10.21949/q4x5-8w68>.

USDOT retains the comprehensive nonexclusive, paid-up, royalty-free license provided under the SMART grant agreement, including rights to reproduce, distribute, prepare derivative works, and publicly display or perform project outputs.

Archiving and Preservation Plan

Please provide as much information as possible:

1. State where you intend to archive your data and why you have chosen that particular option;
2. Provide a link to the repository;
3. You must describe the dataset that is being archived with a minimum amount of metadata that ensures its discoverability;
 1. Whatever archive option you choose, that archive should support the capture and provision of the US Federal Government DCAT-US Metadata Schema <https://resources.data.gov/resources/dcat-us/>
4. In addition, the archive you choose should support the creation and maintenance of persistent identifiers (e.g., DOIs, handles, etc.) and must provide for maintenance of those identifiers throughout the preservation lifecycle of the data;
5. Your plan should address how your archiving and preservation choices meet these requirements.

The dataset will be deposited in the National Transportation Library's ROSA P repository, <https://rosap.ntl.bts.gov/>. ROSA P provides long-term public access to transportation research and is identified as a conformant repository in the SMART guidance.

The dataset submission will be a ZIP archive containing CSV data, the README, data dictionary, DCAT-US version 1.1 JSON metadata, and approved final DMP PDF. The archive will preserve the intersection and subject subfolders. The final implementation report will be submitted as a separate, related PDF.

The project outputs have the following persistent identifiers:

Dataset: <https://doi.org/10.21949/q4x5-8w68>

Final implementation report: <https://doi.org/10.21949/8hd6-mw88>

DMP: <https://doi.org/10.48321/D1KQ1V>

NTL has reserved the dataset and report DOIs for activation upon publication in ROSA P. The DMP is registered through DMPTool. These identifiers will connect the related outputs in the documentation and repository metadata.

NTL will maintain the repository records and associated DOI links. The City will retain the submission receipt and version information and maintain original records under its applicable retention policies. Corrections to published data will be coordinated with NTL and documented in the version history.

Planned Research Outputs

Dataset - "Downtown Brockton Transportation Technology Project — Data Package"

Traffic signal controller events, environmental observations and sensor averages, waste-receptacle fill-level and temperature observations, and GPS records from travel-time testing along Warren Avenue in Brockton, Massachusetts. The package contains 3,382 CSV files covering May 27, 2025, through June 30, 2026, together with a README, data dictionary, DCAT-US metadata, and final Data Management Plan. Dataset DOI: <https://doi.org/10.21949/q4x5-8w68>.

Text - "Downtown Brockton Transportation Technology Project — Final Implementation Report"

The final implementation report documents the City of Brockton's deployment of traffic management and sensor-based infrastructure along Warren Avenue through its FY 2022 SMART Stage 1 grant. It presents project implementation, evaluation methods and findings, lessons learned, and recommendations for future deployment. Report DOI: <https://doi.org/10.21949/8hd6-mw88>.

Planned research output details

Title	Type	Anticipated release date	Initial access level	Intended repository(ies)	Anticipated file size	License	Metadata standard(s)	May contain sensitive data?	May contain PII?
Downtown Brockton Transportation Technology Projec ...	Dataset	2026-09-28	Open	ROSA P		Creative Commons Attribution 4.0 International	DCAT-US	No	No
Downtown Brockton Transportation Technology Projec ...	Text	2026-09-28	Open	ROSA P		Creative Commons Attribution 4.0 International	DCAT-US	No	No