

**TRANSFORMATIVE CLIMATE COMMUNITIES**

# **Evaluation Plan:**

**A Road Map for Assessing Progress and Results  
of the Round 1 Place-based Initiatives**

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**By: UCLA Luskin Center for Innovation and  
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# Acknowledgements and Disclaimer

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## DISCLAIMER

The authors appreciate the contributions of the aforementioned agencies and individuals. This document, however, does not necessarily reflect their views. Any errors are those of the authors. To continue to be responsive to stakeholder feedback, evolving program implementation details and lessons learned, details of this plan may be updated over time.

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# 1. Introduction

The bold aim of the Transformative Climate Communities (TCC) program is apparent in its name. The program aims to leverage Greenhouse Gas Reduction Fund dollars (i.e. California Climate Investments) to transform communities that have historically experienced underinvestment. These communities face poverty and pollution, along with a need for more reliable transportation, affordable housing and access to fresh food. The first round of the TCC program will bring a wide variety of new projects and services to three sites, located in Fresno, Ontario and the Watts neighborhood of Los Angeles. No such program has ever been initiated.

The Strategic Growth Council (SGC), which administers the TCC program, contracted with the University of California, Los Angeles and University of California, Berkeley (UCLA-UCB evaluation team) to draft an evaluation plan for assessing TCC progress and outcomes at the neighborhood-level. The UCLA-UCB evaluation team created this plan as a guide for evaluating the first three TCC sites specifically as well as future TCC sites generally. This document could serve as the foundation of future evaluation plans for other TCC grant rounds. In addition, details of this plan may be updated in response to stakeholder feedback, evolving program implementation details, and lessons learned.

The goals for implementing this plan are to track, assess and communicate local TCC progress and outcomes to stakeholders while helping to improve the design and implementation of current and future TCC supported projects. These activities are expected to provide a number of benefits to external stakeholders, as described in in **Section 1.1**.

This document describes an approach and general timeline for TCC site evaluation, the foundation of which is the prioritized tracking and assessing of key indicators that could change over time due to TCC investments. The indicators contained in this evaluation plan are the result of a planning process that took into account the TCC program framework; goals defined by the grantees; the logical chain of interim outcomes that will occur from funded activities; budgetary constraints for primary data collection; and availability of secondary data sources at appropriate geographic and temporal scales. The framework that was used to develop the list of indicators, including definitions of indicator terminology, is summarized in **Section 1.2**.

The evaluation will comprise four phases: 1) baseline data collection, 2) process evaluation, 3) outcome evaluation, and 4) impact evaluation. While these phases are conceptually distinct, they will temporally overlap because some projects may finalize implementation while others are still in the process of launching. The activities that will occur during each of these evaluation phases are described in **Section 2**.

The evaluator will employ both quantitative and qualitative analysis to assess progress and results. The methods described in this document leverage cost effective secondary data and

utilize targeted primary data collection. In addition and in collaboration with the grantees, the evaluation team will utilize co-benefit methodologies developed by the California Air Resources Board (CARB) in an effort to ensure consistency in benefit reporting across California Climate Investments and to build organizational capacity among the grantees. See **Section 3** for an overview of methods and data types.

## 1.1. Value of Evaluation

The TCC program is both new and ambitious. It takes a uniquely place-based, community-driven and comprehensive approach. The program goals are reduced greenhouse gas (GHG) emissions along with an array of local economic, environmental and public health co-benefits in targeted disadvantaged communities. The approach seeks to empower those communities and could provide lessons and spillover benefits to other California communities.

Evaluation is both a process and end result to meet internal and external program needs. To address the needs of internal and external stakeholders, the evaluation team has developed an evaluation plan to accomplish the following:

- Support successful implementation: Clarify and specify the often-unidentified intermediate steps between activities and intended impacts, which will help ensure that all appropriate details are in place for successful implementation. Also, the evaluator will identify which processes are working well and which could be improved.
- Provide evidence of success: Document and assess, both quantitatively and qualitatively, project progress and outcomes in order to show a return on investment. Assess whether/to what the extent transformative, program-wide benefits were realized.
- Serve as a model for future evaluation efforts: Highlight lessons learned that could be applied to evaluating other TCC program rounds and other California Climate Investment programs.

## 1.2. Evaluation Framework and Definitions

The performance indicators identified in this plan were borne out of SGC's framework for the TCC program, as described in the [2017 Program Guidelines](#). The framework consists of five interrelated elements—objectives, goals, strategies, project types, and indicators. Program objectives reflect the TCC program provisions outlined in AB 2722. These objectives include:

1. Reductions in greenhouse gas emissions (GHG),
2. Improvements in public health and environmental benefits, and
3. Expanded economic opportunity and shared prosperity.

Each TCC proposal must define goals for each of the three program objectives that align with community needs identified through a community engagement process. The non-GHG related goals identified by the three grantees are summarized in **Table 1.1**.

**Table 1.1. Goals Defined by Round 1 TCC Grantees**

TCC Program Objective: Public Health and Environmental Benefits	TCC Program Objective: Economic Opportunity and Shared Prosperity
<b>Fresno's Defined Goals:</b>	
Reduce Emissions from Local Sources of Air Pollution	Improve Access to Training Opportunities and Career Pathways for Low-Income Residents
Improve Public Health and Other Environmental Benefits	Creation of High Quality Jobs for Low-Income Residents
Address the Improvement of Public Health Outcomes through Improving Access to Care	Business Development
<b>Ontario's Defined Goals:</b>	
Breathe healthy air, eat healthy food, and be free from chronic disease	Improve access to training opportunities and career pathways for low-income residents
Feel safe and comfortable walking and biking to transit and other neighborhood destinations	Create high quality jobs for low-income residents
Live in a home that is safe and affordable	Increase educational attainment that leads to sustainable employment and job growth within the TCC project area.
<b>Watts' Defined Goals:</b>	
Reduce local sources of air pollution	Access to Training
Improve public health outcomes and address health disparities	High quality jobs and careers
Prevent displacement and its impact on physical and mental health	Support and expand local businesses and organizations
Address and mitigate non GHG sources and exposure to pollution	Help youth identify and prepare for careers in GHG reduction fields
Create safe and secure public space	Empower and educate residents to advocate for greater equity and provision of municipal services

After identifying site-specific project goals, applicants then identified a combination of strategies known to reduce greenhouse gas emissions and promote public health, environmental and economic benefits. A list of potential strategies was provided for applicants to choose from in the TCC program guidelines. The strategies proposed by the three awarded grantees are summarized in **Table 1.2**.

**Table 1.2. Strategies Proposed by Round 1 TCC Grantees**

Proposed Strategies	Fresno	Ontario	Watts
Equitable housing and neighborhood development	X	X	X
Transit access and mobility	X	X	X
Decarbonized energy and energy efficiency		X	X
Water efficiency			
Materials management		X	X
Urban greening and green infrastructure	X	X	X
Land conservation and restoration			
Health and wellbeing	X	X	X
Workforce development and education		X	X
High-quality job creation and local economic development	X		X

Within these strategies, applicants then had to develop project types that achieve their identified goals. These project types include a mix of California Climate Investment eligible project types and unique project types that are funded through leveraged funds. Each project type may achieve multiple goals and employ multiple strategies. **Table 1.3** summarizes the mix of project types proposed by each grantee.

**Table 1.3 Project Types Proposed by Round 1 TCC Grantees**

Proposed Project Types	Fresno	Ontario	Watts
Affordable Housing and Sustainable Communities (AHSC)	X	X	X
Low Carbon Transportation (LCT)	X		X
Low Carbon Transit Operations (LCTOP)		X	X
Active Transportation Program (ATP)	X	X	X
Low Income Weatherization Program (LIWP)	X	X	X
Urban and Community Forestry (UCF)	X	X	X
Urban Greening (UG)	X		X
Organics Program (OP)		X	
Food Waste Prevention and Rescue Program (FWPRP)			X
Leveraged Project: TCC Connector	X		
Leveraged Project: Chinatown Business Improvement District	X		
Leveraged Project: Southwest Offsite Improvements	X		
Leveraged Project: Small Business Support Program		X	
Leveraged Project: Healthy Ontario Initiative		X	

In addition to the project types listed above, applicants also had to develop transformative plans that addressed three high-priority issues central to the TCC program:

1. **Displacement avoidance;**
2. **Community engagement;** and
3. **Workforce development.**

These three transformative plans collectively document the actions that grantees will take to prevent the economic displacement of existing households and small businesses within the project area, develop multi-stakeholder partnerships that will oversee TCC implementation, and improve access to training opportunities and career pathways for low-income residents of the project area.

Lastly, applicants had to identify performance indicators associated with each project type and transformative plan. The evaluator worked with the awarded grantees to refine their original indicator tracking plans to ensure that they aligned with their project goals. To do so, the evaluator developed project-specific and plan-specific logic models in collaboration with the grantees. Logic models are a helpful evaluation tool that illustrate all of the interim steps that must occur for a project or plan to realize its intended goals. These steps are defined as follows:

- **Inputs:** The investment dollars and leveraged funds that support the TCC program.
- **Activities:** The work of the TCC grantees and co-applicants.
- **Outputs:** The products and services that the TCC projects produce and deliver.
- **Short-term Outcomes:** Changes in stakeholder's knowledge, attitude, and skills.
- **Intermediate Outcomes:** Changes in stakeholder's behaviors, practices, or decisions.
- **Impacts:** Changes in environment or human condition that align with the objectives and goals of the TCC Program.

The latter four steps described above were treated as performance indicators that could be quantified and tracked for the purposes of program evaluation. [Appendix 1.1](#) visualizes how SGC's TCC program framework and the evaluator's logical modeling framework overlap.

After developing an expanded list of performance indicators, the evaluator developed a draft evaluation plan that identified a suite of methods for tracking each indicator. This draft evaluation plan was vetted with a technical advisory committee (see [Appendix 1.2](#) for committee members) and interested stakeholders who joined an informational webinar held on September 26, 2018 (see [Appendix 1.3](#) for a list of organizations that attended the webinar). The feedback provided by the technical advisory committee and webinar attendants was incorporated into the final list of indicators, where feasible.

It is important to note that accurately tracking many of the health and environmental impacts of interest to Round 1 grantees and external stakeholders is not currently feasible. Much of the secondary data on relevant health and environmental impacts are aggregated at a geographic

scale too coarse for measuring neighborhood level change, which requires data at the census-tract scale or smaller. While primary data could be collected on health impacts through community surveys, this would require additional investment in incentives for survey respondents, translation services, and staffing. Similarly, tracking local air quality would require additional investment in strategically placed air monitoring equipment and additional staffing for analyzing the collected data. However, to assess progress toward grantee's environmental and public health goals, the evaluator will track interim indicators for which the literature links to longer term health and environmental impacts. These include urban greening measures (e.g., tree count, vegetation cover, etc.), accessibility measures (e.g., reduced travel times to health service providers, fresh food retailers, and recreation centers), and other social determinants of health (e.g., housing stability, employment, etc.).

The full list of indicators is provided in in the Appendix. Program-wide indicators that will be tracked across all three sites are provided in **Appendix 2**. Site-specific indicators that are unique to Fresno, Watts, and Ontario are still under development, but are available upon request. In each case, program indicators are organized by project and plan.

### **1.3. Complementary Objectives Achieved by TCC Program**

TCC activities will achieve multiple objectives that complement the three formal objectives outlined in the TCC framework. Based on feedback that was received during the development and review of the draft evaluation plan, three additional objectives were highlighted as particularly important: (1) accessibility and mobility; (2) social equity; and (3) resiliency to the impacts of climate change.

#### **Accessibility and Mobility**

Accessibility and mobility are distinct objectives, but are discussed together in the evaluation plan because they are so interconnected. In the context of planning and transportation literature, accessibility can be understood as the ease by which potential destinations can be reached, as well as the spatial distribution and quality of those destinations (e.g., number, variety, attractiveness, etc.).<sup>1</sup> In contrast, mobility can be understood as the potential for movement, or the ability to get from one place from another.<sup>2</sup> Improvements in mobility generally enhance accessibility by making it easier to reach destinations, but it is still possible to have good mobility with poor accessibility, and vice versa. For example, sprawling neighborhoods with ample road space may have good mobility, but poor accessibility if there are few destinations of interest. In contrast, dense neighborhoods with severe congestion may have good accessibility, but poor mobility if long travel times reduce the total number of trips that can be made.

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<sup>1</sup> Handy, S.L., and Niemeier, D.A. (1997). Measuring Accessibility: An Exploration of Issues and Alternatives. *Environment and Planning A*, 29, 1175–1194. <https://doi.org/10.1068/a291175>

<sup>2</sup> Handy, S. L. (2002). *Accessibility -vs Mobility- Enhancing Strategies for Addressing Automobile Dependence in the US*. Paper presented for the European Conference of Ministers of Transport, Paris. Accessed on November 26, 2018: [http://www.des.ucdavis.edu/faculty/handy/ECMT\\_report.pdf](http://www.des.ucdavis.edu/faculty/handy/ECMT_report.pdf)

TCC activities enhance accessibility and mobility by expanding public transit service, improving bicycle and pedestrian pathways, piloting carshare and vanpool programs, and altering land use patterns that support greater density and diversity. These investments reduce the barriers that exist for project area residents to access critical goods and services, such as fresh food, medical treatment, and job opportunities, thereby further supporting the economic and health objectives of the TCC program. These investments also have the potential to augment the number of trips that TCC residents are able to complete in a day, allowing residents to spend more time exercising, exploring new job opportunities, or decompressing with family and friends, further reinforcing the transformative objectives of the TCC program.

There is a wide variety of metrics for analyzing accessibility and mobility, but there is no clear standard for holistic analysis. For example, metrics such as distance, travel time, and cost easily lend themselves to a quantitative analysis of accessibility, but these metrics do not capture the more qualitative dimensions of accessibility, particularly those that relate to the attractiveness of a particular destination (e.g., safety, cleanliness, thermal comfort, etc.). Likewise, mobility can be measured by actual movement, such as number of trips or number of miles traveled, but actual movement and potential movement are not interchangeable. For example, a person could choose to drive less for environmental reasons, but that wouldn't necessarily mean a decline in their ability to move, and thus a decline in mobility. Also, increases in actual movement can decrease the potential for movement, such as when streets are congested and less total trips can be made during the same period.

[Appendix 2.12](#) summarizes the indicators that will be tracked across all three sites to assess mobility and accessibility enhancement (MAE). The MAE indicator tracking plan is unique in that it is not connected to any single project type or transformative plan, as there are no isolated TCC funded activities that occur in the explicit name of this objective. Thus, the MAE indicator tracking plan is meant to complement the other indicator tracking plans included in **Appendix 2**. While the indicators within the MAE indicator tracking plan could easily be distributed amongst the other indicator tracking plans, the evaluator has consolidated them in the MAE plan to avoid unnecessary repetition.

## Social Equity

Social equity can be understood as the fair distribution of resources and opportunities in society that takes into account historically unjust patterns of investment and resource accumulation.<sup>3</sup> As a multidimensional aim, social equity also includes empowerment of citizens to participate meaningfully in decision-making processes.<sup>4</sup> While social equity and sustainable development

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<sup>3</sup> Pascual, U., Phelps, J., Garmendia, E., Brown, K., Corbera, E., Martin, A., ... Muradian, R. (2014). Social Equity Matters in Payments for Ecosystem Services. *BioScience*, 64(11), 1027–1036. <https://doi.org/10.1093/biosci/biu146>

<sup>4</sup> Lele, S., & Jayaraman, T. (2011). *Equity in the Context of Sustainable Development: Note for UN-GSP* (p. 13). India: Ashoka Trust for Research in Ecology and the Environment.

have historically been discussed as separate goals, the planning paradigm is shifting to view them as linked, where one aim cannot be achieved fully without the other.

TCC activities seek to further social equity by empowering community members in meaningful engagement with local government to improve environmental sustainability, community-based economic opportunities, housing stability, and other community-defined goals at the local level. The requirement for all TCC members to develop and implement a Displacement Avoidance Plan (DAP) in the first year of the program is a prime example of the ways in which the initiative is intentionally trying to maximize benefits for local residents while mitigating the potential unintended negative consequences that can come from major investments such as TCC.

Many of the indicators tracked within the evaluation plan can be used to evaluate social equity, particularly those that were identified as final impacts. These include, income, employment, housing costs, housing crowding, and housing stability, among others. Improvements in these indicators however, do not necessarily correspond to improved social equity. If, for example, employment slightly increases within the TCC sites, but a much greater increase is observed regionally, then the economic gap between TCC sites and neighboring communities has not been fully addressed. Thus, to properly assess improvements in social equity, impact indicators in TCC communities will be compared to those same indicators at the county and state level.

## **Resiliency**

The need for communities to prepare for the impacts of climate change is growing ever more clear. Literature on climate resilience has expanded significantly in recent years, and one widely used definition of resilience is “the capacity of any entity – an individual, a community, an organization, or a natural system – to prepare for disruptions, to recover from shocks and stresses, and to adapt and grow from a disruptive experience.”<sup>5</sup>

Resiliency not only refers to physical characteristics, but also social and economic characteristics, as communities’ capacity to respond to and recover from anticipated climate change impacts is intimately tied to households’ financial security; their access to safe and affordable housing; and their ability to access critical services and resources such as health care and healthy foods. In this way, efforts to build climate resilience and efforts to build social equity are intimately connected; the latter is a constitutive part of accomplishing the former. As noted in the Safeguarding California Plan, the State’s integrated climate change adaptation plan, “...strategies such as alleviating poverty, improving living conditions, increasing access to opportunity, and reducing health and social inequities will result in more climate-resilient communities.”<sup>6</sup>

TCC activities enhance resiliency by increasing access to economic opportunities and reducing inequities related to environmental pollution, public health, and mobility that make communities

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<sup>5</sup> Rodin, Judith (2014). Natural Disaster Resilience Competition Summit.

<sup>6</sup> California Natural Resources Agency (2018). *Safeguarding California Plan: 2018 Update*. (p. 93).

vulnerable to the impacts of climate change. Currently, there is no list that comprehensively details outcomes and metrics for evaluating initiatives that build resilience to climate change. However, the Safeguarding California Plan provides some conceptual metrics.<sup>7</sup> Several of these metrics will be tracked as part of the TCC evaluation, including: the number of low-income housing units receiving weatherization and energy efficiency upgrades, the number of public transit stops added, impervious surface reduction, and water use reduction, among others.

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<sup>7</sup> California Natural Resources Agency (2018). *Safeguarding California Plan: 2018 Update*. (p. 246).

## 2. Overview of Evaluation Phases

The sites selected for TCC investments are disadvantaged communities and therefore have disproportionate levels of pollution, chronic disease, and poverty. The goal of evaluation is to measure those conditions before and after the implementation of a treatment protocol, and to see if that treatment had a meaningful impact on improving baseline conditions. Since transformation happens over time, conditions should be measured at multiple points in time. The four phases below describe each of the evaluation phases included in this plan: baseline, process, outcome and impact. These phases, while conceptually distinct, will temporally overlap because TCC projects are not all on the same timeline. The AHSC projects, for example, will likely not be ready for occupancy until after the other projects have been completed.

### 2.1. Baseline Evaluation

The first step in evaluation is to establish baseline data for selected indicators at each of the three TCC sites and their respective control sites (see **Section 3.1** for more information about the control sites). Baseline data will reflect the year prior to program implementation (i.e., 2018). For many of the indicators that will be tracked vis-a-vis secondary data sources, baseline data may not be available until several years after implementation kickoff because there is a multi-year lag for data to be collected, processed, and publicly posted. For example, there is a two year lag for American Community Survey (ACS) data to be reported after being collected, such that 2018 data will not be available until 2020. After collecting baseline data, the evaluator will assess the same set of indicators annually throughout the grantees' implementation period, thereby documenting trends in how indicators change over time.

### 2.2. Process Evaluation

Process evaluation has two primary objectives. The first is to collect early data on implementation milestones which can be used to understand program progress, as well as to communicate these initial results to external stakeholders, as appropriate. Many of the data points and indicators that will be examined for this component of the process evaluation will be derived from grantee tracking and reporting efforts, as the associated data should generally be available at their disposal from program documentation (e.g., number of trees planted). The evaluator will develop streamlined reporting templates to assist the grantees in collecting and reporting on their inputs and outputs in a consistent manner across the three TCC sites. The evaluator will then assist SGC in packaging the data collected from grantees to comply with the reporting requirements set for by the California Air Resources Board (CARB).

In addition to the outputs that grantees will self-report, the evaluator will track a number of key outputs using secondary sources. This will allow the evaluator to document the spillover effects (i.e., indirect effects) that occur from the TCC investments within the treatment sites (i.e., TCC sites). Using control sites to exclude the effects of external forces, the evaluator will be able to infer how TCC investments affected outputs such as the number of trees planted, solar systems installed and housing units built, above and beyond those that TCC investments directly financed. Outputs are likely to be the most measurable changes that occur pre and post project implementation, and are critical for communicating how TCC investments have transformed community strengths and assets.

The second component of process evaluation is collecting more qualitative data about implementation processes through ongoing communication with grantees (and/or co-applicants, as necessary), SGC staff, TCC residents, and other TCC stakeholders. These communications will allow the evaluator to understand which components of the program implementation are going well and where improvements can be made. This information will be reported to SGC in an annual memo to complement the annual report of program outcomes, and can be used to prompt course corrections throughout Round 1 of the TCC program, if necessary, and to inform future rounds of the program.

This process evaluation will be conducted through a variety of means, including surveys, focus groups, and interviews (see **Appendix 5** for the various instruments that will be used to support both the process and outcome evaluation). The evaluator will facilitate focus groups and interviews, but may rely on the grantee to help disseminate user surveys during community engagement and workforce training meetings. In addition to the formal instruments that have been developed, the evaluator will develop a schedule (in consultation with the grantees) to have informal phone conversations with project leads about the hurdles they are facing in implementing their projects.

## **2.3. Outcome Evaluation**

Outcome evaluation assesses the extent to which TCC projects have demonstrated success in reaching short-term and intermediate outcomes. During outcome evaluation, the evaluator will track short-term and intermediate outcomes using primary and secondary data (see **Section 3** for more information on the different data sources that will be used during outcome evaluation). Outcome evaluation is important for monitoring whether the TCC program is on track to achieve its intended impacts, per the logic modeling process described in **Section 1.2**.

## **2.4. Impact Evaluation**

Impact evaluation traditionally measures the causal relationship between program activities and long-term impacts, thereby answering whether the program achieved its stated goals. Given the ambitious nature of the TCC program, impacts will likely not be realized for several years after

program implementation. In some cases, it could take a generation for the effects to show up in the data. Thus, at the end of the relatively short five-year evaluation period, changes in the impact indicators may be too small to be distinguishable from statistical noise (i.e., when the margins of error for pre- and post-treatment measurements overlap), thereby making it difficult to draw any statistically valid conclusions about indicator changes at the selected sites. However, the evaluator will still assess impact indicators annually for the sake of maintaining a complete time series, which will be helpful for developing trend lines over the long run that show the directionality of impact indicators.

Beyond the five-year evaluation period, the evaluator anticipates an additional evaluation period that would occur at least two years later. During this later period, it is more likely that discernible changes in impact indicators may begin to appear in secondary data. However, the evaluator's ability to conclude whether these changes are unequivocally the result of the TCC program will be limited. Establishing causal links between program interventions and outcomes is one of the major challenges in program evaluation and requires that a number of experimental design principles be in place, which are well articulated in the *Handbook for Practical Program Evaluation (2010)*.<sup>8</sup> For example, in experimental research, selection bias should be avoided, so that observed outcomes are not influenced by preexisting characteristics instead of the intervention. In the case of the TCC program, Round 1 grantees were selected based on a competitive grant process that partly awarded applicants based on the preexisting strengths of the coalitions that were in place, which could be the explanatory variable behind observed outcomes, rather than the TCC funded interventions.

Given the challenges of proving causality in the context of the TCC program, the evaluator could conduct a form of impact evaluation that analyzes observed impacts in the context of a broader body of academic literature. There is a wealth of peer-reviewed literature that documents links between many of the same inputs, activities, short-term outcomes, intermediate outcomes, and impacts that will be tracked for the TCC sites. Relationships observed in the literature for each of these variables could then be compared to relationships observed at the TCC sites and control sites. This will allow the evaluator to draw some reasonable conclusions about the effect of TCC investments on desired impacts within the context of a larger body of research. This form of impact evaluation may occur during the aforementioned additional evaluation phase.

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<sup>8</sup> Wholey, J. S., Hatry, H. P., & Newcomer, K. E. (2010). *Handbook of practical program evaluation*. San Francisco: Jossey-Bass. Accessed on November 16, 2018: <http://www.blancopeck.net/HandbookProgramEvaluation.pdf>

# 3. Methods and Data Types

This section provides an overview of the methods and types of data that will be used to evaluate the TCC Program, including secondary data, primary data, and estimated data.

## 3.1. Methods for Evaluation

### Before and After Comparison

The goal of evaluation is to measure baseline conditions before and after the implementation of a treatment protocol, and to see if that treatment had a meaningful impact on improving baseline conditions. In the case of this evaluation, the treatment of interest is a suite of public investments that reduce greenhouse gases while providing a number of environment, health, and economic co-benefits. The first round of these investments will be located in Fresno, Ontario, and Watts. Since transformation happens over time, key metrics will be measured at multiple points in time, as summarized in **Section 2**.

### The Importance of With and Without Comparisons / Control Sites

Attributing any improvements in baseline conditions to the TCC Program requires conducting a with or without comparison. This comparison communicates whether improvements at the three awarded sites were uniquely associated with the suite of TCC investments, or whether these sites would have likely realized these same benefits without any intervention. For example, an increase in housing affordability across the three sites may be the result of market conditions or other statewide policies and programs that incentivize affordable housing development. Moreover, it is important to recognize that climate change itself—the primary impetus behind this program and other California Climate Investments—could confound many of the outcomes that should be tracked for this evaluation. For example, a hypothetical decline in trees could be due to tree mortality from heat stress and prolonged drought, rather than unsuccessful tree planting efforts. Without controlling for external factors, the evaluator could widely over- or under-estimate the effect of the TCC Program.

To conduct a with or without comparison, the evaluator has selected a set of comparable control sites that did not receive TCC investment. These control sites are individual census tracts that are similar to their respective TCC sites along a number of dimensions, including socioeconomic demographics, climate, and pollution burden (as demonstrated by their CalEnviroScreen scores). See [Appendix 3.2](#) for a summary of the methods used to identify appropriate control sites and [Appendix 3.3](#) for maps and profiles of the final control sites.

Where applicable, the indicators that are measured for the awarded sites will also be measured for the control sites. Collecting before and after data for the control sites will help control for external forces such as broader economic trends that could also explain the changes in environmental, health, and economic conditions observed in the three awarded sites.

While it would be ideal to measure all indicators in both the awarded and control sites, a number of indicators do not easily lend themselves to measurement in the control sites. For, example, there is no regularly updated secondary data source on vehicle miles traveled (VMT) at the census tract scale. Thus, there is no way to accurately identify how much VMT has declined in the treatment sites relative to the control sites. Without such data, the evaluator will be unable to draw any conclusions as to whether TCC investments had an *observable* impact on VMT independent of external forces such as gas prices or other costs related to vehicle ownership.

[Appendix 3.1](#) provides a list of all of the indicators that can be measured in both treatment and control sites. For many of the indicators not on this list, the evaluator will use established methodologies to *estimate* the net benefit of TCC investments (See **Section 3.4**).

## Methodological Limitations

Even with the use of control sites, the evaluator will be limited in making valid inferences about the causality of TCC investments in affecting outcomes and impacts within TCC sites. As mentioned in **Section 2**, establishing causal links between program requires a number of experimental design principles be in place.<sup>9</sup> In the case of the TCC program, selection bias within the treatment group is one of the foremost challenges to making claims about causality. Nevertheless, comparing outcomes in TCC sites to control sites will help the evaluator make reasonable claims about whether changes in the TCC communities are likely due to TCC investments or external factors.

## Introduction to Data Types

There are three types of data relevant to TCC site evaluation; each type has particular strengths and challenges associated with its use for TCC site evaluation, as detailed below:

- **Secondary data** (analyzing data collected and maintained by a third-party): Secondary data is cost effective, and thus will be used whenever possible for TCC site evaluation. However, secondary data has geographic and temporal limitations for many indicators.
- **Observed/primary data** (conducting surveys, focus groups, informational interviews): Highest quality data at relevant local scale, but most time intensive and expensive to collect if done correctly. Thus, the contractor will use primary data collection instruments in a targeted and limited way, with primary focus on the three plans (Community Engagement, Displacement Avoidance, and Workforce Development.)

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<sup>9</sup> These principles are well documented by in the *Handbook of Practical Program Evaluation* (2010). For more information, visit: <http://www.blancopeck.net/HandbookProgramEvaluation.pdf>

- **Estimated data** (using calculator tools/methodologies provided by CARB or another credible source): Lower data precision and accuracy, but lower costs and higher feasibility for some impact indicators. The contractor will use estimated data to meet certain reporting requirements and when other data sources are not available.

The following sections describe each of these three types of data in more detail.

### 3.2. Secondary Data

The TCC program evaluation will primarily rely upon secondary data to analyze final program impacts. Utilizing publicly available secondary data can reduce evaluation costs compared to collecting primary data. In addition, secondary datasets are usually collected for the entire state of California, which allows the evaluator to compare data points from secondary data sources in both the treatment sites and the control sites. Another benefit of using secondary data is that it allows the evaluator to assess any local spillover effects (i.e., indirect effects) that occur from the TCC investments within the treatment sites. Because secondary data captures what occurs in actuality, it allows evaluators to measure both the direct and indirect effects of TCC investments. Measuring spillover effects requires comparison to a control site, so that evaluators can discern between indirect effects from the TCC investments and broader trends that are occurring regardless of those investments. For example, if there is an increase in solar PV panels within a TCC site (above and beyond the LIWP projects), then there is evidence to suggest that TCC investments induced additional solar PV installations (a homeowner is more likely to install solar if they see their neighbor doing so). Alternatively, if the same increase in solar panels is observed at a control site, then this increase is likely part of a larger trend.

The number of usable data sources at the appropriate geographic scale is limited because of the neighborhood scale of the TCC projects. **Table 3.1** below details the secondary data sources and/or databases that are proposed for the evaluation. Additional information on these data sources—including the frequency at which databases are updated, the geographic scale to which the data corresponds, and any limitations of the data—is provided in [Appendix 4.1](#).

**Table 3.1 Secondary Data Sources**

Data Source/ Database	Relevant Indicator(s)
Alternative Fuels Data Center	<ul style="list-style-type: none"> <li>- Number and location of charging stations installed</li> <li>- Number of EV charging outlets installed by level of service</li> </ul>
California Air Resources Board (CARB) Online Fleet Database	<ul style="list-style-type: none"> <li>- New private EV purchases</li> </ul>
California Housing Partnership Corporation (CHPC) Preservation Database	<ul style="list-style-type: none"> <li>- Number of affordable housing units (created through low-income housing tax credits, HUD subsidies, and/or USDA subsidies)</li> </ul>

Google Earth aerial imagery	<ul style="list-style-type: none"> <li>- Trees planted</li> <li>- Number of solar PV systems installed</li> </ul>
Local Housing Data	<ul style="list-style-type: none"> <li>- Number of affordable housing units (created by local agencies, such as public housing authorities, and/or local funding mechanisms, such as density bonus agreements)</li> </ul>
Quarterly Fuel and Energy Report (QFER) Database	<ul style="list-style-type: none"> <li>- Renewable energy generation (kWh) from biomass</li> </ul>
Statewide Integrated Traffic Records System (SWITRS)	<ul style="list-style-type: none"> <li>- Number of Pedestrian injuries and fatalities</li> <li>- Number of Bicycle injuries and fatalities</li> </ul>
Tax assessor's parcel data	<ul style="list-style-type: none"> <li>- Number of housing units</li> <li>- Net density (dwelling units per acre)</li> </ul>
US Census - American Community Survey (ACS)	<ul style="list-style-type: none"> <li>- Employment rate</li> <li>- Housing costs for renters</li> <li>- Housing costs for homeowners</li> <li>- Housing crowding</li> <li>- Housing stability</li> <li>- Median income</li> <li>- Mode shift for journey to work</li> <li>- Poverty rate</li> <li>- Vacant housing units for rent</li> <li>- Vacant housing units for sale</li> </ul>

### 3.3. Primary Data

Primary data will allow the evaluator to collect information about transformative change when it may not be visible from secondary sources. Much of the changes associated with the TCC Program over the first five years will likely be too small to show up in most standard secondary data sources. Thus, in the absence of cost effective secondary data, primary data may provide some of the most useful data collected during the entire evaluation process.

The evaluation plan includes three types of primary data collection instruments: user surveys, focus groups, and in-depth interviews. See **Appendix 5** for the questions contained in each survey instrument, focus group script, and interview script.<sup>10</sup> This section of the evaluation plan outlines the following for each of the instrument types:

1. **Purpose:** the benefits of the method
2. **Scope:** which instruments will be used for which plan/project types
3. **Limitations:** key limitations of the method

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<sup>10</sup> The user survey for the Affordable Housing and Sustainable Communities (AHSC) projects will be developed closer to the completion of the AHSC projects, so that questions can reflect important topics that emerge during the next five years of TCC program implementation.

To ensure minimal risk to participants, primary data (including data collected via interviews, focus groups and user surveys) will be stored on a password protected computer. All names and identifying characteristics will be removed from all reports or presentations, unless participants provide pre-approval. Participants will be informed of the voluntary nature of their participation, as well as their ability to withdraw from the study at any point in time.

Primary data will only be collected at the TCC sites. The evaluation team will not be able collect primary data at the control sites due to resource limitations. Thus, the information gathered through primary data collection will support process evaluation and, to some extent, outcome evaluation, but will not be used to draw any conclusions about the *net* benefits of the TCC program after controlling for external factors.

### **3.3.1. User Surveys**

#### Purpose

User surveys will support both process and outcome evaluation. For the process evaluation, surveys will ask questions related to the experiences of TCC site participants, including their involvement and perceptions of obstacles and successes of program implementation in their community. For the outcome evaluation, surveys will ask participants about change in their attitudes, skills, behavior, or conditions following a given intervention.

#### Scope

To ensure survey results are based on a reliable sample, user surveys will only be distributed for TCC activities that have a well-defined, reachable user base, and are common across all three TCC sites (i.e., workforce training, communement engagement workshops, and affordable housing projects). This will allow the evaluator to distribute a survey to the entire population of individuals engaged by a particular intervention.

Surveys will be distributed based on the implementation timeline for each project. For example, the workforce development surveys will be distributed to training program participants at the end of the training program, whereas the AHSC survey will be distributed approximately three months after residents move in. See **Table 3.2** for a summary of the various user surveys that will be distributed, their timing, target audience, and the relevant indicators that will be tracked for the purposes of outcome evaluation.

**Table 3.2 User Surveys by Project/Plan Type<sup>11,12</sup>**

<b>Project/Plan Type</b>	<b>Relevant Indicators</b>	<b>Timing of Survey Data Collection</b>	<b>Target Population<sup>13</sup></b>	<b>Total Number of Surveys</b>
Workforce Development Plan (WDP)	<ul style="list-style-type: none"> <li>- Number of job training graduates placed in related job</li> <li>- Number of job training graduates that secured a wage/salary increase</li> <li>- Number of job training graduates that secured additional employment benefits</li> </ul>	<ul style="list-style-type: none"> <li>- First workforce development training</li> <li>- Final workforce development training</li> </ul>	WDP training program participants	2 per site
Community Engagement Plan (CEP)	<ul style="list-style-type: none"> <li>- Stakeholders feel that they can affect decisions</li> <li>- Stakeholders feel that community engagement is meaningful</li> <li>- Stakeholders feel more positively about TCC projects in their community</li> <li>- Stakeholders feel more positively about their community</li> <li>- Stakeholders believe that the TCC program will positively affect their community</li> </ul>	<ul style="list-style-type: none"> <li>- First community engagement meeting</li> <li>- Final community engagement meeting</li> </ul>	Participants of community engagement process	2 per site
Affordable Housing and Sustainable Communities (AHSC)	<ul style="list-style-type: none"> <li>- VMT reduction*</li> <li>- Increased walking*</li> <li>- Increased biking*</li> <li>- Reduced housing costs*</li> <li>- Reduced energy costs*</li> <li>- Reduced transportation costs*</li> <li>- Increased household assets*</li> </ul>	<ul style="list-style-type: none"> <li>- Three months after AHSC residents move-in to their unit</li> </ul>	AHSC building residents	1 per site

\*Subject to change as the AHSC user survey gets developed during the second evaluation phase that follows the main 5 year evaluation period.

Limitations

The user surveys will seek to survey all users/recipients of a specific TCC intervention rather than a representative sample of the entire project area population. As such, the use surveys will not provide a basis for drawing conclusions about the impact of the TCC investments on the TCC communities at large. Instead, they will provide documentation of milestones associated with project rollout, and to a limited extent, the effect of TCC project investments on individuals that were *directly* served by the program.

<sup>11</sup> This table is based on currently funded project types, should any of the grantees discontinue a particular project, a user survey will not be distributed to the proposed users of that project.

<sup>12</sup> The distribution of these surveys is contingent on the completion of project activities within the evaluator's contract period.

<sup>13</sup> Surveys may be translated from English into additional languages per the needs of the grantees.

### 3.3.2. Focus Groups

#### Purpose

Focus groups are an effective way to gather information about widely held conceptions, beliefs and priorities from a target population. Unlike individual user surveys and in-depth interviews, focus groups provide opportunities to generate ideas and capture a shared understanding of a particular topic or issue.<sup>14</sup> Focus groups, however, are time intensive to facilitate and require small groups (ideally between 6 and 8 participants) to allow for productive conversations.<sup>15</sup> Given the limited sample sizes of the focus groups, the information gathered from focus groups will primarily be used to support process evaluation rather than outcome evaluation. However, the qualitative data gathered from focus groups will certainly help to interpret findings from the outcome evaluation.

The evaluation team plans to conduct focus groups in order to better understand community perceptions of displacement and the role of TCC in addressing this challenge through the creation and implementation of local Displacement Avoidance Plans (DAPs). Understanding the communities' perceptions and experiences regarding the risk of displacement, both residential and commercial, as well as the presumed role of the DAPs in mitigating this risk is critical to making sure these plans are effective in the long-term. For example, if the focus group participants in a particular community all mention lack of employment opportunities as a serious contributor to involuntary residential displacement, the grantees might consider expanding the planned workforce development initiatives to address this concern.

There is no single quantitative indicator for measuring whether displacement is occurring in TCC communities. Quantitative measures, such as housing stability and housing crowding, can help capture the potential symptoms of displacement, but hearing from key community stakeholders is critical for assessing whether displacement is the root cause behind neighborhood change. While the focus groups will not allow the evaluator to extrapolate statistically significant findings from the information gathered, they will certainly help facilitate meaningful interpretation of secondary data.

Moreover, the DAP focus groups will help gather data beyond the boundaries of the indicators that were developed during the logic modeling process. Focus groups offer the opportunity for more open-ended responses and follow-up questions compared to user surveys, allowing the research team to discover and investigate issues of importance to the community that might not otherwise have been captured. This open-endedness is particularly important for unpacking the topic of displacement, which can have varied definitions across communities.

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<sup>14</sup> For more information see Breen, R. L. (2006). A Practical Guide to Focus-Group Research. *Journal of Geography in Higher Education*, 30(3), 463–475.

<sup>15</sup> For more information see Krueger, R. (2002). *Designing and Conducting Focus Group Interviews*. University of Minnesota.

## Scope

There will be three focus groups comprised of key community representatives that have been involved in the creation and/or implementation of the DAP at each site. The three groups include: community organization representatives, local business owners, and local public officials. These target sub-populations were selected in order to collect a diverse range of perspectives on residential and commercial displacement in TCC communities. Each group will be fairly homogenous to ensure that the participants are comfortable speaking in front of one another.

The focus groups will be held at the beginning of year two at which point the DAPs, and other TCC initiatives, will have been partially implemented. This timing will allow the evaluators to collect useful information about community perceptions early on regarding both the issue of displacement and the effectiveness of the DAPs thus far. It will also allow time for meaningful adjustments to be made to ongoing programs if necessary. The timing and target audience of the DAP focus group is summarized in **Table 3.3**.

**Table 3.3. Focus Groups by Project/Plan Type<sup>16</sup>**

<b>Project/Plan Type</b>	<b>Timing/Frequency of Focus Group</b>	<b>Target Population<sup>17,18</sup></b>	<b>Total Number of Focus Groups</b>
Displacement Avoidance Plan (DAP)	- Year two	- Representatives of community based organizations (especially housing organizations) - Local business owners - Local public officials	3 per site

## Limitations

As with the user surveys, the data gathered from focus groups will reflect the perspectives of a limited and specific set of individuals, and therefore will not be used to make statistically valid inferences about the entire population of the TCC project areas. However, the insights gained through face-to-face conversations with focus group participants hold a different, but just as important significance. There are aspects of community transformation that can be only understood through stories and discussion with individuals on the frontline of gentrification, globalization, and other economic pressures that disenfranchise marginalized communities. Gathering these stories and insights will be a key goal of the focus groups.

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<sup>16</sup> The implementation of these focus groups is contingent on the completion of project activities within the evaluator's contract period.

<sup>17</sup> Final list of participants to be developed in collaboration with TCC grantees. All focus group participants will have been involved to some degree in the development or implementation of their community's DAP.

<sup>18</sup> To control for primary data collection costs, focus groups will be conducted in English.

### **3.3.3. Interviews**

#### Purpose

Along with both the user surveys and focus groups, the evaluation team will use interviews to gather insights on how TCC program roll out is affecting individuals and organizations and to identify key areas of concern and success. The key advantage of interviews over the user surveys and focus groups is the ability to ask more in-depth questions that reveal the underlying motivations for an individual's behaviors and choices. Interviews, however, are time-intensive to schedule and conduct, so the evaluator will only be able to conduct a limited number of interviews (between 6-12 per project type or plan). Given the limited sample sizes of interviews, the information gathered from interviews will primarily be used to support process evaluation rather than outcome evaluation. However, as with the focus groups, the qualitative data gathered from interviews will help to interpret findings from the outcome evaluation.

#### Scope

The evaluator will conduct interviews for the three transformative plans and the Affordable Housing and Sustainable Communities (AHSC) projects. The three transformative plans are the foundation of the TCC program, and are not required components of any other California Climate Investment. Given their centrality to the program, these plans were prioritized for evaluation through in-depth interviews with affected stakeholders. AHSC projects are also prioritized because they are essentially a microcosm of the TCC program, combining housing, transportation, and urban green investments into a single location.

Interviews about the Workforce Development Plan (WDP) and the AHSC projects will be conducted six months after participants complete their job training or move into their housing unit. This will allow the participants time to find a new job or get settled in their new housing, and to gain some informed perspective about their new situation.

Interviews about the Displacement Avoidance Plan (DAP) will occur six months after the DAP focus group. This will allow the evaluator to gain more in-depth information from DAP focus group participants, and to follow-up on recommendations from DAP focus group participants for additional stakeholders to interview.

Lastly, interviews about the Community Engagement Plan (CEP) will occur six to twelve months after implementation kickoff. The timing was chosen so that participants can reflect on their own role in, and opinions about, CEP activities before they begin to forget relevant details and impressions. This timing will also support the process evaluation, allowing for potential course corrections in community engagement efforts, if needed.

**Table 3.4. Interviews by Project/Plan Type<sup>19,20</sup>**

<b>Project/Plan Type</b>	<b>Timing/Frequency of Interviews</b>	<b>Target Population<sup>21</sup></b>	<b>Total Number of Interviews</b>
Workforce Development Plan (WDP)	Approximately six months after completion of training	WDP training program participants	6 to 12 per site
Community Engagement Plan (CEP)	Approximately six to twelve months after implementation kickoff	Participants of community engagement process	6 to 12 per site
Displacement Avoidance Plan (DAP)	Approximately six months after DAP focus group	Representatives of community organizations, particularly housing and tenant organizations	6 to 12 per site
Affordable Housing and Sustainable Communities (AHSC)	Approximately six after AHSC residents move-in	AHSC building residents	6 to 12 per site

### Limitations

To stay within budgetary limits, evaluators will only be able to interview 6 to 12 representatives per project type per site. As a result, there are many stories and perspectives that will inevitably be left out. Thus, while the interviewed subjects will provide valuable information about individual experiences, they will reflect the perspectives of a limited and specific set of individuals, and will not be used to draw any conclusions about the opinions or experiences of the entire population of the TCC project area.

## **3.4. Estimated Data**

When collecting primary or secondary data is not feasible for an indicator, the evaluator will estimate the TCC program's effect on that indicator. For many of these indicators, the California Air Resources Board (CARB) has developed tools or methodologies for estimating the net benefits of TCC program activities. For indicators that lack a tool or methodology developed by CARB, the evaluator will rely upon a tool or methodology commonly used by public agencies (e.g., iTree). Some indicators, however, lack an established tool or methodology altogether. For

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<sup>19</sup> The implementation of these interviews is contingent on the completion of project activities within the evaluator's contract period.

<sup>20</sup> This table is based on currently funded project types, should any of the grantees discontinue a particular project, interviews will not be conducted with the proposed users of that project.

<sup>21</sup> To control for primary data collection costs, interviews will be conducted in English.

those that are relatively straightforward to estimate (e.g., water cost savings), the evaluator will develop an original methodology. **Table 3.5** lists the tools and methodologies that the evaluator will use to estimate the benefits of TCC activities.

It is important to note that many of these tools can only be used to estimate a change for a particular indicator, and cannot provide before and after data. Additionally, many of these tools have built-in assumptions that may not be accurate at a local TCC site level and do not automatically adjust as external factors change in the real world (e.g., extreme weather events, economic shocks, population shifts, etc.). Thus, estimates from these tools and methodologies should be understood as the benefits that one would expect from TCC activities after holding all else equal, rather than the actual benefits that will likely be observed in the community.

**Table 3.5. Tools and Methodologies for Estimating the Benefits of TCC Activities**

<b>Estimator Tool / Methodologies</b>	<b>Relevant Indicator(s)</b>
ArcGIS network analysis <sup>22</sup>	<ul style="list-style-type: none"> <li>-Access to grocery stores that sell, healthy, fresh food</li> <li>-Access to educational services</li> <li>-Access to preventative or critical health care services</li> <li>-Access to recreational facilities</li> <li>-Access to workforce development related services</li> <li>-Access to walking / biking pathways</li> </ul>
CARB's Energy and Fuel Cost Savings Co-benefit Assessment Methodology	<ul style="list-style-type: none"> <li>-Reduced energy costs</li> </ul>
CARB's GHG Quantification Methodologies	<ul style="list-style-type: none"> <li>-GHG Emission Reductions (MTCO<sub>2</sub>E)</li> <li>-Diesel PM Reductions (lbs)</li> <li>-NO<sub>x</sub> Reductions (lbs)</li> <li>-PM 2.5 Reductions (lbs)</li> <li>-Reactive Organic Gases Reductions (lbs)</li> <li>-Fossil fuel based energy use reductions (kWh and therms)</li> <li>-Fossil fuel based transportation fuel use reductions (gallons)</li> <li>-Renewable energy generation (kWh) from solar</li> <li>-Vehicle miles traveled (VMT) reductions</li> </ul>
CARB's Travel Cost Savings Co-benefit Assessment Methodology	<ul style="list-style-type: none"> <li>-Reduced transportation costs</li> </ul>
CARB's Water-Energy Efficiency Grant Program calculator	<ul style="list-style-type: none"> <li>-Fossil fuel based energy use reduction (kWh)</li> <li>-Fossil fuel based energy use reduction (therms)</li> <li>-Water use reduction</li> </ul>

<sup>22</sup> Overview of the network analysis methodology can be found in [Appendix 4.2](#).

iTree Canopy	-Vegetation cover (trees, shrubs, grass, and other herbaceous plants)
iTree Planting	-Stormwater captured
iTree Streets	-Reduced energy consumption
UCLA / UCB Methodology (TBD) <sup>23</sup>	<p>-Installed solar photovoltaic capacity for:</p> <ul style="list-style-type: none"> <li>● Control sites and spillover effects within the TCC sites (based on PV systems identified from Google Earth)</li> </ul> <p>-Fossil fuel based transportation fuel use reductions (gallons) for:</p> <ul style="list-style-type: none"> <li>● The Affordable Housing and Sustainable Communities Program (AHSC)</li> <li>● Advanced Transportation Program (ATP)</li> <li>● Low Carbon Transit Operations Program (LCTOP)</li> <li>● Urban Greening Program (UG)</li> </ul> <p>-Fossil fuel based energy use (kWh) for</p> <ul style="list-style-type: none"> <li>● Low Carbon Transportation (LCT)</li> </ul> <p>-Reduced energy costs for:</p> <ul style="list-style-type: none"> <li>● Urban Community Forestry (UCF)</li> <li>● Urban Greening (UG)</li> </ul> <p>-Reduced water costs for:</p> <ul style="list-style-type: none"> <li>● Low-Income Weatherization Program (LIWP)</li> </ul>

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<sup>23</sup> UCLA and UCB will develop methodologies for analyzing indicators that can not be estimated from CARB's existing suite of methodologies. The final methodologies will be provided as an appendix to the annual reports that the evaluator will develop during outcome evaluation.

# Appendices

## Appendix 1. Background Materials

- 1.1. [TCC Evaluation Framework](#)
- 1.2. [Technical Advisory Committee](#)
- 1.3. [Webinar Attendees](#)

## Appendix 2. Indicators by Project Type and Transformative Plan

- 2.1. [Affordable Housing and Sustainable Communities \(AHSC\)](#)
- 2.2. [Low Carbon Transportation \(LCT\)](#)
- 2.3. [Low Carbon Transit Operations Program \(LCTOP\)](#)
- 2.4. [Active Transportation Program \(ATP\)](#)
- 2.5. [Low-Income Weatherization Program \(LIWP\)](#)
- 2.6. [Urban and Community Forestry \(UCF\)](#)
- 2.7. [Urban Greening \(UG\)](#)
- 2.8. [Food Waste Prevention and Rescue Program / Organics Program \(FWPRP/OP\)](#)
- 2.9. [Displacement Avoidance Plan \(DAP\)](#)
- 2.10. [Community Engagement Plan \(CEP\)](#)
- 2.11. [Workforce Development Plan \(WDP\)](#)
- 2.12. [Mobility and Accessibility Enhancement \(MAE\)](#)

## Appendix 3. Detailed Overview of Control Sites

- 3.1. [Controllable Indicators](#)
- 3.2. [Methods for selecting control sites](#)
- 3.3. [Maps and profiles of the control sites](#)

## Appendix 4. Detailed Documentation of Methods and Data Sources

- 4.1. [Overview of secondary data sources](#)
- 4.2. [Overview of accessibility network analysis methodology](#)

## Appendix 5. Primary Data Collection Instruments

- 5.1. [DAP Focus Group Script](#)
- 5.2. [DAP Interview Script](#)
- 5.3. [WDP User Survey - First Meeting](#)
- 5.4. [WDP User Survey - Last Meeting](#)
- 5.5. [WDP Interview Script](#)
- 5.6. [CEP User Survey](#)
- 5.7. [CEP Interview Script](#)