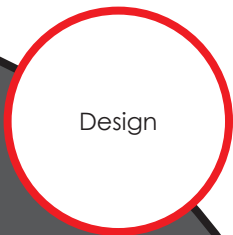




Caltrans Division of Research,  
Innovation and System Information

# Research



Design

May 2020

Project Title:  
From Complete Streets to  
Complete, Green, and Sustainable  
Streets

Task Number: 3502

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## From Complete Streets to Complete, Green, and Sustainable Streets

Produce data and analysis findings on the benefits of green streets projects for possible inclusion in Caltrans' Main Streets Guide.

### WHAT IS THE NEED?

A complete street is a transportation facility that is planned, designed, operated, and maintained to provide safe mobility for all users, including bicyclists, pedestrians, transit vehicles, truckers, and motorists, appropriate to the function and context of the facility.

Green streets are streets that incorporate different kinds of vegetation and permeable surfaces to sequester carbon, and slow, filter, and cleanse storm water run-off from impermeable surfaces. Unlike traditional streets, green streets retain runoff at the source rather than discharging runoff off-site. Green streets offer many benefits that include improving water quality, absorbing carbon, and reducing urban heat island effects.

The concepts of "Complete Streets" and "Green and Sustainable Streets" are still developing, therefore, there is a need to integrate these concepts and enhance Caltrans' understanding of how to create safer, more complete streets that are also green and sustainable.

Furthermore, there is currently no guidance available on green streets for Caltrans designers and project review. As a result, it is necessary to seek methods that will encourage the development of streets which serve all users, provide natural storm water management, provide for greater carbon sequestration, and enhance community amenity, to improve the livability and sustainability of cities and towns impacted by transportation projects.

### WHAT ARE WE DOING?

This research explores common elements of green and complete streets, focusing on the benefits of green street interventions. The



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researchers are studying green and complete street segments, identifying methods and metrics to measure their benefits, and providing data, methods and guidance for Caltrans to supplement the Caltrans "Main Street, California" and to enhance their project planning and design review processes.

The research tasks include:

- Conducting a literature review,
- Soliciting expert input from Caltrans staff on research study variables (performance metrics) and Caltrans "main street" sections to study,
- Designing the methodology for a robust study of Caltrans "main street" sections,
- Producing a final report with executive summary.

## WHAT IS OUR GOAL?

The goal is to produce specific measurable findings related to complete and green streets, by analyzing main street green infrastructure sites against control sites and online test, tools, and data sets available to develop a methodology for the research team to quantify greenhouse gas offset strategies, carbon sequestration, and storm water treatment benefits related to tree planting and green infrastructure.

Research findings may be cited in any future update to the Caltrans document: "Main Street, California."

## WHAT IS THE BENEFIT?

This study will produce a specified, operationalized, and tested methodology for evaluation of complete, green, and sustainable streets; and a data set on benefits, impacts, and effects of complete and green streets. It will directly benefit California by providing guidance in creating a methodology and metrics for assessing the potential benefits of green and complete streets, as to the extent to which they provide green storm water management, carbon sequestration and

other benefits of natural landscaping, as well as foster multimodal, multipurpose use of street right of way.

## WHAT IS THE PROGRESS TO DATE?

- Delivered final report to project panel
- Task close-out process in progress

## IMAGES



Image 1: **Green street in concept in Cleveland Ohio.** Photo Credit: Cleveland Museum of Natural History



Image 2: **Green concept in practice in Washington DC area.** Photo Credit: Metropolitan Washington Council of Governments

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