Coastal Conservancy

Climate Ready

Helping California communities meet the challenge of a changing climate

Guidance for Addressing Climate Change in California Coastal Conservancy Projects

April 4, 2011

Section I: Project Greenhouse Gas Emissions

Overview

The Conservancy's greenhouse gas (GHG) climate change policy and project selection criteria were adopted in response to growing concerns about the adverse impacts GHG emissions will increasingly have on coastal and marine resources, public infrastructure, and coastal communities. They reflect what the Conservancy can do to help reduce emissions from projects and to accomplish the emission reduction goals incorporated in recent state and federal laws and policies, including the following:

The State of California Global Warming Solutions Act of 2006, commonly referred to as Assembly Bill 32 (AB 32), is designed to significantly reduce GHG emissions generated by California in the short- and long-term. The heart of the bill is the requirement that statewide GHG emissions must be reduced to 1990 levels by the year 2020.

California Executive Order S-3-05 established GHG emission reduction targets for California which include reducing GHG emissions to 2000 levels by 2010, 1990 levels by 2020, and 80 percent below 1990 levels by 2050. Because this order affects only state agencies, S-3-05 will guide state agencies' efforts to control and regulate GHG emissions, including the Conservancy's efforts to reduce the GHG emissions associated with projects it funds.

On the federal level, the EPA administrator signed an ***endangerment finding for GHGs*** in December 2009, stating that GHGs threaten the public health and welfare of current and future generations.[1] At present, this finding does not impose any requirements on industry or other entities, nor do any federal actions supercede the state's current framework under

[1] The GHGs subject to the endangerment finding include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6).

AB32, but regulatory actions are being explored by EPA. On July 29, 2010 the EPA denied 10 petitions challenging its 2009 determination that climate change is real, is occurring due to emissions of greenhouse gases from human activities, and threatens human health and the environment.

Adopted Greenhouse Gas Policy and Project Selection Criteria

The Conservancy's GHG *Climate Change Policy* includes the following:

> Greenhouse Gas Emissions. Conservancy staff will work with applicants to identify, evaluate, and incorporate reasonable measures to reduce the greenhouse gas emissions of Conservancy-funded projects. The Conservancy will encourage use of best management practices and innovative designs that reduce greenhouse gas emissions and, as possible will support the development of such practices and designs through funding and other actions.

The Conservancy's *Project Selection Criteria* includes the following additional criterion:

> **Minimization of Greenhouse Gas Emissions** (project design and construction methods include measures to avoid or minimize greenhouse gas emissions to the extent feasible and consistent with the project objectives)

Purpose and Approach

The purpose of the GHG section of the *Guidance* is to identify a process, and to provide methodologies and resources to assist applicants in evaluating and identifying potential GHG emission reductions for their projects. It is also to clarify and provide guidance on the GHG requirements under the new California Environmental Quality Act ("CEQA") Guidelines (effective as of March 18, 2010)[2]. As a project funding agency, the Conservancy is often responsible for making a finding that the project meets all pertinent CEQA requirements. Potential project applicants are encouraged to contact Conservancy staff as early as possible to discuss your project design, what can be done to reduce GHG emissions, and what may be required to evaluate and reduce GHG emissions under CEQA.

Although most Conservancy-funded projects generate minimal GHG emissions or actually sequester carbon, those that involve construction, site preparation and some other activities will result in emissions. Evaluating, estimating and addressing these emissions can be

[2] Available at http://ceres.ca.gov/ceqa/docs/Adopted_and_Transmitted_Text_of_SB97_CEQA_Guidelines_Amendments.pdf.

complex and may require a tiered approach tailored to the particular circumstances of your project.

Following are typical steps that your analysis will involve when your project may result in GHG emissions. Projects that have the potential to generate significant levels of emissions (from a CEQA perspective) may need to complete all four steps, otherwise steps one and two will help you determine whether there are feasible best management practices that can be incorporated into the project, and whether detailed calculations are needed at all (for more specifics, see the GHG and CEQA section below). The four steps to an emissions analysis are described in detail beginning on page five and are as follows:

1) An initial project screening to determine the preferred approach to GHG impact analysis,
2) Identification of project reduction goals and applicability of BMPs to the project,
3) Estimating project GHG emissions, as applicable, and
4) Determination of additional mitigation and making appropriate CEQA determinations, as necessary.

Organization and Contents

The remainder of this section of the guidance contains the following additional discussion items:

- More about GHGs and CEQA,
- Suggested Steps to Evaluate and to Address GHG Emissions,
- An Overview of Carbon Sequestration and Credits.

Additional materials are provided as Appendices V.1 and V.2, which include details on selecting best management practices and methods for calculating project GHG emissions.

More about Greenhouse Gases and CEQA

Many Conservancy-funded projects are typically CEQA-exempt, and it is important to note that the new Guidelines did not amend the sections of CEQA pertaining to statutory or categorical exemptions.[3] As always, categorical exemptions do not apply in circumstances described by Guideline 15300.2 ("Exceptions") that include "particularly sensitive environments," "unusual circumstances," or cumulative impacts from "multiple instances of the same type of project in the same place." It is possible that some projects may have impacts related to GHG emissions that would trigger these exceptions and make them ineligible for exemption.

[3] 14 Cal. Code Regs. Sections 15260 – 15333.

For projects that are not exempt, Guideline 15064.4 instructs lead agencies to make a good faith effort to "describe, calculate, or estimate" a project's GHG emissions in undertaking CEQA analysis of projects. This description may be quantitative, qualitative, or performance-based, and the Conservancy encourages applicants to use any combination of these that best fits the project. Applicants should review the evaluative process detailed below, and where needed, become familiar with available modeling tools, such as URBEMIS, for quantifying project GHG emissions using the best information available (See below and Appendix V.2 for more detailed information). The Conservancy also encourages applicants to use as many best management practices as feasible to minimize project GHG emissions. The BMPs described below and highlighted in Appendix V.1 may also assist in addressing GHG emissions under CEQA. Applicants may also want to compare their project with any applicable performance standards[4] or design criteria that may assist in reducing project emissions.

The next step in the CEQA analysis is to determine whether the emissions are significant. Public agencies that do multiple CEQA reviews every year may want to consider the efficiency to be gained by adopting a greenhouse gas emission reduction plan that complies with the requirements set forth in Guideline 15183.5(b). After adopting such a plan, projects consistent with that plan can be deemed less-than-significant for GHGs without further review. Please inform your Conservancy staff contact if you will be relying on such a plan.

Otherwise, the significance of GHG emissions will need to be determined on a case-by-case basis. The Conservancy has not adopted thresholds of significance for GHG emissions. We encourage applicants to stay informed of relevant developments at California Air Resources Board (CARB) and at the regional air districts to investigate whether CEQA thresholds may cover their proposed projects. Some air districts are farther along in the process of developing applicable thresholds than others. For instance, the Bay Area Air Quality Management District ("BAAQMD") has adopted screening criteria and thresholds of significance for operational (direct and indirect emissions related to building energy consumption, transportation emissions, waste emissions, and changes in sequestration levels) GHG emissions.[5] The Mendocino County Air Quality Management District recently elected to follow the Bay Area's standards.[6] The South Coast Air Quality Management District has made progress but has not adopted thresholds applicable to other lead agencies.[7] The San Joaquin Valley Air Pollution Control District has published guidance for local agencies

[4] Performance standards are metrics developed by oversight entities that set clear expectations of minimum project performance. For example, SB 1368 set up the state's Emissions Performance Standard (EPS) that governs the emissions of power plants in the state (see http://www.energy.ca.gov/emission_standards/index.html).
[5] Available at http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Updated-CEQA-Guidelines.aspx. BAAQMD sets forth three alternative thresholds for land use development projects: (1) compliance with a qualified GHG emission reduction plan, (2) annual emissions less than 1,100 metric tons per year of CO_2 equivalent, or (3) an efficiency measure of 4.6 metric tons of CO_2 equivalent per resident or employee per year.
[6] http://www.co.mendocino.ca.us/aqmd/CEQA2010.htm.
[7] See http://www.aqmd.gov/ceqa/handbook/GHG/GHG.html.

within its jurisdiction.[8] The North Coast Unified Air Quality Management District has not adopted formal guidelines regarding significance thresholds.

If CEQA review indicates that a project will have a significant impact on greenhouse gas emissions, feasible mitigation measures and alternatives must be adopted. See new Guideline 15126.4(c) for more details on mitigation measures.

Suggested Steps to Evaluate and to Address GHG Emissions in Projects

Step 1: Initial Project Screening to Determine Preferred GHG Impact Analysis Approach

The first step in addressing project emissions is an initial screening to determine whether the project has potential GHG emissions impacts and, if applicable, to determine an overall approach to GHG emissions evaluation.

For projects that have already had a determination under CEQA by a lead agency, or that have prepared draft documentation, all CEQA documentation should be submitted for independent review by Conservancy staff. Projects that are required to develop an Environmental Impact Report under CEQA will undertake a comprehensive analysis of GHG emissions associated with project sources, and developing mitigation measures, as necessary. For other projects that are CEQA exempt, or may otherwise involve a simpler process regarding CEQA compliance, staff will still focus on helping you implement feasible and innovative reduction measures wherever possible.

Step 2: Establishing Reduction Goals and Opportunities

The new Conservancy project selection criterion on minimizing emissions is intended to support project designs that intentionally reduce emissions to the maximum extent feasible. Applicants are encouraged to identify appropriate reduction goals or opportunities for their projects. These goals, whether quantitative or qualitative, should be aligned with state and/or local GHG reduction goals, as applicable, to ensure the maximum GHG reductions associated with the project. Conservancy staff can work with you to identify goals that are most appropriate to your project's particular scope and timing.

Applicants are encouraged to use best management practices (BMPs) or industry standards such as adhering to *Leadership in Energy and Environmental Design* (*LEED)*

[8] See http://www.valleyair.org/Programs/CCAP/CCAP_idx.htm.

standards to reduce the greenhouse gas emissions from projects and to incorporate voluntary measures that reduce greenhouse gas emissions. For example, applicants for restoration projects that involve movement of sediment might maximize use of local sources of sediment to minimize the distance that sediment is transported. Projects that use heavy equipment are encouraged to identify options for equipment, technologies and/or management practices that result in lower emissions than standard diesel-powered equipment operations.

The Conservancy has begun compiling a series of BMPs that are likely to have relevance for many common project types. Organized as a checklist and attached as Appendix V.1, these BMPs will be updated regularly as measures are refined and new ones are added. Project applicants are encouraged to fill out this checklist early in discussions with Conservancy staff in order to identify which BMPs may be feasible for incorporation into a project's design. We encourage applicants to evaluate and include any and all measures feasible, and to explore innovative measures that may not be not on this list.

In order to better reflect information back to the larger restoration, access and conservation communities, the Conservancy encourages its grantees to document and communicate the effectiveness of implemented "above and beyond" measures both during and post project implementation. This dialogue between project applicants and the broader community can serve to educate others and maximize the cost-effective reductions that can be achieved throughout the wide suite of project types we undertake.

Step 3: Estimating Project GHG Emissions

As noted above, where applicable, some project applicants now need to "describe, calculate, or estimate" a project's GHG emissions for the purposes of meeting CEQA requirements. There are five basic steps for calculating your project's GHG emissions, which follow a number of generally accepted protocols for GHG assessment. These are listed below, described in more detail in this document, and in still greater detail in Appendix V.2:

3A) Determining the project's operational emissions boundaries,
3B) Categorizing project emissions as direct or indirect and identifying the scope of each emissions source,
3C) Estimating emissions,
3D) Determining baseline, project, and future emissions scenarios, and
3E) Estimating reductions from any applicable BMPs.

Step 3A. Determine the operational emissions boundaries of the project.

The "operational boundaries" of a project include all activities resulting from implementation of the project. How these boundaries are defined determines the extent

and types of emissions that you will consider in your analysis, and will affect what types of emissions estimations you undertake.

Defining your operational boundaries up front gives a first cut at "what's in" and "what's out" of your project, both geographically, temporally and in regard to types of activities, which you can refine further as you move through the steps below. It is usually easiest to start with a simple list of the particular project activities that you anticipate may result in changes in the emissions associated with your site. Emissions that would occur regardless of the project's implementation should *not* be included within your "boundary."

Typically, a project may include a variety of types of emissions, including some that come directly from fuel, water or electricity used onsite, some that represent the production and transportation of materials that are brought from elsewhere, or some that result from changes in existing land cover or land use in the project area (see further discussion of these types below). It is also important to consider where and when project emissions may occur. Project activities may occur within a distinct geographic extent of timeframe, or they may be spread out or unevenly spaced. Project activities may even result in changes in emissions elsewhere, or at a later time (such as when a new parking area, for example, induces changes in traffic emissions elsewhere, or when a change in a wetland results in increased future sequestration).

Once you have a good sense of *what* activities *resulting* from your project may occur *where* and *when*, you will be well prepared to move on to the steps below.

Step 3B. Categorize project emissions as direct or indirect and identify the scope of each emissions source.[9]

Calculating emissions and determining emissions reductions opportunities requires categorizing where emissions are generated and which emissions are under the influence of the project proponent. Categorization of emissions is done according to whether the emissions are direct or indirect and whether they are Scope 1, 2, or 3.

Direct emissions occur at the end use location. For example, emissions from natural gas combustion used for building heating are considered direct emissions.

Indirect emissions result from energy consumption at the end use location (i.e. a building) but actually occur at another location. For example, emissions from electricity consumption, which occur at the power plant and not at the location where the electricity was consumed, are considered indirect emissions.

[9] See Appendix V.2 for a complete definition of emission scopes.

Common inventory protocol[10] requires the quantification of direct emissions and encourages the quantification of indirect emissions, and the Conservancy recommends that, as feasible, project applicants estimate both direct and indirect project emissions.

In addition to categorizing by direct and indirect emissions, it is general inventory practice to identify the **scope** of each emissions source. This is also a useful practice for prioritizing emissions reductions opportunities. Various emissions types should be categorized according to one of the following:

Scope 1 (direct emissions),
Scope 2 (indirect emissions under influence of the project grantee), and
Scope 3 (other indirect emissions not under influence of the project grantee).

Inventory protocol requires the quantification of scope 1 emissions and encourages the quantification of scope 2 and scope 3 emissions.

Step 3C. Estimate emissions from the project.

To the extent feasible, project applicants are encouraged to estimate all project emissions (including indirect emissions as feasible) from all project sources to provide a more comprehensive analysis of the project's overall environmental impact. Since construction activities typically result in the most significant project emissions, we expect applicants to quantify construction emissions for projects that involve major construction activity.[11]

Overview of Emissions Estimation Methodologies

Most projects will result in emissions from multiple sources, including construction activities, building materials, transportation, and operations. Estimating emissions for each source generally requires a different methodology because of the typical data availability and protocols associated with each emissions source.[12] In some cases, there are multiple methodologies for estimating emissions for a given source; this is generally related to the variety of data sources that could be obtained for the same emissions

[10] The California Climate Action Registry (CCAR) General Reporting Protocol (GRP) and the California Air Resources Board (ARB) Local Government Operations Protocol (LGOP). See Appendix V.2 for a complete list of inventory protocols.

[11] At present, there is no bright-line distinction about what constitutes "major" construction and neither CAPCOA nor any of the air districts have identified any thresholds relative to construction GHG emissions that would clearly delineate the particular amount of construction activity that would be meaningful for quantitative assessment. Lacking any consensus on this issue, common sense should be used. Major construction activity could be defined, for example, as involving processes that are particularly energy-intensive, such as dredging, large-scale grading (>5 acres), extended construction periods (i.e. spanning multiple complete construction seasons), and a large construction equipment fleet (i.e. greater than 10 pieces of construction equipment). In certain cases, where the operational and lifecycle emissions components of construction projects may be larger in magnitude than the construction itself, such emissions should be quantified and reduced as feasible (see below and Appendix V.2 for further details on methods for calculating project emissions).

[12] In the GHG inventory context, *methodology* and *protocol* are defined as follows. A m*ethodology* is a specific technique for calculating or estimating GHG emissions from a given source. A *protocol* is a collection of principles, approaches, methodologies, and procedures for estimating and reporting GHG emissions from many sources.

source. In general, emissions estimation protocols range from providing general emissions estimates to more specific estimates. The appropriate methodology should be chosen based on the specificity of the available data, resources availability for data collection and evaluation, and reduction opportunities available for a given source.

Appendix V.2 includes a complete list of widely accepted resources, protocols, and tools recommended for calculating emissions from typical Conservancy projects. This list includes inventory protocols developed for the U.S. and California by the Environmental Protection Agency and the California Air Resources Board, as well as calculation tools such as URBEMIS. In general, project applicants should determine which methodologies or protocols are most appropriate, given project specifications and analytical resource constraints. Technical assistance on these resources can often be found on the web, from various consulting firms, your local Air District, or in some cases may be sought out in consultation with Conservancy staff.

What Emissions to Quantify

Broadly speaking, there are three major categories of emission sources: construction, lifecyle, and operational emissions. Common activities within each category are as follows:

Construction Emissions	**Lifecycle Emissions**	**Operational Emissions**
Off-road equipment	Water Supply	Building Energy
On-road equipment	Water Conveyance	Transportation
Marine vehicles	Building Materials	Changes in Land Cover

Many construction activities produce direct emissions through fossil fuel combustion, such as diesel fuel in construction equipment, gasoline in construction worker transportation, electricity to power generators, etc. Lifecycle emissions result from activities associated with the supply chain of materials, fuels and electricity consumed by, or associated with, project activities. Projects may also involve operational activities that may produce emissions through energy consumption, (i.e. transportation fuels, electricity, and natural gas), waste generation, water consumption, or other activities. For each of these general emissions categories, specific sources are listed below, along with a recommended methodology and/or protocol for quantifying emissions.

The following table presents relevant emissions sources most commonly associated with Conservancy projects and recommended quantification approaches. Emissions will often be quantified for projects with major construction or operational activity, where land-use change is significant, or in otherwise controversial projects.

Table 1. Recommended Approach for Quantifying Emissions from Conservancy Projects by Source.

Emissions Source	Recommended Quantification Approach[1]	
	Protocol	Methodology
Construction		
Off-road equipment		URBEMIS2007
On-road equipment		URBEMIS2007
Marine vehicles	ICF Port Emissions report, ARB's commercial marine vessels reports, EPA's Commercial Marine Vessels Emissions Data, or EPA's AP-42	
Electricity	CCAR GRP	CCAR public utility reports
Lifecycle Emissions		
Water Supply and Conveyance		Data from local water purveyors and/or CEC emission factors
Building Materials		ATHENA, UC Berkeley pavement lifecycle tool, or NREL database
Operational Emissions		
Building Energy	CCAR GRP	CCAR public utility reports
Transportation	CCAR GRP	URBEMIS2007
Changes in Land Cover/Vegetation	SOCCR or other applicable literature	Tree Carbon Calculator or other applicable tool; literature values from SOCCR, CEC, others

[1] See Appendix V.2 for a complete discussion of each methodology and protocol.

Construction Emissions

Construction emissions include all activities directly associated with the physical development of a project. There are two options for calculating construction emissions from projects: (1) develop a project-specific inventory of construction emissions based on vehicle and equipment activity; or (2) use models such as URBEMIS[13] or EMFAC to calculate construction emissions based on project type and size and default factors.

[13] URBEMIS is public domain software that can analyze land development and construction projects (construction, mobile- and area source emissions) that is user friendly. It requires land use information, construction and operational data and assumptions (e.g., jurisdiction, acres of land use type, year of operation, etc.). The model can provide mobile-source construction and operational carbon dioxide emissions (lb/day or tons/year). This model does not at present calculate electricity emissions.

Option 1 should be used for projects whose construction activity is expected to be considerable (either in magnitude or duration), since this option results in a more accurate and project-specific estimate of construction emissions than Option 2. However, this approach is labor intensive and requires that an inventory of construction equipment and vehicle activity, where not otherwise available, be developed for the project. Option 2 should be used for projects with minimal construction activity or projects for which it is not possible to develop detailed construction information. This approach is less resource intensive than Option 1, but relies on default model assumptions and other parameters and thus adds some uncertainty to the construction emissions estimates.

Lifecycle Emissions

Lifecycle emissions include emissions from all activities associated with the supply chain of materials, fuels and electricity consumed by, or associated with, activities of a project. For example, such activities include the mining, extraction, refining, manufacturing, and production of building materials and fuels associated with a project. In addition, water conveyance emissions can occur from the transport of water (via pipeline and pumps) to the project site.

These emissions are generally classified as Scope 3. Conservancy staff should work with project applicants to analyze the project's potential for producing considerable lifecycle emissions associated with water supply and conveyance and building materials. Project applicants may also want to quantify these emissions if BMPs or mitigation measures could mitigate the impact of these emissions.

Operational Emissions

Operational emissions include all activities resulting from implementation of the project outside of the construction and lifecycle activities described above. They include emissions related to building energy consumption, transportation, waste, and changes in land cover or vegetation that affect carbon sequestration. These emission sources are defined as follows:

Building Energy
Building energy emissions include both direct and indirect GHG emissions. Direct emissions result from on-site fuel combustion, primarily in the form of natural gas, but could also result from fossil-fuel use (i.e. for generators) and other applications. Indirect emissions result from electricity consumption and occur at the power plant serving the project location. Both direct and indirect emissions from building energy use should be quantified.

Transportation
Project transportation emissions include the direct combustion of fossil fuels from vehicle trips generated by the project. In order to estimate project operations, a traffic model, trip generation factors, and/or vehicle split assumptions must be used

to derive the number of trips, the types of vehicles (passenger vehicles or trucks), and the length of trips.

Waste Generation
Most Conservancy projects are not likely to generate enough waste to represent significant GHG emissions. For this reason, quantifying GHG emissions associated with waste generation and disposal is generally not necessary.

Changes in Land Cover/Vegetation
At times, construction of a Conservancy project may result in the removal of trees, grassland, woodlands, forests, wetlands, or other natural land covers that currently sequester carbon in plant matter and soils. A Conservancy project may also conserve, restore, and enhance habitats that sequester carbon, such as tidal wetlands or forests.

For any project that involves the loss of a significant amount of habitat or land use-based carbon sequestration, as (for example) might occur with the conversion of productive forestland, Conservancy staff can work with project applicants to identify resources for addressing changes in sequestration as a result of project implementation. The science and methodology for calculating land sequestration is still somewhat in its infancy given that natural systems are complex and that carbon sequestration is dependent on a number of site-specific factors that are not easily standardized. For these reasons, applicants should seek to understand and disclose the uncertainties in their methodology used for calculating carbon sequestration.

In some cases, projects which impact the carbon sequestration rate of land may also affect other emissions already occurring. For example, a project may include the acquisition and preservation/restoration of lands currently used for other purposes, such as agriculture. The current land use practices (such as the intensity of agricultural activities) may be changed as a result of the project. In these cases, implementing the project may alter the ongoing emissions profile of the impacted land in addition to changing the rate of sequestration. Project-related emissions should therefore include the *change* from existing conditions, and project grantees would need to estimate emissions from changed land practices.

CEQA and inventory guidance recommend quantifying operational emissions, where feasible, as operational activity data is usually readily available.

Step 3D. Determine baseline, project, and future emissions scenarios.

In order to fully understand the *net* effects of your project over its lifetime, project applicants should also identify baseline, project, and future emissions scenarios. This will allow you to understand changes in your project's emissions profile over time, and including potential sequestration benefits or the long-term effects of reduction measures

you have included. The *baseline scenario* is normally defined as the "existing conditions" at the time of project approval. The *project scenario* represents all GHG emissions associated with "full-buildout" of the project, through the time implementation is complete. The *future scenario* is the emissions profile once a project is operational. For example, a wetland restoration project will affect the GHG flux from the wetland long after full-buildout of the project. As the wetland matures and develops over time, its rate of carbon sequestration may change. Thus, the project's future scenario would represent the rate of carbon sequestration at a future date beyond the full-buildout, or *project scenario*.

Additional information and figures depicting various types of baseline, project and future scenarios can be found in Appendix V.2.

Step 3E. Estimate reductions from BMPs.

To the extent possible, applicants should attempt to incorporate reduction strategies they have already incorporated into their projects into their project GHG calculations, in order to understand how much of an overall benefit they may be providing to the project. Once any applicable BMPs are identified and incorporated into the project (Step 2), and where emissions are estimated (Step 3), applicants should estimate, where feasible, any GHG reductions expected to result from the BMPs. Appendix V.2 provides general guidance and methodology, including references and tools, for quantifying reductions from BMPs.

Reduction opportunities applicable to Conservancy projects can usually be divided into the following general categories:

1. *Pre-Project Planning and Project Criteria*: planning, analysis, and other requirements to ensure that projects minimize GHG emissions,
2. *Construction Activities and Structures*: mitigation of fuel consumption associated with off-road equipment use and reduction of construction waste; reduction opportunities in materials selection and structure design,
3. *Transportation Management*: reducing vehicle miles traveled for daily project operations,
4. *Education and Outreach*: programs and policies to incentivize behaviors and practices that result in GHG reductions,
5. *Water Conservation*: water efficiency opportunities that can result in GHG reductions.

Decisions about what GHG reduction measures will be incorporated into your project should be based on technical and financial opportunities for reducing emissions from the project. Applicants are strongly encouraged to evaluate the effectiveness of BMPs during and post-project, to identify any implementation challenges and assess the relative success of measures in meeting reduction targets.

Table 2 presents relevant emissions sources for most Conservancy project types, along with a recommended methodology and/or protocol for quantifying GHG reductions.

Table 2. Recommended Approaches for Quantifying GHG Reductions from BMPs.

Emissions Source	Recommended GHG Reduction Quantification Approach[1]	
	Protocol	Methodology
Construction		
Off-road equipment	CAPCOA *CEQA and Climate Change*, SJVAPCD *Addressing GHG Emissions Under CEQA*, or SMAQMD *Recommended Guidance for Land Use Emission Reductions* , BAAQMD, *CEQA Guidelines*	URBEMIS2007
On-road equipment		URBEMIS2007
Marine vehicles		OFFROAD2007 EMFAC2007
Electricity	Climate Action Registry, General Reporting Protocol	Climate Action Registry, General Reporting Protocol
Lifecycle Emissions		
Water Supply and Conveyance	CEC Water	Data from local water purveyors or CEC emission factors
Building Materials	No government protocols to date	ATHENA, UC Berkeley pavement lifecycle tool, or NREL database
Operational Emissions		
Building Energy	CAPCOA *CEQA and Climate Change*, SJVAPCD *Addressing GHG Emissions Under CEQA*, or SMAQMD *Recommended Guidance for Land Use Emission Reductions*, Climate Action Registry, General Reporting Protocol,	URBEMIS2007 OFFROAD2007 EMFAC2007
Transportation		
Changes in Land Cover/Vegetation	IPCC protocols	Tree Carbon Calculator or other applicable tool, SOCCR, literature values

[1] See Appendix V.2 for a complete discussion of each methodology and protocol.

Step 4: Determination of Additional Mitigation, as necessary, and Making Appropriate CEQA Determinations

If project emissions exceed an appropriate GHG threshold *after* implementation of existing BMPs and other measures, lead agency staff and/or project applicants will typically need to work to identify and implement additional mitigation measures.

Additional mitigation opportunities might include strengthening or expanding the BMPs chosen for the project. Once the additional mitigation measures are identified for the project, applicants should work to quantify the additional GHG reductions associated with each measure, as feasible, to show compliance with the applicable threshold. Quantification techniques for mitigation measures are generally similar to those for BMPs, which are shown in Table 2 above and described in Appendix V.2.

A final step in the CEQA process will be to determine the significance of the project's GHG impacts on the environment. Conservancy staff reports prepared for project evalutation will summarize the extent to which a project incorporates emissions reductions in meeting CEQA requirements. For projects where mitigation requirements are necessary to support the recommended CEQA findings, post-project assessment and reporting will typically be required to document regulatory compliance. Conservancy staff will work with the lead agency and project applicants to carefully weigh all available information and analysis and consider all substantial evidence before recommending CEQA findings.

Overview of Carbon Sequestration and Carbon Credits

Carbon markets, both regulated cap and trade and voluntary offset markets, are expected to increase dramatically with the implementation of the California Global Warming Solutions Act (AB 32) and other initiatives. The Conservancy recognizes the potential value of carbon offset projects that reduce, avoid or sequester the greenhouse gas emissions from a specific project or activity. Carbon markets have potential to support conservation projects that are greatly needed for climate change mitigation and adaptation, while also providing co-benefits such as supporting biodiversity and providing natural lands for recreation and scenic values. There is currently uncertainty about how funding from carbon offsets/mitigation related to greenhouse gas emissions can be combined with the funding from state agencies such as the Conservancy. Please contact a Conservancy staff member to discuss the status of this issue.

If an applicant or recipient of a Conservancy grant intends to seek funding for use of a project as a carbon offset project to mitigate the emission of greenhouse gases, the applicant or grantee must inform the Conservancy. If the Conservancy has provided funding to protect or improve a property, the Conservancy will need to provide authorization for receipt of carbon credits or other mitigation funds related to that property. It is important to consider up front how state funds can be combined with carbon credits or other mitigation funds, so as to avoid violating state laws, policies or principles related to the Conservancy's investment in a project.