Plan Overview

A Data Management Plan created using DMP Tool

DMP ID: https://doi.org/10.48321/D1JQ1J

Title: Code the Curb: Downtown Los Angeles

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Funder: United States Department of Transportation (DOT) (transportation.gov)

Funding opportunity number: DOT-SMART-FY23-01

Grant: SMARTFY22N1P1G06

Template: SMART Grants Stage 1 Data Management Plan (DMP)

Project abstract:

The City of LA SMART Grant, Code the Curb: Downtown Los Angeles, will address congestion at the curb lane due to increased demands at the curb. This is due to the proliferation of freight, transit, passenger vehicles, shared mobility, active transportation, outdoor dining, and more. Focusing on the DTLA core, which experiences over 700,000 daily trips, the project aims to mitigate driver confusion, reduce greenhouse gas emissions caused by vehicles cruising for parking, and create safer environments for all road users.

The Stage 1 project created a digital inventory of physical curb lane assets in Downtown Los Angeles (DTLA), one of the densest urban environments in the nation. The resulting digital inventory provides a single source of truth that utilizes the Curb Data Specification created by the Open Mobility Foundation (OMF). This data specification combines static regulations with real-time utilization data. The work includes collaborating with seven other grant receiving cities, organized in a collaborative with OMF.

Start date: 09-15-2023

End date: 12-15-2025

Last modified: 04-10-2026

Code the Curb: Downtown Los Angeles

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.**

1. Code the Curb: Downtown Los Angeles
2. SMARTFY22N1P1G06
3. Zackary Campos
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5. zackary.d.campos@lacity.org, (213)-972-8496
6. Los Angeles Department of Transportation (LADOT)
7. (213) 972-8470
8. ladot.lacity.org
9. 12-14-2023

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.**

1. Throughout the course of the Code the Curb project, LADOT gathered and synthesized four primary categories of data: curb zones, policies, events, and public feedback on the project. This data collected and was integrated from a variety of sources to create a comprehensive digital twin of the right-of-way. The project utilized existing open source municipal datasets and localized in-person data collection such as curb level surveying for inventorying zones and policies. To capture real-time event data the project gathered curb events via third-party hardware integration specifically IPS parking meters and Automotus smart camera sensors.
2. The current dataset has been finalize and focuses on the highly dense Downtown Los Angeles (DTLA) neighborhood, encompassing a 5.9 square mile geographic area and a network of over 200 miles of curb inventory. During the Stage 1 pilot phase 22,726 curb zones, 11,778 curb objects, and 315 curb policies were inventoried.
3. The schema of the data for curb zones, policies and events adhere to the Curb Data Specification (CDS), a standardized framework developed by the Open Mobility Foundation (OMF). By structuring data inputs into this open source machine readable format datasets work in parallel to provide users with a complete understanding of curb typology and utilization. Personally Identifiable Information (PII) was not collected as part of this project.
4. The long term value of this data is to provide the City of Los Angeles a comprehensive digital inventory and a reliable, historical snapshot into curb typologies and utilization trends. Establishing this inventory within the CDS framework provides the City with a sustainable, future proof platform to manage and update right-of-way assets as the city evolves.

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.**

1. The files being uploaded are primarily the curb assets (zones), curb regulations (policies), and mobility (curb events). Data is generated in the CDS format which specifies that the data must be a JavaScript Object Notation (JSON) file type. Other data being provided are a user survey as well as data dictionaries that describe the fields found in all the datasets.

2. The data being provided is a JSON and is platform independent as it is a text based format that is widely used across many platforms and data providers.
3. To guarantee widespread discoverability and full compliance with federal data standards, LADOT will generate a top-level metadata record for the project's data catalog. At least one comprehensive metadata file will be authored and maintained as a DCAT-US v1.1 .JSON file. This ensures that the Code the Curb dataset is fully interoperable with federal and open data portals, facilitating seamless search, discovery, and utilization by the broader transportation planning community.

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 the 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.**

As Part of the Code the Curb Project LADOT gathered parking occupancy data as well as real-time parking events using smart cameras. However LADOT did not be gathering any personally identifiable information PII, and instead only gathered this information to inform where improvements can be made within our curb regulations to align better with existing usage or identify where safety violations are occurring. To ensure this was handled appropriately parking occupancy through parking meters only collected instances of vehicles being in front of a sensor and triggering an event. As for the smart cameras, these were handled by a third-party hardware integration through Automotus, inc. These smart cameras do not allow live video to be streamed from the devices and access was restricted. LADOT staff were only provided images where a sensor had determined an event had occurred and images were de-identified prior to transmission blurring any PII that may have existed in the image.

As the data has been deidentified and the CDS specification does not have PII, the event data will be made publicly available via a JSON format. As this will be a publicly shared dataset we do not anticipate there being any access restrictions that will apply to this data.

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 intellectual property rights for the data created or used during the project will be held by the City of Los Angeles. As the entity initiating and overseeing the project, the City of Los Angeles typically retains ownership of the data generated through such initiatives. This ownership ensures that the city has control over the use, dissemination, and future applications of the collected data.

There is no plan to transfer those rights to a data archive.

Creative Commons Attribution 4.0 International - There are no additional licenses that apply to the data and no additional restrictions for use of this data

The USDOT also reserves a royalty-free, nonexclusive and irrevocable license to reproduce, publish, or otherwise use and to authorize others to use the work for government purposes.

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 Los Angeles Department of Transportation will share curb regulation data in the Curb Data Specification (CDS) Curbs API format for external use. The CDS details are available at https://github.com/openmobilityfoundation/curb-data-specification.

This decision ensures data openness and ease of use by conforming to the CDS format. This option was chosen with the public in mind as well as the other Cities within our OMF cohort working on the curb management programs and the CDS format. The goal is to be able to freely share and learn how to archive, store, and share our curbside data internally, with other cities, and companies. LADOT will provide a link with instructions for accessing the CDS Curbs API once it has established that dataset and populated it with accurate information.

Some metadata file descriptors LADOT intends to include are the following and will be used to be able to make the dataset discoverable.

Title: Code the Curb: Downtown Los Angeles

Description: The dataset includes data related to curb assets and curb regulations. The data adheres to the Curb Data Specification (CDS). The CDS is a key piece of digital infrastructure that supports the effective implementation of curb policies in cities and for curb users.

Tags: Curbs, CDS, OMF, Curb Regulations, Los Angeles, LADOT, Curb Asset

The archive location will be established via an API and will allow for adding attributes to the schema. As many of the Cities that actively work on this data specification are also awardees of the SMART grant we will work towards ensuring that the archive complies with the necessary persistent identifies such as the DOIs, handles, and more.

Data will also be published as a repository on Zenodo - This repository is a general-purpose open repository developed under the European OpenAIRE program. It was selected because it complies with US federal open data policies, supports the DCAT-US Metadata Schema, and enables the assignment and maintenance of persistent identifiers such as DOIs to ensure long-term accessibility and discoverability of archived materials

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Planned Research Outputs

Dataset - "LADOT_Zones"

A dataset of the City of Los Angeles' Downtown Neighborhood curb spaces digitization.

Dataset - "LADOT_Curb_Objects"

A dataset of the City of Los Angeles' Downtown Neighborhood digitized curb side objects. (street signage, bike racks, fire hydrants, etc.)

Dataset - "Curb_User_Survey"

A dataset of the City of Los Angeles' Downtown Neighborhood public feedback on curb use.

Collection - "CDS_Events"

A collection of datasets of the City of Los Angeles' Downtown Neighborhood curb events occurring in curb spaces.

Data paper - "Curb Space Policy Development Report"

A comprehensive report outlining curb space policies and implementation for CDS technologies in the City of Los Angeles.

Data paper - "City_of_Los_Angeles_Code_the_Curb_Engagement_Flyer"

A flyer sent to residents and businesses of the City of Los Angeles' Downtown Neighborhood to solicit public feedback on curb use.

Dataset - "LADOT_Policies"

A dataset of the City of Los Angeles' Downtown Neighborhood digitized curb policies.

Dataset - "LADOT_Areas"

A dataset of the City of Los Angeles' Downtown Neighborhood digitized areas. For more information on CDS areas please see https://github.com/openmobilityfoundation/curb-data-specification/tree/main/curbs#curb-area

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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?
LADOT_Zones	Dataset	2026-04-08	Open	Zenodo		Creative Commons Attribution 4.0 International	DCAT-US	No
LADOT_Curb_Objects	Dataset	2026-04-08	Open	Zenodo		Creative Commons Attribution 4.0 International	DCAT-US	No
Curb_User_Survey	Dataset	2026-04-09	Open	Zenodo		Creative Commons Attribution 4.0 International	DCAT-US	No
CDS_Events	Collection	2026-04-09	Open	Zenodo		Creative Commons Attribution 4.0 International	DCAT-US	No
Curb Space Policy Development Report	Data paper	2026-04-09	Open	Zenodo		Creative Commons Attribution 4.0 International	DCAT-US	No
City_of_Los_Angeles_Code_the_Curb_Engagement_Flyer	Data paper	2026-04-09	Open	Zenodo		Creative Commons Attribution 4.0 International	DCAT-US	No
LADOT_Policies	Dataset	2026-04-09	Open	Zenodo		Creative Commons Attribution 4.0 International	DCAT-US	No
LADOT_Areas	Dataset	2026-04-09	Open	Zenodo		Creative Commons Attribution 4.0 International	DCAT-US	No