Plan Overview

A Data Management Plan created using DMPTool

Title: Singleton Road Corridor Technology Improvements

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

Project abstract:

In response to the rapid growth and increasing diversity of Gwinnett County, the Singleton Road Corridor Technology Improvements project aims to address critical challenges in traffic safety, mobility, and operational efficiency. This project is particularly focused on serving the needs of disadvantaged communities, which have been disproportionately affected by traffic-related hazards.

The core objective is to enhance pedestrian safety and improve traffic flow, leveraging Intelligent Transportation Systems (ITS) and cutting-edge technologies. This initiative recognizes the urgent need to incorporate advanced solutions like active pedestrian detection systems, enhanced transit delivery services, and connected vehicle technologies. These innovations are crucial for reducing and preventing fatalities and serious injuries, particularly in areas like the Singleton Road corridor, which has seen a significant number of pedestrian accidents, including fatalities.

The project encompasses a comprehensive approach, including updating the Connected Vehicle Technology Master Plan (CVTMP) to reflect the latest advancements in transportation technology and identifying specific solutions tailored to the unique needs of the Singleton Road corridor. This includes exploring a variety of safety measures such as pedestrian hybrid beacons, rectangular rapid flashing beacons, and other Federal Highway Administration-approved safety countermeasures.

Moreover, the project will assess and deploy technology that aids in detecting non-vehicular traffic and integrates this data into a unified platform. This approach ensures the dissemination of critical safety information through various channels, like active managed traffic beacons and dynamic message signs, directly

interfacing with the traveling public.

In summary, the Singleton Road Corridor Technology Improvements project in Gwinnett County is a strategic initiative aimed at promoting safer, more efficient transportation networks. By focusing on ITS and emerging technologies, the project aspires to significantly enhance the quality of life for all residents, with a particular emphasis on safeguarding and empowering historically underserved communities.

Start date: 10-01-2023

End date: 04-01-2025

Last modified: 01-09-2024

Singleton Road Corridor Technology Improvements

1. Name of the project: **Singleton Road Corridor Technology Improvements**
2. Grant number: **69A3552341004-SMARTFY22N1P1G21**
3. Name of the person submitting this DMP: **Jerry T. Oberholtzer**
4. ORCiD of the person submitting this DMP: N/A
5. Email and phone number of the person submitting this DMP: **jerry.oberholtzer@gwinnettcounty.com, 678.237.5266**
6. Name of the organization for which the person submitting this DMP is working: **Gwinnett County Board of Commissioners**
7. Email and phone number for the organization: **jerry.oberholtzer@gwinnettcounty.com, 678.237.5266**
8. Link to organization website: **http://www.gwinnettcounty.com**
9. Date the DMP was written: **December 14, 2023**

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; If there will be no data collected or re-used from another source, state that this is case:

   Data collection will likely focus on traffic volumes, pedestrian movements, accident reports, and the effectiveness of Intelligent Transportation Systems (ITS) and connected vehicle technologies. This may include real-time and historical traffic data, detailed pedestrian safety metrics, and public transportation usage patterns. Additionally, feedback from community engagement activities will be gathered to inform project decisions. If relevant, third-party data from existing traffic and safety studies may also be re-used to supplement the project's data collection.

2. Address the expected nature, scope, and scale of the data that will be collected, as best as you can at this stage:

   The expected nature of the data will be multifaceted, likely encompassing quantitative traffic and pedestrian movement data, qualitative community feedback, and technical performance data from ITS and connected vehicle technologies. The scope includes detailed traffic flow analyses, pedestrian safety metrics, accident incidence reporting, public transit usage statistics, and effectiveness assessments of deployed technologies. The scale of data collection is extensive, covering the entire Singleton Road corridor and potentially integrating third-party studies for a comprehensive understanding.

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; If data might be sensitive, please describe how you will protect privacy and security, if you know that now; You may need to update your DMP later to add more detail:

   The data will likely be characterized by a mix of individual-level details (like pedestrian movements) and aggregated information (such as traffic flow patterns). Traffic and pedestrian data will have a temporal and spatial relationship, enabling an understanding of patterns over time and across different areas of the corridor. Community feedback data will add qualitative insights to this quantitative mix. All personal data, especially from pedestrian and public transportation usage, will be handled with strict adherence to privacy laws to mitigate disclosure risks. Care will be taken to anonymize and aggregate individual data to prevent identification, addressing potential concerns about the privacy and security of personal information. This approach ensures that while the data remains comprehensive and informative, it upholds the highest standards

of data protection and confidentiality.

4. Discuss the expected value of the data over the long-term:

   Over the long term, the data collected is expected to provide significant value in shaping sustainable and safe urban mobility. By offering insights into traffic patterns, pedestrian safety, and the efficacy of ITS technologies, this data will guide future infrastructure and policy decisions not only in Gwinnett County but potentially in similar urban settings. The longitudinal analysis of this data can reveal trends, enable predictive modeling for traffic and safety management, and foster continuous improvements in public transportation systems. Additionally, the data serves as a valuable resource for academic and governmental research in urban planning and traffic safety, contributing to broader efforts in enhancing urban livability and resilience.

1. Describe the anticipated file formats of your data and related files:

   Data is anticipated to primarily be stored in formats like CSV and Excel for tabular records such as traffic counts and accident reports, GIS formats (e.g., Shapefiles, GeoJSON) for spatial data, and standard document formats like PDF and Word for textual reports and community feedback. Visual data from traffic monitoring will be in common image and video formats like JPEG and MP4. Additionally, data logs from ITS technologies are expected to be in JSON or XML formats for better system interoperability. These formats are preferred as they are in widespread use, allow for ease of data processing and analysis, and compatibility with various analytical tools.

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; 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:

   We will prioritize platform-independent and non-proprietary data formats to maximize the utility and longevity of the data. Formats like CSV, JSON, and GeoJSON are selected for their wide compatibility across various software and systems, ensuring data accessibility and ease of sharing. These formats are universally recognized and can be easily migrated or integrated into future technologies, preserving the data's usability over time. In cases where specific proprietary formats are necessary (such as specialized GIS software formats or database systems), the rationale lies in their advanced features that are crucial for in-depth spatial analysis or complex data management tasks. These proprietary formats will be accompanied by comprehensive documentation to facilitate future data conversion or migration if needed. This approach balances the need for advanced technical capabilities with the goal of maintaining long-term data accessibility.

3. Identify the metadata standards you will use to describe the data. 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:

   Key metadata standards will be employed to ensure comprehensive and standardized data description. The DCAT-US v1.1 standard, in a JSON format, will be a primary metadata framework, aligning with federal guidelines for data search and discovery. Additionally, the Dublin Core standard may be used for basic resource descriptions, while ISO 19115 may be applied to geographic information, making it ideal for spatial data. For survey and statistical data, the Data Documentation Initiative (DDI) should provide detailed context

and structure. This combination of metadata standards should ensure that the project's data is well-documented, easily accessible, and compatible with broader data management practices.

1. Describe any sensitive data that may be collected or used:

   Sensitive data that may be collected includes personal identifiable information (PII) from community feedback surveys, pedestrian movement data, and public transportation usage records. This could encompass details like names, contact information, and potentially locations and times of travel. This sensitive data could be crucial for in-depth analysis and enhancing transportation safety and efficiency.

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; 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:

   To ensure the protection of PII and other sensitive data, the project's approach adheres to stringent security guidelines as outlined in Gwinnett County Information Technology document ITS-SST-006 "Security Requirements for Purchases". These guidelines are applied to all systems the county procures and implements, ensuring comprehensive data security and compliance with relevant standards and ethical norms, including IRB review and CARE Principles. In scenarios where data cannot be fully deidentified, the county system's stringent security measures, as detailed in the guidelines, provide the necessary framework for restricted access and controlled use of the data.

3. Describe any access restrictions that may apply to your data:

   Access to data will be subject to specific restrictions in line with Gwinnett County's ongoing implementation of a Zero Trust environment. This approach fundamentally adjusts data accessibility protocols, ensuring stringent verification for every access request, regardless of the user's location or network. The Zero Trust model emphasizes rigorous authentication and authorization processes, making data access contingent on continuous validation and adherence to the latest security protocols. This implementation significantly strengthens the county's data security framework, limiting access to authorized personnel under strict compliance guidelines.

4. If necessary, describe any division of responsibilities for stewarding and protecting the data among Principal Investigators or other project staff:

   If necessary, the division of responsibilities for stewarding and protecting the data among Principal Investigators and project staff will be structured to align with the principles of the Zero Trust security model. Each team member would be assigned specific data stewardship roles, ensuring that access and management of data are strictly controlled and monitored. Responsibilities would be clearly delineated and regularly audited to ensure adherence to the stringent security protocols of the Zero Trust framework, enhancing accountability and minimizing risks related to data handling and protection.

1. Describe who will hold the intellectual property rights for the data created or used during the project:

   Gwinnett County

2. Describe whether you will transfer those rights to a data archive, if appropriate; Identify whether any licenses apply to the data; If you will be enforcing terms of use or a requirement for data citation through a license, indicate as much in your DMP; Describe any other legal requirements that might need to be addressed:

   Currently, there is no plan to transfer the rights of collected data to a data archive and it is anticipated that no licenses will apply to the subject data. There is no intention to enforce any terms of use or data citation requirements through a license at this time. If the need arises, our data management plan (DMP) will be updated to reflect any changes in our approach or to comply with legal requirements.

1. State where you intend to archive your data and why you have chosen that particular option:

   Data will likely be archived within the county's databases, leveraging its robust security and efficient data management capabilities, ensuring data integrity, and streamlined access. This approach will likely be chosen for its alignment with stringent security standards and operational efficiency.

2. Provide a link to the repository;

   As data collection for this project has not yet begun, a specific repository location has not been established. Access to the project's data repository link is restricted and provided solely on an as-needed basis, in line with the Zero Trust model's stringent security protocols. The development and oversight of the data repository will heavily involve the county's Information Technology Data Management Team once data collection commences. Should it be decided that the data will be open access upon completion of the project, the Data Management Plan (DMP) will be updated accordingly with a repository link.

3. You must describe the dataset that is being archived with a minimum amount of metadata that ensures its discoverability; 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/

   All datasets pertaining to this project will be archived with a minimum amount of metadata to ensure its discoverability. This will include essential details adhering to the US Federal Government DCAT-US Metadata Schema (https://resources.data.gov/resources/dcat-us/), which provides a standardized approach to data cataloging for enhanced search and discovery.

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;

   The selected archival solution will support the creation and maintenance of persistent identifiers, such as DOIs (Digital Object Identifiers) and handles. This feature is crucial for ensuring the long-term accessibility and reference of our data. The archive will not only facilitate the generation of these identifiers but also ensure their ongoing maintenance, thereby guaranteeing the persistent and reliable linkage to our datasets over time. This commitment enhances the data's traceability, credibility, and utility in both current and future research and applications.

5. Your plan should address how your archiving and preservation choices meet these requirements.

Gwinnett County will ensure that the selected archival solution is capable of supporting the DCAT-US Metadata Schema for enhanced discoverability and facilitates the creation and maintenance of persistent identifiers like DOIs. These elements are integral to our strategy, ensuring our data is not only preserved effectively but also remains accessible and useful for long-term applications, fully aligning with the established guidelines and standards.
